

A systematic review of
communication between
patients and health care
professionals about
medicine-taking and
prescribing

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Executive summary

1. Introduction

The aim of this review was to identify and summarise research on two-way communication between patients and health care professionals about medicines in order to inform the model of concordance. Concordance is defined as a new approach to the process of successful prescribing and medicine-taking which is based on partnership between patients and health professionals. In order for concordance to occur, it is necessary that patients and professionals have two-way discussions about medicines in which they exchange information and views about medicines. Therefore, by examining the findings of research about two-way communication about medicines, we hope to provide a greater understanding of the possibility of concordance being implemented in practice.

In this report we describe the findings of the research on patients' and health care professionals' communication behaviours, the factors affecting these behaviours, their impact and patients' and professionals' views about these behaviours. We then discuss the implications of these findings for the model of concordance. In particular we aimed to:

- * assess the extent to which elements of concordance have been identified in practice,
- * assess the impact of a move towards concordance,
- * identify the factors affecting concordance,
- * identify the barriers to concordance,
- * assess the efficacy of interventions designed to improve aspects of two-way communication about medicines,
- * identify gaps in the existing evidence base and areas for future research.

2. Methods

The review focused on studies published between 1991 and 2000. In order to provide a comprehensive overview of the research in this area, qualitative and quantitative research was included and studies were not excluded on the basis of the designs or methods they used. We included articles written in any language. In order to identify relevant research, six electronic databases were systematically searched. Other sources included handsearches of relevant journals, scanning citations and previous systematic reviews. The selection of relevant studies was achieved in two stages. In the first stage, 11801 abstracts were assessed independently by two reviewers, which led to 470 full articles being retrieved. In the second stage, these articles were reviewed by one reviewer and checked by a second. A total of 124 English and 10 non-English articles met the inclusion criteria. Data extraction was conducted by one of four reviewers and the findings of the studies were coded and categorised. The studies were divided into two groups: intervention studies and non-intervention studies. The methodological quality of the intervention studies was assessed.

3. Results of non-intervention studies

The review identified 116 articles describing non-intervention studies. Sixty-five of these articles described research conducted in Europe, whilst over a third of studies were carried out in North America. Only eight studies took place in Africa, Asia or Australasia. More than two-thirds of the studies were based on quantitative

methodologies. Most of the research examined communication between patients and doctors, although there were also many studies of patient-pharmacist interactions and a few on nurses' communication. The articles included in the review focused on communication about a wide range of medicines. The results have been presented under three main headings: patients' communication about medicines, health-care professionals' communication about medicines and both patients' and health care professionals' communication about medicines.

3.1 PATIENTS' COMMUNICATION ABOUT MEDICINES

3.1.1 Patients' views about the value of discussing medicines with health care professionals

There is limited evidence that patients consider talking to doctors about medicines to be very important. Patients stated that they felt it was essential that doctors discuss the possible side effects of their medicines with them. However, the evidence is mixed on the question of whether patients want to discuss their medicines with pharmacists.

3.1.2 Patients' views about whether they have sufficient time and opportunities to discuss medicines

Some quantitative research indicated that patients felt that they had enough time to discuss their medicines with health professionals. However, qualitative studies showed that some patients felt they had not had the opportunity to discuss particular aspects of medicine-taking, such as wanting to stop using their medicines or their concerns about the negative effects of drugs.

3.1.3 Patients' preferences about discussing medicines with particular types of health care professionals

There is limited evidence that female patients may prefer to discuss medicines with female health professionals and that patients may be more likely to want to talk about their medicines with professionals whom they have consulted with before. There is also limited evidence that patients would much prefer to discuss their medicines with doctors rather than pharmacists.

3.1.4 Patients' involvement in discussions about medicines

Patients were often passive during discussions about medicines with doctors and rarely initiated medication topics. Doctors' behaviour during consultations either encouraged or acted as a barrier to patient involvement. Patients differed in the extent to which they wanted to be involved in decision-making about medicines. However, some qualitative research suggested that doctors did want patients to be involved in discussions about medicines. White patients were more likely to be involved in discussions, and patient participation and doctors' involvement of patients also varied in different countries. Patients who participated more in discussions were more likely to gain a better understanding of their treatment and be more satisfied with the visit and with any treatment decisions that were made.

3.1.5 How patients refer to medicines

There were mixed findings on how patients referred to medicines. There is limited evidence that patients may feel more comfortable about using medical terms if they have more experience and knowledge of their condition and treatment, and if they are discussing their medicines with pharmacists rather than doctors.

3.1.6 Patients asking questions about medicines

Research showed that about half of patients using long-term medicines asked doctors questions. The most common questions patients asked doctors about prescription medicines were about quantity or supply, the medicines they were taking, the condition their medicines were for, dosage, purpose, interval, name of the medicine, barriers and side effects. However, doctors did not always answer patients' questions. Patients were more likely to ask questions if they consulted with a younger doctor or if they were starting a new medicine. Although asking more questions was associated with patients gaining a better understanding of their medication and with doctors viewing patients as being more assertive and interested, it was also related to patients being less satisfied with their doctors' explanation and having more regret about the treatment decision that was made.

In relation to patients' communication with pharmacists, the findings suggested that a minority of patients asked pharmacists questions about their medicines. The most common questions patients asked pharmacists were about side effects, cheaper alternatives and interactions. The reasons patients gave for not asking pharmacists questions included fear or embarrassment about asking, lack of awareness of which questions they should/could ask, the pharmacist being too busy, trust in or loyalty to their doctor, the patient being too busy and not wanting to bother the pharmacist. Patients were more likely to ask pharmacists questions about their prescription medicines when they had similar attitudes to their pharmacists about their communication roles. Patients who asked pharmacists more questions received more information about their medicines.

There is limited evidence that when nurses were administering injections patients asked many questions about the side effects and efficacy of their treatment. In relation to post-operative analgesia, qualitative research suggested that some patients felt that nurses were too busy to answer their questions about the medication and some patients were concerned about being troublesome.

3.1.7 Patients requesting medicines

During their consultations with doctors, most patients did not ask for medications or express a preference to have or not have a medicine. There is limited evidence that on some occasions when patients did make medication requests, these were ignored or dismissed by doctors. Doctors reported some instances when they felt that patients' requests were inappropriate or unnecessary and a minority stated that they found patients' requests irritating. There is limited evidence that patients' requests for antibiotics were associated with doctors feeling their prescribing decision was influenced by patient pressure. Research also showed that one reason why some patients did not ask for antibiotics was because they felt it was their doctor's responsibility to decide about treatment. Patients were more likely to request medicines from doctors if they had urban residences, had higher incomes, had used the medicine before or had more symptoms or poorer health.

3.1.8 Patients expressing their concerns about medicines

A small proportion of patients using long-term medicines expressed concerns about their medicines to their doctor. The concerns they expressed included side effects, the medicine not working, not liking the medicine, cost, preferring brand medicines to

generic medicines, rumours they had heard and the possibility of alternative medicines. Analysis of audiotaped consultations showed that less than a third of patients reported side effects to their doctors, although studies based on patient reports indicated that a greater proportion reported their side effects to doctors or other health professionals. Numerous studies showed that some patients had medication concerns or side effects that they did not tell their doctors about. Patients were more likely to express a medication concern if they were asked more medication questions by their doctor, rated their health more poorly, consulted with younger doctors or were using more medications. When patients expressed their concerns, doctors commonly responded by providing education or changing the medication dose or regimen. However, many studies showed that doctors sometimes ignored patients' concerns.

3.1.9 Patients talking about their use of medicines and adherence

Qualitative research showed that patients did not always tell doctors about their use of OTC medicines. Furthermore, a number of studies showed that some patients altered their doses and stopped taking medicines without consulting a professional. The most commonly reported adherence problem was deliberately not taking a medicine as directed. When patients told their doctor about an adherence problem, doctors commonly responded by changing the medication regime, although in many cases adherence problems raised by the patient were ignored.

3.1.10 Patients repeating information

During pharmacist-patient interactions, patients, as well as pharmacists, sometimes repeated medicine information that was provided by the pharmacist.

3.1.11 Patients complaining about the information provided by health care professionals

There was one case described in the research when a patient complained to a pharmacist about the information the pharmacist had given him during the interaction.

3.2 HEALTH CARE PROFESSIONALS' COMMUNICATION ABOUT MEDICINES

3.2.1 Health care professionals offering patients advice/counselling about medicines

In most cases pharmacists did not offer counselling about prescription or OTC medicines. Although the majority of patients accepted counselling about prescription medicines when it was offered, most patients said they would prefer to ask for advice about OTC medicines. According to observations of interactions and pharmacists' reports, a small minority of patients appeared to resent counselling about prescription and OTC medicines. The main reason patients gave for refusing counselling by pharmacists was because they thought that their doctor had already given them sufficient information.

3.2.2 Health care professionals' involvement in discussions about medicines and encouragement of patients' involvement

Doctors and pharmacists tended to initiate discussions with patients about medicines and to dominate these discussions. Doctors were more likely to initiate prescribing than patients when the patients had a lower income or had made fewer previous visits. Pharmacists were more likely to use a participatory approach with older patients and with those who were collecting a repeat prescription rather than a new one.

3.2.3 How health care professionals refer to medicines

Qualitative analysis of consultations indicated that doctors did not always tell their patients the name of the medicine they were being prescribed or provide patients with adequate descriptions of how new medicines differed from previously prescribed ones. There is evidence that pharmacists also rarely referred to the name of the medication in interactions with patients.

3.2.4 Health care professionals assessing patients' understanding about medicines

There is some evidence that doctors and pharmacists did not usually check their patients' understanding of their medicines.

3.2.5 Health care professionals asking questions about medicines

Doctors asked most of their patients one or more questions about their medicines. The most common questions doctors asked were about what medicines the patient was taking, how the medicine was affecting the patient's condition, quantity or supply, interval, and dosage. There is some evidence that patients felt that their doctor asked about their concerns and views about their medicines, although videotaped GP consultations showed that this was not the case in the majority of interactions. Doctors were more likely to ask medication questions when patients were not white, had a lower income and were taking more medicines. There was also evidence that patients were more likely to be adherent with antidepressant medication when their doctor asked about their prior use of similar medication, although this relationship appeared to be only short-term.

The research examining pharmacists' communication indicated that they only asked a minority of patients questions about their prescriptions. The most common questions pharmacists asked were about the information the patient had been given by their doctor, if the patient had any questions, monitoring the patient's medication use and the patient's knowledge of his/her medication. Most patients did not expect to be questioned when buying an OTC medicine, although the majority considered it to be important for pharmacy staff to ask patients about the condition they were buying the medicine for, other medications they were using and whom the medicine was for. Patients who reported that they were asked more questions by their pharmacist were more likely to feel that their pharmacist could help manage their treatment and prevent problems.

3.2.6 Health care professionals encouraging patients to ask questions about medicines

There were mixed findings about whether or not patients felt their doctor encouraged them to ask questions. When doctors did ask patients if they had questions, patients rarely used this opportunity. Pharmacists only asked a small minority of patients if they had any questions about their medicines, yet two thirds of patients said they would like pharmacists to encourage them to ask questions and express their concerns. There is limited evidence that patients felt that nurses encouraged them to ask questions about their treatment and that nurses' encouragement of questions was associated with greater adherence.

3.2.7 Health care professionals discussing patients' concerns about and experiences of medicines

There were mixed findings about the extent to which patients felt their doctor talked to them about their medicine concerns and gave them enough time to do so. When doctors did encourage patients to express their medication problems, listened to these problems and helped solve them this resulted in patients being more satisfied with their medication and being more adherent.

3.2.8 Health care professionals involving patients in decision-making about medicines

Quantitative research indicated that doctors felt it was very important to involve patients in deciding upon a treatment plan. Doctors were less likely to involve patients in decision-making when the patients preferred to rely on their doctors to make decisions for them.

3.2.9 Health care professionals expressing their views about medicines and trying to change patients' views

Some doctors reported that they felt that trying to change patients' views was both unrewarding and time-consuming, although when their attempts were successful they found it highly satisfying. Interviews with patients about post-operative analgesia also indicated that some nurses did not attempt to change the views which patients had about pain or analgesia that prevented them from asking for it.

3.2.10 Health care professionals discussing patients' ability to adhere to a treatment plan

There is some evidence that GPs only discussed patients' ability to follow their treatment plan in a very small number of cases, although doctors estimated that they did this in almost half of their consultations.

3.2.11 Health care professionals offering patients medicines or advising them to use or not use medicines

Research on HRT indicated that a large minority of women had been offered HRT by a doctor and that in some cases these offers occurred when the woman was consulting for reasons other than the menopause. Doctors were more likely to offer HRT to women who were younger, had a longer education and lived in urban areas.

3.2.12 Health care professionals bargaining with medicines

Some diabetes patients claimed that doctors used insulin as a threat for non-compliance with diet or exercise regimens, which reinforced the patients' own concerns about this medication.

3.2.13 Health care professionals repeating information about medicines, expressing uncertainty about information or emphasising particular facts

Some women reported that doctors appeared to be uncertain about the pros and cons of HRT and how long it should be used for, which women found unhelpful. However, there is limited evidence that pharmacists rarely appeared to be uncertain about the advice they gave, and that they repeated information about medicines to patients.

3.2.14 Health care professionals interrupting or rushing patients

There is limited evidence that pharmacists and doctors rarely interrupted or rushed patients during discussions about medicines.

3.2.15 Health care professionals expressing affect

Doctors appeared to express little affect (e.g. empathy, reassurance or criticism) in their consultations. Patients who consulted with doctors who expressed more affect felt less regret about the treatment choice, however they were also more likely to have a poorer understanding of their treatment.

3.2.16 Health care professionals' views about discussing the cost of medicines

Some GPs reported that they felt embarrassed about discussing changing repeat prescriptions to generic alternatives in order to reduce prescribing costs.

3.3 BOTH PATIENTS' AND HEALTH CARE PROFESSIONALS' COMMUNICATION ABOUT MEDICINES

3.3.1 Patients and health care professionals discussing medicines

A significant minority of patients using long-term medicines did not regularly discuss them with a doctor. In doctor-patient consultations, the benefits of medicines were discussed more often than their side effects, precautions or risks despite the majority of patients considering discussion of these topics to be essential. The extent to which patients and doctors talked about medicines depended upon the type of medicine being discussed and varied in different countries.

Pharmacists and patients made verbal contact in over two-thirds of prescription issues, although there was ambiguity concerning how long these discussions lasted. Patients and pharmacists were more likely to discuss a prescription if the pharmacist had a positive attitude towards communicating with patients and was less busy. The length of time patients and pharmacists discussed medicines for was associated with patients' attitude towards communicating with pharmacists, the pharmacist's use of a participatory approach and the communication being perceived as important by the pharmacist or patient.

3.3.2 Patients discussing medicines with different types of health care professionals

There was some evidence that patients discussed their prescription medicines and their concerns about them more often with doctors than with other health care professionals, yet they discussed their OTC medicines more frequently with pharmacists than with doctors. Patients discussed prescription medicines more often with pharmacy managers and owners than with locums, and with pharmacists more often than with pharmacy assistants.

3.3.3 Shared decision-making about medicines

Research indicated that doctors and patients did not share decision-making about medicines and that doctors did not usually involve patients in choosing treatments. Moreover, some patients reported that shared decision-making was not feasible because of doctors' attitudes towards it. However, doctors sometimes took account of patients' experiences when making decisions to change treatment. There is also some evidence that community mental health nurses took account of patients' beliefs and motivations about their medicines when making decisions about treatment. Research

on HRT showed that a greater proportion of women who felt that they chose the treatment together with their doctor were satisfied with their treatment than of those who reported that they asked their doctor for HRT or that their doctor suggested it.

3.3.4 Factors causing communication problems

There is evidence that communication problems were sometimes caused by patients' poor hearing.

4. Results of the intervention studies

Eighteen of the papers evaluated 16 separate interventions involving two-way communication between patients and health care professionals about medicines. The systematic review includes those studies which involved two-way communication about medicines as part of an intervention and those which assessed the impact of interventions on two-way communication about medicines.

Fifteen of the intervention studies were quantitative and one used a combination of quantitative and qualitative methods. All of the studies were conducted in North America or Europe. Five of the studies involved communication between doctors and patients, six focussed on patients' communication with pharmacists and the remaining five interventions involved nurses or medical assistants.

The intervention studies fulfilled an average of 6 of the 8 methodological quality criteria, with the most common shortcomings being not using random allocation and not providing pre-intervention data. However, the studies had other methodological limitations not explicitly assessed by the criteria, such as not having a comparison group, having the same health professionals involved in the care of patients in more than one group, and small sample sizes.

4.1 INTERVENTIONS INVOLVING COMMUNICATION BETWEEN PATIENTS AND DOCTORS

Four studies indicated that interventions comprising of training seminars for doctors resulted in the doctors being more likely to reiterate patients' complaints, ask their patients to repeat their medication instructions, address their patients' fears about their new medication, and make it easier for patients to understand medicine instructions. In addition, the patients who the doctors consulted after the seminars gained a better understanding of their medicine. A communication skills programme for psychiatric inpatients also led to improvements in patients' medication knowledge and in their communication with psychiatrists. Patients who completed this programme were judged to be more likely to be compliant compared to the control patients. The only intervention which involved two-way communication between patients and doctors about medicines, in which doctors discussed fact sheets with patients, led to significantly greater increases in patients' medication knowledge than when patients were simply given the fact sheets.

4.2 INTERVENTIONS INVOLVING COMMUNICATION BETWEEN PATIENTS AND PHARMACISTS

One study found that an advertising campaign designed to encourage patients to ask pharmacists questions about their medicines led to improvements in pharmacists' communication but did not affect patients' question asking. However, another intervention comprising of a written message asking patients to write down their

questions did lead to them asking more questions, although it did not affect compliance. Interestingly, both interventions had no significant impact on the amount of information provided to patients. Four other interventions comprising of new or modified pharmacy services which involved two-way communication about medicines resulted in improvements in patients' health outcomes, adherence, satisfaction with services and medication knowledge and decreases in the number of medicines patients were prescribed, their medication problems and the cost of their medication.

4.3 INTERVENTIONS INVOLVING COMMUNICATION BETWEEN PATIENTS AND NURSES OR MEDICAL ASSISTANTS

A telephone service involving two-way communication about medicines which was provided by a medical assistant to patients at a lipid clinic had no significant impact on adherence, although it did appear to encourage patients to contact a professional to report adverse effects of their medication. A second telephone service provided by a nurse to chemotherapy patients was rated by patients as being helpful. Another intervention involving face-to-face communication with nurses were found to result in greater adherence.

5. Discussion

Most of the studies included in the review examined whether or not the basic building blocks for concordance, such as patients and professionals asking each other questions, were happening in practice. However, there was limited research on issues such as the exchange of views about medicines or health professionals encouraging patients to participate in decision-making, which are essential elements of a concordant interaction. Consequently it is difficult to draw conclusions about the extent to which concordance is actually happening.

Much of the research indicated that communication between patients and professionals retains the asymmetry typical of paternalistic health care professional-patient interactions. In addition, a number of potential barriers to concordance were identified which were associated with health care professionals not facilitating patient participation or with patients feeling unable to participate in the consultation or that it was not appropriate for them to do so. Therefore, the evidence examined in this review suggests it is unlikely that concordance is taking place. On a positive note though, there was evidence of the possibility of a move towards concordance if, for example, patients become more confident in their knowledge of medicines or if doctors encourage patient participation and listen attentively to patients' views and concerns. The research also suggested that such a move may lead to improved outcomes, including enhanced adherence and satisfaction.

As the research included in the review was conducted in a range of countries and settings and involved various methodologies it was difficult to make overarching generalisations. Further research is needed to look at whether or not an exchange of views is taking place in consultations, whether patients and professionals form partnerships, and the impact of concordance on issues such as the relationship between health care practitioners and patients, patients' further use of services, and adherence.

1. Introduction

In 1997 the Royal Pharmaceutical Society of Great Britain published the influential report “From compliance to concordance: achieving shared goals in medicine taking”. The report was the culmination of two years’ work carried out by a multidisciplinary working group whose original brief was to examine the problem of patients’ non-compliance with prescribed medication. The working group came to the conclusion that the model of compliance was unhelpful as it carried with it the assumption that patients should merely carry out doctors’ orders, and gave no value to patients’ own ideas or experiences. The report introduced the concept of concordance, which was described as follows:

“The clinical encounter is concerned with two sets of contrasted but equally cogent health beliefs – that of the patient and that of the doctor. The task of the patient is to convey her or his health beliefs to the doctor; and of the doctor, to enable this to happen. The task of the doctor or other prescriber is to convey his or her (professionally informed) health beliefs to the patient; and of the patient, to entertain these. The intention is to assist the patient to make as informed a choice as possible about the diagnosis and treatment, about benefit and risk and to take full part in a therapeutic alliance. Although reciprocal, this is an alliance in which the most important determinations are agreed to be those that are made by the patient.”

The salient points in this description are the value placed on patients’ beliefs, and the need for open discussion about any differences between patients’ and doctors’ beliefs. The emphasis of concordance is on communication about medicines. While the concept of compliance focuses on the behaviour of individual patients, the concept of concordance focuses on the relationships between patients and providers. In writing this review, we have used the terms “compliance” and “adherence” synonymously.

During the course of its work, the working group commissioned some of its members to carry out a literature review of compliance (McGavock, Britten and Weinman, 1996). This review was carried out in response to the original brief, the problem of non-compliance. A more recent review of compliance has been carried out at the London School of Pharmacy (Carter, Taylor, and Levenson, 2003). Neither of these reviews addressed the question of concordance, for which a fresh literature review is required. The systematic review reported in this document aims to review the literature relevant to concordance, with the following specific objectives:

- * To identify studies which are primarily concerned with person to person communication about prescribing and/or medicine taking,
- * To identify any interventions designed to improve communication about prescribing and/or medicine taking, to describe the outcome measures used to assess these interventions and to summarise their effectiveness.

Thus the focus of this review is not compliance, nor is it about communication that is primarily one-way, such as advice giving by professionals to patients or other client groups. In keeping with the definition of concordance, this review is concerned with those studies in which the patient’s point of view is investigated alongside the professional’s point of view. In order for concordance to occur, it is necessary that patients and professionals have two-way discussions about medicines in which they

exchange information and views about medicines. By examining the findings of research about two-way communication about medicines, we hope to provide a greater understanding of the possibility of concordance being implemented in practice. Given the recency of the concordance model, none of the papers reviewed used this term.

This review is likely to be of value to researchers, educators and policy makers who are interested in medicines partnership and in patient and public involvement in health care. We hope that this review will be a useful resource for these people and any others working in this area.

The aim of this systematic review is to map out what is already known about patient-provider communication about medicines, in order to achieve the following:

- * assess the extent to which elements of concordance have been identified in practice,
- * assess the impact of a move towards concordance,
- * identify the factors affecting concordance,
- * identify the barriers to concordance,
- * assess the efficacy of interventions designed to improve aspects of two-way communication about medicines,
- * identify gaps in the existing evidence base and areas for future research.

Thus the scope of this systematic review is wider than systematic reviews of the effectiveness of particular treatments or interventions, and includes a range of qualitative and quantitative, observational and experimental research. The reason for including a diversity of study designs is that there are few randomised controlled trials in this field, and we wanted to provide a comprehensive overview of the research to date. Papers have been classified as reporting intervention or non-intervention studies, and the former have been divided into process, outcome, or both process and outcome studies. We have included papers written in languages other than English, with the result that 8 of the 116 non-intervention studies, and 2 of the 18 intervention studies included in the review are non-English language papers. Since most of the included studies do not report the results of randomised controlled trials, we have assessed the methodological quality of the intervention studies using criteria developed by the EPPI-Centre at the Institute of Education, University of London (e.g. Oakley et al 1996; Peersman et al, 1996; Shepherd et al 2001). We did not have the resources to assess the quality of the non-intervention studies.

In reporting the results of the review, we have used a narrative approach. The concept of concordance has been broken down into its constituent elements and organised under three main headings: patients' communication about medicines, health-care professionals' communication about medicines and both patients' and health care professionals' communication about medicines. The main findings are summarised under these headings in the Executive Summary.

2. Methods

2.1 SELECTION CRITERIA

The aim of this systematic review was to identify all studies published between 1991 and 2000 that investigated communication between patients/consumers and health care practitioners about medicines or prescribing. Studies that involved either patients or the general public and any health care professional were included, as were those that were conducted in any health care setting and in any country. Both qualitative and quantitative studies were considered to be of interest and studies were not excluded on the basis of the designs or methods used. Furthermore, we included articles written in any language.

Each study that was included in the review had to fit at least one of the following inclusion criteria:

1. The study investigated two-way person to person communication between health care professionals and patients/consumers about medicine-taking or prescribing. The study may have examined the communication directly (e.g. by audiotaping an interaction) or investigated it as perceived by the health care professional and/or the patient/consumer.
2. The study evaluated an intervention involving two-way person to person communication about medicine-taking or prescribing.
3. The study evaluated an intervention that aimed to improve two-way person to person communication about medicine-taking or prescribing.

In addition, a number of exclusion criteria were applied to all the articles considered for the review. Articles were excluded if:

1. they did not assess person to person communication between patients/consumers and health care professionals

e.g. studies about interprofessional communication, whether or not clinicians followed treatment guidelines or doctors' attitudes towards patients' or consumers' drug taking in which the patient or consumer was not directly referred to, and studies in which the only reference to communication between patients/consumers and health care professionals was speculation by the authors.
2. they only investigated the provision of, desire/expectation for, or satisfaction with information on the part of the patient/consumer or the health care professional and did not consider other aspects of the interaction.
3. they did not make any reference to the prescribing of medicines or medicine-taking

e.g. studies about medical devices, orthodontics, exercise therapy, counselling, organ transplantation or prescriptions that are not for medicines (e.g. exercise prescription).

4. the only reference they made to medicine-taking was about the use of compliance/adherence as an outcome measure for an intervention.
5. they only focused on techniques used to measure adherence.
6. they only referred to illegal drugs or alternative/complementary therapies.
7. they focused on non-human subjects.
8. they focused on forms of communication that were not person to person (that were not also discussed between the patient/consumer and the health care professional)

e.g. studies about leaflets and computer-based programs only used by the patient/consumer or the health care professional.
9. they only referred to communication about medical treatments in general and did not focus on medicine-taking or prescribing.
10. they only examined hypothetical communication between health care professionals and patients/consumers.
11. they only referred to the relationship between health care professionals and patients/consumers and did not examine aspects of communication about medicine-taking or prescribing.
12. they only investigated health care professionals' views of 'patient pressure' to prescribe, which were not supported by other data.
13. they only examined the length of consultations.
14. they only examined the involvement of patients/consumers in their treatment or decision-making without referring to communication between the patients/consumers and health care professionals.
15. they did not describe the manner, content or consequences of the communication involved in the study.
16. they only included quotes from patients or health care professionals about communication about medicines which were not discussed in the text.
17. they were 'news' articles, discussion papers, reviews, letters, conference proceedings, meeting abstracts or reports, editorials or book reviews or other papers that cited no original data.

For the purposes of this review, communication was described as person to person interactions between health care professionals and patients/consumers. Communication was considered to be a two-way interaction, not just the provision of (or desire/expectation for or satisfaction with) information. Treatment was defined as pharmaceutical products, i.e. prescribed and over-the-counter products. This included oxygen (medical), oral contraceptives, immunisation and anaesthetics but excluded

herbal medicines, bone marrow transplants, dialysis, nutritional hydration and advance care directives.

2.2 IDENTIFICATION AND SELECTION OF RELEVANT STUDIES

The principal method used to identify relevant studies for the review was a search of six electronic databases. However, a number of supplementary searching techniques were used to identify studies that were not detected by the principal electronic searches.

2.2.1 Electronic databases

We conducted full searches of the literature published between 1991 and 2000 in six electronic databases: Medline, EMBASE, CINAHL, PsycINFO, Social Science Citation Index (SSCI) and Science Citation Index (SCI). For each publication year, all the databases were searched at least two months after that year had ended, with the exception of the 2000 literature in SSCI and SCI which unfortunately had to be searched in July 2000¹.

Four categories of search terms were used to search each database:

- * health care professionals,
- * patients/consumers,
- * medicine-taking/prescribing,
- * communication.

The searches retrieved articles that contained one or more terms from each of the four categories. Subject headings (index terms) and free-text keywords were used to search Medline, EMBASE, CINAHL and PsycINFO. The other two databases, SCI and SSCI, do not use subject headings and were therefore only searched using free-text keywords. Free-text terms were searched for in the abstracts and titles and wildcard characters were used to ensure that all forms of words were included. Table 1 shows the search terms for each of the four categories that were used in the Medline search. Equivalent subject headings were used when searching EMBASE, CINAHL and PsycINFO (see Appendix C).

The searches of the databases were limited to articles with human subjects. When possible, editorials, books, book chapters, secondary publications, dissertation abstracts, and letters were excluded from the search. No language restrictions were imposed.

Table 2 shows the results of the searches of each of the six electronic databases. After duplicate references were identified and removed, the searches of the electronic databases generated a total of 10017 articles (8813 English and 1204 non-English language). All the references were exported into a Reference Manager (Version 9.0) database.

¹ At the end of July 2000 the provider of the SSCI and SCI databases was changed from BIDS to Web of Science. The interface used by Web of Science does not allow searches with large numbers of search terms and therefore we had to search these two databases using the BIDS service in July 2000.

Table 1 – Medical subject headings (MeSH) and free-text terms used to search Medline

MeSH	Free-text terms [†]
<i>Health care professional:</i>	
Hospitalists	physician\$1
Physicians	doctor\$1
Physicians, family	consultant\$1
Physicians, women	resident\$1
Pharmacists	SHO or SHOs
Nurses	house officer\$1
Nurse anaesthetists	general practitioner\$1
Nurse clinicians	pharmacist\$1
Nurse midwives	nurse\$1
Nurse practitioners	medical staff
Nurses, male	health care professional\$1
Medical staff	health professional\$1
Medical staff, hospital	medical professional\$1
<i>Patient/consumer:</i>	
Patients	patient\$1
Inpatients	inpatient\$1
Outpatients	outpatient\$1
	consumer\$1
	client\$1
<i>Medicine-taking or prescribing:</i>	
Prescriptions, drug	prescrib\$
Drugs, non-prescription	prescription\$1
Drug therapy	nonprescription\$1
Drug utilization	over the counter
Pharmaceutical preparations	OTC\$1
Patient compliance	dispens\$
Treatment refusal	pharmaceutical\$1
Self medication	drug\$1
Self administration	medicin\$
	medication\$1
	complian\$
	complying
	adher\$
	treatment refusal
	self-administ\$
<i>Communication:</i>	
Professional-patient relations	concordan\$
Dentist-patient relations	patient focused or patient focussed
Nurse-patient relations	patient centered or patient centred
Physician-patient relations	client centered or client centred
Physician's role	consumer centered or consumer centred
Patient-centered care	person centered or person centred
Consumer participation	patient participation
Patient participation	client participation
Decision making	consumer participation
Consumer satisfaction	decision making
Patient satisfaction	patient satisfaction
Informed consent	client satisfaction
Communication	consumer satisfaction
Communication barriers	informed consent
Negotiating	informed choice

Nonverbal communication	communicat\$
Persuasive communication	negotiat\$
Patient education	partnership\$1
Patient acceptance of health care	therapeutic alliance
Attitude of health personnel	therapeutic relationship
	patient education

† “\$” is a wildcard that is added to the end of a free-text term in order to retrieve all possible suffix variations following that term (e.g. adher\$ will find adherence, adherent etc.); “\$1” will retrieve words with only one character added to the end of the term (e.g. doctor\$1 will find doctor and doctors but not doctored)

2.2.2 Selection of studies

The selection of studies to be included in the review was achieved in two stages (see Figure 1). In the first stage, the abstracts of the articles from the results of the searches of the electronic database were assessed and in the second stage, the full articles of the studies included in the first stage were reviewed.

Stage One

In the first stage, the titles, abstracts and keywords of all the English (N=8813) and other language (N=1204) articles identified from the electronic databases were assessed by at least two reviewers. The reviewers independently selected studies that fulfilled the selection criteria and met to resolve disagreements. Disagreements that could not be resolved by discussion were included at this stage. A total of 370 (345 English, 25 non-English language) articles were included in stage one (see Table 2).

Stage Two

In the second stage, the full text of 345 English language articles identified in stage one was reviewed by one of four reviewers (see section 2.2.4 for how non-English language articles were dealt with). Again, the reviewer decided whether or not to include each of the 345 articles based on the selection criteria. For the studies that were included at this stage, the reviewer wrote a brief outline of the study (see Appendix F for data extraction forms). For the studies that were excluded, the justification for the exclusion of the article was written (see Appendix E for the reasons why studies were excluded). The “Microsoft Access” software package (1997 version) was used to create a database to contain this information.

For each article, the full text and the information provided by the reviewer were examined by a second reviewer to check the decision to include/exclude the article. The first and second reviewers met to resolve disagreements. If an agreement could not be reached then consensus was reached after discussion with one/two of the other reviewers.

Furthermore, for all the articles that were included at this stage the decision was checked at a meeting of at least three reviewers. Of the 345 English language articles identified from the principal electronic searches that were reviewed 75 were ultimately included in the review.

2.2.3 Supplementary searches

The articles identified from all the supplementary searches were compared with those from the electronic databases and duplicates were removed.

Table 2 – Number of English language and non-English language articles identified, reviewed and included from each search

	Stage 1:		Stage 2:		Articles included in the review	
	Abstracts assessed <i>English</i>	<i>Non-English</i>	Full articles retrieved <i>English</i>	<i>Non-English</i>	<i>English</i>	<i>Non-English</i>
Electronic databases						
<i>SSCI</i>	1451	71	90	1	23	0
<i>SCI</i>	1138	110	71	0	11	0
<i>Medline</i>	3215	609	130	12	23	4
<i>EMBASE</i>	1899	377	38	12	12	5
<i>CINAHL</i>	712	13	9	0	2	0
<i>PsycINFO</i>	398	24	7	0	4	0
Hand searching[†]	-	-	23	0	9	0
Bibliographies of retrieved articles	120	0	20	0	10	0
References that cited the major articles	273	20	8	1	5	0
Related references searches for major articles	499	44	15	1	9	1
Other systematic reviews[†]	-	-	7	0	1	0
Cochrane Controlled Trials Register (CCTR)	189	15	1	0	0	0
Authors' collections	622	2	6	0	4	0
Concordance website[†]	-	-	8	0	5	0
Recommended by colleagues[†]	-	-	6	0	3	0
Identified through peer review	-	-	4	0	3	0
TOTAL	10516	1285	443	27	124	10

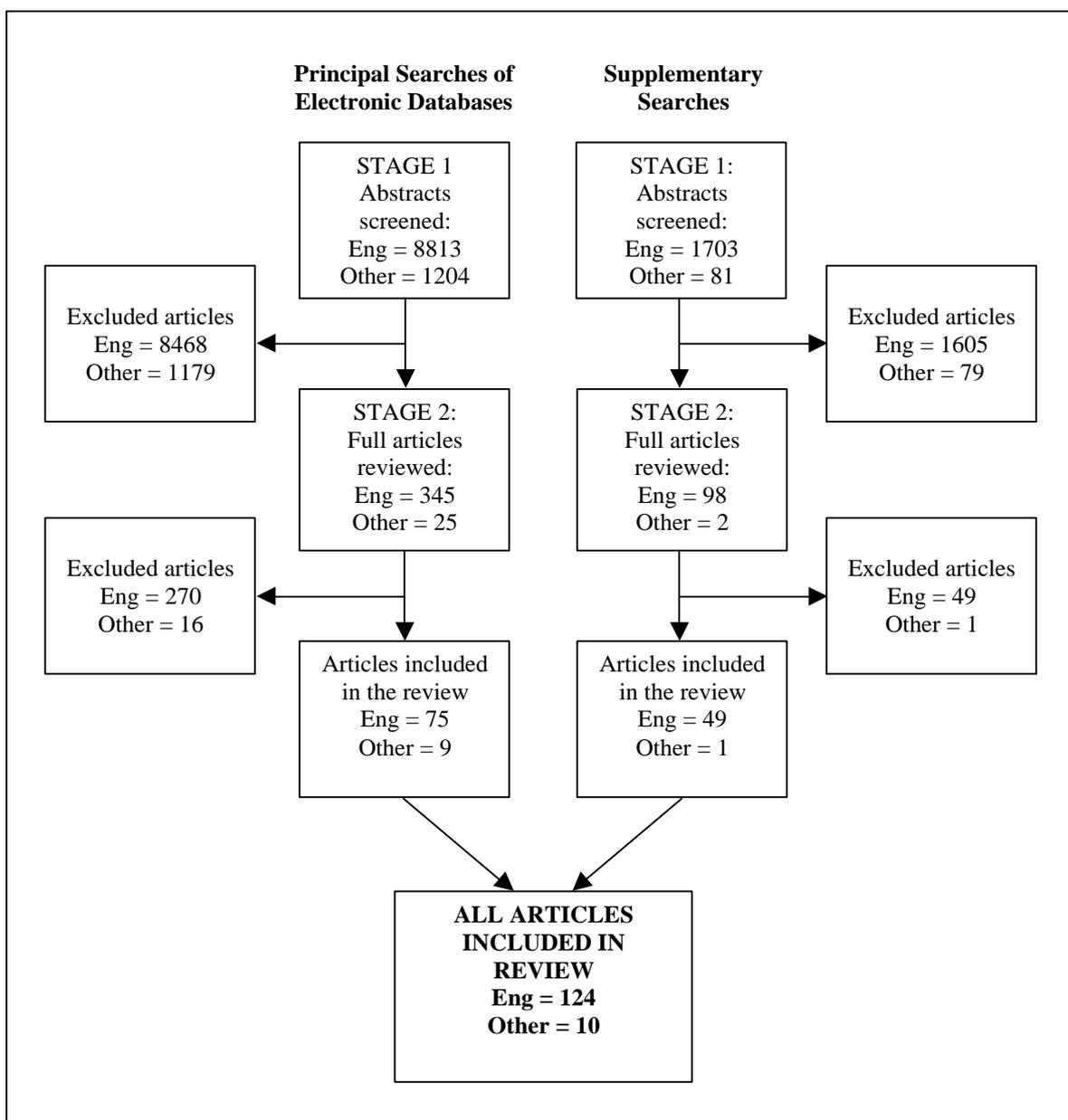
[†] The decisions to include or exclude articles identified from the handsearched journals, other systematic reviews, the concordance website and colleagues' recommendations were made on the basis of the full article rather than on the abstract

Handsearches of the following six journals were undertaken by one reviewer (KC): Health, Health Communication, Health Expectations, Journal of Health Communication, Journal of Health Services Research and Policy and Patient Education and Counseling. It was decided to search these journals because they were particularly relevant to the review and fulfilled at least one of the following criteria:

- * they published several articles that were considered to be relevant to concordance according to the concordance website (these articles were identified from handsearched journals and summarised on the website: www.concordance.org),
- * they were only partially indexed in the six electronic databases that were searched,
- * they generated a high number of the articles that were reviewed in stage two,
- * they were included in the handsearching strategy of the Cochrane Consumers and Communication Group.

Twenty-three additional articles, which had not been detected by the electronic searches, were retrieved from the handsearches (see Table 2). The full text of these articles was reviewed in the same manner as stage two for the studies identified from the electronic databases. Nine of the articles identified from the handsearches were included in the review.

Figure 1 – Inclusion process flowchart²



Three searching techniques were used to identify further relevant references from the English language articles included from the electronic databases and the handsearches. However, all of these searches were restricted to the 74 ‘major’ English language articles (identified before the report was submitted for peer review, see end of this section) we had included that contained at least three findings that were relevant to the focus of the review, as assessed by one reviewer (KC).

Firstly, the bibliographies of the 74 major English language articles were scanned by one reviewer (KC). One hundred and twenty abstracts, which were judged to be possibly relevant to the review, were obtained and treated in the same manner as the

² A flowchart presenting the reasons why articles were excluded from the review is in Appendix E.

abstracts identified from the electronic database searches. Ten of these articles were ultimately included in the review.

Secondly, in June 2001 the SCI and SSCI databases were searched using Web of Science in order to identify articles that had cited the major English language papers identified from the electronic databases and handsearches. The abstracts of a total of 293 articles (274 English, 19 non-English language) that had cited the major English language articles were identified and reviewed. Five of the English language articles were included in the review.

Thirdly, in June 2001 the “related references” searching function of the Web of Science and Pubmed electronic databases providers were used to identify studies that were similar to the major English language studies included from the electronic databases and handsearches. Due to the immense number of articles generated from the related references searches, only the abstracts of the first ten most relevant articles were obtained. When duplicates with the papers already identified had been removed, the Web of Science and Pubmed related references searches generated 229 and 314 articles respectively. After reviewing the abstracts and relevant full articles, nine English language articles and one non-English paper (see section 2.2.4) were included.

The Cochrane Controlled Trials Database was also searched in June 2001. As its interface does not allow large numbers of search terms to be used, a simplified version of the search strategy that was used with Medline was utilised (see Table 3). Only two categories of search terms were used: medicine-taking/prescribing and communication. The searches retrieved articles that contained one or more terms from both of the categories. After removing duplicate articles identified by previous searches, 204 abstracts were retrieved, but none of these studies were found to be relevant.

In July 2001 the articles included in previously published reviews with a similar focus to the present review were also assessed. Previous reviews were identified by searching the Cochrane database of systematic reviews and the Database of Abstracts of Reviews of Effectiveness (DARE). As these databases are very small, we could afford to use a highly sensitive search strategy. The searches retrieved articles that contained any of the MeSH or free-text terms in Table 4. The list of the reviews produced by two of the Cochrane collaborative groups, namely the Consumers and Communication Group and the Effective Practice and Organisation of Care Group, were also examined. Nine relevant reviews were identified by one reviewer (KC). Seven full articles cited by these reviews were obtained and reviewed and one of these was included in the review.

The abstracts of 624 references (622 English, 2 non-English language) from the individual collections of two of the authors (NB and FS) were also reviewed and subsequently four of the English language articles were included. The Concordance website, which publishes reviews of relevant articles and information about studies being conducted in the area, was also searched by one reviewer (KC) in July 2001. The full text of eight papers was assessed, five of which were ultimately included. In addition, six articles were recommended by colleagues. Three of these articles were included.

Table 3 – MeSH terms used to search Cochrane Controlled Trials Database

MeSH terms [†]
<p><i>Medicine-taking or prescribing:</i> drugs-non-prescription drug-therapy* drug-utilization patient-compliance</p> <p><i>Communication:</i> professional-patient-relations* consumer-participation* communication* patient-education</p>

[†] “*” was added at the end of some terms in order to ‘explode’ them, so that their subsidiary terms were searched for as well

Table 4 – MeSH and free-text terms used to search Cochrane database of systematic reviews and DARE

MeSH terms	Free-text terms [‡]
patient-compliance treatment-refusal professional-patient-relations [†] physicians-role consumer-participation [†] informed-consent communication [†] patient-education patient-acceptance-of-health-care attitude-of-health-personnel	concordan*

[†] These terms were “exploded”, i.e. their subsidiary terms were searched for as well

[‡] “*” is a wildcard that retrieves all possible suffix variations following the root word

In December 2002, a draft version of this report was published on the concordance website (www.concordance.org) and there was a two-month consultation period. During this time, the first authors of the articles included in the review, the reviewers of the non-English language articles (see section 2.2.4) and other academics in the field were asked to view the report and provide feedback on its completeness and its conclusions. Eight people responded with comments or questions about the review. Four of these people were authors of included articles, one was a reviewer of the non-English language articles and three were other academic colleagues. Of these people, three suggested improvements for how the report was written, three recommended articles for inclusion in the review, two offered praise for how their studies were interpreted, and one asked for clarification about the methodology. The articles that were recommended were assessed to determine whether or not they fit the inclusion criteria. As a result, four new articles were retrieved and three of these were included in the review.

Table 5 – Number of non-English language articles identified, reviewed and included

Language	Abstracts assessed		Full articles retrieved		Included
	<i>Electronic database searches</i>	<i>Supplementary searches</i>	<i>Electronic database searches</i>	<i>Supplementary searches</i>	
Afrikaans	1	0	0	0	0
Chinese	10	0	1	0	0
Czech	19	0	0	0	0
Danish	19	3	1	0	0
Dutch/Flemish	72	3	6	0	2
Finnish	4	0	0	0	0
French	265	24	7	1	5
German	363	22	4	0	0
Greek	2	0	0	0	0
Hebrew	13	1	0	0	0
Hungarian	7	0	0	0	0
Italian	64	1	0	0	0
Japanese	84	3	1	0	1
Korean	6	0	0	0	0
Norwegian	53	5	1	0	0
Polish	9	2	0	0	0
Portuguese	17	1	0	0	0
Romanian	0	1	0	0	0
Russian	6	0	0	0	0
Serbian/Serbocroatian	6	0	0	0	0
Slovak	4	0	1	0	0
Slovene	2	0	0	0	0
Spanish	162	14	3	1	2
Swedish	12	1	0	0	0
Turkish	2	0	0	0	0
Multilingual	2	0	0	0	0
TOTAL	1204	81	25	2	10

2.2.4 Non-English language articles

As discussed in section 2.2.2, in stage one of the selection of relevant articles from the electronic databases 1204 abstracts of articles written in languages other than English were reviewed. Twenty-five of these articles were included at this stage. Another 80 abstracts were identified from the supplementary searches, two of which were included at this stage. The full text of these 27 articles was retrieved. Table 5 shows the languages of all the non-English language articles that were identified, reviewed and included in the study.

We recruited reviewers who could speak English in addition to another of the following languages: Chinese, Danish, Dutch, Flemish, French, German, Japanese, Norwegian, Slovak and Spanish. The reviewers were asked to determine whether the article should be included based on a simplified version of the inclusion and exclusion criteria (see Appendix G for all the material provided to the reviewers of the non-English language articles). They were provided with two structured forms: one for excluded and one for included studies. The forms were examined by at least two of the researchers to check the decision to included/exclude the article. Ten of the non-English language articles were included in the review.

Table 6 - Number of English language and non-English language articles identified, reviewed and included for each publication year

Year	Abstracts assessed		Full articles retrieved		Included	
	<i>English</i>	<i>Non-English</i>	<i>English</i>	<i>Non-English</i>	<i>English</i>	<i>Non-English</i>
2000	1230	163	43	2	23	1
1999	1921	240	97	6	22	4
1998	1377	170	72	2	18	0
1997	1221	174	77	1	14	0
1996	1095	107	62	3	15	0
1995	991	106	44	3	8	2
1994	795	107	19	2	10	0
1993	763	96	8	3	4	1
1992	579	53	11	4	6	2
1991	544	69	10	1	4	0
TOTAL	10516	1285	443	27	124	10

2.2.5 Total number of articles identified

The searches of the electronic databases and the supplementary searches identified a total of 17832 articles, of which 5983 were duplicates. Therefore, a total of 11849 articles were reviewed³. Table 6 shows the number of abstracts and full articles reviewed and included for each publication year.

2.3 DATA EXTRACTION AND SYNTHESIS

For each of the articles, data on the design, analysis and relevant findings were extracted and recorded in an Excel sheet by one reviewer (KC). The studies were divided into two groups: those that evaluated an intervention that was relevant to the focus of the review (intervention studies) and those that did not (non-intervention studies). The relevant findings of all the non-intervention studies included in the review were categorised as a communicative act (or attitude towards an act) by either:

- * patients/consumers,
- * health care professionals,
- * both patients/consumers and health care professionals.

The findings in each of these categories were then divided further into subcategories according to which of the following they described:

- * the occurrence of a communicative act,
- * the effects of a communicative act,
- * the factors affecting a communicative act,
- * patients'/consumers' or health care professionals' attitude towards a communicative act.

Furthermore, within each of these subcategories, the findings were grouped according to the particular behaviour (e.g. patients asking questions, health care professionals offering counselling) that they referred to (see Appendix H).

In terms of the intervention studies, due to wide variations in the research settings, nature of the interventions and outcome measures, it was not possible to conduct a

³ For 48 of these articles, which were identified from the handsearched journals, other systematic reviews, the concordance website, colleagues' recommendations and peer review, the decision to include or exclude them was made on the basis of the full article rather than on the abstract.

quantitative meta-analysis of the findings. Instead the findings of each study were described and tabulated. The intervention studies were grouped into categories according to the health care provider they involved (i.e. doctors, pharmacists, or nurses/medical assistants). They were then divided into three subcategories (see section 4.1 for more details):

- * those involving two-way communication between health care professionals and patients about medicines as part of the intervention, although two-way communication was not assessed as an outcome (*process only studies*),
- * those in which the intervention did not involve two-way communication, although some aspect of two-way communication was assessed as an outcome (*outcome only studies*),
- * those in which two-way communication was both part of the intervention and assessed as an outcome (*outcome and process studies*).

2.4 METHODOLOGICAL QUALITY OF THE STUDIES

The methodological quality of the English language intervention studies was assessed independently by three reviewers using criteria utilised by the EPPI-Centre of the Institute of Education, University of London (e.g. Oakley et al, 1996; Peersman et al, 1996; Shepherd et al, 2001). A multi-lingual reviewer was recruited to evaluate the quality of the non-English language studies using the same criteria. The criteria were designed to evaluate the extent to which studies were affected by selection and attrition bias and selective reporting of outcomes. Eight methodological qualities were assessed:

1. Clear definition of the aims of the intervention.
2. A description of the study design and content of the intervention sufficiently detailed to allow replication.
3. Use of random allocation to the different groups including the control or comparison group(s).
 - * Articles were rated as having met this criterion if they randomised patients or sites into different groups.
4. Provision of data on numbers of participants recruited to each condition.
5. Provision of pre-intervention data for all individuals in each group.
 - * Articles were rated as having met this criterion if there was no evidence of selective reporting of results for particular sets of patients. Therefore, they were judged to have fulfilled this criterion if they showed that they adjusted their post-intervention data using their pre-intervention data or assessed the equivalence of groups before the intervention and found them to be equivalent.
 - * Articles were rated as not having met this criterion if they did not make pre-intervention assessments.
6. Provision of post-intervention data for all individuals in each group.
 - * Articles were rated as having met this criterion if they provided data for all individuals or if there was no evidence of selective reporting of results for particular sets of patients.

7. Attrition reported for each group.

8. Findings reported for each outcome measure indicated in the aims of the study.

The articles were awarded one point for each of the criteria they fulfilled. The reviewers met to resolve disagreements. The methodological quality of the non-intervention studies was not assessed.

3. Results of non-intervention studies

The review identified 116 articles that described 103 separate non-intervention studies examining two-way communication between patients and health care professionals about medicines. A table outlining the design and findings of each of these studies is given in Appendix I. The vast majority of this research investigated communication between patients and doctors, although there was also a substantial number of studies about pharmacists' interactions with patients. The other health professionals who were investigated to a lesser degree were nurses, nurse practitioners, student nurses, nurse auxiliaries, midwives, physician assistants, pharmacy students and other hospital staff.

The majority of the research was conducted in Europe (56%), with over a third being carried out in North America. Only eight articles reported studies that were conducted in Asia, Africa or Australasia. Some articles were conducted in more than one country. The countries in which the most research was carried out were:

- * United Kingdom (49 articles),
- * United States of America (39),
- * Canada (7),
- * France (4),
- * Spain (4).

The majority of the studies focused on patients with particular conditions or specific medicines. The most commonly researched illnesses or medications were:

- * hormone replacement therapy (HRT; 14 articles),
- * antibiotics (7),
- * antihypertensive medication (6),
- * HIV/AIDS medication (6),
- * asthma medication (5),
- * postoperative analgesia (5),
- * cancer patients/chemotherapy (3),
- * antidepressants (3).

However, many of the studies did not focus on particular conditions or medicines but instead examined communication about OTC and/or prescription medicines or all medicines in general.

In terms of methodologies, most of the studies did not examine communication directly, i.e. by observing, videotaping or audiotaping the interaction, but rather investigated patients' or health care practitioners' perceptions of their communication. Although there were many qualitative studies included in the review, more than two-thirds of the research used a quantitative approach.

In this section we will describe the findings of all the non-intervention studies included in the review. Those studies that evaluated an intervention designed to improve communication between patients and health care professionals about medicines are discussed in section 4. As discussed in section 2.3, the findings of each non-intervention article were categorised as relating to a communicative act performed by either a patient/consumer or a health care professional or both.

Therefore, in accordance with these categories, the findings of the non-intervention studies are presented in the following three sections:

- * patients' communication about medicines,
- * health care professionals' communication about medicines,
- * both patients' and health care professionals' communication about medicines.

In each of these sections, different communication behaviours are discussed, and, where applicable, the findings are categorised further into subsections about:

- * the occurrence of this behaviour,
- * the factors affecting this behaviour,
- * the effects of this behaviour,
- * the patients' and health care professionals' attitudes towards this behaviour.

Summaries of the research on each communication behaviour are provided at the end of each section. The majority of the studies are discussed in more than one section, and on some occasions the same finding was considered to be relevant to more than one section.

3.1 PATIENTS' COMMUNICATION ABOUT MEDICINES

The research discussed in this section shows the extent to which patients participate in various ways in discussions about their treatment. The particular behaviours that have been researched include the extent to which patients initiate topics, ask questions about medicines, request medicines, express their medication concerns, and report their use of medicines or adherence. The research has also examined the factors affecting these behaviours, the impact of these behaviours on various outcomes, including health care professionals' reactions, and the views of patients and professionals towards patients engaging in these behaviours. In this section, the findings on patients' general views about discussing medicines with professionals are described before the research concerning their various behaviours during interactions with professionals are presented. The research is discussed under the following main headings:

- 3.1.1 Patients' views about the value of discussing medicines with health care professionals,
- 3.1.2 Patients' views about whether they have sufficient time and opportunities to discuss medicines,
- 3.1.3 Patients' preferences about discussing medicines with particular types of health care professionals,
- 3.1.4 Patients' involvement in discussions about medicines,
- 3.1.5 How patients refer to medicines,
- 3.1.6 Patients asking questions about medicines,
- 3.1.7 Patients requesting medicines,
- 3.1.8 Patients expressing their concerns about medicines,
- 3.1.9 Patients reporting their use of medicines and adherence,
- 3.1.10 Patients repeating information,
- 3.1.11 Patients complaining about the information provided by health care professionals.

3.1.1 Patients' views about the value of discussing medicines with health care professionals

Two articles assessed patients' perceptions of the value of discussing medicines with health care professionals. Both of these studies were quantitative questionnaire surveys that explored patients' attitudes towards discussing various medications. One of these studies examined patients' attitudes towards communication with pharmacists whereas the other investigated patients' views about discussing medicines with GPs.

Research by Erickson, Kirking and Sandusky (1998) examined the extent to which patients value discussions with pharmacists about medicines. They conducted a telephone survey with 408 patients who collected a new prescription at a pharmacy in the past three months using Medicaid, which is a national health insurance program in the United States for people on low incomes. Ninety-four percent of these patients stated that it was "important" or "very important" to talk to a pharmacist about their prescriptions. Only 6% thought that it was not important or did not care. Furthermore, patients who reported that they were counselled by a pharmacy employee when they collected their new prescription rated discussions with pharmacists about prescriptions as being of greater importance than those who were not counselled.

Frederikson's (1995) research examined patients' perceptions of the importance of discussing possible side effects of medicines with their doctor. The 35 patients involved in this study were randomly selected from those with appointments during one particular surgery of a self-selected sample of 35 GPs. After their consultation these patients completed a questionnaire about their perceptions of the importance of various information exchange tasks that occur in doctor-patient consultations. Twenty-six of the 30 patients who responded to an item about the importance of discussing possible side effects considered this task to be essential. Three patients thought discussing side effects was desirable and only one felt it was unimportant. Yet, when these patients were asked how much their doctors had discussed side effects during their consultation, they reported that their doctors had hardly discussed side effects at all.

The findings in this section indicate that patients feel that talking to doctors about medicines is very important. In particular, patients reported that it is essential that doctors discuss the possible side effects of their medicines, and yet doctors were not perceived as having accomplished this. The research discussed in this section also showed that patients valued discussions with pharmacists about prescription medicines, although a study discussed in section 3.1.3 indicated that most patients using antihypertensive medication did not want to discuss their medicines with pharmacists.

3.1.2 Patients' views about whether they have sufficient time and opportunities to discuss medicines

Six of the included articles examined patients' views about whether they have enough time to discuss medicines with health care professionals. All of these studies focused on patients taking long-term medication, including treatment for HIV and mental health problems and HRT. Three of these studies involved quantitative analysis of patient questionnaires, whereas the other three studies used qualitative techniques to analyse data from in-depth single or group interviews with patients. The articles in

this section focused on patients' views about their opportunity to discuss medicines with doctors, pharmacists or health care practitioners in general. In this section we will first discuss the research on women's communication with health care professionals about HRT, then we will examine the study exploring the views of people with mental health problems and then the two articles about communication with HIV-positive patients.

Two UK surveys conducted by Griffiths (1995) and Kadri (1991) showed that around two-thirds of women who had discussed HRT with a health care professional felt that they had had enough time to discuss it. Griffiths' survey was of 1225 women registered at eight general practices, who were aged between 20 and 69 years and Kadri's study included 539 women aged between 44 and 64 years. In Griffiths' study, there was some variation in patients' views about this issue amongst the different practices, although these differences were not significant. Qualitative research involving in-depth interviews with 16 women aged between 45 and 65 also showed that some women felt that they had not had sufficient opportunities to ask questions about HRT nor to discuss their concerns (Bond and Bywaters, 1999). The participants in this study also claimed that doctors did not create an atmosphere in which information exchange or discussion of issues was encouraged.

Four focus groups with people with mental health problems in the UK, who were recruited through local and national voluntary organisations, demonstrated that some patients felt that their discussions of medicines with health care professionals were constrained by inadequate NHS resources (Smith, Francis and Rowley, 2000). In particular, it was argued that, as GPs and psychiatrists were overloaded, they did not have enough time to discuss medicines fully with their patients. In contrast, patients claimed that in private practice they had more opportunity to raise and discuss their concerns about medications. Another theme that emerged was that some patients felt that they were unable to talk about quitting their medications due to GPs' reluctance to engage in such discussions.

Research conducted in Texas by Marshall, Cunny and Lawson (1997) examining the views of patients with HIV showed that these patients felt that during their encounters with pharmacists there was sufficient time for all their questions to be answered. The findings of this study were based on questionnaires completed by 62 HIV-positive males, who were recruited through two doctors and an HIV community organisation. Forty of the 61 respondents (66%) who responded to a question about their satisfaction with their communication with pharmacists reported that their pharmacist spent as much time as necessary to answer their questions. Only 11 (18%) did not feel this was the case. However, Meystre-Agustoni et al's (2000) qualitative study showed that some HIV patients felt that consultations concentrated too much on the medical aspects of their treatment leaving little opportunity for discussion of other issues. This research was based on interviews with 37 patients receiving antiretroviral therapy in Switzerland who were recruited via an HIV clinic and a private HIV specialist. Some interviewees reported that they would like to discuss the effects of their treatment on their social and sexual relationships but did not feel that their medical consultations provide them with an opportunity to discuss such matters.

In summary, the quantitative studies that examined patients' perceptions about the time that they have to discuss medicines showed that about two-thirds of patients felt

that they have enough time. However, the qualitative studies showed that some patients felt they had not had the opportunity to discuss particular aspects of medicine-taking, such as wanting to stop using their medicines or their concerns about the negative effects of drugs.

3.1.3 Patients' preferences about discussing medicines with particular types of health care professionals

Only three studies explored patients' views about who they want to discuss their medicines with. The findings of these studies showed that patients have preferences about the sex of the health care professionals they discuss medicines with, that they want the continuity of discussing medicines with the same health care professionals, and that some have different views about discussing medicines with the different professions. In one of these studies, 16 women were interviewed about their decisions to stop using HRT (Bond and Bywaters, 1999). An issue raised by one of the women in this study was that she would prefer to discuss HRT with a female rather than a male doctor. This was because she wanted to voice her views about HRT and believed that a man would not be willing to debate the advantages of the therapy. In relation to epilepsy medicines, the findings of Freeman and Richards (1994) showed that some patients preferred to discuss their medicines with their usual doctor rather than with a specialist. In this study 99 patients with epilepsy, who were recruited from four UK group practices, were interviewed at home. Of the 74 patients who responded to the question about who they would most like to discuss their medicines with next, 53 named their usual doctor, seven said they would rather talk to another GP and 14 preferred a specialist. Furthermore, those patients who named their usual doctor as the physician they would most like to discuss medicines with next were more likely to have had a greater proportion of their previous consultations with the same doctor.

The third study examined the extent to which patients want to discuss their medicines with pharmacists (Beijer and Blaey, 1999). In this study, a questionnaire survey was conducted with 1330 patients who collected a prescription for antihypertensive medication at Dutch community pharmacies. Only 31% of the patients reported that they wanted to discuss their medicine with a pharmacist, whilst 51% stated that they did not want to and 17% were unsure. Furthermore, 61% of patients said that they only wanted to discuss medicines with their GP. In agreement with the findings of Freeman and Richard's research discussed above, a higher percentage of the patients involved in Beijer and Blaey's study who had discussed medicines with pharmacists before said that they would want to again.

The findings of the studies discussed in this section suggest that some female patients may prefer to discuss medicines with female health professionals and that patients may be more likely to want to talk about their medicines with professionals whom they have consulted with before. Furthermore, one of the studies showed that the majority of Dutch hypertensive patients surveyed did not want to discuss medicines with pharmacists. This finding is in contrast to the results of Erickson, Kirking and Sandusky's (1998) study, discussed in section 3.1.1, which showed that 94% of US patients thought it was important or very important to talk to pharmacists about new prescriptions. One possible explanation for the difference between these findings is that patients may have different views about discussing new prescriptions in comparison to medicines they have been taking for a long time. An alternative

explanation is that, as one of the studies was conducted in the US whilst the other was carried out in the Netherlands, the contrasting results may reflect the cultural differences between the two sets of patients.

3.1.4 Patients' involvement in discussions about medicines

Twenty articles reported findings about patients' involvement in discussions about medicines. Twelve of these articles investigated the extent to which patients speak in discussions, whether they play a passive or active role and whether they are involved in decision-making about medicines. Six of these articles assessed the factors affecting patients' involvement in discussions, two examined the consequences of patient involvement and seven explored patients' and health care professionals' views towards patients' involvement. Later sections will discuss in greater detail particular communication aspects that reflect patients' involvement in discussions, such as their question asking behaviour, their medication requests and their expression of their concerns about medicines. The majority of studies in this section used qualitative techniques and most focused on patients' communication with doctors, although some of the research examined patients' interactions with pharmacists and nurses. The findings of the studies in this section will be discussed under the following sections:

- * patients having an active or passive role and initiating topics during discussions about medicines,
- * factors affecting patients' involvement in discussions about medicines,
- * effects of patients' involvement in discussions about medicines,
- * patients' and health care professionals' views about patients' involvement in discussions about medicines,
- * summary of the research on patients' involvement in discussions about medicines.

3.1.4.1 Patients having an active or passive role and initiating topics during discussions about medicines

Six of the twelve articles discussed in this section reported quantitative findings about the extent to which patients spoke during discussions about medicines with professionals, initiated medication topics and intervened to have their prescriptions modified. Research by Siminoff et al (2000) showed that during discussions between breast cancer patients and oncologists about adjuvant therapy the doctors spoke much more than the patients did. In this study, analysis of the 50 audiotaped consultations showed that the patients spoke a median of 38% of the utterances during each consultation. Four other quantitative studies investigated the extent to which patients and practitioners initiated medication topics during consultations. Kjellgren et al (2000) found that medication was the second most common topic introduced by 51 hypertensive patients during their follow-up visits with their doctor. This topic was raised by nine of the 51 patients.

Wilson et al (1992) found that a higher proportion of patients initiated medication topics with pharmacists. This research, which was based on 44 audiotaped interactions between patients and community pharmacists in the UK, showed that 16 patients initiated more than one medication topic. Smith, Cunningham and Hale (1994) looked at older patients' perceptions of who raised the topic of medicines in discussions with their doctors and pharmacists. The findings of this study were based on two surveys of people aged over 65 years, who were recruited from a geriatric research program in Florida. One of the surveys, which was completed by 150 people, focused on OTC medicines, and 218 participants completed the other

questionnaire on prescription medicines. When asked who raised the topic of medicines in consultations with pharmacists and doctors, patients reported that they raised the topic more often than the practitioners did. This was the case for both OTC and prescription medicines. The findings also suggested that patients perceived that doctors take more initiative in discussing prescription medicines than pharmacists.

Makoul, Arntson and Schofield (1995) examined the extent to which patients and GPs raised particular topics concerning medicines. In this study, consultations between 36 GPs and 271 patients who received a new prescription were videotaped and coded quantitatively. The most common medicine topic initiated by the patients was their opinion about medicines, which occurred in 18.5% of the consultations. The other topics initiated most commonly by patients were possible side effects, name of the medicine, their ability to follow the treatment plan, possible risks of the medicine and intended benefits. However, patients raised each of these topics in less than 6% of the consultations. Furthermore, apart from patients' opinion about the medicine, every topic was initiated more commonly by the GP than by the patient and in most cases this was by a substantial margin.

Another quantitative study examined the extent to which patients intervened when their doctor wrote them a prescription in order to change its content (Lambert et al, 1999). In this research, 59 GPs in France collected data about the patients they consulted during a three-day period. Forty-five percent of the 2625 patients included in the study made some intervention when their doctor wrote them a prescription. When they intervened some of these patients used written information, such as a previous prescription or their medication packaging, although the majority (61%) gave reasons for changing the content of the prescription without the use of written information.

A number of qualitative studies also provided examples of the ways in which patients took a passive role when discussing medicines with health care practitioners. For example, Fahy and Smith (1999) described a case in which a woman was unable to assert her preference for an epidural during labour. This study was unusual as one of the researchers acted as a support person during this event. In this case, the patient was told by her midwife that they were going to wait for the epidural to wear off so that she could have a natural birth. During this encounter, the midwife told the patient about what was going to happen without seeking the patient's view on this decision, and the patient made no response. Later on during the labour, after the patient had expressed her desire for a top up to her epidural, a doctor came to see the patient and tried to persuade her against this approach. The authors argued that, during this encounter with the doctor, the patient clearly had little power and the doctor enhanced his power by standing far away from the patient and by behaving aggressively. In this case the patient had a series of encounters with various health care professionals in which she took a passive role. The behaviour of the health care professionals prevented the patient from being involved in these discussions or decisions about her treatment. The researcher who acted as a support person also noted that she had led the patient to believe that she could have more control over decisions about her treatment during labour than was really possible.

Research by Elwyn and his colleagues (1999; Gwyn and Elwyn, 1999) showed another example of patients taking a passive role in discussions about medicines. In

this study, detailed analysis was conducted of two GP consultations, both of which involved a disagreement between the GP and a parent of a sick child about the necessity of antibiotics for an upper respiratory tract infection. The GP involved in both these consultations was interested in patient participation in decision-making. However, the findings suggested that the parents' involvement in the decision-making process was impeded by the doctor's behaviour. In particular, the doctor enhanced the power asymmetry in the interaction by using new terminology, initiating the turn-taking sequences and controlling the choice of topics. The authors argued that the imbalance in power in one of these encounters was further indicated by the fact that, when the doctor asked the parent about his views on treatment, the parent reacted as if the question was hypothetical.

Kjellgren et al (1998, 2000) claimed that patients' passive role in discussions with doctors was demonstrated by the differences between patients and doctors in terms of how they referred to medicines. This study was based on the analysis of the audiotapes of 51 follow-up appointments between hypertensive patients and their doctors. In a prototypical consultation the doctor introduced the names of the medicines used by the patient and described their therapeutic properties, yet when the patient talked about the medicines he/she referred to them by their description, such as the "red ones". The authors argued that, due to the doctors' interactional dominance in these consultations, the patients were left with the role of simply agreeing with the doctors' suggestions. Furthermore, the analysis indicated that even when patients were given a new therapy they rarely participated in the decision-making process.

Pilnick's (1998) research demonstrated the impact of patients' knowledge about their condition and medication on their role in discussions with health professionals. The findings of this study were based on fieldnotes and conversation analysis of 43 audiotaped consultations at a paediatric oncology clinic between pharmacists and patients under 16 years and their carers. The patients and carers had made regular visits to the clinic over a long period of time and therefore the consultations included in the study were part of a series. The author argued that in these consultations, unlike in traditional doctor-patient encounters, the participants assessed each other's knowledge and exchanged information in a way that minimised the power imbalance between the participants. Although many of the patients and carers in this study had extensive knowledge of the patients' medical conditions and therapies, even when there was an imbalance between the knowledge of the two participants, the asymmetry between the participants was short lived. For example, at the beginning of one encounter with a patient's mother the pharmacist dominated the discussion by initiating each topic thereby setting the agenda. However, the mother was able to reduce the asymmetry in the discussion by revealing her knowledge of the treatment and, after this point, the participants interacted in a more collaborative manner. The findings of this study indicated that in these encounters the patients' and carers' substantial knowledge and experience of the condition and treatment minimised the pharmacists' interactional dominance and consequently the patients and carers were able to express their views about the medication.

Research by Smith-Dupre and Beck (1996) also showed how doctors can help patients to be actively involved in discussions about their treatment. In this study, analysis of the fieldnotes and audiotapes of 53 encounters between a patient-centred family physician and her patients showed that this doctor's communication style enabled

patients to express their views. The doctor was recommended to the researchers by a member of her medical school's faculty as having a patient centred approach. One case is described in which a patient raised the topic of antidepressants. The authors claimed that in this consultation it is the patient who maintained the asymmetry typical of doctor-patient interactions. However, the doctor encouraged the patient to talk by listening carefully and empathetically, thus enabling the patient to voice her views on taking antidepressants. Furthermore, by disclosing her own concerns and views and by identifying with the patient, the doctor enabled the patient to express her feelings without losing face.

3.1.4.2 Factors affecting patients' involvement in discussions about medicines

The six articles described in this section examined the factors that affected the extent to which patients spoke in discussions about medicines, initiated medication topics and intervened to modify their prescriptions. A study in the United States by Siminoff and her colleagues (2000) used the Roter Interaction Analysis System to analyse the audiotapes of consultations between 50 breast cancer patients and 15 oncologists. These consultations were the patients' first visits with their oncologist, in which they discussed adjuvant therapy. Patients who required more than one visit for a decision to be made about their treatment were also recorded during their subsequent visits. Before and after their visits patients completed questionnaires that assessed their knowledge of adjuvant therapy and their satisfaction with the visit and the treatment decision. The findings showed that the white patients in this study spoke significantly more often in their consultations than the non-white patients. The white patients were also able to give more correct answers to questions about their treatment, and yet they were less satisfied with their consultation. However, it is worth noting that there were only eight non-white patients in this study.

Three studies compared the extent to which female and male patients were involved in discussions about medicines. The study by Kjellgren et al (2000) indicated that male patients were more involved in discussions about medicines than female patients. In this study, the follow-up visits of 51 hypertensive patients were audiotaped. Medication was the second most common topic introduced by the patients during these visits and was more commonly introduced by male patients (8 of 26) than female patients (1 of 25). Furthermore, male patients introduced more topics in total during these consultations than females. In agreement with this finding, Pilnick's (1998) in-depth analysis of audiotaped consultations between pharmacists and paediatric cancer patients and their carers showed that in the only consultation involving both of the patient's parents it was the father rather than the mother who participated most in the discussion. During this interaction, the father answered the majority of the pharmacist's questions and also initiated discussion topics. The author argued that this was because it was evident during this encounter that the father was a regular user of the clinic and had a greater level of knowledge about his child's medication than the mother. However, Pilnick noted that the few consultations in which only the father was present were different from those involving mothers, as the pharmacist tended to provide little advice to the fathers. In some of these interactions both the pharmacist and the father suggested that the father did not need further information as the mother had substantial knowledge and experience of the child's treatment.

In contrast to the findings of these two studies, Wilson et al's (1992) research on patient-pharmacist communication showed that there was no significant relationship between patients' initiating medication topics and gender. This research was based on 44 audiotaped interactions between patients and community pharmacists in the UK.

Smith and Smith's (1999) research showed that patients from different countries varied in the extent to which they initiated medication topics. In this study two surveys were conducted, one with 397 Hong Kong participants and the other with 444 people from mainland China. All of the participants were aged over 45. The results of these surveys were compared to those from an earlier study that involved 218 US patients aged over 65 (Smith, Cunningham and Hale, 1994). Almost 60% of the participants from mainland China stated that they usually initiated discussions about medicines with their doctor, compared to approximately 35% of the two other groups. In addition, participants from Hong Kong were the most likely (41%) to report that they and their doctor raised the topic of medicines equally often, followed by those from the US (33%) and those from mainland China (27%). Less than a third of the patients in each group claimed that their doctor usually initiated discussions about medicines.

The sixth study in this section, which was also discussed in section 3.1.4.1, examined the factors affecting whether or not patients intervened in order to change the content of the prescriptions they were given by their doctor (Lambert et al, 1999). The findings showed that 70% of retired patients and 52% of patients who were housewives intervened, whereas only 22% of students intervened. Those patients who had repeat prescriptions, were older, and did not have a child at home were also more likely to intervene.

3.1.4.3 Effects of patients' involvement in discussions about medicines

Only two articles examined the impact of patients' involvement in discussions about medicines. Siminoff et al (2000) investigated the effect of the extent to which breast cancer patients spoke during consultations about adjuvant therapy on their knowledge about therapy and satisfaction. As discussed in section 3.1.4.1, the findings were based on audiotaped consultations between 50 patients and 15 oncologists and patient questionnaires completed before and after the consultation. The findings showed that patients who made more utterances during their consultations tended to have greater comprehension of the treatment. Patients who spoke more were also more satisfied with their visit. In particular, patients who made more utterances were significantly more likely to feel that their doctor understood their treatment goals and that their doctor was concerned with their fears. Furthermore, three months after the visit, the patients who had spoken more during their consultations were more likely to feel that they had made the best treatment decision for them and that this decision had not been hard to make.

The second study analysed 44 audiotaped interactions between patients and UK community pharmacists to examine the association between patients initiating medication topics and other aspects of the pharmacists' and patients' communication during these interactions (Wilson et al, 1992). The findings showed that those patients who introduced more than one topic asked more questions and responded to more questions and comments from the pharmacists than those who introduced one topic or less. When interacting with patients who initiated more than one topic,

pharmacists provided more information, repeated more information and asked more questions. Furthermore, telephone interviews conducted the next day showed that patients who had initiated more than one topic recalled more pieces of information but also forgot more information.

3.1.4.4 Patients' and health care professionals' views about patients' involvement in discussions about medicines

Seven of the articles included in the review examined patients' and/or health care practitioners' views about patients being involved in discussions and decisions about medicines. Two of these studies used in-depth focus groups or interviews with health care practitioners to explore their attitudes towards patients being involved in discussions about medicines. The focus groups with health care providers of patients with HIV conducted in the US by Gerbert and her colleagues (2000) indicated that these professionals preferred patients to be involved in discussions and decision-making about treatment. In this study, eight focus groups were held with 23 doctors, eight nurse practitioners, and four physician assistants, all of whom worked in primary care. Most of the participants reported that they wanted to share the decision-making with their patients. They stated that they preferred patients to participate actively and not to leave decision-making to the practitioner.

This finding was supported by another study which was based on the content analysis of interviews with 20 US doctors from a variety of medical disciplines that showed that doctors wanted patients to be involved in discussions about prescription medicines (McGrath, 1999). One of the themes that emerged from this data was that the doctors felt that it was necessary to listen to patients' views but considered it to be equally important for patients to be willing to express their opinions and to participate in discussions. The practitioners stressed that, in order for communication about medicines to improve, patients needed to have a better understanding of the framework that their doctor works in and an appreciation of the value of their own input. The participants felt that when patients did not participate in these discussions it was due to intimidation, shyness, embarrassment, or not believing their contribution to be of value. The most useful sources of information for patients about prescription medicines were considered to be those that were two-way as they allowed patients to give feedback. According to the participants, one-way sources of information contain useful facts, but do not provide the explanations or interpretation of the facts that are necessary to suit each patient's circumstances and personality.

Makoul (1998) investigated the proportion of patients who prefer to rely on doctors to make their decisions for them and doctors' attitudes towards patients relying on them to make decisions. Videotapes of 271 GP consultations, in which a new prescription was given, were coded. Patient and GP questionnaires were also completed after the consultations. Patients' reliance was assessed by patients' agreement with two items: "I rely on my doctor to keep me healthy" and "I prefer that my doctor just tell me how to deal with my health problems, rather than give me choices". Forty-three percent of the patients were found to be self-reliant while 57% preferred to rely on their doctors to make decisions for them. Analysis of the doctors' behaviour during the consultations showed that the physicians involved patients in shared decision-making in 45% of the consultations. In the 264 consultations in which information was exchanged about medicines, doctors were less likely to share decision-making with patients who were physician-reliant than with those who were self-reliant.

In terms of the doctors' attitude towards patients' reliance in this study, 11 of the 36 doctors were "activists", as they felt it was highly desirable for patients to "take active steps to look after themselves", "feel competent to be involved in discussions about their own treatment" and "feel in control of their health". Interestingly, there was no significant difference between the activists and non-activists in terms of the extent to which they involved patients in shared decision-making. Therefore, doctors' involvement of patients in decision-making was related to patients' reliance orientation but was not related to physicians' attitude towards patients' reliance.

Three studies indicated that women want to be involved in making decisions about HRT. A cross-national survey of 1489 women aged between 40 and 65 years found that 88% felt that they should have a say in whether or not to begin HRT and in which formulation they use (Schneider, 1997). In Bond and Bywater's (1999) research, in-depth interviews were conducted with 16 women aged between 45 and 65 about their decisions to stop using HRT. Several of these women reported that they wanted to have the opportunity to argue with their doctor about HRT in order to enhance their understanding of the therapy and discuss the issues so that they could make an informed decision about their care. The third study, which was based on four focus groups with menopausal women also found that these women thought it was important to have a dialogue with doctors about HRT and decide together about the right treatment (Dayan-Lintzer and Klein, 1999). In addition, these patients argued that doctors should listen to their concerns as well as provide information.

Other qualitative research conducted by Smith, Francis and Rowley (2000) showed that people with arthritis, respiratory disease and mental health problems have mixed views about being involved in discussions about medication. These findings were based on twelve focus group discussions, four of which were held with each of the three groups of patients. The participants were recruited via local and national voluntary organisations in Britain. In one of the meetings with the arthritis patients, the participants expressed concern that they did not have enough knowledge to participate in the decision-making process. Some patients also felt that it would be inappropriate for them to be actively involved in this process and instead felt that their role was to monitor the effects of their medicines and then to report this information to the doctor so that he/she could make a decision about the treatment. However, in two of the four meetings with arthritis patients, some participants stated that they wanted to be given information so that they could make decisions about their medication regimen on their own. In two of the meetings with patients with respiratory disease, the patients reported that doctors excluded them from the decision-making process and that they felt that doctors' attitudes were a barrier to shared decision-making. However, other patients in these groups did not want to be involved in making decisions about their medicines. Participation in decision-making was an important issue in the meetings with patients with mental health problems, although patients felt that they did not have the opportunity to be involved in discussions and that their views were often ignored. Nevertheless, it was suggested that patients experiencing an acute phase of their illness would not be able to participate actively in the decision-making process.

3.1.4.5 Summary of the research on patients' involvement in discussions about medicines

The research in this section indicated that patients often took a passive role in discussions about medicines and that this lack of involvement may be linked to the power imbalance between patients and practitioners. The research also showed that health care professionals' behaviour could either impede or enhance patients' participation in discussions about medicines. Quantitative analysis of doctor-patient consultations showed that patients rarely initiated medication topics, although other research indicated that patients perceived that they raised the topic of medicines more frequently than their doctors. In relation to the factors affecting patients' involvement, the research indicated that white patients were more likely to participate in discussions about their medicines, and that patients' involvement also varied between countries. There were mixed findings about whether males and females differ in their involvement in discussions.

The only study that examined the effects of patient participation in discussions with doctors about medicines indicated that greater patient involvement was associated with greater subsequent understanding of the treatment, more satisfaction with the visit and their doctor's behaviour and less regret about the treatment decision. In relation to patients' communication with pharmacists, patients' and pharmacists' involvement appear to be associated with each other, as patients who initiated more topics were asked more questions and were provided with more information.

There were mixed findings about the extent to which patients wanted to participate in discussions and decisions about medicines, although one consistent finding was that most women wanted to be involved in making decisions about HRT. The reasons given by patients for not being involved in discussions or decisions about medicines included their concern that they have insufficient knowledge to participate, their view that it would be inappropriate, and their perception that doctors' attitudes and behaviour prevents them from being involved. Health care practitioners have also suggested that patients do not participate in discussions about medicines due to intimidation, shyness, embarrassment or their belief that their opinions are not of value. The research examining health care practitioners' views about patients' involvement in consultations showed that practitioners value patients' contributions to discussions about medicines and prefer to share the decision-making rather than having sole responsibility for it. Another implication of the research was that doctors tended not to share decision-making about medicines with those patients who would rather their doctor made decisions for them. Finally, it is worth noting that all the studies investigating patients' views about participating in discussions about medicines focused on HRT or medication for chronic conditions and consequently we did not find any research on patients' desire to participate in discussions about treatment for acute illnesses.

3.1.5 How patients refer to medicines

Two studies reported findings concerning the way in which patients refer to medicines. Pilnick's (1998) research examined chemotherapy patients' and carers' use of medical jargon when interacting with pharmacists in a paediatric oncology clinic. This study used an ethnographical approach involving the collection of fieldnotes and conversation analysis of 43 audiotaped consultations. As the patients and their carers had extensive knowledge and experience of the patients' condition

and its treatment, it is perhaps not surprising that they commonly used technical terms when discussing medicines with their pharmacists. The author also noted that the patients and carers rarely used mitigators, qualifiers or questioning intonation when using technical terms, thus suggesting that they felt comfortable with using medical language. Even in cases when the pharmacist used non-medical terms, the patient or carer countered this by using technical language in his/her responses. Moreover, the author claimed that in this study the use of technical language by both parties helped to minimise the asymmetry between them.

In contrast to the findings of Pilnick's study, the patients involved in Kjellgren et al's (1998) Swedish research tended not to use medical terms when discussing their medication with doctors. The findings of this study were based on the analysis of the follow-up appointments of 51 hypertensive patients and their doctors. In these consultations medicines were referred to in four different ways: implicitly (e.g. "the tablet"), by the brand or generic name, by the drug's pharmacological properties, or by the drug's effects or side effects. The doctor introduced the name of the medication in 29 of the appointments, whereas the patient only introduced it in 12 cases. Moreover, in ten of the appointments the names of the drugs being discussed were never mentioned. The findings also suggested that some of the patients found it difficult to remember and pronounce the names of the medicines. Furthermore, in 21 cases, when talking about the medications, the patients referred to their negative effects, and yet the term "side effects" was rarely used. Four patients also described medicines in terms of their comparison with other previously used drugs, and only two patients used medical jargon.

The studies in this section indicated that patients differ in terms of how they refer to medicines. One possible implication of this research is that patients who have more experience and knowledge of their condition and medications may feel more comfortable about using medical terms in discussions with practitioners. The difference in the findings of the two studies discussed in this section may also be due to the different health care professionals involved, as patients may feel more able to use technical language in discussions with pharmacists than with doctors.

3.1.6 Patients asking questions about medicines

Forty-one of the included articles (37%) examined patients' question asking behaviour. Eighteen of these articles examined the extent to which patients ask medication questions, 16 articles reported findings about the different type of questions patients ask, five investigated the factors affecting patients' question asking, 17 looked at the consequences and 16 explored patients' and professionals' attitudes towards patient questions. These studies used a wide range of methodologies including the audiotaping and observation of consultations and focus groups, questionnaires and interviews with health care professionals and patients. Twenty-one of the articles about patients asking questions about medicines reported the findings of quantitative studies, 11 described qualitative research and the remaining nine reported studies that had used a combination of both types of methodologies. Almost half the articles focused on patients with a specific condition, e.g. asthma or hypertension, or those using particular medicines, such as HRT or analgesics. The other studies concerned communication about a wide range of OTC or prescription medicines or both. Most of the research focused on consultations between patients

and doctors or pharmacists, whilst a few studies investigated patients asking questions of nurses. The literature in this area is discussed under the following sections:

- * extent to which patients ask questions about medicines,
- * what questions patients ask about medicines,
- * factors affecting patients asking questions about medicines,
- * effects of patients asking questions about medicines,
- * patients' and health care professionals' views about patients asking questions about medicines,
- * summary of the research on patients asking questions about medicines.

3.1.6.1 Extent to which patients ask questions about medicines

Half of the 18 articles that examined the extent to which patients asked health care professionals questions about medicines were based on the direct assessment of communication, such as audiotapes or observations of interactions, whereas the other half were based on health care practitioners' or patients' perceptions of patients' question asking behaviour. In this section, we will first discuss the seven articles concerning patients asking questions about medicines in their consultations with doctors. We shall then summarise the eight articles concerning patients' communication with pharmacists, before describing the three remaining articles that compare patients' question asking behaviour with different health care professionals.

Sleath and her colleagues (1999, 2000) investigated the extent to which patients with chronic conditions asked questions about medicines during their visits with their primary care physicians. A total of 467 consultations at various settings in the US and Canada were audiotaped. All the patients were taking one or more continued medicines and there was some discussion of medicines in all the consultations. The mean number of questions patients asked about medicines per consultation was 1.3, with 54% asking at least one question. However, a study by McGrath (1999), based on in-depth interviews with 20 physicians, showed that the physicians perceived that patients rarely asked questions about prescription medicines. Nevertheless, the physicians in this study felt that patients were asking more questions now than they had done in the past. In contrast to these studies, other research, which is described in section 3.1.4.2, indicated that breast cancer patients asked many questions during discussions with their oncologists about adjuvant therapy (Siminoff et al, 2000). In fact, all of the 50 patients in this study asked at least two questions during their consultations. The median number of questions asked was 13.

The other studies that investigated the extent to which patients asked questions about medicines during discussions with their doctors focused on hypertensive patients. Kjellgren et al (1998, 2000) analysed the audiotapes of follow-up appointments with 51 Swedish hypertensive patients who were currently using or had previously used antihypertensive medication. Of the 51 patients, 26 (51%) asked a question about medicines during their consultation, which is a similar finding to that of Sleath et al's research. In addition, during these follow-up visits medication was the second most common topic that patients asked about after joint and back pain. Another Swedish study by Lisper et al (1997), which was based on interviews with hypertensive patients, also suggested that around half of these patients asked their doctors questions about medicines. Of the 21 hypertensive patients who were interviewed in this study, 11 (52%) stated that they did not ask their doctor questions about their medicines.

In four studies interactions were observed or audiotaped in order to directly assess the extent to which patients asked pharmacists questions about their medicines. Observations of 19875 consumers visiting 10 Spanish pharmacies showed that only 14% of these consumers asked for information, and that 56% of this information was about medicines (Agirre Lekue et al, 1993). In relation to prescription medicines, two studies conducted in the US by Sleath (1996) and Schommer (1994), which both involved observations of around 200 interactions between patients and pharmacists about prescribed medicines, showed that 32% and 37% of patients asked questions about medicines respectively. However, Livingstone's (1996) research, based on the analysis of 43 audiotaped interactions between elderly patients and pharmacists about prescribed medications in England, showed that only seven of the patients (16%) asked questions about their medicines. Of the 15 questions that patients asked in this study, six were open questions, nine were closed, and there were no leading questions.

Two studies examined patients' perceptions of the extent to which they ask pharmacists questions about medicines (Cole and Slayter, 1999; Taylor, 1994). Taylor's research focused on patients' perceptions of their communication with pharmacists about non-prescription medicines. The findings of this study were based on the questionnaire responses of 151 consumers who were observed purchasing a non-prescription medicine in a pharmacy without asking for advice from the pharmacy staff. Over half of the participants stated that they infrequently or never asked their pharmacist questions about OTC medicines and less than 5% reported that they asked for advice most of the time. In contrast, only two of the 21 patients surveyed by Cole and Slayter stated that they never asked their pharmacists questions about their prescriptions.

Two studies that investigated pharmacists' experiences showed that they felt that patients rarely ask questions. Maslen, Rees and Redfern (1996) conducted a survey with 534 pharmacists about their perceptions of their communication with schizophrenic patients and their carers. The majority of the 232 pharmacists who responded to the questionnaire item about how often patients and carers ask for advice stated that these consumers ask questions about medicines less than once a month and another 27% stated that they never asked questions. Furthermore, three of the 21 pharmacists working in US urban pharmacies who were interviewed by Reutzell and Wilson (1992) also reported that patients do not ask many questions about their medicines and do not want to be counselled.

The three remaining studies in this section used patient surveys or interviews to investigate the extent to which patients ask different health care professionals questions about medicines. A survey of 779 students in the US found that 50% said that they normally asked their physician questions about medications they are prescribed, whereas only 34% said they normally asked their pharmacist (Trinka, 1991). Other US research, based on two surveys about prescription and OTC medicines completed by 218 and 110 patients respectively, showed that older patients tended to ask doctors more questions about prescribed medicines whereas they tended to ask pharmacists more questions about OTC medicines (Smith, Cunningham and Hale, 1994). Furthermore, in another study, interviews with 17 people with asthma who were taking prescribed oral steroids showed that five patients reported that they had asked their GP for information about medicines, whereas four people had asked a pharmacist and only one had asked a nurse (Stevenson et al, 1999b).

3.1.6.2 *What questions patients ask about medicines*

Many of the 16 articles that examined the medication topics that patients ask questions about were based on quantitative analysis and examined the number or percentage of patients asking particular questions. However, there were also qualitative studies that demonstrated other, less common, questions that were asked during consultations. Some qualitative research also highlighted the questions that are not asked by patients during consultations.

A study conducted in the US and Canada by Sleath and her colleagues (1999) examined the topics that patients taking long-term medications asked their primary care doctors about. In this research, analysis of 467 audiotaped consultations between doctors and patients revealed that the most frequently asked questions were about:

- * quantity or supply (16.4% of consultations),
- * what medications they were taking (14.8%),
- * the condition their medicines were for (8.5%),
- * dosage (8.5%),
- * purpose (7.3%),
- * interval (6.9%),
- * name of the medicine (5.9%),
- * barriers or side effects (4.6%).

Four other articles reporting studies based on audiotaped consultations and interviews with patients also identified other medication questions that patients asked their doctors (Bond and Bywaters, 1999; Kjellgren et al, 1998, 2000; Stevenson et al, 2000). These question topics were:

- * when and how long to take the medicine,
- * when to start taking it,
- * how long until it starts working,
- * benefits,
- * effectiveness,
- * choice of medicines,
- * abuse,
- * expiry date,
- * new prescription,
- * withdrawal,
- * wanting to stop taking it,
- * why a friend with a similar condition had not been given it.

This research was based on both quantitative and qualitative analysis and examined communication about different medicines, including HRT, antihypertensive medication and antibiotics.

Parrott's (1994) exploratory study also identified some types of questions that patients did not ask their doctor. This study was based on the analysis of the videotapes of 12 doctor-patient consultations in which a medicine was prescribed. The findings showed that when the doctor referred to the medicine prescribed as "the medicine" or gave other minimal descriptions, the patients did not ask for clarification. In contrast to the findings of Sleath et al discussed above, none of the patients in Parrott's study asked for information about dosage, and consequently only one patient was given

such information. Furthermore, no patients asked the doctor to repeat information or to write information down.

A questionnaire survey of elderly patients conducted by Smith, Cunningham and Hale (1994) compared the questions that patients reported asking their pharmacists and doctors about prescribed and OTC medicines. In relation to prescription medicines, the most common questions patients reported asking their doctor were about the reason for taking it, when to take it and about the side effects, whereas they most commonly asked pharmacists about side effects, when to take it and about cheaper alternatives. In relation to OTC medicines, the participants most commonly asked both their pharmacists and their doctors about side effects. However, after side effects, the most common question patients asked their pharmacists were about the reason to take it, whereas with their doctors they most frequently asked about how long to take it, cheaper alternatives and interactions with other medicines.

Four other studies examined the questions patients asked their pharmacists about medicines (Agirre-Lekue et al, 1993; Dua, Kunin and Van Arsdale White, 1994; Hassell et al, 1998; Reutzel and Wilson, 1992). In addition to the questions identified by Smith et al's (1994) research, these studies showed that patients also asked their pharmacist about dosage or frequency of administration, how medicines should be kept, the effectiveness of medicines, whether their medicine was correct and whether they were taking it correctly. Dua, Kunin and Van Arsdale White (1994) examined the extent to which patients asked their pharmacists about how to take antibiotics in Nagpur, India. In this study, interviews were conducted with 511 patients who had requested antibiotics, with or without a prescription, at 34 pharmacies. In only 2.5% of consultations did the patient report asking the pharmacist about the dose, frequency or duration of the administration of their medicine, and in only 3.5% of encounters did the pharmacist offer this information without being asked.

Only one study examined the extent to which patients asked nurses questions about medicines (Altman et al, 2000). In this study, the authors examined the extent to which patients with hepatitis C asked nurses questions when they were being given an interferon alpha injection. Questionnaires completed by 42 nurses showed that on average they spent almost four minutes answering patients' questions. The nurses reported that these questions were often about the side effects or efficacy of the treatment.

The question topic that was discussed most frequently in the studies in this section was side effects. This was examined by twelve of the articles in this section (Agirre-Lekue et al, 1993, Altman et al, 2000; Hassell et al, 1998; Kim et al, 1999; Kjellgren et al, 1998, 2000; Lip and Beevers, 1996, 1997; Sleath et al, 1999; Smith, Cunningham and Hale, 1994; Stevenson et al, 1999b, 2000). As discussed above, the studies by Sleath et al (1999) and Smith, Cunningham and Hale (1994) showed that side effects was one of the topics asked about most frequently by patients. Research by Lip and Beevers (1996, 1997) compared hypertensive patients' and GPs' perceptions about the extent to which patients asked questions about side effects. Forty-eight percent of the 178 GPs who completed a questionnaire about their hypertensive patients' behaviour reported that their patients asked questions about side effects "usually", "more often than not" or "always". However, 59% of the 948

patients surveyed via their GP stated that they had never asked about the possible side effects of their medicines.

3.1.6.3 Factors affecting patients asking questions about medicines

All of the five studies that examined the factors affecting patients asking questions about medicines were based on quantitative analysis. Sleath and her colleagues' (1999) analysis of 467 audiotapes of consultations between US doctors and patients, who were using at least one prescribed medication, showed that patients were more likely to ask questions if the doctor was younger and if the patient had started a new medication. Older patients also asked more questions about their medicines than younger patients did, even when the number of medicines the patients were using was taken into account. However, in this study, patients' question asking was not affected by patients' gender, race, income, perceived health, previous visits to the doctor, or their beliefs about whether decisions about their treatment should be made by themselves or their doctor. In addition, the number of medicines the patient was taking and the physician's gender did not affect patients' question asking. The findings of a US survey of 779 students by Trinkaus (1991) also indicated that patients' gender and race was not linked to their reported question asking behaviour with their doctors and pharmacists. In contrast to Sleath et al's study, the findings also suggested that patients' age did not affect question asking. However, this may be due to the fact that in Trinkaus' survey only 7% of the sample were over 23 years old, whereas the mean age of patients in Sleath et al's study was 61 years.

In relation to communication with pharmacists, a study by Maslen, Rees and Redfern (1996) looked at the factors affecting how often schizophrenic patients and their carers sought advice about medication. The results showed that the frequency of questions asked was not affected by pharmacy ownership or location (e.g. village, city suburb etc.) or the number of prescription items dispensed each week. However, research by Agirre-Lekue et al (1993), based on observations of 19875 consumers visiting 10 Spanish pharmacies, found that the types of questions that consumers asked differed between pharmacies in different locations. For example, a third of the medication questions asked by patients in the rural pharmacies were about illnesses, whereas only 15% of the questions asked by the patients visiting central urban pharmacies were about this topic. In addition, a greater proportion of dermatology and cosmetic questions were asked by patients at central urban pharmacies (17%) than by patients at rural (4%) or suburban (5%) pharmacies. Other research by Schommer (1994) also found that, in consultations with pharmacists about prescription medicines, patients were more likely to ask a question when there was inter-role congruence, i.e. when the patient and pharmacist shared a common definition of their communication roles.

3.1.6.4 Effects of patients asking questions about medicines

The 17 articles in this section examined the effect of patients' question asking on health care practitioners' provision of information and other reactions and on patients' experience of the encounter, knowledge of their treatment and regret about the treatment decision. Studies reporting findings concerning the provision of information to patients when patients have not asked for it are also discussed.

Qualitative and quantitative studies showed that on some occasions when patients ask questions about medicines doctors do not provide adequate answers (Bond and

Bywaters, 1999; Sleath et al, 1999; Stevenson et al, 1999b). For example, five of the seventeen asthma patients interviewed by Stevenson and her colleagues (1999b) stated that when they asked their GP for information the information they were given was not sufficiently detailed. In addition, one of patients described having been teased in the practice about the number of questions she asked. In another study, in which 62 consultations between GPs and patients were audiotaped, some doctors were found to block patients' requests (Stevenson et al, 2000). However, it was noted that, in general, the GPs in this study appeared to be happy about responding to patients' questions.

In relation to pharmacists' responses to patients' questions about medicines, Marshall and his colleagues (1997) found that just under two-thirds of the 62 HIV-positive male participants surveyed in their study felt that their pharmacist spent as much time as necessary answering their questions. Furthermore, a survey of 21 patients who were admitted to a gynaecological oncology ward showed that 16 of the 19 patients who said that they asked their community pharmacist questions about their prescriptions reported that their pharmacist always answered them (Cole and Slayter, 1999). Holloway's (1996) research also examined the extent to which patients being discharged from hospital felt that hospital staff had answered their medication questions. In this study, 20 patients completed a questionnaire about their knowledge about their medicines on discharge from hospital. All the patients who felt that they had been given an opportunity to ask questions about their medicines during their hospitalisation reported that they had been given the information they had requested. However, it is worth noting that only half of the patients felt that they had been given such an opportunity.

Schommer and Wiederholt (1997) investigated the effect of patients' question asking on the information pharmacists provided about various medication topics. In this study 358 encounters between pharmacists and patients about prescription medicines in 30 US community pharmacies were observed and coded. Patients' question asking was found to predict the information patients received about the following seven topics: administrative elements, continuity of therapy, contraindications, purpose, side effects, interactions and monitoring. However, the other two types of information that were investigated, directions for use and name of the medication, were not influenced by patients' question asking. Furthermore, patients' question asking also predicted pharmacists asking patients for feedback about their experience or concerns about medicines.

Three articles reported research which showed that doctors and nurses did not usually provide unsolicited information to patients about their medicines. Kjellgren et al (1998) analysed the audiotapes of 51 follow-up consultations between hypertensive patients and their doctors and found that doctors rarely gave detailed information about the benefits of the medicine unless the patient queried the reason for taking it. In relation to hypertensive patients' communication with nurses about their medicines, Lip and Beevers (1996, 1997) found that the majority of the 158 practice nurses who completed the questionnaire stated that they would only tell patients about side effects if they asked. Moreover, only 23% of the nurses said that they would tell patients about the side effects without being asked.

The research examining the extent to which pharmacists provided unsolicited information to patients have generated mixed findings. Blom et al's (1998) study based on the audiotapes of 6784 contacts in Dutch community pharmacies found that in the vast majority of cases the information that was provided was given without the patient having asked for it. Another study based on the observations of 2379 interactions in ten English pharmacies also showed that pharmacists frequently give patients unsolicited information about their medicines (Hassell et al, 1998). Moreover, Agirre-Lekue et al's (1993) observations of 19875 consumers visiting 10 Spanish pharmacies showed that 31% of the information provided to patients was not requested by the patient, although much more of the unsolicited information was about medicines (90%) than the requested information (56%). The vast majority of unsolicited information provided by the pharmacist was about how to use and store medicines and dosage, whereas the information patients requested was more evenly spread over a wide range of topics. However, the findings did show that more of the information requested by patients was about the effect and potency of medicines than of the unsolicited information provided. There were also some differences between the proportion of different types of information provided in pharmacies in rural, suburban and central urban areas.

In contrast to these studies, research conducted in India concerning 511 interactions between pharmacists and customers who requested antibiotics showed that unsolicited advice about the use of the medication was only given in 3.5% of the interactions (Dua, Kunin and Van Arsdale White, 1994). The substantial differences between the results obtained by the studies investigating the extent to which unsolicited information was provided by pharmacists may be due to the different policies employed by the various countries in which these studies were conducted.

Other research examined the relationship between patients asking questions and their other behaviour during their consultations. As discussed in section 3.1.6.1, Sleath and her colleagues (2000) analysed the audiotapes of 467 primary care visits involving patients using long-term medication. The findings showed that the number of questions patients asked about medicines was not related to their expression of either a complaint about the medicine or an adherence problem during the consultation. In addition, patients who asked questions were not more likely to be seen by their doctor as irritating (Sleath et al, 1999). The extent to which patients asked questions was related to doctors' perceptions of the patients as having showed assertion and interest.

Only one study investigated the impact of the questions patients asked on how patients felt after the consultation (Siminoff et al, 2000). This research examined the impact of the total number of questions patients asked during discussions about breast cancer adjuvant therapy on patients' comprehension of the therapy and their satisfaction with the visit and the therapy decision. Patients who asked more questions were found to have a better understanding of the medicines, but were less likely to feel that their doctor had adequately explained the need for more treatment. Furthermore, these patients were less likely to feel that the decision had been theirs to make and that it had been clear-cut.

3.1.6.5 Patients' and health care professionals' views about patients asking questions

Of the 16 articles about people's attitudes towards patients asking questions, 15 examined patients' views and one explore doctors' views. In this section, we will first

describe the research on the medication topics patients think are the most important to ask about. Then we will discuss the studies examining patients' reasons for not asking health care professionals questions, how comfortable they feel about asking questions and the benefits of questions. The final study discussed explored doctors' views about the positive consequences of patient questions. The research on patients' opinions described in this section examined their views about communicating with various health care professionals including doctors, pharmacists and nurses.

Smith and Smith (1999) investigated the questions that elderly patients in mainland China, Hong Kong and the US think are the most important to ask their doctors about their medicines. This article compared the questionnaire responses of 397 Hong Kong participants and 444 participants from mainland China with data from an earlier survey conducted with 218 US patients (Smith, Cunningham and Hale, 1994). The four most important topics rated by the patients in mainland China and Hong Kong were how the medicine will help, side effects, when to take it and how long to take it. However, the US patients considered the most important topics to be when to take the medicine, the reason for taking it, side effects and how long to take it. Other research also investigated the questions that patients most wanted their pharmacist to answer (Chewning and Schommer, 1996). In this study, data from questionnaires completed by 355 pharmacy clients who collected a prescription at 19 Wisconsin pharmacies showed that the questions they most wanted their pharmacist to answer when collecting a new prescription were about:

- * side effects (60% of patients),
- * directions for how to take and store medicines (51%),
- * interactions with food, alcohol or other medicines (25%),
- * administration (i.e. refills, insurance, generic available, price; 16%),
- * what the medicine does and effectiveness (12%),
- * other topics (i.e. contraindications, continuity of therapy, monitoring; 14%).

The vast majority of these patients reported that they would not have different questions if they came back to collect a repeat prescription. Qualitative research by Meystre-Agustoni et al (2000) also showed that patients with HIV found some questions easier to ask than others. This study involved the analysis of in-depth interviews with 37 patients receiving antiretroviral therapy. The findings indicated that patients felt that it was easiest to ask their doctors about the combination of medicines, but that it was more difficult to raise questions concerning the long-term effects of therapy. It was also noted that the patients had doubts concerning their doctors' ability to answer questions about the long-term effects of their treatment.

In terms of patients' reasons for not asking questions, Smith et al's (1994) research discussed above indicated that US elderly patients' question asking may be influenced by time limitations as on the whole they agreed with a statement saying that they would ask more questions if their doctors were not so busy. However, these patients also strongly agreed that, if they were not informed about their medicines by their doctor, they would ask about them. In the later study by Smith and Smith's (1999) when these results were compared to those of the patients from Hong Kong and mainland China the findings indicated that the US and Hong Kong patients were more likely to feel that they would ask more questions if their doctor were less busy than those patients from mainland China. Furthermore, US patients were more likely to

state that they would ask about their medicines if they were not told about them by their doctor than the patients from mainland China or Hong Kong.

Lip and Beevers (1996, 1997) also examined patients' reasons for not asking health care practitioners questions about medicines. This study was based on a survey of 948 patients using antihypertensive medicine who were recruited via their GP. A total of 561 of the patients reported that they had not previously asked a health care professional about the possible side effects of their medicines. Sixty percent of these respondents stated that this was because they did not think there were any side effects. Other reasons that were given were that they did not want to waste the doctor's time, did not want to know about the side effects, had already been told by their GP about them or had read the leaflet in the medicine pack. In relation to patients' reasons for not asking pharmacists questions, Chewning and Schommer's (1996) survey, discussed above, showed that patients felt the most important barriers to patients asking questions were:

- * fear or embarrassment about asking questions (22%),
- * lack of awareness about the questions they can/should ask (20%),
- * pharmacy barriers (e.g. the pharmacist being too busy or rude, no privacy, the clerk giving the patient the prescription; 18%),
- * trust in or loyalty to doctor (17%),
- * patient barriers (e.g. too busy, ill or distracted with children; 7%),
- * doctor had answered questions (4%),
- * other (e.g. lack of confidence in pharmacist, think of questions later; 8%).

Another study looked at patients' reasons for not asking pharmacists for advice when purchasing OTC medicines (Taylor, 1994). Out of 151 patients who completed the questionnaire, six stated that they wanted advice but did not ask for it. The reasons they gave were that the pharmacist was too busy and the consumer did not want to bother him/her, it was hard to get the pharmacist's attention or the consumer was in too much of a rush. This study also showed that approximately half of the participants preferred to ask for advice than to have it offered by the pharmacist.

Qualitative research by Francke and Theeuwens (1994) based on interviews with 26 Dutch women who had recently undergone breast cancer surgery indicated some of the barriers to postoperative patients asking nurses about questions about analgesia. Some of the patients in this study claimed that if they had asked the nurses questions about pain medication they would have been answered, yet some patients also expressed concern about being too troublesome. Other patients said that they had not expressed their pain as the nurses were too busy to attend to their pain or to answer their questions about analgesia.

In agreement with Chewning and Schommer's (1996) findings, analysis of interviews with 443 patients aged over 60 years by Montbriand (2000) indicated that some older patients felt that they did not know how to ask health care professionals for information about their prescriptions. Moreover, interviews conducted with 27 patients with chronic heart failure conducted by Rogers et al (2000) showed that some patients did not think they should ask questions about their drugs as they felt that their doctors knew what was best for them.

Other qualitative research showed that patients have positive attitudes towards asking questions. In Smith, Francis and Rowley's (2000) study, four group interviews were held with patients with mental health problems who were using medicines on a long-term basis. In each of the meetings the patients stated that they needed to be proactive in obtaining information about medicines when interacting with health care professionals. Furthermore, Wood et al (1997) conducted interviews with 25 patients who had had their prescription changed from ranitidine to cimetidine and found that most of the patients reported that when they discussed the change with their GP they felt happy about asking questions. The 21 hypertensive patients who were interviewed by Lisper et al (1997) also stated that the reason why they preferred oral communication with health providers about their medicines, rather than written communication, was because it provided them with an opportunity to ask direct questions. Finally, 14 of the 40 pharmacy consumers interviewed by Morris, Cantrill and Weiss (1997) stressed the importance of pharmacists being available to answer patients' medication questions.

The final study that investigated patients' attitudes suggested that patients using highly active antiretroviral therapy (HAART) felt that asking questions was instrumental to their adherence (Catz et al, 2000). Forty-five of the 72 participants (63%) reported that forgetting to ask questions about treatment at clinic appointments was a barrier to adherence. Moreover, the majority of patients considered asking a doctor, nurse or pharmacist about medication in person or by telephone to be a strategy to promote their own adherence.

The only study that examined health care practitioners' views about patients asking questions about medicines showed that US doctors were willing to answer patients' queries about prescription medicines (McGrath, 1999). The findings of this research, which was based on 20 interviews with doctors, showed that they felt that when patients ask questions about their medicines it gives doctors an opportunity to reassure patients about their treatment and to deal with their concerns. In addition, it was suggested that by asking questions patients may alleviate their fears about side effects.

3.1.6.6 Summary of the research on patients asking questions about medicines

The research investigating patients asking questions about medicines showed that around half of patients using long-term medications asked their doctors questions but less than 40% of patients asked pharmacists about their prescription medicines. Patients asked practitioners a wide range of questions, including how to take a medication, what a particular medicine is, what the side effects are, what the benefits are and how effective it is. However, some research suggested that patients asked doctors and pharmacists different questions and that they tended to ask their pharmacists more questions about side effects, cheaper alternatives and interactions, whereas they tended to ask their doctors more questions about the reasons to take a medicine. In relation to the factors affecting patients' question asking, the findings showed that patients asked their doctors more questions when they were starting a new medicine and when they were consulting with a younger doctor. Older patients may also be more likely to ask questions, although the findings concerning this issue were not consistent. Furthermore, patients were more likely to ask their pharmacists questions if they had similar views about each other's communication roles.

Although health care practitioners claimed that they are willing to answer patients' questions about medicines, the research suggested that they did not always provide adequate responses. Nevertheless, patients who asked their pharmacists questions were more likely to receive more information than those who did not. The positive consequences of patients' question asking were doctors perceiving patients to be more assertive and interested and with patients gaining a greater understanding of their treatment. However, patients who asked questions were also found to be more dissatisfied with their consultation and to have more regret about their treatment decision. The topics that patients thought were the most important to ask about included the reasons for taking medicines, side effects, interactions and when and how long to take them. However, there were many reasons why patients did not ask questions, including embarrassment, lack of awareness of the questions to ask, the practitioner being too busy, not wanting to waste the practitioners' time or to bother them, not wanting to know negative information and having already obtained the information from the practitioner or another source. Finally, not all patients felt that it was appropriate for them to ask questions about medicines, although, in relation to communication with pharmacists, most patients preferred to ask for advice rather than have it offered.

3.1.7 Patients requesting medicines

Thirty-four of the articles included in this review reported studies about patients voicing their desire to be given or not given a medicine. Twenty-one of these articles reported findings about the extent and ways in which patients voice this desire, seven articles examined the factors affecting this behaviour, 19 looked at the consequences and 8 explored patients' attitudes towards it. Just over half of these studies used quantitative methods and the majority focused on patients' communication with doctors. Although the communication examined in this research concerned a wide range of medicines, three particular medicines, HRT, post-operative analgesics and antibiotics, were particularly common. The literature in this area is discussed under the following sections:

- * extent and ways in which patients voice their desire to have or not have medicines,
- * factors affecting patients requesting medicines,
- * effects of patients requesting medicines,
- * patients' and health care professionals' views about patients requesting medicines,
- * summary of the research on patients requesting medicines.

3.1.7.1 Extent and ways in which patients voice their desire to have or not have medicines

Of the 21 articles discussed in this section, only seven directly assessed patients' expression of their desire for medications, i.e. by audiotaping or observing the consultations (Barry et al, 2000; Britten et al, 2000; Elwyn et al, 1999; Gwyn and Elwyn, 1999; Hassell et al, 1998; Smith-Dupre and Beck, 1996; Sleath, Svarstad and Roter, 1997). The majority of the studies examined patients' or health care practitioners' perceptions of patients requesting medicines using questionnaires or interviews. As most of the studies in this area investigated communication concerning a particular medicine or condition, we will discuss the studies according to the medicines that they focused on. Therefore, in this section, we will first discuss the research concerning patients expressing their desire for various medications during GP consultations before describing the studies concerning patients' requests for antibiotics, antidepressants, HRT, analgesics, psychotropic medication, nicotine

patches and epilepsy medication. The final article described in this section is the only study included in the review about patients expressing their desire for medications to pharmacists.

A study by Barry and her colleagues (2000) explored the extent to which patients voiced their agendas in general practice consultations. This research was based on 35 audiotaped consultations and patient and GP interviews. The interview data showed that 22 of the patients had one or more agenda items relating to a prescription request. However, nine of these 26 agenda items were not voiced in the consultation. In addition, nine patients had agenda items about not wanting a prescription, yet only three patients expressed this preference to their GP. In the same study, none of the five patients who received unwanted prescriptions told their doctor that they did not want them (Britten et al, 2000). Therefore, in many cases the patients did not voice their preference not to have a prescription and consequently some doctors assumed that patients wanted a prescription when they did not. Other research conducted in Spain by Extremera et al (1995) showed that 69 of the 83 patients who visited their GP after having previously consulted with a private doctor asked their GP to prescribe them a medicine that their private doctor had suggested.

Six articles described the extent to which patients expressed their desire for antibiotic prescriptions. Four of these studies examined health care professionals' and patients' reports of the extent to which patients' expressed their desire. A UK survey of 787 patients who had consulted a GP with an acute lower respiratory tract infection showed that only a fifth reported that they had asked for an antibiotic (Macfarlane et al, 1997). Furthermore, of the 561 patients who stated that they had wanted an antibiotic, only around a quarter said that they had asked for one. Interestingly, one patient who did not want antibiotics and one patient who had not thought about requesting them also stated that they had asked for a prescription. In agreement with this study, Nazareth and King (1993) found that a fifth of 54 women who presented to their GP with lower urinary tract symptoms requested an antibiotic, according to the questionnaire responses of their doctors. Surprisingly, women who were found not to have a significant infection tended to be more likely to ask for an antibiotic. However, research conducted in the US found that 96% of doctors claimed that in the past month parents had requested antibiotics which the doctor felt were not indicated (Bauchner, Pelton and Klein, 1999). Indeed, 40% said that this had happened more than ten times. The majority of doctors also reported that patients had requested specific antibiotics or different antibiotics to the ones they were going to prescribe. Almost a third reported that they had been asked for antibiotics by parents over the telephone.

Other research involving interviews with 17 patients who had recently consulted a GP with a sore throat or upper respiratory tract infection also showed that only one patient had expressed an expectation for antibiotics even though a third of the patients had expected them to be prescribed (Butler et al, 1998). The patient who voiced her expectation was not given a prescription, yet she reported that she was satisfied with the non-antibiotic management of her illness as she had a good relationship with her doctor and was happy with the information she received. The two other articles that examined the extent to which patients requested antibiotics described one study in which the communication about antibiotics was assessed directly (Elwyn et al, 1999; Gwyn and Elwyn, 1999). This research was based on the detailed analysis of two

audiotaped consultations between parents of children with upper respiratory tract infections and a GP with an interest in patient participation in treatment decisions. In both consultations the parents expressed their desire for an antibiotic prescription and justified their preference by describing their experiences of antibiotics having been effective for similar illnesses their children had had in the past.

Research by Smith-Dupre and Beck (1996) based on observations of 53 consultations between one doctor and her patients highlighted a number of issues concerning patients requesting antidepressants. In one of the consultations described, when the patient first raised the topic of antidepressants she belittled their usefulness, yet the authors argued that the patient's utterances were a precursor for a request for antidepressants. They suggested that in this case the patient acknowledged the limitations of the medication in order to provide herself with an "out" if the doctor refused her request. The authors also argued that the patient introduced the topic of antidepressants in an apologetic manner in order to demonstrate respect for the doctor's control over the decision. Furthermore, due to the stigma related to mental illness and use of antidepressants, the patient stressed the situational reasons for her desire for a prescription.

Four studies investigated women's experiences of asking for HRT. A survey of 1308 postmenopausal Finnish women conducted by Topo, Hemminki and Uutela (1993) showed that there were more women who had been offered HRT by a physician (43%) than women who had requested it (26%). A postal questionnaire completed by 539 women aged between 44 and 64 in the UK also found that around a quarter of women had asked their doctor for HRT or for more information about it (Kadri, 1991). However, 24% of these women reported that they would have had to or did apply pressure on the doctor to be given HRT. This finding is supported by another British survey of 1225 women aged between 20 and 69, which showed that almost 15% of the 200 women who had discussed HRT with their GP or practice nurse felt they had had to persuade them to initiate therapy (Griffiths, 1995). Some of the 16 women interviewed by Bond and Bywaters (1999) also reported that they had had difficulties in persuading their doctors that they did not want to use HRT. Indeed, one woman in this study stated that she had had to repeatedly refuse an HRT prescription from her GP that she did not want as she was concerned about the risk of breast cancer. This woman also described having an argument with the gynaecologist she was referred to who dismissed her concerns, stating that they were not sufficient justification for not taking HRT.

The literature showed that between 30% and 37% of patients requested analgesia after an operation (Bachiocco, Rucci and Carli, 1996; Lavies et al, 1992; Oates, Snowdon and Jayson, 1994). Oates Snowdon and Jayson's study also found that, of the 200 patients who completed a questionnaire about their post-operative pain, 23% reported that they had felt reluctant to ask for analgesia and 14% stated that they had refused painkillers. In addition, Lavies et al's research, based on 52 patient questionnaires, showed that 31 patients (60%) stated that they had waited for an injection to be given or offered when they experienced pain after the previous injection had worn off.

The three other studies that investigated the extent to which patients expressed their desire to begin or stop treatment to their doctor focused on psychotropic drugs, epilepsy medication and nicotine patches. Sleath, Svarstad and Roter (1997)

audiotaped 88 primary care consultations in which patients had been prescribed with a psychotropic medication. The findings showed that in 37 of the interactions (42%) the prescribing had been initiated by the patient rather than the doctor. In a study by Haxby and his colleagues (1994), 76 patients who visited a pharmacy for a new or repeat prescription for a nicotine patch completed a questionnaire. Sixty-six of the patients (87%) stated that they had asked their doctor for the nicotine patch, whereas only seven (9%) reported that they were asked to try it by their doctor. The third study involved a survey of 99 patients with active epilepsy (Freeman and Richards, 1994). Fifty-five percent of the patients in this study reported that they had not discussed their feelings about stopping medication with a GP or a specialist.

Only one study investigated the way in which patients request medicines in pharmacies. Hassell and her colleagues (1998) used an ethnographic research methodology involving interviews with patients and observations of 2379 interactions between patients and pharmacists in ten British community pharmacies. The findings indicated that patients requested OTC medicines in one of two ways: they either asked for a particular product or they described their condition to the pharmacy staff who responded by recommending a product. The findings showed that the former route occurred in the majority of consultations.

3.1.7.2 Factors affecting patients requesting medicines

The seven studies reporting findings about the factors affecting patients requesting medicines investigated a substantial number of patient and practitioner characteristics. Sleath, Svarstad and Roter (1997) investigated the factors that affected whether physicians or patients initiated the prescribing of psychotropic medicines during primary care consultations. In this study, content analysis was used to analyse 88 audiotaped US primary care consultations in which patients had been prescribed a psychotropic medication. Patient initiation of prescribing was defined as an explicit verbal cue made by the patient indicating that he/she wanted a prescription, which was made before the physician suggested a prescription. The results showed that patients with a family income of \$20 000 or more were significantly more likely to initiate the prescribing than patients with lower incomes. Patients who had received a repeat prescription and those who had had more previous visits to their doctor also tended to be more likely to initiate the prescribing. However, patient initiation of psychotropic prescribing was not related to patients' gender, race, age, rating of physical or emotional health, or preference for the treatment decision to be made by the doctor or the patient. Logistic regression analysis indicated that patients' initiation of prescribing was predicted by patient income and previous visits to the doctor.

In contrast to these findings, a study by Freeman and Richards (1994) showed that patients were not more likely to express their preferences concerning medications when they frequently consulted with the same doctor. This research, which involved a survey of 99 patients with epilepsy, showed that there was no relationship between patients having had better continuity with one doctor and patients reporting that they had discussed their feelings about stopping medication with a doctor.

Two studies examined the factors that affected whether or not women requested HRT from their doctor (Kadri, 1991; Topo, Hemminki and Uutela, 1993). Topo et al's study was based on a survey in Finland with 1308 postmenopausal women aged between 45 and 64 years. The women who reported that they had asked their doctor

for HRT were more likely to have had a longer general education and have urban residence. In addition, in contrast to the findings of Sleath, Svarstad and Roter (1997) discussed above, a significant association was found between patients' age and their request for medication, with younger women being more likely to ask for HRT. The women were also asked about whether they had consulted a gynaecologist or another physician about the menopause. Those women who stated that they had consulted with a gynaecologist were more likely to ask for HRT than those who reported that they had consulted another physician or had not consulted any doctor about their menopause. This relationship remained significant when women's education, age and place of residence were taken into account. It is also worth noting that 88% of the women who reported that they had requested HRT had also been offered it by their doctor, whereas only 27% of the women who had not requested HRT had been offered it.

In the other study on HRT, Kadri (1991) found that women were more likely to have approached their GP to request HRT or get more information about it if they considered themselves to be in the 'change of life', if they had suffered more symptoms relating to the menopause, and if they had had a hysterectomy. These findings were from a survey conducted in the UK which was completed by 539 women aged between 44 and 64. This study found no significant association between approaching a GP about HRT and women's social class or if they were postmenopausal or not.

Two of the included studies examined the characteristics that affect patients' requests for postoperative analgesia (Bachiocco, Rucci and Carli, 1996; Francke and Theeuwen, 1994). In the study by Bachiocco, Rucci and Carli, 126 patients completed a battery of questionnaires assessing various psychological and other factors before they underwent thoracic surgery. The findings showed that patients who requested analgesia were more likely to have used painkillers before and were less likely to have had an operation in the past. Patients' analgesia requests were also related to their use of poor pain tolerance models in childhood, but were not related to the models used in adulthood. In addition, patients were more likely to ask for painkillers if they had pain that began earlier, was more severe or lasted longer and if they had higher scores on the psychopathic deviate, paranoia, psychasthenia, schizophrenia and neuroticism scales and if they considered themselves to be passive. This study also examined the impact of patients' age, sex and educational level on their requests for postoperative analgesia. In agreement with the findings of Topo, Hemminki and Uutela (1993) discussed above, younger patients were more likely to request analgesia. Bachiocco et al also found that patients were more likely to ask for analgesia if they had a lower educational level. This is in contrast to Topo et al's study, although as requesting analgesia and HRT are quite different behaviours, it is perhaps not surprising that they were influenced by characteristics in different ways. Finally, in Bachiocco et al's study patients' sex was not related to their medication requests. The logistic regression analysis showed that request for medications in 68.4% of patients who asked for analgesia and the non-request in 90.8% of those who did not ask for painkillers was predicted by educational level, pain intensity and duration, paranoia and previous analgesic use.

The second study that examined the characteristics that affected patients' requests for postoperative analgesia was by Francke and Theeuwen (1994). In this study, 26

women who had recently had breast cancer surgery were interviewed about their experience of postoperative pain and their communication with nurses about pain and analgesia. Some of the women felt that painkillers had a very negative impact upon health and stated that they were reluctant to ask for analgesia unless they were in severe pain. This supports the finding of Bachiocco, Rucci and Carli (1996) that patients' analgesia requests were predicted by pain intensity. Francke and Theeuwen also noted that one patient who expressed her feelings of pain and seemed comfortable about asking for medication appeared to have been encouraged by the nurses to express her pain. Furthermore, this patient was the only one for whom a pain assessment and management plan was pursued.

Finally, Smith, Francis and Rowley (2000) conducted a series of focus groups with people with mental health problems that explored their experiences of medicine use and their involvement in decisions about their treatment. In relation to requesting medicines, the patients felt that they were more able to ask for specific medicines in private practices.

3.1.7.3 Effects of patients requesting medicines

Nineteen articles examined the effects of patients expressing their desire to use or not use medicines. Most of the research in this section used qualitative methods to investigate doctors' reactions to patients' requests, including whether or not they gave or prescribed medicines. In some cases, individual cases from studies are described in order to demonstrate the kinds of reactions that doctors had when patients requested medicines.

Britten and her colleagues (2000) examined the misunderstandings that had occurred in prescribing decisions in general practice consultations. In this study the consultations of 35 patients were audiotaped and the patients were interviewed before the consultation and both the patients and the GPs were interviewed afterwards. Although the findings indicated that many patients had a dislike of taking medicines, the GPs did not appear to be aware of this. Indeed, the patients rarely expressed their antipathy towards medicines in the consultations and consequently GPs sometimes assumed that patients wanted a prescription when they did not. Furthermore, when prescriptions were given in these circumstances, this sometimes led the patient to believe that drug treatment was necessary. In another article discussing the findings of this study, it was argued that if patients had voiced their antipathy to medicines in these consultation then some unnecessary prescriptions may have been avoided (Barry et al, 2000). In a third article based on this study, the authors also suggested that even when patients did express their medication preferences, shared decision-making was not possible if the doctor did not also express their views about treatment (Stevenson et al, 2000).

Other qualitative research by Fahy and Smith (1999) indicated that in some circumstances health care practitioners expressed their disagreement with patients' medicine requests. In this study an ethnographic approach was used to carry out an in-depth analysis of the conversations between a woman who was in second stage labour and the health care professionals who were caring for her. Also, one of the researchers took the role of the patient's support person during labour. When the patient told the doctor that she wanted to have the epidural topped up he reacted by

telling her that she was being selfish and that she might cause her baby to have brain damage.

Six articles examined the impact of patients' expression of their desire to have antibiotics on doctors' decision to prescribe and their perceptions of being pressured to prescribe. Nazareth and King (1993) investigated the factors affecting doctors' decision-making about the treatment of lower urinary tract symptoms in 54 women. After each consultation the GP was asked to complete a questionnaire about whether or not the patient had requested an antibiotic and whether or not one had been prescribed. The analysis showed that patients' antibiotic requests were associated with antibiotic prescribing. However, a survey of 1000 paediatricians in the US showed that 44% rarely complied when parents requested antibiotics that they did not feel were indicated (Bauchner, Pelton and Klein, 1999). Twenty-two percent reported that they never complied with such requests and 79% said they never complied when parents requested antibiotics by phone. Qualitative research conducted in the UK by Butler et al (1998) showed that some GPs try to persuade patients not to use antibiotics when they are not necessary. In this study, interviews were conducted with 21 GPs and 17 of their patients who had recently consulted for a sore throat or upper respiratory tract infection. The GPs reported that they tried to gauge patients' willingness to have non-antibiotic treatment although they did give a prescription when patients expressed resistance to this approach.

Macfarlane and his colleagues (1997) also examined the factors that affected antibiotic prescribing for 787 patients who presented to their GP with acute lower respiratory tract symptoms. During each consultation the GPs were asked to record whether or not their prescribing decision had been influenced by patient pressure and after the consultation the patients were asked to complete a questionnaire concerning whether or not they had requested antibiotics. In consultations when the patient had requested an antibiotic the doctor was significantly more likely to feel that his/her prescribing decision had been influenced by patient pressure. The fifth study, which examined the feasibility of shared decision-making in two consultations for upper respiratory tract infections showed that when the parents of child patients expressed their preference for antibiotic treatment the GP responded by attempting to change the parents' choice (Elwyn et al, 1999; Gwyn and Elwyn, 1999). The authors argued that, according to research by Towle (1997), this behaviour does not adhere to the shared decision-making model. Indeed, in one of the two consultations analysed, the parent had to repeat his preference for antibiotics three times. Furthermore, in both cases it appeared that at the end of the consultation there was no agreement between the parents and doctor but that ultimately either the parents or the doctor gave in.

Gerbert et al (2000) explored health care professionals' perceptions of how they responded to medication requests of patients with HIV. In this study a series of focus groups were conducted with 35 practitioners who cared for patients with HIV. Most of the practitioners reported that they never refused to prescribe medicines when patients requested them. However, some of the practitioners stated that, when they disagreed with patients' views about treatment, they tried to persuade the patients to change their mind, although they felt that ultimately the patient should make the decision. Research by Parrott (1994) also showed that in some cases when patients' medicine requests were considered to be inappropriate by the doctor the doctor reacted by trying to persuade the patient to try an alternative therapy. In this study,

Parrott conducted an in-depth analysis of 12 videotaped family practice consultations in which a prescription had been given in order to investigate the exchange of information about medicines. In one of the consultations described the doctor was concerned about the risk of addiction of a particular medicine and therefore suggested alternative treatments. However, as the patient stated that the alternatives had been ineffective and that the medicine was necessary because the pain was so intense, the doctor decided to give the prescription. This finding indicated that physicians are sometimes reluctant to grant patients' requests for medicines and consequently patients have to convince doctors to give them a prescription.

Another consultation described in Parrott's article showed that some doctors' reactions to patients' requests for medicines may have prevented the patient from participating in decision-making. In this consultation, a patient with acne asked about retinoic acid treatment and the doctor reacted by making a joke about it being an excessive therapy to use in this case. The author argued that such a reaction may have stopped the patient from pursuing this issue. Other research by Stevenson et al (1999b), in which 17 asthma patients were interviewed, also showed that one patient felt that when she expressed her concerns about the medicine she was prescribed her point of view was ignored.

Two other studies described doctors' reactions in cases when patients were dissatisfied with a change in their medication and had asked if they could change back. Wood et al (1997) interviewed 25 patients who had been asked to make a therapeutic substitution of cimetidine for ranitidine, which are both used to treat stomach ulcers. Seven of the patients reported that they had asked their GP to change back to ranitidine because they felt that cimetidine was less effective or had side effects. None of these patients felt that there was any resistance from their GP when they asked to change back. However, the 21 GPs interviewed by Stevenson and her colleagues (1999a) varied in the extent to which they were willing to grant patients' requests to change back from a generic to a brand product.

A survey conducted by Oates, Snowdon and Jayson (1994) indicated that patients' asking for or refusing postoperative analgesia has a considerable impact on whether or not painkillers were administered. The survey was carried out with 126 hospital staff members who were asked why postoperative patients do not receive analgesia when they are in pain. The most common reason according to the participants was that patients did not ask for pain relief. Patients refusing analgesia was also a common reason given by the staff. However, many of the other reasons given indicated that the administration of analgesia to patients in pain was also affected by factors unrelated to patients' desire for the medication. In particular, a number of practical reasons for patients not being administered painkillers were mentioned, including the prescription chart or the keys to the medicine cabinet being unavailable, drugs being out of stock and there being no one there to check the drugs. The only study in this section that examined communication between pharmacists and patients also showed that pharmacists sometimes ignored patients' medication preferences (Leemans and Laekeman, 1998). In this research the counselling behaviour of 78 pharmacy students who had undergone an educational intervention about cough medicines was assessed by a pharmacy visit from a student pretending to be a patient. The findings showed that two of the students gave non-brand cough syrups to the patient despite the fact that the patient had asked for a brand medicine.

Only two studies investigated the impact of patients' medication requests on patients' feelings and behaviour after the consultation. Both of these studies focused on communication about HRT (Dayan-Lintzer and Klein, 1999; Topo et al, 1993). Topo et al's survey of 1308 postmenopausal Finnish women showed that 94% of the 342 patients who had requested HRT from a physician had subsequently used HRT. In contrast, only 26% of the 789 patients who had never requested HRT from a doctor had used it. Furthermore, Dayan-Lintzer and Klein's survey of 394 women who used HRT showed that a smaller proportion of women who had asked for HRT from their doctor stated that they were satisfied with the treatment than of those women who made a shared decision with their doctor about HRT or whose doctor proposed it.

3.1.7.4 Patients' and health care professionals' views about patients requesting medicines

Of the eight studies that investigated people's views towards patients requesting medicines, four explored patients' views and four examined doctors' attitudes. Two of the studies that looked at patients' views involved quantitative surveys about patients asking hospital staff for postoperative analgesia. As discussed in section 3.1.7.1, a questionnaire survey of 306 postoperative patients found that 14% had refused analgesia and 23% had felt reluctant to ask for it (Oates, Snowdon and Jayson, 1994). In this survey, the patients were asked to rate their anxiety about various potential reasons for being reluctant to ask or refusing to accept painkillers. In response to this question, 29% of the patients stated that they were moderately or very anxious about needles or injections. In addition, the majority of patients reported that they felt slightly anxious about the embarrassment of asking for painkillers, the risk of addiction, the pain not being severe enough, and dislike of the drowsiness and nausea associated with painkillers. In another study, 180 patients completed a questionnaire the night before they were due to have surgery (Brydon and Asbury, 1996). The patients were asked to rate their agreement with a series of statements relating to their attitudes towards pain and analgesia. The results showed that patients strongly disagreed that they "should not bother staff by asking for painkillers".

The third article on patients' views described the findings of qualitative interviews with patients about requesting antibiotics from their GP. Butler and his colleagues (1998) explored the attitudes of patients who had recently consulted their GP with a sore throat or upper respiratory tract infection. As discussed in section 3.1.7.1, of the 17 patients who were interviewed only one stated that they had expressed their expectations for an antibiotic prescription to their doctor. The vast majority of those who had not expressed their expectations stated that this was because they felt that it was their doctor's responsibility to decide about treatment. In relation to women's attitudes towards asking for HRT, Kadri (1991) found that 27 of the 408 women who reported that they had not approached their GP about HRT commented that they were too old to consider doing so. The mean age of this group was 60 years.

Two of the four studies about health care professionals' attitudes towards and experiences of patients requesting medicines showed that health care practitioners sometimes disagree with patients' medication preferences (Extremiera et al, 1995; Gerbert et al, 2000). Gerbert and her colleagues conducted eight focus groups with US physicians, nursing practitioners and physician assistants who provided care for HIV positive patients. Some of the providers reported that patients sometimes

expressed specific preferences for medicines that they felt were inappropriate. However, they also described experiences when their patients had expressed a preference not to begin using a medicine, despite the fact that the practitioner considered the therapy to be medically indicated and believed the patient to be capable of adhering to the treatment regime. Moreover, Extremera et al's research showed that in 18 of the 69 cases in which patients had asked their GP for a prescription that a private doctor had suggested the GP did not consider the request to be necessary.

The other two studies that examined health care professionals' attitudes investigated GPs' views about patients asking for prescription medicines. Stevenson and her colleagues (1999a) interviewed 21 GPs about their perceptions of the impact of patients' expectations on their prescribing. One theme that emerged was that GPs considered patients' expectations to vary according to their educational attainment. In particular, one GP noted that patients who were more educated and informed and had been influenced by the media were more likely to voice their expectation in the consultation for newer and more expensive medicines. Furthermore, the second study showed that many GPs do not like patients to ask for prescriptions (Weiss et al, 1996). In this research, 228 GPs completed a questionnaire about their attitudes towards prescribing. Forty three percent of the GPs reported that they find it irritating when a patient specifies what medications they would like prescribed.

3.1.7.5 Summary of the research on patients requesting medicines

The research indicates that the majority of patients did not express their preferences to have or not have medicines to health care practitioners. However, the extent to which patients expressed their preferences varied for different types of medicines and maybe other contextual variables. For example, 20% of patients who were consulting with lower respiratory tract infections or lower urinary tract symptoms requested antibiotics. In contrast, 43% of postmenopausal women reported that they had requested HRT from their doctor. Furthermore, in relation to postoperative analgesia, between 30% and 37% of patients requested pain medication, whilst the majority said that they had waited to be offered it, even when they were in pain.

Research on the factors affecting patients requesting medicines showed that patients with higher incomes were more likely to initiate psychotropic prescribing in consultations with their doctors. Research on women asking their doctors for HRT also showed that patients were more likely to ask for HRT if they were younger, had a longer general education, lived in urban areas, had consulted with a gynaecologist, considered themselves to be in the change of life, had more symptoms, and had had a hysterectomy. In relation to postoperative analgesia, patients were more likely to request painkillers if they:

- * had used analgesia before,
- * had not had an operation in the past,
- * had used poor pain tolerance models in childhood,
- * had higher psychopathic deviate, paranoia, psychasthenia, schizophrenia and neuroticism scores,
- * perceived themselves as passive,
- * had pain that began earlier, was more severe or lasted longer,
- * were younger,
- * had a lower educational level.

However, there were mixed findings for requests for different medicines concerning the impact of patients' age, gender and education and the number of previous visits to their doctor.

The research examining the impact of patients expressing their desire for medicines showed that on some occasions patients' requests were ignored or dismissed by health care professionals and the majority of doctors reported that they rarely complied with unnecessary requests for antibiotics. However, research also showed that patients' antibiotic requests were associated with doctors' perceptions that their prescribing decision had been influenced by patient pressure. Some health care professionals reported that they often tried to dissuade patients from using medicines if they believed that the medication requested was inappropriate. The literature also indicated that when patients did not express their aversion to medicines to their provider, they sometimes received unwanted prescriptions.

In relation to postoperative analgesia, hospital staff members claimed that the main reason why patients are in pain after an operation is because they do not ask for analgesia. Most of the reasons patients gave for not asking for postoperative analgesia were related to their concerns about medicines, although some patients also felt that asking for them was embarrassing. In relation to patients' antibiotic requests, some patients felt that it was not appropriate for them to express their expectations of antibiotics as it was up to their doctors to make decisions about their treatment. In relation to health care professionals' views, there was evidence that some practitioners do not like patients expressing their expectation for particular medicines and disagree with some of their patients' medication preferences. Finally, another issue that was highlighted was that patients may be voicing more expectations in their consultations today due to increased media coverage of medication issues and patients being more informed.

3.1.8 Patients expressing their concerns about medicines

Twenty-nine of the articles included in this review examined patients voicing their attitudes towards, concerns about or experiences of medicines to health care practitioners. Of these 29 articles, 14 examined the extent to which patients expressed their concerns or attitudes and the types of concerns/attitudes they expressed and ten articles focused on patients' reporting of their experience of or concerns about side effects. Seven articles investigated the factors affecting patients voicing their concerns, 12 reported the effects of this behaviour and nine looked at patients' and health care professionals' views about it. Most of this research used qualitative methodologies and focused on patients' consultations with GPs or other doctors. Communication about a wide range of medicines was investigated, including antidepressants, antihypertensive medication, chemotherapy, insulin, contraceptives, and corticosteroids. The research included in this section is discussed in the following subsections:

- * extent to which patients express their concerns and attitudes about medicines and the types of concerns and attitudes that they express,
- * extent to which patients voice their experience of or concerns about side effects,
- * factors affecting patients expressing their concerns and attitudes about medicines,
- * effects of patients expressing their concerns and attitudes about medicines,

- * patients' and health care professionals' views about expressing their concerns and attitudes about medicines,
- * summary of the research on patients expressing their concerns and attitudes about medicines.

3.1.8.1 Extent to which patients express their concerns and attitudes about medicines and the types of concerns and attitudes that they express

Fourteen of the included articles examined patients voicing concerns and attitudes about medicines that were not related to side effects. Those studies that reported patients' expression of their experience of or concerns about side effects are discussed in section 3.1.8.2. Quantitative research conducted in the US by Sleath and her colleagues (2000) showed that the majority of patients with chronic disease did not express any concerns about medicines during visits with their primary care physicians. This study was based on the analysis of 467 audiotaped consultations involving patients with various chronic diseases such as hypertension, cardiac disease, diabetes mellitus, or chronic obstructive pulmonary disease. All of the patients had had at least two previous visits with their doctor. Only 98 patients (21%) expressed one or more complaints about their medicines during their consultations. A variety of complaints were made including side effects (44 patients), the medication not working (25), not liking taking the medicine (18), expense of the medication (8), and not liking using a generic instead of a brand medicine (3). The 18 patients who stated that they did not like taking their medicine complained about the tablets being too small, the medicine tasting unpleasant and not liking to mix two insulins together.

Two studies focused on the extent to which patients with specific conditions, namely asthma and hypertension, voiced their concerns about medicines. A Canadian telephone survey with 603 adults with asthma carried out by Boulet (1998) examined the extent to which asthma patients expressed their concerns about their medication to health care professionals. Inhaled corticosteroids had been used regularly or intermittently in the past year by 39% of the respondents. Fifty-three percent of all the respondents (47% of the inhaled corticosteroid users) said that they were very or somewhat concerned about using inhaled corticosteroids. The most common concerns were fear of side effects, the need for higher doses over time, the medication becoming less effective when used on a long-term basis, weight gain, building huge muscles and infections. However, only a quarter of the patients stated that they had discussed their concerns about corticosteroids with any health care professional. Nevertheless, it is worth noting that 31% of the asthma patients said that the reason they had not discussed their concerns about corticosteroids was that they did not know that corticosteroids existed for asthma treatment.

The study that examined the extent to which hypertensive patients expressed their concerns about medicines was based on 51 audiotaped follow-up visits between Swedish hypertensive patients and their doctors and post-consultation interviews with the patients (Kjellgren et al, 1998). All the patients were currently, or had previously, been taking antihypertensive medication. The findings showed that in seven of the consultations the patients told their doctor why they would prefer not to take particular medications. Four of these patients said it was because of side effects, whilst the remaining three stated that it was because they believed that the medication was not important or because they wanted to determine if the medication was

necessary. The findings also showed that the patients spent little time voicing their view of how their medication worked.

Qualitative analysis of GP consultations conducted by Britten and her colleagues (2000) indicated that when patients did not express their attitudes towards and experience of medicines this sometimes led to significant misunderstandings between the patient and the doctor. In this study, 62 general practice consultations were audiotaped. Other data was obtained from patient interviews before and after the visit and doctor interviews after the consultation. Britten et al conducted detailed analysis of 35 of the cases with the aim of identifying misunderstandings related to prescribing. Two of the fourteen types of misunderstandings that were identified concerned patients failing to express their attitudes or experience of medicines to their physician. Firstly, some patients wrongly assumed that their doctors were aware of relevant aspects of their medical history, such as previous side effects, and consequently the patients did not mention them in the consultation. Secondly, some patients did not express their views of medications or their concerns about symptoms or treatment.

Four articles reported the findings of interviews with patients about their perceptions of the extent to which they raise their concerns about medicines and the types of concerns they raise. In Hunt, Valenzuela and Pugh's (1997) study, in-depth interviews were conducted with 44 Mexican American patients with Non-insulin Dependent Diabetes Mellitus (NIDDM) at two public clinics. Twenty-one of the patients were currently taking insulin or had used it in the past. The data showed that patients talked to their health care providers about insulin in order to determine the truth about "frightening rumours" that they had heard. In another study by Rogers et al (2000), some of the 27 patients with chronic heart failure who were interviewed reported that they had told their doctor about their concerns about medicines and had asked about the possibility of alternative therapies. However, other patients in this study reported that they did not feel able to raise these issues with their doctor. In other research, interviews conducted with 16 women about taking and stopping HRT showed that some of these women had identified various contraindications for HRT relating to their own use, yet they had not discussed these with their health care providers (Bond and Bywaters, 1998). However, other women in this study also reported that they had had arguments with their doctors about HRT (Bond and Bywaters, 1999).

The only study in this section that examined health care professionals' perceptions of their communication with patients indicated that GPs believe that both doctors and patients are not explicit about their views about medicines in consultations (Stevenson et al, 1999a). However, it is worth noting that one of the 21 GPs interviewed in this study did state that some patients express anger when they are not given a prescription.

The majority of the studies discussed in this section so far examined patients' expression of negative attitudes towards or undesirable experiences of medicines. However, as discussed in section 3.1.4.1, two articles by Elwyn and his colleagues (1999; Gwyn and Elwyn, 1999) described two cases in which the parents of a child patient voiced their positive views about antibiotics in order to support their request for an antibiotic prescription for their child. The findings of this study were based on

discourse analysis of two consultations where there was a conflict of treatment preferences. In both consultations, the parents justified their desire for a prescription by citing their personal experience of antibiotics having been effective with previous illnesses. One of the parents also told the doctor that she was too busy to try a non-antibiotic approach.

Two other qualitative studies also described consultations in which patients have expressed their views of medicines in order to justify their request for prescriptions. In one of these studies, which utilised the Roter Interaction Analysis System to analyse 178 family planning consultations in Kenya, a patient stated that she preferred to be given injections rather than use pills because she frequently travelled and would therefore find it difficult to keep to a regime (Kim et al, 1999). In the other study, which involved the detailed analysis of fieldnotes and audiotapes of 53 visits to a family physician in the US, one patient cited situational reasons for depression when asking for antidepressants (Smith-Dupre and Beck, 1996).

Only one study focused on patients expressing their concerns about medicines to pharmacists (Chen and Britten, 2000). In this study, 25 consultations involving three practice-based pharmacists and their patients were audiotaped. The findings showed that patients were willing to talk about their medicines in detail with the pharmacist. Many of the concerns that the patients expressed were associated with their perceptions of the potency of their medication. These concerns were related to the numerical dosage of a tablet, inadvertent overdosage, the reputation of the drug, cultural differences, the prescribing “environment”, cost, and experience of other medicines. Analysis of the data also suggested that there was a relationship between patients’ expression of their perceptions of the potency, side effects and acceptability of their medicines. For example, if a medication was perceived as being strong with insignificant side effects then patients appeared to be more satisfied with their medication. However, if a medicine was considered to be strong with negative side effects then patients tended to want to stop using their medication. Furthermore, patients who felt that their medicine was losing its effectiveness and yet believed it to be a strong drug appeared to feel more anxious about taking their medicine than those who considered their medicine to be less effective and of lower potency.

3.1.8.2 Extent to which patients voice their experience of or concerns about side effects

Ten of the articles that described studies concerning patients’ expression of their concerns and attitudes about medicines focused on side effects. The majority of these studies attempted to quantify the extent to which patients expressed the side effects they had experienced or their concerns about potential side effects. As the side effects of different medicines vary considerably, the studies in this section will be discussed according to the medicine or the condition they examined. We will first discuss the research on expression of side effects by patients with various conditions before describing the studies that focused on patients with tuberculosis, asthma, hypertension and cancer.

As discussed in section 3.1.8.1, the analysis of 467 audiotaped consultations between patients with chronic disease and their primary care physicians showed that only 9% of patients made a complaint about side effects to their doctor (Sleath et al, 2000). Barry et al’s (2000) research also examined the concerns that patients had about side

effects and whether or not they expressed them to their GP. In this study, 62 patients were interviewed in order to identify their agendas for their GP consultations. Their consultations were then audiotaped to determine the extent to which these agenda items were discussed. In 15 of the 35 visits that were studied in depth the patient had one or more items relating to the reporting of, or discussion about, side effects. Eleven of these 19 items were voiced in the consultations, whilst eight of them were not. Moreover, the authors noted that many of the unvoiced agenda items that led to problematic outcomes were related to patients not expressing problems relating to side effects (also see section 3.1.8.4). Furthermore, when the full set of 62 cases were examined it was found that only eight patients reported having experienced side effects of previously prescribed medicines in their consultations (Stevenson et al, 2000).

Comolet, Rakotomalala and Rajaonariora (1998) investigated the extent to which patients who were being treated for tuberculosis in Madagascar reported that they had told their doctor about the medication side effects they had experienced. Using retrospective questionnaires, this case-control study compared 111 patients who had completed the 12-month treatment regimen with 38 patients who had interrupted their treatment for more than a month. Half of the patients who did not complete their treatment claimed that they had experienced side effects compared to 41% of those who had completed the treatment. Of the 38 patients who did not finish the treatment, 18 (47%) said that they had reported their side effects to their doctor compared to 41% of those that finished the course. This suggests that nearly all of the patients who experienced side effects reported them to their doctor. Ito (1999) also examined the extent to which patients reported the side effects they experienced from tuberculosis treatment to health care professionals, although this study focused on Vietnamese refugees in California. This research was based on ethnographic interviews with clients and staff at two clinics, a client focus group, and participant-observation carried out at the clinics. The interview data showed that all ten of the clients classified as non-compliant and ten of the 14 compliant patients had experienced side effects. The side effects that were reported to the clinic staff included feeling hot and irritable and the medication being too strong. All of the twelve clients in the focus group, who were classified as compliant, reported that they had complained of side effects to the clinic staff.

One study investigated the extent to which asthma patients reported side effects to their doctors. White and Sander (1999) conducted a postal survey in the US which was completed by 604 adult asthmatics and the parents of 1230 child asthmatics. Side effects of asthma medications were experienced by 61% of children and 66% of adults. Bronchodilators were used by 99% of the paediatric patients and all of the adult patients, with the most frequently reported bronchodilator side effects being jitteriness, restlessness, tachycardia, coughs and shaky hands. Eighty-two percent of the parents of the paediatric patients and 72% of the adult asthmatics had spoken to their doctors about the medication side effects they had experienced.

In order to assess the extent to which patients reported the side effects of their antihypertensive medication, Lip and Beevers (1996, 1997) conducted a survey of 158 practice nurses and 2115 patients with hypertension, who were recruited through their GP or their local pharmacist. The nurses stated that only 29% of their patients with hypertension talked about side effects they were or might be experiencing. Of the 948

patients surveyed via their GP, 34% stated that they had experienced unacceptable side effects. When asked what they did when they experienced these side effects, 78% reported that they first told their GP, whilst only 7% said they first told their practice nurse and 9% stopped taking their medication straight away. Of the 1167 patients who were recruited through their pharmacist, 567 patients were asked by the pharmacist about their medication and side effects, whilst the remaining 600 were not asked. Only 5% of the patients who were not asked made any remarks about their medication to their pharmacist, and only 1% spontaneously reported side effects that they were experiencing. The most common side effects that were mentioned were dizziness, increased micturition and cough. However, 50% of the patients who were asked about their medicine by the pharmacist stated that they “felt different” whilst taking medicines. Twenty-eight percent of these patients said they felt different due to their medication, whilst 14% reported that previous symptoms had now stopped. Patients reported various side effects including tiredness, dizziness, cough, headaches, and rash. The finding that a higher percentage of patients reported side effects to their pharmacist when asked about them than when they were not indicated that these patients had side effects that they did not express to their pharmacist.

Kjellgren et al’s (1998) research examined the way in which hypertensive patients discuss side effects with their doctors. This study was based on 51 audiotaped consultations between hypertensive patients and doctors. The authors noted that, when speaking about the side effects of medication, the patients appeared to avoid using the term “side effect”, but rather referred to inconvenience or trouble with the medication. In fact only four of the patients introduced the concept during their consultation. Four of the patients told their doctor that they would prefer not to take the medication because of its adverse effects.

Diaz’s (2000) article reported the findings of conversation analysis of 17 consultations between outpatients and their doctors about chemotherapy in Spain. Diaz claimed that in these consultations the doctors used the conventional conversational token “How are you tolerating the treatment?” to discover any bad effects that the patient was experiencing due to the chemotherapy. In the example case provided, the side effects that were reported in response to this question were tiredness and lack of appetite.

3.1.8.3 Factors affecting patients expressing their concerns and attitudes about medicines

Two of the seven articles in this section used quantitative methodologies to examine the impact of various patients and doctor factors on patients’ expression of their views and concerns about medicines. The other five studies used qualitative methods to investigate the impact of health care professionals’ communication on patients’ expression of their medication concerns (also see section 3.2.7). Sleath and her colleagues (2000) analysed audiotapes and transcripts of consultations between 467 patients and their 118 primary care physicians in addition to data from interviews with the patients and doctors. All the patients had a chronic medical condition, were using one or more continued medications and had discussed medications during their visits. The findings showed that patients were significantly more likely to express a complaint if they were asked more medication questions by their doctor. Patients who rated their health more poorly, consulted with younger doctors and were using more medications were also significantly more likely to express a complaint about

medication. There was no significant relationship between expression of a complaint and patients' gender, race, age, income, rating of emotional health or previous number of visits or physicians' gender or the number of questions patients asked during the consultation. Logistic regression analysis showed that physicians' age and patients' rating of physical health were the only factors that significantly predicted patients' expression of medication complaints.

The second quantitative study, conducted by White and Sander (1999), compared the extent to which adult and child asthma patients, who were using different methods for taking bronchodilators, told their doctor about their side effects. This study was based on a questionnaire survey completed by 1230 parents of asthmatic children and 604 adults with asthma. The findings showed that the children were significantly more likely to experience side effects if they took bronchodilators orally (79%) than if they used a nebulizer (63%) or a metered-dose inhaler (MDI; 57%). Parents of the patients who used oral medication were the most likely to report that they had discussed the side effects with their doctor (87%), followed by the nebulizer users (83%) and the MDI users (80%), although there were no significant differences between the groups. For the adult patients, more side effects were experienced by the nebulizer users (79%) than by the other two groups (63% and 74% of the MDI and oral medication groups respectively). Of the adult patients who had experienced side effects, those who used nebulizers were significantly more likely to tell their doctors about them than those who used other routes, but this finding may be due to the fact the nebulizer patients experienced more side effects.

Two articles reporting qualitative studies described cases in which the GPs' behaviour appeared to prevent patients from voicing their views of medicines (Elwyn et al, 1999; Stevenson et al, 2000). Stevenson and her colleagues audiotaped 62 GP consultations involving patients who were consulting with a new problem and were expecting a prescription. In one of the consultations described, a patient attempted to voice his concerns about the necessity of taking migraine medication, but the authors noted that this attempt was blocked by the doctor's communication style. In the study by Elwyn and his colleagues (1999), two GP visits involving child patients consulting with upper respiratory tract infection were audiotaped and analysed using discourse analysis. The authors claimed that in both consultations the GP adopted a defensive position that stopped the patient's parents from being able to fully express their treatment preference or their reaction to the reasons that the GP gave for not wanting to use antibiotics.

Research exploring patients' perceptions of the factors affecting their communication with health care professionals also demonstrated the influence of health care professionals' behaviour on patients' expression of their views and concerns about medicines. One of the themes that emerged from four focus groups with people with mental health problems was that health care professionals' agendas in consultations can be a barrier to the open discussion of patients' attitudes towards their medicines (Smith, Francis and Rowley, 2000). In particular the participants argued that health care professionals assess the success of medication in terms of its ability to make patients' behaviour more acceptable to society rather than considering the medication's effects from the patients' point of view. The participants argued that consequently their consultations with doctors focused on the aim of improving their behaviour thus preventing their concerns about and experience of their medication

from being explored. Another influence on patients' expression of their attitudes towards medicines that was described in this study was whether the communication took place within the health service or private practice. As discussed in section 3.1.2, the participants reported that in private practice they had more opportunity to discuss important aspects of medicine-taking.

Research by Meystre-Agustoni et al (2000), in which 37 patients taking antiretroviral therapy were interviewed, also showed that these patients reported that they did not discuss their views and experiences of medicines as they did not have the opportunity to do so. In particular, some patients stated that they would like to discuss the effects of their medication on their social and sexual relationships, yet they felt that there was no time to have such discussions in consultations with their doctor. Furthermore, the participants of this study stated that they would discuss such issues if they were encouraged to do so.

Smith-Dupre and Beck (1996) used detailed analysis of the consultations of a patient-centred family doctor in the US to illustrate how the doctor and her patients created an environment whereby both parties could freely express their views and pursue multiple goals. The findings were based on fieldnotes and audiotapes of 53 consultations. One of the main themes that emerged from the data was that the doctor used self-disclosure concerning her own feelings and tendencies, which enabled the patients to voice their goals and concerns. The authors claimed that by using self-disclosure the doctor identified with the patient and allowed the patient to save face when disclosing his/her own concerns. Furthermore, it was argued that this put the doctor in the position of an ally rather than as an authority or judge.

3.1.8.4 Effects of patients expressing their concerns and attitudes about medicines

Most of the 12 articles discussed in this section examined how doctors responded to patients expressing their concerns, beliefs or experiences. In this section, we will first discuss the four quantitative studies about doctors' responses before describing the qualitative research in this area. Finally, we shall discuss the only quantitative study that investigated the longer-term impact of the patients expressing their medication concerns.

Four of the quantitative studies investigated the way in which doctors responded when patients expressed complaints about their medication. As discussed in section 3.1.6.1, Sleath and her colleagues (2000) audiotaped 467 consultations between physicians and patients who were using continued medication for a chronic condition. Medications were discussed in all of the consultations. In 56 of the 98 consultations in which patients expressed a complaint about their medication the doctor responded by changing the patient's regimen. The nature of the complaint appeared to influence whether or not the regimen was changed, although these findings concern only a small number of patients. Patients were most likely to have had their medication changed if they complained about the cost of their medicine as six of the eight patients (75%) who complained about this issue had their medication changed. The regimens were also changed for 11 of the 18 patients (61%) who complained that they did not like their medication, 26 of the 44 patients (59%) who reported side effects, 12 of the 25 patients (48%) who felt their medicine was not working and one of the three patients (33%) who wanted to have a generic rather than a brand medication. The doctors responded to a further 16 patients who complained about their medication by

providing education. Furthermore, in 26 cases when a patient expressed a complaint about their medication the doctor ignored it. It is also worth noting that a third of those patients who expressed a complaint also expressed an adherence problem, compared to only 16% of those patients who did not express a complaint.

In agreement with the findings of Sleath et al (2000), many of the patients in White and Sander's (1999) research who stated that they had told their doctor about their medication side effects also said that the physician responded by changing their medication or regimen. This study was based on questionnaire data from 604 adult asthma patients and 1203 parents of child asthma patients. Twenty-nine percent of the adult patients reported that their doctor switched drugs when they complained of side effects, and another 14% said that their doctor adjusted the dose or regimen. However, in relation to the parents of the child patients, only 18% reported that their doctors responded by switching drugs, whereas a greater percentage (21%) were given an adjusted dose or regimen. According to both sets of patients, doctors also commonly responded by saying that the side effects were to be expected, the benefits of the medicine outweighed the side effects, and that there were no alternatives. Finally, less than 12% of the patients stated that they felt their doctor was caring, sympathetic or willing to listen to or discuss their bronchodilator side effects. The results of another quantitative study by Boulet (1998) also supported these findings. In this study, a questionnaire survey was conducted with 603 Canadian patients with asthma. Most of the participants who had discussed their concerns about inhaled corticosteroids had done so with their GP and three-quarters felt that their concerns had been "eased through" these discussions.

Other quantitative research conducted more in-depth analysis of patients' perceptions of how their doctors responded to their concerns (Bultman and Svarstad, 2000). In this study 100 patients with a new prescription for antidepressants were recruited through pharmacies and were interviewed by telephone at the beginning of treatment and again two months later. In the first interview patients were asked about their doctors' communication at the appointment when the script was given and in the second interview they were asked about how their doctor behaved in follow up visits. The findings showed that patients rated their doctors highly for having helped them with their concerns about their medication during the initial visit. Furthermore, approximately 60% of the 86 patients who had had follow-up communication strongly agreed that their physician had listened to their medication concerns. However, only 38 (44%) strongly agreed that their doctor had helped them solve problems related to their medication.

Three of the articles discussed in this section described the findings of a qualitative study that directly assessed patients' expression of concerns during their consultations with GPs and compared it with patients' perceptions before and after their visits (Barry et al, 2000; Britten et al, 2000; Stevenson et al, 2000). In one of these articles the authors described some of the negative consequences that occurred when patients did not express their concerns to their GP (Barry et al, 2000). These findings were based on 35 audiotaped consultations between patients and GPs and interviews with the patients about their agenda before their appointments. The doctors and patients were also interviewed after the consultations. Three of the most common types of agenda item reported by patients were related to medicines. These items were a prescription request, reporting or discussing side effects, and not wanting a

prescription. The patients had a total of 54 agenda items in these three categories, 23 of which were not voiced in the consultation. The findings showed that unvoiced agenda items, particularly those that were related to treatment, were associated with negative outcomes, such as misunderstandings. For example, one female patient had unvoiced agenda items about wanting to know how the doctor knew what medication was necessary when she had not been given a blood test and being unsure about what prescription she had been given. The consequence of not discussing her concerns was that the patient did not trust the doctor's diagnosis and so did not use the prescription. In another case, a male patient who was prescribed antibiotics wanted to know if they had side effects but did not ask his doctor about it in the consultation. The patient stated that he would not have used the antibiotics if the doctor had told him about the side effects, and when he experienced side effects he did not finish the course. Finally, a third patient was given a prescription for sleeping tablets that he thought were antidepressants. As he had serious concerns about taking antidepressants, he did not take the medication and stated that he felt anxious about telling his doctor about it.

In another article based on the findings of this study, the researchers identified the misunderstandings about prescribing decisions that had occurred between the patients and the GPs (Britten et al, 2000). This article claimed that all of the categories of misunderstandings identified were due to patients having either not expressed their preferences and expectations or having not voiced their responses to their doctors' decisions and behaviour. However, in agreement with the findings of the quantitative studies discussed earlier, it was also noted that in cases when patients did express their beliefs or concerns the doctors often did not explore them. Furthermore, when some patients reported symptoms that they believed to be side effects of their medication their doctor did not accept this belief. A third article reporting the findings of this study, which examined a wider set of 62 GP consultations, also provided examples of cases in which doctors had failed to explore patients' concerns, had discouraged patients from expressing their views or had expressed doubt about patients' experience of side effects (Stevenson et al, 2000).

Another qualitative study concerning preventative tuberculosis treatment also highlighted the issue of doctors refuting patients' beliefs about the side effects of medication (Ito, 1999). This study, which was discussed in section 3.1.8.2, used various methodologies, including observations of clinics, ethnographic interviews with clinic staff and clients and a client focus group, to explore the treatment experiences of Vietnamese refugees in the US. According to the author, when the patients voiced their concerns about side effects, such as dry skin or weight gain, to the staff at the clinic, the staff provided the patients with objective, culturally meaningless explanations for their symptoms. Ito argued that the health care providers used a Western biomedical model without considering the patients' Vietnamese-based explanations for such experiences. Even those staff members who were Vietnamese Americans stated that their health training had provided them with more "logical" explanations of medical conditions. This highlights the difficulty that health care providers have in maintaining cultural viewpoints when they become immersed in a medical environment.

The findings of the quantitative research discussed earlier that showed that doctors sometimes ignored patients' medication concerns are supported by qualitative research by Smith, Francis and Rowley (2000). In this study, four group interviews

with people with mental health problems demonstrated that some patients felt that when they expressed their views about medicines they were not listened to, not respected and were not taken into account when the effectiveness of their medication was evaluated. However, some participants in two of the four meetings described experiences of being involved in decisions about medication. These patients suggested that these experiences had only occurred because health care professionals had listened and responded to their concerns and that, as a result, changes were made to their medication. Two other studies, based on in-depth interviews with patients about asthma medication and HRT, showed that these patients also felt that when they expressed their concerns about medication and their experiences of side effects to health care providers, their views were not listened to, explored or respected (Bond and Bywaters, 1999; Stevenson et al, 1999b). Some of the patients in Bond and Bywaters study also indicated that their decision to stop using HRT had been partially due to their doctor not taking their concerns about HRT seriously.

Finally, a quantitative study by Comolet, Rakotomalala and Rajaonarivoa (1998) on patients undergoing tuberculosis treatment found no relationship between patients reporting side effects to doctors and adherence. As discussed in section 3.1.8.1, In this case-control study, 111 patients who finished their treatment were compared to 38 patients who had not completed the course. A retrospective questionnaire was completed by the patients in both groups. The findings showed that the patients who did not complete the treatment were not more likely to have reported side effects to their doctors than the controls. Forty-one percent of the patients who completed the treatment stated that they had told their doctor about side effects they had experienced compared to 18 of the 38 patients (47%) who did not complete the treatment. Furthermore, it is worth noting that patients who did not complete the treatment were not more likely to have had side effects than those who finished the course.

3.1.8.5 Patients' and health care professionals' views about patients expressing their concerns and attitudes about medicines

Six articles reported findings about patients' views about expressing their attitudes, concerns or experiences about medicines and three papers examined doctors' views. Two of the studies exploring patients' views used quantitative methods to examine asthma patients' reasons for not discussing their concerns about side effects (Boulet, 1998; White and Sander, 1999). In White and Sander's research over 80% of the 1230 parents of child patients participating in this study had discussed side effects with their doctor. The most common reason given by the parents who had not voiced their concerns was that they believed there were no alternatives. However, almost a fifth of respondents stated that they had not raised their concerns because they already knew about the potential side effects of the medication. Furthermore, Boulet's survey of 603 people who had been diagnosed with asthma indicated that almost a third of the patients had not discussed their concerns about corticosteroids as they were not aware that this medicine was used to treat asthma.

Four qualitative studies explored patients' desire to voice their opinions and the extent to which they felt they were able to do so during consultations. Bond and Bywaters (1999) and Dayan-Lintzer and Klein (1999) both explored women's experiences of discussing HRT with their doctors. In Bond and Bywaters study, in-depth interviews were conducted with 16 European women, whereas Dayan-Lintzer and Klein's research was based on four focus group meetings with French menopausal women.

Many of the women in these studies who had different beliefs about HRT than their GPs reported that they wanted the opportunity to debate these issues with their doctors in order to exchange their views and make informed decisions about their treatment. Although some of these patients reported that they had had such debates with their doctors, many others stated that they had not had the opportunity to share their concerns about HRT with their GPs and felt that exchange of views and dialogue had not been encouraged. In another study, four focus groups with patients with arthritis showed that some of these patients felt that they needed information about their medication in order to challenge their doctors and to avoid being “fobbed off” (Smith, Francis and Rowley, 2000). Furthermore, as discussed in section 3.1.8.3, some of the 37 patients with HIV interviewed in Meystre-Agustoni et al’s (2000) study reported that they had some medication concerns that they wanted to discuss with their doctors but felt that they had not had the opportunity to do so. In particular, these patients wanted to discuss the effect of their antiretroviral treatment on their social and sexual relationships, yet they felt that they could not do so in their medical consultations.

All of the four articles that examined health care professionals’ attitudes towards patients expressing their views about medicines reported research involving qualitative methodologies. Butler and his colleagues (1998) interviewed 21 GPs about prescribing antibiotics for sore throats. The doctors in this study felt that they should listen to patients’ concerns and take them seriously as it may help reduce prescribing. Many of the GPs also stated that it was important to explore patients’ expectations concerning receiving a prescription. Some of the 20 doctors interviewed in McGrath’s (1999) study also argued that there is a need for more patient-directed communication about prescription medicines, which would require doctors to listen to patients’ concerns and patients to be willing to express their views. However, some of the GPs interviewed in Britten et al’s (2000) research stated that they did not need to know patients’ preferences about medication as this information was unimportant. Other doctors in this study also stated that they did not ask patients what their preferences were as they felt that they already knew what they were, although in some cases the doctors’ beliefs about patients’ views about medicines were incorrect. As discussed in section 3.1.8.4, these inaccurate assumptions resulted in various problematic outcomes (Barry et al, 2000). The contrary findings reported by these four articles suggest that doctors differ in the extent to which they value patients’ views and preferences relating to medicines.

3.1.8.6 Summary of the research on patients expressing their concerns and attitudes about medicines

The research indicated that patients had concerns about medicines that they did not tell their health care practitioners about. Indeed, only a fifth of patients with chronic conditions expressed concerns about medicines in consultations with their primary care doctors. The medication concerns that patients raised in the studies discussed included:

- * side effects,
- * the medication not working,
- * not liking the medicine,
- * cost,
- * preferring brand medicines to generic medicines,
- * rumours that they have heard,
- * the possibility of alternative medicines.

Some of the research based on patients' perceptions showed that more than 70% of patients reported medication side effects to health care professionals. However, the studies that examined health care professionals' perceptions or assessed the communication between patients and professionals directly indicated that under 30% of patients reported side effects. Furthermore, the research in which patients were asked about their side effects showed that a substantial minority of patients who experienced side effects did not report them.

Qualitative research indicated that health care professionals' behaviour in consultations can be a barrier to patients voicing their concerns and attitudes but that doctors can also encourage patients to voice their views through self-disclosure and by identifying with the patient. In addition, quantitative research showed that patients were more likely to express concerns if their doctor asked them more questions, if they used more medicines, if they perceived their health to be poor, or if their doctor was younger. A number of negative outcomes associated with patients not expressing their views or concerns about medicines were also identified. These included patients having misunderstandings about the medication they were taking, not trusting their doctor's diagnosis and not using the medication they were prescribed although quantitative research found no link between reporting side effects to health care professionals and adherence. Furthermore, research showed that when patients complained about medicines their doctors responded by changing the medicine, providing education, or by telling patients that the benefits outweighed the side effects, that there were no alternatives or that side effects were to be expected. However, doctors were also found to have ignored patients' medication complaints in more than a quarter of cases. Finally, although many of the patients involved in the qualitative research in this area stated that they wanted to discuss their concerns and views about medicines with health care professionals, many felt that they had not had the opportunity to do so.

3.1.9 Patients talking about their use of medicines and adherence

Thirteen articles reported research that investigated patients talking about their use of medicines or adherence. Ten of these articles examined the extent to which patients tell health care professionals about their use of medicines and adherence, three investigated the factors affecting this behaviour, three looked at the consequences and four explored patients' and health care professionals' views about it. Seven of these articles reported qualitative studies, five described quantitative research, and one reported a study which had used a combination of both methodologies. The majority of the studies examined patients' communication with their doctors and most focused on particular medicines, such as antidepressants, antibiotics, antihypertensive medication and HRT. The research in this area is discussed under the following sections:

- * extent to which patients talk about their use of medicines and adherence,
- * factors affecting patients talking about their use of medicines and adherence,
- * effects of patients talking about their use of medicines and adherence,
- * patients' and health care professionals' views about patients talking about their use of medicines and adherence,
- * summary of the research on patients talking about their use of medicines and adherence.

3.1.9.1 Extent to which patients talk about their use of medicines and adherence

There were ten articles that examined the extent to which patients tell health care professionals about their use of medicines and adherence. In this section we will first discuss the quantitative research on the extent to which patients reported their adherence to doctors before describing the qualitative research in this area. The final study investigated the extent to which patients discussed the changes in their medication regimen with their pharmacist.

Sleath et al's (2000) study on patients' expression of medication complaints and adherence problems during consultations showed the types of adherence problems that patients express to their doctor. As described in section 3.1.8.4, the findings of this study were based on the audiotapes of 467 primary care visits involving patients with a chronic disease who were using one or more continued medications. All the consultations included in the analysis contained some discussion of medications. Twenty percent of the patients expressed at least one adherence problem to their doctor during their visit. In 56 of these 94 cases (60%), the problem that was reported was that the patient was deliberately not taking their medication as directed. Other commonly expressed problems were that the patient had run out of the medication (29%; N=27) and that the patient had forgotten or was confused about how to take the medication (12%; N=11).

Kjellgren et al's (1998) research showed the reasons that patients give to their doctors for adhering with their treatment. This study involved the audiotaping of 51 hypertensive patients' follow up visits with their primary care or specialist doctors and semi-structured interviews with the patients immediately after their consultation. The main reason that patients gave to their doctor for wanting to adhere with their medication was their confidence in their doctor or in the health system. During the consultations, some patients also indicated that they wanted to adhere as they were convinced of the medication's therapeutic effects or because of a long usage time. However, the main reasons that patients gave for adhering when they were interviewed by the researchers were that the medication reduced the effects of high blood pressure or made the patient feel better. The authors also noted that when the patients were interviewed they expressed their medication behaviour in their own words, and yet they did not do this during their consultations.

Quantitative research by Montbriand (2000) demonstrated that it is common for patients not to tell their health care providers about their non-adherence. In this study interviews were conducted with 338 patients aged over 60 years who were using prescription medications. Thirty-four percent reported that they had stopped taking their medication or had not used it as directed and had not reported this to their health care provider. The main reasons that patients gave for stopping using their medication were the expense, not understanding their diagnosis, or having an unpleasant reaction.

Four qualitative studies also showed that some patients do not report non-adherence to their doctor (Britten et al, 2000; Donovan and Blake, 1992; Meystre-Agustoni et al, 2000; Smith, Francis and Rowley, 2000). Donovan and Blake's article was based on data from semi-structured interviews with 54 patients with suspected inflammatory arthropathy and observations and audiotaping of their consultations with a rheumatologist. Four of the 19 patients who were prescribed second-line drugs did

not take them as prescribed and yet none of these patients told their doctor. In the study by Smith and her colleagues (2000), four focus groups conducted with people with respiratory disease and four conducted with people with mental health problems also showed that some patients made changes to their medicine-taking without consulting their doctor. Moreover, interviews conducted with 37 patients with HIV in Meystre-Agustoni et al's (2000) study showed that these patients did not admit to their doctors the extent to which they changed their medicine-taking, particularly in relation to temporary interruptions. However, these patients reported that they were more likely to reveal their non-adherence to doctors when it was due to side effects as they wanted their doctor to understand why a change in their medication was needed. The fourth study by Britten et al (2000), which examined the misunderstandings that occurred between GPs and patients during 35 audiotaped consultations, showed that some of these misunderstandings were due to the doctors being unaware that a patient had altered or was confused about the dosage of their medication. This indicated that patients changed their medication dosage or did not use their medication as directed, without reporting it to their doctor.

Research by Smith-Dupre and Beck (1996) indicated that one of the reasons why patients may not tell health care professionals about changing their medications is that they fear that health care professionals will be angry. This study, which is discussed in section 3.1.8.3, was based on fieldnotes and audiotapes of consultations between 53 patients and a family physician. During one of the consultations, the patient "tearfully" apologised for stopping taking her antidepressants without having asked the doctor. After revealing this information the patient appeared to acknowledge the fact that her non-adherence would result in some sanction from the doctor, such as being made to feel guilty or being refused further medical care.

Another article that reported the findings of the study described by Britten et al (2000) showed that sometimes patients did not tell their GP about their use of OTC or alternative medicines. Stevenson et al's (2000) article, based on the audiotapes of 62 GP consultations and GP and patient interviews, showed that 16 of the patients told their doctor about their use of OTC medicines. However, three patients told researchers about their use of OTC medicines but did not discuss this with their doctors. In Britten et al's (2000) article, it was also reported that some misunderstandings had occurred in these consultations because the doctors were unaware of patients' use of alternative or OTC medicines. The findings indicated that such misunderstandings sometimes happened because doctors did not ask patients about their use of non-prescription medication, although in other cases patients actively concealed this information.

The final study showed the extent to which patients discussed changes in their medicine-taking with their pharmacist. In this study, 435 people over 65 years were interviewed on two occasions, six months apart (Jones, Seymour and Woodhouse, 1997). The interviews were semi-structured and focused on the patients' medication and their experience of and attitudes towards pharmacy services. Twenty-three percent of the patients (N=101) reported that their medication regime had changed in the six months between the two interviews. However, only 15 of these patients had discussed the change with their pharmacist. Of the patients who had discussed the change with their pharmacist, ten felt that the advice they received was useful, but one patient thought that it was unhelpful.

3.1.9.2 Factors affecting patients talking about their use of medicines and adherence

Three articles examined the factors that influenced the extent to which patients expressed their use of medicines. Sleath and her colleagues (2000) investigated the extent to which patient and physician characteristics were related to patients expressing adherence problems during a consultation. As described in section 3.1.9.1, the findings were based on 467 audiotaped consultations between chronically ill patients and their doctors about medications in addition to post-visit interviews with the patients. The patient characteristics that were assessed were their gender, race, age, income, previous number of visits, number of continued medications, rating of emotional and physical health and who they thought should make decisions about their treatment, and the physician characteristics were their gender and age. None of these factors were significantly related to patients' expression of adherence problems during the consultation. Two other factors concerning the consultation itself, namely the number of questions asked by the physician and the patient, were also not significantly related to patients voicing adherence problems. However, patients who expressed one or more medication complaint were twice as likely to express an adherence problem.

The second study explored women's attitudes towards menopause and HRT and found that certain attitudes were associated with stopping HRT without consulting a doctor (Schneider, 1997). The findings were based on a survey conducted with 929 women aged between 40 and 60 years in France, Germany, Spain and the UK. Three clusters of attitudes were identified: proactive/inquiring, unconcerned/accepting and sensitive/worried. The women who were proactive/inquiring believed that doctors knew the most about menopause and wanted to follow medical advice, although they also wanted to be informed about their condition. In contrast, the participants who were unconcerned/accepting were not very interested in finding out about the menopause and had the lowest proportion of lapsed users. The women who were sensitive/worried, who made up 44% of the total sample, tended to regard menopause as a difficult period in their life and were preoccupied with its symptoms. The women in this category who had become dissatisfied with HRT were more likely to stop using HRT without telling their doctor than those in the other groups.

Meystre-Agustoni et al (2000) conducted a content analysis of the data from in-depth interviews with 37 patients with HIV and found that only those patients with particularly strong self-determination told their doctor when they made substantial deviations from their medication regimens. As discussed in section 3.1.9.1, the patients also felt more able to tell their doctors about having made changes to their medicine-taking when the changes were made in order to alleviate side effects.

3.1.9.3 Effects of patients talking about their use of medicines and adherence

The findings of the three studies that examined the effects of patients expressing their use of medication all focused on how doctors reacted to such behaviour. Sleath and her colleagues (2000) used quantitative analysis to examine how doctors reacted when patients told them about an adherence problem. The consultations between 467 patients with a chronic illness and their doctors were audiotaped and patient interviews were conducted after each visit. All of the patients were using a continued medication and had discussed medications with their doctor during their appointment. As discussed in section 3.1.9.1, 94 of the patients (20%) told their doctor about an

adherence problem and in 42 of these cases (45%) the doctor responded by changing the medication regimen. Perhaps unsurprisingly, this was significantly more likely when patients had stopped taking their medicine on purpose rather than when they had run out of medicine. In another 20 cases (21%) when the patient expressed an adherence problem the doctor responded by teaching the patient how to be more adherent, as many of the patients were misinformed about how to take their medicine. Finally, doctors ignored 31 patients (33%) when they expressed an adherence problem.

As discussed in section 3.1.8.3, Smith-Dupre and Beck (1996) carried out an in-depth analysis of the consultations between 53 patients and one female physician, who was chosen because of her patient-centred approach. The aim of the article was to describe how the doctor and her patients created an atmosphere in which both parties were able to express and discuss their goals for the encounter. In one of the cases described, a patient admitted to the doctor that, against her doctor's advice, she had stopped taking the antidepressants she had been prescribed. In response to this admission, the doctor stated that it "was a reasonable thing to do" and told the patient that there were similarities between her own and her patient's behaviour. By engaging in self-disclosure of her own tendencies and feelings in this way, the doctor identified with the patient, which in turn made the patient's disclosure more acceptable and reduced the patient's potential embarrassment. In addition, when the patient admitted that she had stopped using the antidepressants the doctor did not focus on the issue of compliance, but rather discussed other non-medication treatment approaches, such as counselling and self-help books. During this consultation the physician demonstrated that she had the following three goals: to enable the patient to be actively involved in the discussion, to help the patient to save face by engaging in self-disclosure and by identifying with the patient, and to preserve a good relationship with the patient. The authors argued that, by identifying with the patient and enabling the patient to save face, the doctor helped create an atmosphere in which the patient was able to voice her concerns and goals.

The third article that reported findings concerning the effects of patients expressing their use of medicines showed that when patients told pharmacists that they had used a medicine before this often resulted in the pharmacist ending the discussion (Smith, Francis and Rowley, 2000). In this study, four group meetings were held with patients with arthritis. The participants in these meetings stated that when they get medicine at a pharmacy the pharmacist often asks them whether or not they have taken the medicine before and if they say that they have then they are not asked further questions nor are they provided with any information.

3.1.9.4 Patients' and health care professionals' views about patients talking about their use of medicines and adherence

The four studies in this section examined patients' views about discussing their use of medicines or adherence. One of these studies also explored health care professionals' views about this issue. Smith, Cunningham and Hale (1994) investigated older patients' experience of and attitudes towards discussing medicines with their doctors. In this study a questionnaire was completed by 110 patients aged over 65 years, in which the patients were asked to rate their agreement with statements concerning communication about medicines. The findings showed that patients did not feel that their doctors would think that they were foolish if they told them that they used OTC

medicines. However, it is worth noting that the participants also thought that doctors are too busy to talk to their patients about OTC medicines.

Two qualitative studies that explored patients' views showed that patients can be reluctant to report their non-adherent behaviour to their doctor. As discussed in section 3.1.8.4, Barry and her colleagues (2000) used qualitative analysis of 35 audiotaped general practice consultations and interviews with patients and doctors to examine patients' unvoiced agendas. In one of the cases described a patient was prescribed some sleeping tablets but did not cash the prescription as he believed that they were antidepressants, which he did not want to use. In the interview after his consultation, the patient said that he was feeling awkward about telling his doctor that he had not used the medication at his next appointment. Interviews with 37 HIV-positive patients conducted by Meystre-Agustoni et al (2000) also showed that patients may not tell their doctors about the extent of their non-adherence with their antiretroviral treatment. The reason that these patients gave for not telling their doctor about their decision to change their medication regime was that they believed that their doctor would not agree with their decision.

The final study compared patients' and health care professionals' views on how they thought health care professionals would react if patients told them about their non-adherence (Montbriand, 2000). This study was based on interviews with 443 patients aged 60 years or over and 153 physicians, pharmacists and nurses. Of the 338 patients who were using prescription medications, 34% had not used their medication as directed and had not reported this to their doctor. When these patients were asked how they thought their provider would react if told about their non-adherence, 38% thought they would listen and give information and 16% felt that they would be told they could return if needed. However, 44% of the patients responded to the question by saying that they would not tell their doctor about their non-adherence, and another 3% believed that their doctor would be angry. When the health care professionals were asked how they would respond to a patient reporting non-adherence, 80% thought they would listen and give information and 16% stated that they would say that the patient could return if necessary. Finally, three of the nurses interviewed stated that they would consult another professional.

3.1.9.5 Summary of the research on patients talking about their use of medicines and adherence

The research suggested that patients did not tell their doctors about their use of OTC medication and that they rarely discussed changes in their regimens with their pharmacist. The findings also indicated that patients frequently altered their doses or stopped taking their medication without consulting a health care professional, although there have been no studies that have investigated the proportion of patients who are non-adherent who have reported this to their doctor. The adherence problem that was most commonly reported by patients to their doctor was that they had deliberately not taken their medication as directed. Other patients told their doctor that they were non-adherent because they had run out of their medicine, had forgotten or were confused. The most common reasons patients gave to their doctor for adhering to a regimen were their confidence in their doctor or the health system, their belief in the therapeutic effect, the convenience of taking the medicine and long usage time.

Quantitative research found no significant relationships between various doctor and patient characteristics and the extent to which patients using long-term medications told their doctor about an adherence problem. However, patients who expressed a medication complaint were twice as likely to express an adherence problem during their consultation. In agreement with this finding, a qualitative study indicated that patients were more likely to feel that they could tell doctors about having changed their medication regime if they had done it to alleviate side effects. There was also evidence that only patients with particularly strong self-determination told their doctors about having changed their regimes. The research that investigated how doctors respond to patients' reporting of an adherence problem showed that doctors commonly responded by changing the medication or providing education, although a third of the adherence problems that were raised were ignored. When patients were asked how they thought their doctor would respond if they told them about being non-adherent or changing their regime, many felt that they would be told they could come back if necessary or they would be given information. However, some felt that their doctor would not agree with their decision and might be angry.

3.1.10 Patients repeating information

Livingstone's (1996) study was the only one that examined the extent to which patients repeated the information that was given to them by health care practitioners. This study was based on 43 audiotaped interactions between patients over 60 years and their community pharmacists about a dispensed medicine. In eight of the 15 encounters when the pharmacist provided information the patient repeated this information, perhaps to check or demonstrate their understanding. The pharmacist also repeated their own information in 13 of these cases.

3.1.11 Patients complaining about the information provided by health care professionals

Patients complaining about the information given to them by a health practitioner during a consultation was only described in one article. Pilnick (1998) used ethnography and the conversation analysis of 43 audiotaped encounters between chemotherapy patients or carers and pharmacists at a paediatric oncology clinic. In one of the cases described in this article the patient openly criticised the pharmacist about the way in which he explained the dosage of a medication. The author claimed that by doing this the patient justified his apparent lack of understanding by attributing it to the way in which the information was provided rather than his ignorance.

3.2 HEALTH CARE PROFESSIONALS' COMMUNICATION ABOUT MEDICINE

The aspects of health care professionals' communication with patients that were examined were quite different from the aspects of patients' behaviour described in the previous section. Indeed, the only topics discussed in this section that are equivalent to those in the section on patients' behaviour were the professionals' involvement in discussions, expression of their views about medicines, question-asking behaviour, and how they refer to medicines. In contrast to the section on patients' communication, much of the research discussed in this section examined the extent to which health care professionals encourage patients to participate in discussions. It is also worth noting that there were many more coding categories for health care professionals' behaviours than for patients' behaviour, indicating that a wider range of

professionals' behaviours has been investigated. The research is discussed under the following main headings:

- 3.2.1 Health care professionals offering patients advice/counselling about medicines,
- 3.2.2 Health care professionals' involvement in discussions about medicines and encouragement of patients' involvement,
- 3.2.3 How health care professionals refer to medicines,
- 3.2.4 Health care professionals assessing patients' understanding about medicines,
- 3.2.5 Health care professionals asking questions about medicines,
- 3.2.6 Health care professionals encouraging patients to ask questions about medicines,
- 3.2.7 Health care professionals discussing patients' concerns about and experiences of medicines,
- 3.2.8 Health care professionals involving patients in decision-making about medicines,
- 3.2.9 Health care professionals expressing their views about medicines and trying to change patients' views,
- 3.2.10 Health care professionals discussing patients' ability to adhere to a treatment plan,
- 3.2.11 Health care professionals offering patients medicines or advising them to use or not use medicines,
- 3.2.12 Health care professionals bargaining with medicines,
- 3.2.13 Health care professionals repeating information about medicines, expressing uncertainty about information or emphasising particular facts,
- 3.2.14 Health care professionals interrupting or rushing patients,
- 3.2.15 Health care professionals expressing affect,
- 3.2.16 Health care professionals' views about discussing the cost of medicines.

3.2.1 Health care professionals offering patients advice/counselling about medicines

Seven studies investigated health care professionals offering patients advice/counselling about medicines. Three of these studies investigated the extent to which health care professionals offered medication advice, five studies looked at the effects of health care professionals offering advice and one explored patients' views about this behaviour. The majority of these studies used qualitative analysis and examined pharmacists' communication. Only three studies involved a direct assessment of the communication, i.e. observation or audiotaping, whilst the others explored the patients' or the health care practitioners' perceptions of the interaction. The research in this section is discussed under the following sections:

- * extent to which health care professionals offer patients advice about medicines,
- * effects of health care professionals offering advice about medicines,
- * patients' views about health care professionals offering advice about medicines,
- * summary of the research on health care professionals offering advice about medicines.

3.2.1.1 Extent to which health care professionals offer patients advice/counselling about medicines

Three studies examined the extent to which health care practitioners offered patients advice or the chance to talk about their medicines. All of the articles used quantitative

methodologies to investigate the communication of pharmacists (Erickson, Kirking and Sandusky, 1998; Sleath, 1995; Taylor, 1994). The studies conducted by Erickson et al and Sleath investigated the extent to which US pharmacists offered patients counselling about prescription medicines. Erickson and his colleagues (see section 3.1.1) conducted a telephone survey with 408 patients who had recently been given a new prescription medicine. Over 70% of the patients reported that they had not been offered counselling when they collected the prescription at a pharmacy. Sleath's study, which was based on observations of 344 interactions between patients and pharmacy personnel, also found that pharmacists rarely asked patients if they wanted counselling about the prescription medicines they were collecting, and instead just asked patients if they had any questions.

The third study, which was based on questionnaires completed by 171 patients in Canada, examined the extent to which they were asked if they wanted advice about OTC medicines (Taylor, 1994). Thirty-nine percent of respondents said that they had never been offered advice about OTC products, whilst 32% said they had been offered advice infrequently. Only 7% said they had been offered OTC advice all the time.

3.2.1.2 Effects of health care professionals offering advice/counselling about medicines

All of the five studies that examined the effects of health care professionals offering patients counselling focused on how patients reacted. Erickson, Kirking and Sandusky's (1998) study, based on 408 patient questionnaires (see section 3.2.1.1), found that just over two-thirds of the 104 patients who were offered counselling about their medicines by a pharmacist accepted this offer. However, many of the 21 US pharmacists interviewed by Reutzel and Wilson (1992) claimed that patients do not want to be counselled and one pharmacist argued that some patients can even be offended by counselling. Some of the interviewees also reported that when they tried to provide counselling some patients were irritable or rude or were reluctant to spend time being counselled. Two other qualitative studies, based on observed and audiotaped pharmacist-patient interactions, also showed that when pharmacists attempted to offer counselling or asked patients questions about their medicines some patients did not allow the pharmacist to engage in dialogue about their medicines and appeared irritated (Hassell et al, 1998; Livingstone, 1996). The fifth study investigated whether or not patients who had been asked to make a therapeutic substitution of cimetidine for ranitidine accepted the offer of a consultation with their doctor to discuss the change (Wood et al, 1997). In this study, only one of the 25 patients who were interviewed about their medication having been changed reported that they had taken up their doctors' offer of a discussion about it.

3.2.1.3 Patients' views about health care professionals offering advice/counselling about medicines

Only two studies examined patients' views about health care professionals offering advice about medicines. Both of these studies examined pharmacists' communication. Taylor's (1994) research, which is described in section 3.2.1.1, showed that just over half of the 151 patients who completed the questionnaires reported that they would prefer to ask for advice about their OTC medicines than to have it offered. The second study, which is described in more detail in section 3.1.1, examined why 33 patients refused an offer of counselling when they collected their prescription at a pharmacy (Erickson, Kirking and Sandusky, 1998). The most

common reason given for refusing, which was given by 21 of these patients, was that their doctor had already given them an adequate explanation of their prescription.

3.2.1.4 Summary of the research on health care professionals offering advice/counselling about medicines

Studies on communication between patients and pharmacists about prescription medicines showed that in the majority of cases pharmacists did not offer patients counselling about their medicines. However, research indicated that over two-thirds of patients accepted such counselling when it was offered. The main reason patients reported for having refused advice from their pharmacist was that they had already had their medication explained by their doctor. In relation to OTC medicines, patients were also not usually offered advice about them and the majority of patients reported that they preferred to ask for advice than have it offered. Furthermore, a small minority of patients appeared to resent pharmacists' attempts to engage them in discussions about prescription or OTC medicines.

3.2.2 Health care professionals' involvement in discussions about medicines and encouragement of patients' involvement

Twelve articles reported studies that examined health care practitioners' involvement in discussions with patients about medicines. All but one of these articles examined the extent to which health care professionals were involved in discussions or involved patients in those discussions and five of the studies also investigated the factors affecting this behaviour. Five of these articles were based on qualitative methodologies whilst the other studies used quantitative methods. The majority of the research discussed in this section focused on communication between patients and doctors. The research in this section is discussed under the following sections:

- * extent to which health care professionals have an active role in discussions about medicines and involve patients in these discussions,
- * factors affecting health care professionals' initiation of medication topics and involvement of patients in discussions about medicines,
- * summary of the research on health care professionals' involvement in discussions about medicines and encouragement of patients' involvement.

3.2.2.1 Extent to which health care professionals have an active role in discussions about medicines and involve patients in these discussions

Of the 11 articles in this section, four used quantitative methods to examine the extent to which health care professionals initiated medication topics (also see section 3.1.4.1). One of the studies, which is described in section 3.1.4.1, directly assessed the extent to which GPs initiated these topics by analysing 271 videotaped consultations (Makoul, Arntson and Schofield, 1995). The findings showed that doctors initiated the vast majority of medication topics. The only topic that was initiated more by patients was their opinion about the medicine. A second study, which was based on a survey of 381 providers from various specialities, showed that the majority of these providers reported that they initiated discussions with patients about HRT most of the time (Rolnick et al, 1999). However, Smith and his colleagues (1994) found that most US patients aged over 65 years reported that they usually raised the topic of OTC medicines with their doctors and that doctors rarely raised this topic at all. This research and a later study by Smith and Smith (1999) also showed that the majority of patients from the US, Hong Kong and mainland China

reported that the topic of prescription medicines was usually raised by themselves or by them and their doctor equally.

The study by Ranelli and Coward (1996) examined the extent to which elderly patients perceived that their community pharmacists initiated conversations about medications. This research was based on telephone interviews conducted with 400 US participants aged 65 or older who were randomly selected from lists of households with telephones. When the interviewees were asked how often their conversations with pharmacists about medicines were initiated by the pharmacist only 39% reported that their pharmacist began most of these conversations. This finding is also supported by the results of Smith et al's (1994) research described above, which showed that the vast majority of patients stated that they usually initiated OTC and prescription medication topics in discussions with pharmacists.

The final quantitative study in this section, which was based on 196 audiotaped pharmacist-patient interactions, examined the extent to which pharmacists used a "participatory approach" (Sleath, 1996). This behaviour was measured by the extent to which the pharmacists asked questions, engaged in social conversation, greeted the patient, identified him/herself, bid the patient farewell, did not interrupt or ignore the patient and did not seem rushed and the extent to which the patient asked questions. The findings showed that pharmacists only used an extensive participatory approach in 13% of the interactions.

Four of the studies that used qualitative methodologies explored patients' communication with doctors about antihypertensive medication, epidural or antibiotics (Fahy and Smith, 1999; Gwyn and Elwyn, 1999; Kjellgren et al, 1998, 2000). All of these studies demonstrated that doctors sometimes dominated consultations with patients. In addition, their research indicated that doctors obtained and maintained an active role in these discussions by initiating new terminology, setting the agenda and controlling the choice of topics that were discussed. A fifth study conducted by Pilnick (1998), which is described in section 3.1.4.1, also showed that pharmacists sometimes dominated discussions with patients. According to the author, the pharmacists' dominance was indicated by the fact that they initiated the topics for discussion and therefore dictated the agenda. However, it was noted that in some cases pharmacists treated patients or carers as equals and as though they were knowledgeable about their medicines and were able to make decisions about them.

3.2.2.2 Factors affecting health care professionals' initiation of medication topics and involvement of patients in discussions about medicines

All of the five studies that examined the factors that affect the extent to which health care professionals initiate medication topics or involve patients in discussions used quantitative methods. Three of these studies examined doctors' communication with patients. Smith and Smith (1999) compared the extent to which patients from the US, mainland China and Hong Kong reported that their doctor encouraged them to participate in discussions about prescription medicines (see section 3.1.6.5). The extent to which doctors encouraged patient participation was assessed by patients' experience of their doctor asking their opinion about their medicines, encouraging them to ask questions, waiting for them to say what's on their mind and setting time aside for them to ask questions. The findings showed that the patients in Hong Kong gave significantly lower scores concerning their doctors' encouragement of patient

participation than those in mainland China or the US. The comparison of the ranked mean agreements for two other items calculated for each group suggested that the patients of all three nationalities did not strongly agree that their doctor asked them to choose their treatment or which medication they preferred. As discussed in section 3.2.2.1, Smith and Smith also investigated patients' perceptions of the extent to which their doctors raised medication topics. Only 14% of patients from mainland China reported that their doctor usually raised the topic of prescription medicines, compared to 24% of Hong Kong patients and 31% of patients from the US. Furthermore, slightly fewer of the patients from mainland China (27%) stated that they and their doctor raised medication topics equally than those from the US (33%) or Hong Kong (41%).

The other two studies in this section that examined doctors' communication also investigated the factors affecting doctors' initiation of discussions about medicines. Rolnick et al's (1999) survey of 381 doctors and nurse practitioners, which was discussed in section 3.2.2.1, found that professionals' beliefs that they, rather than their patients, initiated discussions of HRT were not affected by their gender, speciality, years in practice, or beliefs about the benefits of HRT. However, speciality-specific analyses indicated that internal medicine doctors who stated that HRT was "extremely beneficial" were more likely to report that they had initiated discussions more than 75% of the time. In the third study, Sleath, Svarstad and Roter (1997) analysed 88 audiotaped consultations between doctors and patients in which prescriptions were given for psychotropic medications. This study examined the factors affecting whether or not doctors initiated psychotropic prescribing, i.e. gave an explicit verbal cue suggesting that s/he wanted to prescribe psychotropic medication before the patient made this suggestion. As discussed in section 3.1.7.2, the doctor was significantly more likely to initiate prescribing than the patient when the patient had a family income of less than \$20,000. There was also a tendency for doctors to be more likely to initiate prescribing when the patient was given a new prescription and when the patient had made fewer previous visits to their doctor. However, doctor initiation of psychotropic prescribing was not related to patients' gender, race, age, rating of physical or emotional health, or preference for the treatment decision to be made by the doctor or the patient. Logistic regression analysis showed that lower patient income and fewer previous visits to the doctor predicted initiation of prescribing by the doctor.

The two final studies in this section used examined the extent to which pharmacists initiated discussions about medicines and used a participatory approach. As discussed in section 3.2.2.1, Ranelli and Coward (1996) conducted a US survey of 400 older patients about their experience of communication with pharmacists. The patients who lived in rural areas were more likely to report that their pharmacists initiated conversations about their medicines than patients who lived in urban areas. In addition, the second study, which is described in section 3.2.2.1, showed that pharmacists were more likely to use a participatory approach with patients if patients were older and were picking up a repeat prescription rather than a new one (Sleath, 1996). However, use of participatory approach was not affected by type of pharmacy (i.e. chain or independent), number of people waiting nearby, number of prescriptions being collected, patients' race or gender or pharmacists' age, gender or race.

3.2.2.3 Summary of the research on health care professionals' involvement in discussions about medicines and encouragement of patients' involvement

The research discussed in this section showed that doctors and pharmacists tended to initiate discussions with patients about medicines and dominate these discussions. However, research examining older people's perceptions showed that they believed that they initiated discussions about medicines more frequently than their doctors or pharmacists did. Further research would help determine if this finding was due to these patients overestimating their involvement or because older patients raise medication topics more than younger patients. The findings of the study based on older patients' perceptions also indicated that doctors rarely instigated conversations about OTC medicines with patients. The research on the factors affecting doctors' communication suggested that doctors were more likely to initiate medication topics when patients had a lower income, had had fewer previous doctor visits and were from mainland China rather than Hong Kong or the US. Moreover, the research showed that pharmacists were more likely to initiate medication topics with patients who lived in rural areas. Furthermore, patients from Hong Kong reported that their doctors encouraged them to participate in discussions about medicines less than the patients from mainland China or the US. Finally, pharmacists were more likely to use a participatory approach with older patients and with those who were collecting a repeat prescription rather than a new one.

3.2.3 How health care professionals refer to medicines

Eight articles reported findings about the way in which health care professionals referred to medicines and their side effects. Seven of these articles investigated how health care professionals referred to medicines and side effects, two looked at the consequences and one explored health care professionals' views about it. Half of this research focused on pharmacists whilst the other half involved doctors. Three of the studies investigated patients with particular conditions, namely asthma, cancer and hypertension, whereas the others examined health care professionals' communication with patients with various health conditions. All but one study used qualitative methods. The research in this section examined whether professionals used the names of medicines when discussing them with patients, the other ways in which they described medicines and the extent to which they used medical terminology. It is discussed under the following sections:

- * how health care professionals refer to and describe medicines and their side effects,
- * effects of how health care professionals refer to medicines and their side effects,
- * health care professionals' views about how they refer to medicines,
- * summary of the research on how health care professionals refer to medicines.

3.2.3.1 How health care professionals refer to and describe medicines and their side effects

Four of the seven studies discussed in this section examined how doctors referred to medicines in discussions with patients, whilst the other three focused on pharmacists' behaviour. Of the four studies that focused on doctors, three directly assessed consultations by videotaping or audiotaping them (Kjellgren et al, 1998; Parrott, 1994; Stevenson et al, 2000), whilst the fourth study was based on in-depth interviews with patients examining their experience of communicating with doctors (Stevenson et al, 1999b). The studies by Stevenson et al (1999b) and Kjellgren et al (1998) focused on patients with a particular condition, namely asthma and hypertension, whereas the

other two investigated consultations about prescription medicines or all medications in general. The findings of these four studies showed that in most cases when patients were prescribed medicines or when doctors and patients were discussing medicines the doctor referred to the medicine by name. However, in a minority of cases, the doctor only referred to the medicine in a non-explicit way, such as by referring to its purpose or appearance or the substance group it belonged to. One of the studies also indicated that in some consultations with hypertensive patients the doctors described the patients' medication in a rapid manner and used language that, according to the authors, was probably unfamiliar to the patients (Kjellgren et al, 1998). In addition, the findings of this research showed that doctors tended to avoid the concept of side effects and some of the patients interviewed in Stevenson et al's (1999b) study complained that their GPs had referred to side effects in a general way.

In relation to pharmacists' communication, Sleath's (1995) study, which was based on the observations of 344 pharmacy personnel-patient encounters in New Mexico community pharmacies, showed that when pharmacists asked patients questions about medicines they rarely referred to the medicine's name. Livingstone's (1996) research, which involved the audiotaping of 43 interactions between patients over 60 years of age and community pharmacists, showed that pharmacists used medical terminology in only a small minority of cases. In contrast, Pilnick's (1998) study examining 43 consultations between pharmacists and regular attendees at a paediatric oncology clinic showed that both the pharmacists and the patients frequently used technical language when discussing medicines.

3.2.3.2 Effects of how health care professionals refer to medicines and their side effects

Two studies conducted by Stevenson and her colleagues (1999b, 2000) indicated that the way in which GPs refer to medicines and side effects can affect patients' perceptions and use of medicines. In the earlier of these two studies, three of the 17 asthma patients interviewed reported that their GPs had referred to side effects in only a general way and in some cases this led to the patient having concerns about their medication. In the later study, described in section 3.1.9.1, analysis of 62 GP consultations showed that when GPs did not adequately describe a medicine they were prescribing this sometimes led to the patient having misunderstandings about the medicine. For example, in one case the GP prescribed a new medicine but did not explain to the patient how it differed from a previously prescribed medicine and used the same terms to describe them both. As the previous medicine had been ineffective the patient did not think that the new medicine would work either and so did not collect it.

3.2.3.3 Health care professionals' views about how they refer to medicines

Only one study examined health care professionals' views about how they refer to medicines (Reutzel and Wilson, 1992). In this study, interviews were conducted with 21 pharmacists working in US urban pharmacies. Four of the pharmacists stated that, some patients have a low educational level or have difficulties understanding written and oral communication and therefore it is important that pharmacists use short and simple terms when providing information about medicines.

3.2.3.4 Summary of the research on how health care professionals refer to medicines

The research in this section showed that in most cases doctors referred to the name of the medicine when discussing medicines with patients or when a medicine was prescribed. However, in some situations the doctor did not tell the patient the name of the medicine that was prescribed nor did they provide patients with adequate descriptions of how the new medicine differed from previously prescribed medicines. The research involving pharmacists also indicated that they rarely referred to the name of the medication in interactions with patients. Although there were examples in the literature when professionals used medical terminology that the patient may not have been aware of, these cases appeared to be rare and some pharmacists reported that it was important to use simple language with patients. Nevertheless, some research suggested that patients who have substantial knowledge of their medicines appear to prefer their pharmacist to use medical terminology with them. Finally, the research discussed in this section showed that it is important for health care practitioners to give clear and detailed descriptions of medicines otherwise patients can end up having misunderstandings about their medicines.

3.2.4 Health care professionals assessing patients' understanding about medicines

Eight articles examined health care professionals assessing patients' understanding about medicines. Five of these studies examined the extent to which health care professionals assessed patients' understanding, two investigated the impact of this behaviour, and two explored health care professionals' views about it. Four of these studies investigated doctors' communication, three examined pharmacists' communication, whilst the eighth study focused on nurses. All but one of the studies used qualitative analyses to investigate this issue. The research in this section is discussed under the following sections:

- * extent to which health care professionals assess patients' understanding about medicines,
- * effects of health care professionals assessing patients' understanding about medicines,
- * health care professionals' views about assessing patients' understanding about medicines,
- * summary of the research on health care professionals assessing patients' understanding about medicines.

3.2.4.1 Extent to which health care professionals assess patients' understanding about medicines

The five studies discussed in this section investigated the extent to which health care professionals checked patients' knowledge and understanding about medicines. All of these studies directly assessed this aspect of communication using either audiotapes or observations of consultations. The only study in this section that investigated doctors' communication, which is described in section 3.1.4.1, showed that when doctors provided patients with information about medicines they rarely assessed the patients' understanding of it (Kjellgren et al, 1998). In addition, when patients gave weak indications that they had understood the information they had been given, such as "I see" or "Ye-es", the doctor did not do any further assessments of their understanding or nor did they provide any additional information or explanations.

In Sleath's (1995) study of 344 observed encounters with patients in US community pharmacies, pharmacists or interns interacted with only 57% of patients collecting a prescription. Only 10% of these patients were asked by the pharmacist if their doctor had explained the medication. A further 6% were asked about their familiarity with the medicine and 1% were asked about their knowledge of how to take it. Two qualitative studies involving observations or audiotaping of interactions between community or clinic pharmacists and patients about medicines also showed that some pharmacists assessed patients' knowledge about their medicines (Hassell et al, 1998; Pilnick, 1998).

Finally, in the fifth study 85 audiotaped or observed interactions between nurses and patients in various clinical settings showed that some nurses checked the patients' understanding of the information about medicines that they had been given (Latter et al, 2000).

3.2.4.2 Effects of health care professionals assessing patients' understanding about medicines

Two studies explored the effects of health care professionals assessing patients' understanding about medicines. In Roberts and Volberding's (1999) research one of the 15 doctors interviewed about communicating with HIV/AIDS patients about adherence reported that she had to feel that her patients had some understanding of HIV before she was willing to prescribe them antiretroviral therapy. The other study, which examined the communication between pharmacists and patients and their carers at a paediatric oncology clinic, showed that when pharmacists gave information to patients without assessing the extent of their knowledge patients responded negatively (Pilnick, 1998). However, this study also showed that in some interactions pharmacists overestimated patients' knowledge about their medication, which also led to problematic outcomes.

3.2.4.3 Health care professionals' views about assessing patients' understanding about medicines

Only two studies examined health care professionals' views about checking patients' understanding about medicines (Butler et al, 1998; Higuchi et al, 1999). In Butler et al's study, 21 GPs were interviewed about the prescribing of antibiotics for sore throats. Some of the doctors claimed that prescribing might be reduced if doctors assessed patients' knowledge about the possible side effects of antibiotics and resistant bacteria and provided them with any information they were lacking. Higuchi et al's research also showed that some doctors believed that the information that pharmacists provide to patients should be adapted to fit the individual patient's understanding of his/her medicines and desire for information. This study was based on questionnaires completed by 22 doctors about the provision of pharmaceutical management and advice services for patients in a hospital circulatory ward. The findings showed that nine of the doctors strongly agreed that pharmacists should alter the content of their advice to fit patients' desire and need for information. Five other doctors slightly agreed with this statement and no doctors disagreed.

3.2.4.4 Summary of the research on health care professionals assessing patients' understanding about medicines

The findings discussed in this section showed that doctors rarely checked patients' understanding about medicines. Quantitative research examining pharmacists'

behaviour also indicated that they checked patients' knowledge about their medicines in only 6% of interactions. However, there was some evidence to suggest that patients who are knowledgeable about their medicines resent pharmacists' attempts to provide information without checking their knowledge. The research examining doctors' views showed that some doctors felt that the information given to patients by pharmacists should be modified to suit the patients' individual information needs and preferences. Finally, some doctors also suggested that checking and enhancing patients' understanding of antibiotics may reduce antibiotic prescribing.

3.2.5 Health care professionals asking questions about medicines

Forty-two of the non-intervention articles (36%) identified in this review reported findings about health care professionals asking patients questions about medicines. Thirty of these articles examined the extent to which professionals asked medication questions and the types of medication questions they asked, nine looked at the factors affecting practitioners' question asking, ten explored the consequences and nine investigated patients' and professionals' views about it. Twenty-two of these articles reported studies that used quantitative methodologies, 15 described qualitative research and five of reported studies which used a combination of the two. The majority of the studies examined doctors' or pharmacists' question asking. Over half of the studies did not focus on particular medicines or conditions, but rather analysed communication about various prescription or OTC medicines. The research that focused on particular medications examined communication about antibiotics, antidepressants, antihypertensive medicine, cough medicine, laxatives, arthritis medicine, asthma medicine, contraception, HIV medicine and postoperative analgesia. The research in this area is discussed under the following sections:

- * extent to which health care professionals ask questions about medicines and the types of questions they ask,
- * factors affecting health care professionals asking questions about medicines,
- * effects of health care professionals asking questions about medicines,
- * patients' and health care professionals' views about health care professionals asking questions about medicines,
- * summary of the research on health care professionals asking questions about medicines.

3.2.5.1 Extent to which health care professionals ask questions about medicines and the types of questions they ask

Thirty articles reported findings on the extent to which health care professionals asked patients questions about medicines and the types of questions they asked. Fourteen of these articles examined doctors' communication, thirteen investigated pharmacists' behaviour and three reported the communication of various professionals. In this section, the literature on doctors' question asking behaviour will be discussed before describing the research on the questions asked by pharmacists and hospital staff.

Sleath and her colleagues (1999) audiotaped 467 consultations between chronic disease patients and their primary care doctors about medicines and found that the doctors asked patients between 0 and 45 questions about medicines, with the average being 9.3 questions. The most frequently asked questions were about:

- * what medication the patient was taking (80%),
- * how the medicine was affecting the patient's condition (56%),
- * quantity or supply of the medicine (51%),

- * interval between doses (41%),
- * dosage (41%),
- * barriers or side effects (27%).

The least frequently asked questions were about addiction potential (3%), allergies (3%), interactions (1%) and contraindications (none).

Other quantitative research by Makoul, Arntson and Schofield (1995) compared videotaped consultations data with patients' and health care practitioners' perceptions of the extent to which professionals asked patients about their opinions about their medicines. In this study, consultations between 36 GPs and 271 of their patients who received a new prescription were videotaped and the patients and GPs also completed questionnaires after the consultations. The data from the patient questionnaires showed that, on average, they tended to feel that their doctors had asked their opinion about taking the medicine during the consultation, although there appeared to be substantial variation between the patients. However, the coding of the videotape data showed that patients' views of the medicine prescribed were only discussed in a third of each doctor's consultations. In addition, despite the fact that the doctors reported that it was quite important to ask patients what they think about their medication, they estimated that during their consultations with patients in general they only obtained patients' views in less than half of the consultations.

Six other articles also examined the extent to which doctors asked patients about their views about medicines. Smith, Cunningham and Hale's (1994) research on elderly US patients' experiences of communicating with their doctors about medicines showed that on average they felt that their doctors did ask their views on medicines and what their preferences for particular medicines were. However, when asked about their last visit to their doctor, in general the patients reported that they had not been asked to choose a treatment. In terms of qualitative research, three articles on GPs' communication about antibiotics described cases in which doctors asked patients about their preferences for particular medicines or attempted to gauge patients' expectations from their non-verbal communication (Butler et al, 1998; Elwyn et al, 1999; Gwyn and Elwyn, 1999). Two of these articles reported one study involving the in-depth analysis of audiotaped GP consultations, whilst the third article's findings were based on GP interviews. Stevenson et al's (2000) article on doctors asking patients about their views about medicines, which was based on the in-depth analysis of 62 GP consultations about various medicines, showed that sometimes doctors made assumptions about patients' views about medicines rather than asked patients about them. Nevertheless, in some of these consultations the doctors asked patients if they were allergic to the medicine being prescribed or if they had experienced problems when taking previously prescribed medicines.

The sixth article examining the extent to which doctors asked patients about their attitudes towards medicines focused on patients using antidepressants (Bultman and Svarstad, 2000). In this study, two telephone interviews were conducted with 100 patients who were recruited through US pharmacies. In the first interview patients were asked about their most recent clinic visit when antidepressants were first prescribed and in the second interview they were asked about any follow up contact they had had with their doctor. The findings showed that in general the patients felt

that during their follow-up visits their doctor had asked about their concerns about medication.

Five articles reported the extent to which doctors asked patients about their use of medicines. Smith, Cunningham and Hale's (1994) study, discussed above, showed that their sample of older US patients were slightly more likely to report that doctors asked them about their use of OTC medicines than their use of medicines prescribed by other doctors. In addition, when the patients were asked which medication topics, out of a list of nine, their doctors most frequently asked them about, the two most commonly reported choices were their use of prescription and OTC medicines. Furthermore, Stevenson et al's (2000) study, discussed above, showed that GPs asked patients about their use of OTC medicines in nine of the 62 consultations. However, detailed analysis of 35 of these consultations showed that some doctors did not know about their patients' use of alternative or OTC medicines because they had not asked them about it (Britten et al, 2000).

In relation to communication about antidepressants, Lin and her colleagues (1995) conducted telephone interviews with 155 patients one month after they had been given a new prescription for antidepressants and again at four months. This study showed that 61% of the patients reported that their doctor had asked them about their previous use of similar medicines. Nevertheless, a US study based on 12 videotaped family practice consultations about prescribed medicines indicated that even when doctors asked patients about their use of medicines, they did not talk to patients about the implications of their answers in terms of addiction, side effects or interactions between medicines (Parrott, 1994).

Swedish research by Kjellgren et al (1998, 2000) examined the extent to which doctors asked hypertensive patients about the side effects of their medicines and their adherence. This study, which was based on 51 audiotaped follow-up appointments between doctors and hypertensive patients, showed that 33 of the patients were asked about their experience of specific side effects. Moreover, the doctors rarely decided to change the medication without first enquiring about the medicines' effectiveness or side effects. The findings also showed that when adherence was discussed in these consultations, it usually involved doctors asking patients closed questions about if they were taking the medicine. However, in these discussions, the doctor often did not wait for the patient to respond to the question and rarely explored patients' adherence with more specific questions.

Qualitative research by Gerbert et al (2000) and Roberts and Volberding (1999) also examined the types of questions doctors used to assess patients' adherence. Gerbert and her colleagues conducted eight focus groups with 23 doctors, eight nurse practitioners and four physician assistants, all of who provided care to HIV-positive patients. Some of these providers stated that when assessing patients' adherence they asked questions that allowed patients to admit non-adherence (e.g. "How many pills did you miss yesterday?") rather than those that would lead patients to respond in a socially desirable way (e.g. "Are you taking your medications regularly?"). Many of the practitioners also reported that they usually only had enough time to ask patients how many doses they had missed.

In Roberts and Volberding's study, 15 doctors at a US HIV/AIDS clinic were interviewed about their communication with patients about adherence. The majority of the doctors reported that they assessed adherence at every visit yet the doctors varied in the way in which they accomplished this. Some doctors stated that they asked patients general questions such as "How are you doing with your medication?", whereas others claimed that they began by asking general questions but then used more specific questions about how many doses the patients has missed. The doctors also differed in terms of the time period they asked patients about, i.e. some asked patients how many doses they had missed in the last week whereas others asked patients about their adherence in the previous month. In addition, it is worth noting that some of the doctors reported that they asked patients specific questions about their adherence to help the patients think about why they had missed doses and to help them develop strategies to improve their adherence. In relation to these findings, Diaz's (2000) research showed that when enquiring about the impact of chemotherapy, doctors began by asking patients general questions, such as "how are you tolerating the treatment" but then used questions about specific symptoms or side effects if the patient did not provide sufficient information. The study by Smith, Cunningham and Hale (1994), discussed above, also found that patients reported that their doctor asked them how their medication was working.

In relation to pharmacists' question asking, research by Morrow and his colleagues (1993) showed that most of the questions that English community pharmacists asked were not directly related to medicines. During the 51 pharmacist-patient interactions that were videotaped in this study there were 211 pharmacist questions, 207 of which were closed. Only 29% of the closed questions were medication-related, whilst 39% were about symptoms and 16% were about the context of the consultation. Another British study, based on 44 audiotaped interactions showed that pharmacists asked patients a median of only two questions (Wilson et al, 1992). In addition, Livingstone (1996) examined 43 audiotaped interactions between English community pharmacists and patients over 60 years old about prescription medicines and found that pharmacists asked a question in only 17 of the interactions (40%). In agreement with Morrow et al's findings, almost all the 38 questions asked were closed. Nine of these questions were also leading. Other research involving 196 observed interactions between patients and US community pharmacists showed that pharmacists asked patients about medicines in 32% of these interactions (Sleath, 1995). Of the 82 questions asked only six were open-ended and most of these related to monitoring patients' use of medicines. The most frequently asked questions were about:

- * information the doctor had provided about the medicine (20),
- * if the patient had questions about the medication (17),
- * monitoring the patient's medication use (16),
- * patient's knowledge of the medicine (11),
- * whether the patient needed other medication or accessories (5),
- * allergies (4).

Sleath also noted that, in general, the pharmacists did not ask patients whether they wanted counselling or not; they simply asked whether the patients had any questions.

A survey of 198 asthma patients in the US examining the level of care they received from their pharmacists also indicated the extent to which pharmacists asked patients particular questions about medicines (Nau, Ried and Lipowski, 1997). The findings

showed that 37% of patients reported that they had received the lowest level of care, which was defined as their pharmacist having recently asked them if they had any questions. The next level of care, which involved the patient being asked if they had any questions, if they understood how to use their medications and if they had experienced any side effects, was reported by 31% of patients. Only 6% of patients stated that they had received the highest level of care, i.e. were asked all the questions in the lower two levels plus if they had a plan for what to do if they had trouble breathing, how often they used their inhaler and how their breathing was. The remaining quarter of the patients reported that their pharmacist had not asked them any of these questions recently.

Four studies examined the extent to which pharmacists asked patients questions when they purchased an OTC medicine. Krska and Kennedy (1996) examined patients' experiences of buying OTC medicines at Scottish community pharmacies and found that, of the 202 patients who completed a questionnaire, 40% reported that they were asked about concurrent medicines by a pharmacist or a pharmacy assistant. In a study by Smith, Cunningham and Hale (1994), 110 patients completed a questionnaire about their experience of communicating with pharmacists about OTC medicines. The findings showed that the most commonly reported pharmacist questions in discussions about OTC medicines were about the patients' use of prescription and other OTC medicines. This study also involved a survey of 218 patients about their experiences of communicating about prescription medicines. The findings of this survey showed that the questions most commonly asked by pharmacists in discussions about prescription medicines were if the patient would prefer a generic medicine and what prescription medicines they were taking.

The two other studies that examined the extent to which pharmacists asked patients about OTC medicines focused on cough medicines (Leemans and Laekeman, 1995, 1998). In the earlier study, Leemans and Laekeman investigated the questions that 62 pharmacy students asked patients who had come to their pharmacy with a cough. The findings showed that in over 65% of the cases the pharmacists did not ask the patient relevant questions, such as whom the medicine was for, whether the patient had other symptoms, what kind of cough it was, what form of medicine the patient wanted, whether the patient used other medicine and how long the patient had experienced the symptoms. In the later study, the counselling behaviour of 78 pharmacists who had undergone an educational intervention about cough medicines was assessed by a visit by a student pretending to be a patient. Again, the findings showed that the pharmacists rarely asked about co-medication and only a fifth asked whether the patient preferred a particular form of medication.

Hargie, Morrow and Woodman (1992) conducted a survey of 261 people in Northern Ireland shopping centres about their experience of collecting prescription medicines at a pharmacy. The participants were asked to choose the response that most closely resembled their experience. Of the 258 respondents who answered this question, 42% said that when they collected prescription medicines at a pharmacy the pharmacist handed the medicine to another member of staff to give it to them and a further 18% responded that the pharmacist put the medicine in a bag and did not ask about their concerns. Only 27% reported that in their experience the pharmacist encouraged them to ask questions or express their concerns when they collected a prescription. Other research, involving the observation of 358 pharmacist-patient encounters in which a

prescription medicine was collected, also showed that pharmacists asked patients for feedback about their experience or concerns about their medicines in only 36% of consultations (Schommer and Wiederholt, 1997).

Three studies used qualitative methods to examine pharmacists' question asking. Two of these studies, based on qualitative interviews and focus groups with patients with hypertension and arthritis, showed that patients reported that when they collected medicines from their pharmacy they were often asked whether they had used the medication before (Lisper et al, 1997; Smith, Francis and Rowley, 2000). These patients stated that if they answered yes then they were asked no more questions and were given no further information. In Pilnick's (1998) study, conversational analysis of 43 audiotaped consultations between pharmacists, patients and their carers at a paediatric oncology clinic showed that these conversations tended to move straight from the greeting to the pharmacist providing information. Moreover, the findings indicated that in most cases the move was due to the pharmacist asking about the patients' expectations about their medicines.

The final study in this section investigated the communication between hospital staff and patients about their use of medication (Cadd et al, 2000). One of the aims of this study, which was based on questionnaires completed by 100 inpatients in a palliative care unit, was to examine whether the patients were asked about their bowel care management when they were admitted. Sixty-nine of the patients reported that a doctor and/or a nurse had asked them about their bowels on admission. However, only five stated that they were asked specifically about their use of medication for their bowels.

3.2.5.2 Factors affecting health care professionals asking questions about medicines

All of the nine articles that examined the factors affecting the extent to which health care professionals ask patients questions about medicines used quantitative methodologies. Three of these articles examined doctors' communication. Research by Sleath and her colleagues (1999, 2000), in which they audiotaped 467 consultations between chronic disease patients and their primary care doctors about medicines, showed that the doctors were significantly more likely to ask medication questions with patients who were non-white, had a lower income or were taking more continued medicines. However, doctors' question asking was not related to patients' or doctors' gender or age, patients' perceptions of their physical health or the number of their previous visits to their doctor. Furthermore, doctors were not more likely to ask a question to patients who were given a new prescription.

Smith and Smith's (1999) study, which is described in section 3.1.6.5, compared the extent to which patients from the US, mainland China and Hong Kong perceived their doctors to have asked medication questions. The patients in each group were asked to rate their agreement with 18 statements and then the mean ratings were ranked and compared for the three groups. The findings indicated that the patients from mainland China or Hong Kong agreed to a greater extent that their doctors asked about their use of prescription and OTC medicines than the US patients. The patients in all the groups gave relatively low ranked means for the statement "[my] doctor asks me to choose [my] treatment". However, the patients from mainland China reported lower levels of agreement with items stating that their doctor asked about their opinion of

the medicines they take and asked about how their medication was working than the patients from the US and Hong Kong.

The remaining six articles investigated the factors affecting pharmacists' question asking. Evans and John (1995) investigated communication between pharmacists and patients about prescription medicines in community pharmacies in Wales and the US. They audiotaped 63 pharmacist-patient interactions in Wales and 60 in the US. The findings showed that the pharmacists in Wales asked a mean of 1.25 questions per interaction, whereas the US pharmacists only asked a mean of 0.95 questions. However, there was no significant difference between the two groups. In another study, 231 encounters between pharmacists and patients in US community pharmacies were observed to determine the impact of interrole congruence on their communication (Schommer, 1994). The findings showed that there was no relationship between pharmacists asking patients for feedback about their experience or concerns about medicines and interrole congruence, which was defined as the extent to which pharmacists and patients agreed about their communication roles.

Schommer and Wiederholt (1997) carried out observations of 358 pharmacist-patient encounters in US community pharmacies in order to investigate the impact of patients' age, gender and question asking and prescription status on whether or not pharmacists asked patients for feedback about their experience or concerns about medicines. The findings showed that pharmacists were significantly more likely to ask for feedback from patients who asked questions and were older and male. Wilson et al's (1992) research in the UK also suggested a link between patients' involvement in interactions and pharmacists' question asking. In this study, 20 of the 44 audiotaped patient-pharmacist interactions were classified as 'high activity' as they involved three or more pharmacist questions. In 14 of these interactions the patient initiated more than one medication topic, yet only 2 of the 24 patients in 'low activity' interactions (i.e. those involving less than three pharmacist questions) initiated more than one topic.

In contrast to Schommer and Wiederholt's findings, research by Sleath (1995) involving the observation of 196 interactions between US community pharmacists and patients showed that whether or not pharmacists asked questions about drug therapy was not related to patients' age or gender. This study also found that pharmacists' question asking was not associated with pharmacists' age, gender or race, patients' race, the type of prescription (i.e. new or repeat) or the type of pharmacy (i.e. independent, health maintenance organisation or chain). However, patients who picked up two or more prescriptions were more likely to be asked a question by the pharmacist than those who only collected one.

The final study in this section examined the relationship between patients' expectations about being asked questions by a pharmacist and the questions that they were asked (Krska and Kennedy, 1996). In this study, 202 patients who purchased an OTC medicine at a community pharmacy in Scotland completed a questionnaire about their experience. The findings showed that there was a significant correlation between patients' reporting that their pharmacist asked them about their use of medicines during this visit and their expectation of being asked such a question. Only a small minority of patients (9%) said that they had expected that they would be asked about their medication use but were not asked. However, it is worth noting that the

expectations of patients reported after their visit may have been significantly influenced by their experience during their visit, and therefore these patients may have only stated that they had expected to be questioned because they were.

3.2.5.3 Effects of health care professionals asking questions about medicines

Three of the ten studies that examined the impact of health care professionals asking patients questions about medicines investigated doctors' question asking behaviour. Sleath and her colleagues (2000) examined the association between doctors asking patients questions about medicines and patients' communication in the consultation. In this study, 467 US and Canadian primary care consultations in which medications were discussed were audiotaped. The findings showed that patients were more likely to express a complaint about their medicines if their doctors asked more medication questions. However, there was no relationship between doctors' question asking and patients' expression of an adherence problem during the visit. Research by Lin et al (1995) found an association between doctors asking medication questions and patients' adherence. In this study, 155 patients who collected a new antidepressant prescription at a US pharmacy were interviewed twice after they collected it. Patients who reported that they were asked about their prior use of similar medicines were more likely to state that they were adherent in the first month of taking the antidepressant. However, there was no relationship between doctors asking about medicine use and patients' self-reported adherence after four months.

The third study that examined the consequences of doctors asking patients about medicines used qualitative methods. Wood and her colleagues (1997) used postal questionnaires to examine 15 asthma patients' reactions to being asked by their doctor to change the delivery service for their medicine from a beclomethasone Diskhaler to a metered dose inhaler with spacer. The findings showed that all of the patients who were asked to change reported that they did not mind, although one mother thought that her son was "put on the spot".

Five studies examined the impact of pharmacists asking patients questions about medicines. In John and Evans' (1996) study, data from postal and telephone questionnaires completed by 314 community pharmacists in Wales were used to investigate their experiences of asking consumers questions when they requested an OTC product. Seventy-eight percent of the pharmacists reported that some consumers resented questioning when purchasing an OTC medicine. This finding was supported by two other British studies (Hassell et al, 1998; Morris, Cantrill and Weiss, 1997). Hassell et al's research, which was based on the observation of pharmacy staff-patient interactions in ten community pharmacies, showed that patients occasionally appeared hostile when staff tried to check the suitability of the medicine they were buying. Furthermore, in the study by Morris and her colleagues, some of the 40 consumers recruited through community pharmacies who were interviewed about their most recent OTC purchase stated that they bought medicines at supermarkets to avoid being questioned. Two consumers also reported that they had been asked unnecessary questions when buying an OTC medicine and four clients stated that they had felt unhappy or uncomfortable when they were asked questions relating to personal medical issues.

Wilson et al's (1992) study, based on 44 audiotaped interactions between patients and pharmacists about prescription and OTC medicines, showed that patients who were

asked more than two questions by the pharmacist were given more information than patients who were only asked two questions or less. However, telephone interviews conducted with patients the day after their interaction with the pharmacist showed that those who were asked more than two questions also forgot more information. Nevertheless, there is some evidence to suggest that questioning has a positive effect. Nau, Ried and Lipowski's (1997) survey of 198 asthma patients, described in section 3.2.5.1, showed that those patients who were asked more questions about their medicines by their pharmacists felt that their pharmacists were more able to help them manage their asthma therapy and prevent problems.

The only study that explored the impact of nurses asking questions about medicines examined the communication between patients and nurses about postoperative analgesia (Francke and Theeuwes, 1994). This research was based on qualitative interviews with 26 Dutch women who had undergone breast cancer surgery. The patients reported that they were only asked about their pain for one or two days after the surgery and consequently they thought that it would be unusual to use painkillers after this stage. In addition, the authors claimed that their study showed that asking patients whether they needed analgesia may cause patients to express the pain they are experiencing. The final study in this section used the Roter Interaction Analysis System to analyse 178 audiotaped consultations between clinic staff and female patients about family planning in Kenya (Kim et al, 1999). The staff involved in this study were doctors, nurses and counsellors. The findings showed that when patients were asked if they wanted a particular method of contraception they typically responded "injectable" or "I want the pill", although some clients who were more actively involved in the consultations also provided reasons for their requests.

3.2.5.4 Patients' and health care professionals' views about health care professionals asking questions about medicines

Of the nine studies discussed in this section five focused on patients' and/or doctors' views about doctors' question asking and four examined patients' and/or pharmacists' views about pharmacists' question asking. The only study that examined patients' views about doctors' question asking was based on questionnaires completed by 2765 patients who attended six British general practices (Bradley et al, 1998). Fifty-one percent of the 2271 patients who responded about their prior use of OTC medicines felt that their doctor should routinely ask about their OTC medicine use, whilst only 2% reported that they would prefer that their doctor did not ask. Patients were more likely to state that doctors should routinely ask if they were liable for prescription charges, used OTC medicines regularly or used herbal or homeopathic remedies. The majority of the patients who reported that they would rather their doctor did not ask them about their OTC medicine use were female. In addition, patients under 24 years or over 80 years were more likely to be indifferent about doctors' questions about their OTC use, whilst most of the patients aged 25 to 80 years were positive about such questions. Furthermore, patients in the highest social class also reported more positive attitudes towards doctors asking about their OTC use than those who were in lower social classes or were unemployed, students, housewives or retired.

Four studies investigated doctors' views about asking patients questions about medicines. In Makoul et al's (1995) research, 36 GPs practising in England completed a questionnaire about communicating with patients about prescription medicines. For one of the questionnaire items doctors were asked to rate the

importance of finding out what patients think about their medication on a scale of 0 (not at all important to accomplish) to 10 (crucially important to accomplish). The mean response given by the doctors was 7, indicating that they considered it to be a fairly important task to achieve. In addition, several of the 20 GPs interviewed about antibiotic prescribing by Butler and his colleagues (1998) stated that it was important to ask patients about their expectations regarding antibiotics, although two doctors expressed a concern that this might be seen as confrontational. However, in other research described in section 3.1.8.1, interviews with 20 GPs about specific consultations with patients showed that some of these doctors felt they did not need to ask patients about their preferences regarding medicines because they felt such information was unimportant (Britten et al, 2000). Other doctors in this study also indicated that they did not need to ask patients about their medication preferences because they already knew what they were, although, as discussed in section 3.1.8.5, interviews with the patients showed that some of the doctors' beliefs about their attitudes towards medicines were incorrect.

The fourth study, which was conducted by Roberts and Volberding (1999), used qualitative interviews to explore 15 doctors' views about asking patients with HIV or AIDS about their adherence. Some of these doctors claimed that it was important to ask specific questions about missed doses, and even those who did not usually use this technique considered it to be a good idea.

Three studies focused on patients' views about pharmacists' asking questions about medicines. In Hargie, Morrow and Woodman's (1992) survey of 261 members of the general public, the participants were asked how they would like their pharmacist to behave when they collected a prescription medicine. Participants were asked to choose between the following four options: the pharmacist hands the prescription to another member of staff to give to me, he/she puts it in a bag and does not inquire about any possible concerns, he/she will answer any questions but only if I ask and he/she encourages me to ask questions or express my concerns. The majority of the respondents (66%) said that they wanted their pharmacist to encourage them to ask questions or express their concerns, whilst only 6% stated that they preferred pharmacists to not ask about their concerns.

In relation to patients' expectations of being questioned by pharmacists, the findings of a questionnaire survey of 202 consumers who had purchased an OTC medicine showed that only 37% had expected to be asked about the medicines they were taking or other illnesses (Krska and Kennedy, 1996). Perhaps unsurprisingly those patients who visited the pharmacy for advice were more likely to state that they had expected questioning about their use of medicines than those who went to buy a particular product. As discussed in section 3.2.5.2, patients' expectations of being asked about their use of medicines during this visit were significantly related to their having been asked such questions during their visit. Furthermore, only six of the participants reported that they objected to being asked these questions.

In the third study investigating patients' views about pharmacists' question asking, interviews were conducted with 40 consumers who were recruited at two British community pharmacies (Morris, Cantrill and Weiss, 1997). In agreement with Krska and Kennedy's findings, Morris et al's research showed that 15 patients (37.5%) expected to be questioned when purchasing an OTC medicine. Perhaps

unsurprisingly most of these patients said that the reason they had expected to be questioned was that they had been asked questions by their pharmacist before. However, over half of the consumers who visited the pharmacy to ask for advice about symptoms did not expect questioning. The majority of the consumers reported that they thought it was important for pharmacy staff to ask about whom the medicine was being purchased for, details of the condition being treated, and other medication being used. This information was considered to be necessary in order to ensure that the most suitable product was chosen, to confirm self-diagnosis and to protect against interactions between medications.

Some participants in Morris et al's study considered some questions to be too personal or time-consuming. However, some consumers reported that they did not mind being asked questions if it was for their benefit, even if they had bought the medicine before or had been given the information previously. Some patients even suggested that they would be prepared to stop if in a hurry or return later in order to answer questions. In relation to questions about sensitive issues, 16 participants stated that they did not mind being asked such questions if it was done discreetly, although the sex of the provider asking questions was important to three female consumers. Another theme that emerged was that some patients said that they would feel uneasy about answering these questions if purchasing medicines for someone else because they might have insufficient information or would feel uncomfortable discussing someone else's confidential medical problems.

Only one study examined pharmacists' attitudes towards questioning patients about medicines (Hargie, Morrow and Woodman, 2000). In this study, 15 pharmacists working in Northern Ireland analysed their own consultations both individually and in groups in order to identify the interpersonal skills that they believed were necessary to communicate effectively with patients. Questioning was considered to be the third most important skill, after building rapport and explaining. The most important questioning skill was perceived to be asking about other medicines the patient is taking.

3.2.5.5 Summary of the research on health care professionals asking questions about medicines

The research on health care professionals asking questions about medicines showed that, in general, doctors asked most patients a number of questions about medicines. However, although pharmacists identified questioning as being the third most important interpersonal skill needed for communicating with patients, the research showed that pharmacists only asked questions in under a third of interactions. Many of the questions that health professionals asked were about what medicines the patients were taking and the details of their regimens. Doctors only asked patients about their experience of taking medicines and their views about medicines in a minority of consultations. In addition, in most of their interactions, pharmacists did not ask consumers if they had any questions nor did they encourage consumers to express their concerns. It is also worth noting that the research examining patients' perceptions of doctors' question asking indicated that patients overestimated the extent to which they were asked about their opinions of medicines, which suggests that this may not be a reliable method of measuring this behaviour.

The research in this area indicated that question asking was not affected by health provider characteristics, although patients on lower incomes and those taking more medicines were asked more questions. In addition, the findings showed that some patients appear to resent questioning. Due to inconsistency in the findings, further research is needed to investigate the impact of patients' race, age, gender and country of residence on providers' question asking and the relationship between questioning and patients' expression of medication complaints and adherence. Finally, although under 40% of patients expected to be asked questions when buying an OTC medicine, the majority did not mind being asked if it was for their benefit and many understood the reasons why pharmacists need to ask particular questions.

3.2.6 Health care professionals encouraging patients to ask questions about medicines

Thirteen articles investigated health care professionals encouraging patients to ask questions about medicines. Twelve of these articles reported research which examined the extent to which health care professionals encouraged patients to ask questions, one looked at the factors affecting this behaviour, three investigated the effects and one explored patients' views about it. In this research, both quantitative and qualitative methods were used to assess the communication of doctors, pharmacists, nurses and hospital staff. In four of the studies, encounters were audiotaped or observed, whilst all the others were based on patient interviews or questionnaires. The literature in this area is discussed under the following sections:

- * extent to which health care professionals encourage patients to ask questions about medicines,
- * factors affecting health care professionals encouraging patients to ask questions about medicines,
- * effects of health care professionals encouraging patients to ask questions about medicines,
- * patients' views about health care professionals encouraging them to ask questions about medicines,
- * summary of the research on health care professionals encouraging patients to ask questions about medicines.

3.2.6.1 Extent to which health care professionals encourage patients to ask questions about medicines

Of the 12 articles discussed in this section, five examined the extent to which doctors encouraged patients to ask questions, four looked at the extent to which pharmacists did this, and the remaining three studies focused on nurses or hospital staff. In relation to doctors' behaviour, Smith, Cunningham and Hale (1994) conducted a survey in the US with 218 patients over 65 years about their communication about prescribed medicines. The respondents expressed moderate agreement with two statements asserting that "my doctor encourages me to ask questions" and "my doctor sets time aside for me to ask questions". Another study based on 51 audiotaped follow-up consultations between hypertensive patients and doctors in Sweden found that some of these doctors asked patients if they had any questions (Kjellgren et al, 2000). However, in two qualitative studies, in which patients were interviewed about asthma medication and HRT, some participants reported that they felt that they had not been given the opportunity to ask questions (Bond and Bywaters, 1999; Stevenson et al, 1999b). Another quantitative study also examined whether patients were told what to do if they had questions about their medicines after the consultation was over

(Lin et al, 1995). In this research, 155 patients were interviewed by telephone one and four months after they had been prescribed antidepressants. Sixty-two percent of the patients reported that their doctor had told them what to do if they had medication questions after their appointment.

In relation to pharmacists' behaviour, observations of 344 encounters between patients and pharmacy personnel about prescription medicines in the US, showed that only 9% of the 196 patients who interacted with a pharmacist were asked if they had any questions about their medicines (Sleath, 1995). Another study based on the analysis of 43 audiotaped interactions between elderly consumers and pharmacists in England showed that the pharmacist gave the patient an opportunity to ask questions about medicines in only six of the encounters (Livingstone, 1996). Moreover, the author noted that in these six interactions it appeared that the pharmacist did not really expect the patient to ask any questions, as they quickly followed with a 'closing' remark. The two other studies involving pharmacists were based on quantitative surveys that examined patients' perceptions of pharmacists' behaviour. As discussed in section 3.2.5.1, Nau, Ried and Lipowski's (1997) research based on the questionnaire responses of 198 asthma patients showed that around three-quarters of patients stated that their pharmacist had recently asked if they had any questions. However, again as discussed in section 3.2.5.1, Hargie, Morrow and Woodman (1992) found that only 27% of the 258 respondents who answered an item about their experience of communicating with pharmacists reported that when collecting a prescription the pharmacist encouraged them to ask questions or express their concerns.

Morse et al (1991) conducted the only study that examined the extent to which nurses encouraged patients to ask questions about their medicines. In this research, 40 of the 60 AIDS patients who were enrolled in a clinical trial group were asked to complete a questionnaire on two occasions six months apart. The patients who were selected were those who were judged by the six study nurses to be the 20 most compliant and the 20 least compliant patients. The findings showed that the patients expressed high agreement with the statement "the nurse encourages questions regarding treatment" both at time 1 (N=40) and at time 2 (N=34).

The remaining two studies in this area focused on the communication between patients and hospital staff. Holloway (1996) interviewed 20 patients on the morning of their discharge from hospital and found that ten of the patients stated that they had been given the opportunity to ask questions about their medicines during their time in hospital. Five of these patients stated that they had been given three or more opportunities. However, in other research described in section 3.1.4.1, detailed analysis of the communication between a woman in labour and hospital staff showed that when the patient was told that they were going to wait for the epidural to wear off she was not given the opportunity to ask questions or express her concerns (Fahy and Smith, 1994).

3.2.6.2 Factors affecting health care professionals encouraging patients to ask questions about medicines

The only study that examined the factors affecting health providers encouraging patients to ask questions about medicines focused on the impact of the patients' country of residence (Smith and Smith, 1999). This study was based on three

questionnaire surveys about prescription medicines completed by 397 Hong Kong participants, 444 people from mainland China and 218 US patients. As discussed in section 3.2.5.2, the patients in each group were asked to rate their agreement with 18 statements and then the mean ratings were ranked and compared for the three groups. A higher mean indicated a higher agreement with the item. The findings showed that the patients from Hong Kong gave lower ranked means than patients in the other two groups in response to items about their doctor encouraging them to ask questions and setting time aside for them to ask questions. These findings indicated that the participants from mainland China and the US were more likely to state that their doctor encouraged them to ask questions and set time aside for them to ask questions than those patients from Hong Kong.

3.2.6.3 Effects of health care professionals encouraging patients to ask questions about medicines

One of the three studies that investigated the impact of health providers encouraging patients to ask questions about medicines looked at how patients reacted to this behaviour during the consultation. Kjellgren et al (2000), who analysed 51 audiotaped follow-up appointments between hypertensive patients and doctors, found that some doctors asked patients at the end of the consultation if they had any questions but that few patients took advantage of this opportunity.

The other two studies investigated the impact on patients' compliance. Morse et al's (1991) research, which was discussed in section 3.2.6.1, looked at how AIDS patients' perceptions of their nurses encouraging them to ask questions about their treatment affected their compliance. Questionnaires were completed on two occasions six months apart by 40 of the 60 patients enrolled in a clinical trial who were judged to be the 20 most compliant and the 20 least compliant patients. The findings showed that at the time of both the interviews the nurses' assessments of the patients' compliance were found to be positively related to the patients' perceptions of the extent to which the nurses had encouraged them to ask questions about their treatment. However, interviews with the nurses about how they assessed compliance indicated that their judgements had been partially based on their perceptions of their communication and relationship with the patient. Therefore, the correlation between compliance and patients' perceptions of being encouraged to ask more questions may in fact have represented the link between two measures of the communication between the nurses and the patients rather than an association between communication and patients' medicine-taking.

The third study involved 155 patients who collected a new antidepressant prescription at a US pharmacy (Lin et al, 1995). These patients were interviewed one and four months after they collected their prescription. In this study adherence was assessed by asking patients whether they were still taking their medication and how many days they had taken it in the last two weeks. The findings showed that patients who stated that their doctor told them what to do if they had questions after their consultation were more likely to report that they were adherent in the first month of taking the antidepressant. However, there was no relationship between doctors telling patients what to do if they had questions after the visit and adherence at four months.

3.2.6.4 Patients' views about health care professionals encouraging them to ask questions about medicines

One study examined patients' views about health care providers encouraging them to ask questions about medicines. As discussed in section 3.2.5.4, in Hargie, Morrow and Woodman's (1992) study, 66% of the 261 members of the general public surveyed stated that, when collecting a prescription at a pharmacy, they would like the pharmacist to encourage them to ask questions or express their concerns.

3.2.6.5 Summary of the research on health care professionals encouraging patients to ask questions about medicines

The research in this area indicated that, in general, patients perceived that doctors encouraged them to ask questions about their medicines, gave them time to do so and even told them what to do if they had questions after the consultation. However, some patients reported that they had not been given the opportunity to ask questions. Most of the literature involving pharmacists indicated that they rarely asked patients if they had questions about medicines or gave them the opportunity to ask them. However, one study focusing on asthma patients showed that three-quarters felt that they had been asked recently if they had any questions about their medicines. Therefore, further research is needed to determine if the difference between these findings was due to patients overestimating the extent to which their pharmacists encouraged them to ask questions or if some patients using particular medicines were encouraged to ask questions more frequently than others. The research also showed that patients felt that their nurses encouraged them to ask questions about their medicines but that only half of patients being discharged from hospital reported that they had been given the opportunity to ask questions. However, both these studies involved small samples ($N < 40$).

The majority of patients stated that they want pharmacists to encourage them to ask questions or express their concerns. However, research on patients' communication with doctors showed that when patients were given the opportunity to ask questions about their medicines most did not perhaps because the doctors did not expect an answer. The literature indicated that patients did not ask questions for a number of reasons, which are discussed in section 3.1.6.5. The research investigating the impact of health care professionals encouraging patients to ask questions on compliance suggested that there may be a connection, although this needs to be researched further. Finally, one study showed that the extent to which patients reported that they were encouraged to ask questions was affected by the country they lived in.

3.2.7 Health care professionals discussing patients' concerns about and experiences of medicines

Health care professionals' discussion of patients' concerns about and experiences of medicines was examined in 22 articles. Eighteen of these articles investigated the extent to which health care professionals discussed patients' concerns and experiences, three examined the factors affecting this behaviour, two explored the effects and four studied patients' or health care professionals' views. Over two-thirds of these studies used qualitative methodologies. In addition, the majority of the research in this area examined doctors' communication and most studies focused on particular conditions or medicines rather than a range of medicines. The literature in this field is discussed under the following sections:

- * extent to which health care professionals discuss patients' concerns about and experiences of medicines,
- * factors affecting health care professionals discussing patients' concerns about and experiences of medicines,
- * effects of health care professionals discussing patients' concerns about and experiences of medicines,
- * patients' and health care professionals' views about health care professionals discussing patients' concerns about and experiences of medicines,
- * summary of the research on health care professionals discussing patients' concerns about and experiences of medicines.

3.2.7.1 Extent to which health care professionals discuss patients' concerns about and experiences of medicines

The 18 articles included in this section reported mixed findings about the extent to which health care professionals discuss patients' concerns and experiences about medicines. Quantitative research conducted by Bultman and Svarstad (2000) showed that patients prescribed antidepressants perceived that their doctors encouraged them to raise their concerns and helped them with any problems that they raised. This study involved 100 patients with a new prescription for antidepressants who were interviewed by telephone at the beginning of treatment and again two months later. As discussed in section 3.1.8.1, patients rated their doctors highly for having helped them with their concerns about antidepressants at the appointment when the script was given. In addition, around 60% of the 86 patients who had follow-up visits with their doctor strongly agreed that during these visits their doctor encouraged them to express problems and asked and listened to their medication concerns. However, only 38 (44%) strongly agreed that their doctor helped them solve their medication problems during these follow-up consultations. A questionnaire survey of 218 patients conducted by Smith, Cunningham and Hale (1994) also showed that the participants moderately agreed that their doctor waited for them to say what was on their mind. Furthermore, qualitative research based on 51 audiotaped consultations between hypertensive patients and doctors, indicated that at the end of the appointment some doctors asked patients whether they agreed with the treatment decision (Kjellgren et al, 2000).

In contrast to this research, numerous other studies showed that in many cases doctors did not encourage patients to raise their concerns or ignored the concerns that patients expressed. As discussed in section 3.1.8.4, Sleath and her colleagues (2000) analysed 467 audiotaped consultations involving doctors and patients using long-term medication and found that doctors ignored 26 of the 98 patients who expressed a complaint about their medicines. In addition, a third of the 94 patients who expressed an adherence problem were ignored by the doctor. Furthermore, two other studies that examined asthma patients' perceptions of doctors' communication indicated that the majority of these patients' medication concerns were not listened to or respected (Boulet, 1998; White and Sander, 1999). As discussed in section 3.1.8.1, one of these studies, which was based on a Canadian survey of 603 asthmatic patients, found that a quarter of the respondents had discussed their concerns about inhaled corticosteroids with their doctor or other health care professional (Boulet, 1998). The findings showed that 75% of these patients felt that their concerns had been "eased through" these discussions. In the second study, most of the 1230 parents of children with asthma who completed questionnaires stated that when they discussed the side effects

of their medicine with doctors, their doctors were not caring or sympathetic nor were they willing to listen to or discuss the problem (White and Sander, 1999).

Eight other articles also reported studies that demonstrated that sometimes doctors and other health care professionals did not encourage patients to express their views or concerns about medicines and that when patients did raise their concerns often doctors did not explore them, respect them or appear interested and occasionally they even ignored them (Bond and Bywaters, 1998, 1999; Britten et al, 2000; Fahy and Smith, 1999; Ito, 1999; Smith, Francis and Rowley, 2000; Stevenson et al, 1999b, 2000). These studies used qualitative methodologies, including audiotaping or observing the consultation and interviews or focus groups with patients.

Other qualitative research indicated the ways in which doctors did not encourage patients to express their views and concerns about medicines. Elwyn and his colleagues (1999) analysed two consultations between a GP interested in the involvement of patients in treatment decisions and parents of children consulting with an upper respiratory tract infection. The authors noted that in these consultations the doctor took a defensive position about the treatment which prevented the patients from expressing their treatment preferences or views. Parrott's (1994) study showed how a doctor's use of humour when reacting to a patient asking about a medicine appeared to stop the patient from discussing the medicine any further. In contrast, other research indicated the ways in which doctors encouraged patients to express their concerns about medicines. This study looked at how a patient-centred doctor and her patients were able to share their views and goals (Smith-Dupre and Beck, 1996). As discussed in section 3.1.8.3, the authors noted that the doctor used self-disclosure, encouraged the patient to talk and listened attentively to her views and concerns.

Finally, only one study focused on the extent to which pharmacists encouraged patients to express their concerns about medicines (Hargie, Morrow and Woodman, 1992). This study, which was based on a survey of 261 consumers, found that only 27% of the 258 participants who responded stated that when they collect a prescription their pharmacist encourages them to ask questions or express their concerns (see section 3.2.5.1).

3.2.7.2 Factors affecting health care professionals discussing patients' concerns about and experiences of medicines

The three studies in this section used quantitative methodologies to examine the factors affecting patients' perceptions of the extent to which their doctor encouraged them to express their concerns about medicines and dealt with the concerns that they raised. Research by Bultman and Svarstad (2000), which is discussed in section 3.2.7.1, involved 100 patients with a new prescription for antidepressants who were interviewed by telephone on two occasions two months apart. The first interview, which took place at the beginning of treatment, explored patients' perceptions of their doctors' communication when they were given the script, whilst the second interview focused on their doctors' communication during follow-up visits. Both interviews assessed the extent to which their doctors used a collaborative communication style. In the second interview, this variable was measured by patients' perceptions of the extent to which their doctor encouraged them to express their medication problems, asked about their medication concerns, listened to these concerns and helped solved

their medication problems. The findings showed that patients' perceptions of their doctors using a more collaborative style during their follow up communication were predicted by their perceptions of doctors having used a more collaborative communication style during the initial visit and patients having more positive beliefs about antidepressants. However, a follow up collaborative style was not related to patients' age, education, initial depression symptoms, previous antidepressant use or knowledge of the medication regimen.

Smith and Smith's (1999) research investigated the impact of patients' nationality by comparing the responses of patients from Hong Kong, mainland China and the US to a questionnaire about their communication with doctors about medicines. As discussed in section 3.2.5.2, the patients' mean agreement with 18 items were ranked for each group. The findings showed that the patients in all three groups expressed a strong agreement with the statement that their doctor waits for them to say what is on his/her mind. The third study compared the perceptions of asthma patients using different methods of dispensing bronchodilators (White and Sander, 1999). This study was based on the questionnaire responses of 1230 parents of asthmatic children and 604 adults with asthma. The findings from the parents showed that 3% of those whose children used nebulizer or metered-dose inhalers stated that their doctors were "caring/sympathetic or were willing to listen to or discuss their bronchodilator side effects", compared to 12% of the oral medication users. However, for the adult patients, less than 4% of all three groups agreed with this statement.

3.2.7.3 Effects of health care professionals discussing patients' concerns about and experiences of medicines

One quantitative and one qualitative study investigated the effects of GPs discussing patients' concerns about medicines on patients' satisfaction and compliance with their medicine. The quantitative study, which is described in section 3.2.7.2, focused on GPs' communication with patients about antidepressants (Bultman and Svarstad, 2000). In this study 100 patients with a new prescription for antidepressants were interviewed by telephone at the beginning of treatment and again two months later. The findings showed that patients who reported that their doctor used a more collaborative communication style in follow up visits were more satisfied with their antidepressant and reported greater adherence. In the qualitative study, some of the 16 women interviewed indicated that they had stopped using HRT after they had discussions with doctors in which they felt their concerns about HRT were not taken seriously (Bond and Bywaters, 1999).

3.2.7.4 Patients' and health care professionals' views about health care professionals discussing patients' concerns about and experiences of medicines

There are four studies in this section, two of which focused on patients' views about health care professionals discussing their concerns about medicines and two that examined health care professionals' views about this aspect of communication. One of the studies that investigated patients' views involved a survey of 261 members of the general public (Hargie, Morrow and Woodman, 1992). As discussed in section 3.2.5.4, the findings showed that, when collecting a prescription medicine from a pharmacy, 66% of the respondents said they wanted the pharmacist to encourage them to express their concerns or ask questions. The second study investigating patients' views, which was based on four focus groups with women who used HRT, showed that they felt it was equally important for their doctor to listen to their views about

their treatment as it was to provide them with information (Dayan-Lintzer and Klein, 1999). In the other two studies, qualitative interviews with doctors indicated that they considered it to be important to listen to patients carefully and to take their concerns about antibiotics and other prescription medicines seriously (Butler et al, 1998; McGrath, 1999).

3.2.7.5 Summary of the research on health care professionals discussing patients' concerns about and experiences of medicines

There were mixed findings concerning the extent to which doctors and other health professionals encourage patients to talk about their concerns about medicines. Some research, based on patients' perceptions of their doctors' behaviour, indicated that patients felt that their doctors waited for them to say what was on their minds, encouraged them to raise their medication concerns, listened to these concerns and helped solve their medication problems. However, other research showed that asthma patients felt that doctors were not willing to listen to or discuss their concerns about or experience of medication side effects. In addition, a number of qualitative studies examining professional-patient communication about various medications showed that doctors often did not encourage patients to express their views or concerns and that when patients did talk about their concerns doctors frequently ignored them. Other literature showed that patients who had more positive views about antidepressants when they were first prescribed them were more likely to report that during their follow up visits their doctors encouraged them to express their medication concerns, listened to these concerns and helped solve medication problems. Although not tested statistically, there was also some evidence to suggest that children with asthma who used oral bronchodilators were more likely to feel that their doctors were willing to discuss their concerns about them than those who used nebulizers or metered-dose inhalers. Finally, the literature indicated that when doctors encouraged patients to talk about their medication concerns and were willing to listen to and discuss them patients were more satisfied with their medication and were more adherent.

3.2.8 Health care professionals involving patients in decision-making about medicines

Fifteen of the included articles examined health care professionals involving patients in making decisions about their medicines. All of these studies investigated the extent to which health care professionals involve patients in decision-making. One also examined the factors affecting this behaviour and two explored health care professionals' views about it. The majority of these studies involved qualitative methodologies and analysis and examined health care professionals' behaviour directly through observation of or audiotaping or videotaping the communication. Only five of the articles reported quantitative results about this aspect of communication. The research in this area is discussed under the following sections:

- * extent to which health care professionals involve patients in decision-making about medicines,
- * factors affecting health care professionals involving patients in decision-making about medicines,
- * health care professionals' views about involving patients in decision-making about medicines,
- * summary of the research on health care professionals involving patients in decision-making about medicines.

3.2.8.1 Extent to which health care professionals involve patients in decision-making about medicines

In this section, we will first discuss the five articles reporting quantitative research and then the ten articles describing qualitative studies. Sleath and her colleagues (2000) showed that doctors took account of patients' experiences of their medicines when making decisions about them. This study was based on the analysis of 467 audiotaped consultations between primary care physicians and patients using long-term medications. In 56 of the 98 consultations in which a patient made a complaint about their medicine (see section 3.1.8.1), the doctor responded by changing the patients' medication. However, in only 42 of the 94 consultations in which patients reported an adherence problem did the doctor change the regimen. The findings also indicated that whether or not the doctor decided to change the medication was influenced by the type of medication complaint or adherence problem that the patient raised (see section 3.1.8.4). However, in Makoul's (1998) study, the majority of doctors did not involve patients in decision-making. In this research, 271 GP consultations in which a new prescription was given were videotaped and coded and questionnaires were completed by patients and GPs after the consultations. The findings showed that doctors gave patients some responsibility for deciding how to deal with their condition in 42% of the consultations and involved patients in choosing a treatment for their condition in only 27% of cases. Furthermore, as discussed in section 3.1.7.3, research by Leemans and Laekeman (1998) showed that sometimes pharmacists even ignored patients' requests for a brand medicine, giving them a non-brand medicine instead.

The final two quantitative studies discussed in this section assessed patients' or health care professionals' perceptions of the extent to which doctors involved patients in decision-making about medicines. In Smith, Cunningham and Hale's (1994) research, the responses of 218 patients to a questionnaire about their communication with doctors about prescription medicines showed that on average they did not agree that their doctor usually suggested several medicines and asked them which they preferred. The patients also expressed low agreement with the statement "at my last visit the doctor asked me to choose a treatment for my health problem". Research carried out by Makoul, Arntson and Schofield (1995) showed that the majority of doctors felt that they involved patients in the decision-making process. In this study, 36 GPs who had some of their consultations videotaped completed a questionnaire in which they were asked to estimate the percentage of their consultations in which they accomplished various communication tasks. The findings showed that the doctors felt that they involved patients in deciding upon a treatment plan in 64% of their consultations.

A number of articles describing qualitative studies reported cases in which decisions about medications were affected by patients' experience or views or in which doctors or nurses involved patients in making decisions about their medicines (Diaz, 2000; Elwyn et al, 1999; Gerbert et al, 2000; Gwyn and Elwyn, 1999; Kjellgren et al, 2000; Latter et al, 2000; Stevenson et al, 2000). However, two other qualitative studies, one based on the observation of a woman in labour in a hospital and the other involving focus group meetings with patients with chronic conditions, indicated that health care professionals did not involve patients in decision-making about their medicines (Fahy and Smith, 1999; Smith, Francis and Rowley, 2000).

Finally, research conducted by Jones and Britten (1998) showed that some doctors told patients that they could decide whether or not to collect their prescribed medicines after the consultation. In this study, 18 patients were interviewed about why they had not cashed their prescriptions. Four of the patients, who had all consulted with the same doctor, indicated that their doctor gave them permission to not cash their prescription if they did not want to.

3.2.8.2 Factors affecting health care professionals involving patients in decision-making about medicines

Only one study examined the factors affecting the extent to which health care practitioners involved patients in making decisions about their medicines. Makoul's (1998) research, which is described in sections 3.1.4.4 and 3.2.8.1, investigated whether or not doctors' involvement of patients in decision-making was influenced by patients' inclination to rely on doctors to make decisions for them, GPs' attitudes towards patients' reliance on doctors, and patients' age and social class. In this study, GPs' behaviours during 271 videotaped consultations were coded. Two of these behaviours, namely giving patients some responsibility for deciding how to deal with their condition and involving patients in choosing a treatment, were combined to assess the extent to which doctors involved patients in decision-making. The findings showed that doctors were less likely to involve patients in decision-making if the patient was doctor-reliant rather than self-reliant. However, doctors' involvement of patients in decision-making was not predicted by doctors' attitudes towards patients' reliance or patients' age or social class.

3.2.8.3 Health care professionals' views about involving patients in decision-making about medicines

One quantitative and one qualitative study investigated health care providers' attitudes towards involving patients in decisions about their medicines. In the quantitative study, which is also discussed in section 3.2.8.1, 36 GPs completed a questionnaire in which they were asked to rate the importance of achieving eight specific tasks in a consultation, from 0 (not at all important) to 10 (crucially important) (Makoul, Arntson and Schofield, 1995). The GPs gave a mean rating of 8 for involving patients in deciding upon a treatment plan, and the only task that was considered to be more important was providing instructions for taking the medicine. The findings of this research were supported by the qualitative study, which showed that doctors want to make shared decisions with their HIV-positive patients (Gerbert et al, 2000). In this study, various health care practitioners who care for people with HIV who participated in eight focus groups indicated that they preferred to decide with their patients when antiretroviral therapy should begin. Although the participants acknowledged that there were some circumstances when they needed to make unilateral decisions, they did not feel comfortable about making them.

3.2.8.4 Summary of the research on health care professionals involving patients in decision-making about medicines

In one of the studies discussed in this section doctors reported that they involved patients in deciding upon treatment in almost two-thirds of their consultations. However, research based on either audiotaped or videotaped consultations showed that in the majority of cases doctors did not give patients responsibility for deciding how to deal with their health problem nor did they involve patients in choosing their

treatment. Patients also reported that they are not usually asked to choose their treatment. The research investigating the factors influencing doctors' involvement of patients in decision-making showed that doctors were less likely to involve patients who preferred to rely on their doctors to make decisions for them. However, doctors' own attitudes towards whether or not patients should be actively involved in their care did not affect the extent to which they involved patients in decisions. Finally, one study showed that, although GPs reported that they felt it was important to involve patients in decisions about their treatment plans, they believed that they did not achieve this task in over a third of their consultations.

3.2.9 Health care professionals expressing their views about medicines and trying to change patients' views

Eleven articles examined health care professionals expressing their views about medicines and trying to change patients' views. Ten of these articles examined the extent to which health care professionals expressed their views and tried to change patients' views, one investigated the factors affecting professionals expressing their views, four looked at the effects of this behaviour and one explored health care professionals' views about it. All but one of these studies used qualitative methodologies and the majority focused on doctors' communication. In addition, most of this research focused on communication about particular medicines including antibiotics, HRT, antiretroviral medication, and postoperative analgesics. The literature in this section is discussed under the following sections:

- * extent to which health care professionals express their views about medicines and try to change patients' views,
- * factors affecting health care professionals expressing their views about medicines,
- * effects of health care professionals expressing their views about medicines and trying to change patients' views about medicines,
- * health care professionals' views about trying to change patients' views about medicines,
- * summary of the research on health care professionals trying to change patients' views about medicines.

3.2.9.1 Extent to which health care professionals express their views about medicines and try to change patients' views

Of the ten articles discussed in this section, only four used observations or audiotaping of interactions in order to investigate the extent to which health care professionals expressed their views or tried to change patients' views. The other six articles reported patients' or health professionals' perceptions which were assessed by focus groups, interviews or questionnaires. The only quantitative study involved a survey of 1082 women which showed that 19% felt that their doctor had been very encouraging about HRT and a further 19% of women said their doctor had been somewhat encouraging (Newton et al, 1998). However, 28% of the women said that their doctor had not been at all encouraging about HRT. Six qualitative articles also described research that showed that on some occasions health care professionals tried to persuade patients not to use particular medicines. Three of these articles reported the findings of two studies based on the detailed analysis of GP consultations (Elwyn et al, 1999; Gwyn and Elwyn, 1999; Stevenson et al, 2000). In both these studies, GPs tried to persuade patients not to use antibiotics. In these consultations the doctors gave a number of reasons for not wanting to prescribe antibiotics, such as the lack of effectiveness in treating viral illnesses and harmful side effects. In other research

based on interviews with 16 women about their reasons for stopping HRT, one woman reported that she felt pressured by her GP to stop using it (Bond and Bywaters, 1999).

The findings from focus groups conducted with 35 professionals who cared for patients with HIV indicated that when these professionals disagreed with their patients about what was the best treatment some tried to educate or convince the patients to follow their advice (Gerbert et al, 2000). In addition, Roberts and Volberding (1999) interviewed 15 doctors about communicating with patients with HIV and found that some admitted to framing information in a particular way in order to discourage patients from starting medicine regimes to which the doctors did not think they could adhere. Two other studies based on interviews with patients and health care professionals showed that in some cases doctors and nurses did not express their views about medicines to patients (Francke and Theeuwens, 1994; Stevenson et al, 1999a). In Stevenson et al's research, interviews with 21 GPs about prescribing showed that they felt that during consultations both doctors and patients are not explicit about their views and assumptions about medicines. The second study, which was conducted by Francke and Theeuwens, was based on interviews with 26 patients about their experiences of postoperative pain and analgesia. The findings indicated that patients had views about medications and their pain that prevented them from asking for analgesia, yet in most cases it appeared that the nurses had not attempted to change these views.

The final study discussed in this section looked at how practitioners attempted to persuade patients to adhere to their medicine regime (Ito, 1999). This research, which is described in section 3.1.8.2, involved Vietnamese refugees who attended a tuberculosis clinic in the US. The findings indicated that, when the patients complained of the side effects of their medication, health care providers tried to persuade them that the symptoms were not side effects but were due to other factors instead. For example, some practitioners told patients who complained of itchy skin that this symptom might be due to the drier climate or different soap and water. Therefore, the author argued that, when discussing patients' concerns, the practitioners used explanations based on a Western biomedical model rather than addressing the patients' Vietnamese-based explanations.

3.2.9.2 Factors affecting health care professionals expressing their views about medicines

The only study that looked at the factors affecting health care professionals expressing their views about medicines examined the impact of age on women's perceptions of their doctors having been encouraging about HRT (Newton et al, 1998). In this study, 1082 women aged 50 to 80 years were surveyed by telephone. The findings showed that amongst past and current users of HRT, older women were less likely to feel their doctor had been encouraging. Age had no significant impact on the extent to which women who had never used HRT felt their doctor had been encouraging about it.

3.2.9.3 Effects of health care professionals expressing their views about medicines and trying to change patients' views about medicines

Four studies, which are all discussed in section 3.2.9.1, examined the link between health care professionals expressing their views about medicines and patients' medication use. Newton and her colleagues (1998) found that women who reported

that their doctor had been very encouraging about HRT were more likely to be current users, rather than never users, than those who said their doctors had been neither encouraging nor discouraging. The three other articles, which reported qualitative research, showed that practitioners were sometimes successful in their attempts to change patients' minds about taking medicines. Interviews with 26 women who had recently undergone breast cancer surgery indicated that two of them had developed a more positive attitude towards pain medication as a result of their nurses encouraging them to express their pain (Francke and Theeuwen, 1994). The two other studies, which were based on analysis of two audiotaped GP consultations and interviews with 15 doctors, indicated that some patients changed their decisions about taking medicines due to their doctors' persuasive communication (Elwyn et al, 1999; Roberts and Volberding, 1999). However, it is unclear in these two studies whether the patients actually changed their views or whether they simply agreed to follow their doctors' advice.

3.2.9.4 Health care professionals' views about trying to change patients' views about medicines

Only one study examined health care practitioners' views about trying to change patients' attitudes towards medicines (Butler et al, 1998). In this study, 21 GPs were interviewed about prescribing antibiotics for sore throats. The findings showed that the doctors felt that trying to convince patients not to use antibiotics was generally unrewarding and time-consuming. However, some of the interviewees also claimed that when their attempts to persuade patients not to use antibiotics were successful it was highly satisfying.

3.2.9.5 Summary of the research on health care professionals trying to change patients' views about medicines

Research on patients' experiences of communicating with their doctors about HRT indicated that over a third felt their doctor had been encouraging about the therapy. The qualitative studies discussed in this section showed that when practitioners and patients disagreed about the need for particular medicines doctors sometimes reacted by trying to educate or convince the patients. Doctors were also found to have attempted to change patients' views by providing reasons for or against the use of medicines or by framing information in a particular way. However, some research suggested that, when trying to persuade patients, practitioners did not take into account the cultural viewpoint of the patient. Other studies indicated that sometimes practitioners did not express their views about medicines to patients or did not try to change patients' misconceptions. There were many examples of cases given in the research in which practitioners' persuasive communication led to patients changing their minds and agreeing to follow their practitioners' advice. However, some doctors reported that trying to change patients' views about medicines was often unrewarding and time-consuming.

3.2.10 Health care professionals discussing patients' ability to adhere to a treatment plan

Six articles examined health care practitioners discussing patients' ability to adhere to a treatment plan. Five of these studies investigated the extent to which health care professionals discussed patients ability to adhere to a treatment plan, one assessed the factors affecting this aspect of communication and two explored health care professionals' views about it. Three of these articles reported qualitative research and

three described quantitative studies. Two studies focused on communication with patients with HIV, whilst the others examined discussions about various medications. A wide range of methodologies was used including observations and audiotaping and videotaping of interactions, patient and practitioner interviews, patient questionnaires and practitioner focus groups. The literature on this topic is discussed under the following sections:

- * extent to which health care professionals discuss patients' ability to adhere to a treatment plan,
- * factors affecting health care professionals discussing patients' ability to adhere to a treatment plan,
- * health care professionals' views about discussing patients' ability to adhere to a treatment plan,
- * summary of the research on health care professionals discussing patients' ability to adhere to a treatment plan.

3.2.10.1 Extent to which health care professionals discuss patients' ability to adhere to a treatment plan

Two of the five articles that examined the extent to which health care professionals discussed patients' ability to follow a treatment plan used quantitative methods and the other three utilised qualitative methods. The two quantitative studies examined doctors' communication (Makoul, Arntson and Schofield, 1995; Smith, Cunningham and Hale, 1994). The research by Makoul and his colleagues was based on 271 videotaped GP consultations in which a new prescription was given and the questionnaires completed by 36 of the 39 GPs participating in the study. The data from the questionnaires showed that the doctors estimated that they discussed patients' ability to follow the treatment plan in 49% of their consultations with their patients in general. However, the analysis of the videotaped consultations indicated that the patients' ability to follow their treatment plan was only discussed in 8% of the interactions. Although the doctors' estimates were of their consultations with all their patients and not just those that were videotaped, these findings suggested that the doctors overestimated the extent to which they assessed their patients' ability to adhere to a treatment plan. The research by Smith and his colleagues, in which 218 elderly patients completed a questionnaire about their communication about prescription medicines, showed that in general they felt that their doctors discussed with them their ability to follow their doctors' recommendations.

Two of the three articles reporting qualitative studies examined practitioners' experiences of communicating with patients with HIV about their medication regimens (Gerbert et al, 2000; Roberts and Volberding, 1999). In Roberts and Volberding's study, most of the 15 doctors interviewed reported that they assessed their patients' ability to adhere to a medication regimen before prescribing antiretroviral medicines and that they discussed adherence with patients once this medication had been prescribed. Some doctors reported that they assessed patients' ability to adhere by examining psychosocial factors, such as lifestyle and depression, whereas, as discussed in section 3.2.4.2, other doctors claimed that they checked their patients' understanding of their condition and medication before prescribing the therapy. When discussing patients' adherence to their treatment, many doctors reported that they asked specific questions to help patients understand why they had missed doses and to enable them to develop strategies to improve their adherence. In Gerbert et al's research, the findings from eight focus groups with practitioners who

cared for patients with HIV showed that they worked together with patients in order to identify and address potential barriers to adherence, such as side effects. Another strategy that was used by practitioners to enhance adherence was to discuss the medication regime with the patients' partners. The third qualitative study, which involved the observation and audiotaping of nurse-patient interactions and interviews with patients and nurses after these interactions, also showed that some nurses assessed patients' suitability for self-medication (Latter et al, 2000).

3.2.10.2 Factors affecting health care professionals discussing patients' ability to adhere to a treatment plan

Smith and Smith (1999) conducted the only study that investigated the factors affecting health care professionals discussing patients' ability to follow a treatment plan. This study compared the questionnaire responses of patients from the US, mainland China and Hong Kong. As discussed in section 3.1.6.5, the patients in each group were asked to rate their agreement with 18 statements and then the mean ratings were ranked and compared for the three groups. A higher mean indicated a higher agreement with the item. The statement "my doctor discusses if I am able to do what my doctor thinks will help me" achieved the fifth and sixth highest mean by the patients from mainland China and Hong Kong respectively, but only the thirteenth highest mean by the US patients. These findings indicate that the US patients were less likely to feel that their doctors discussed with them their ability to follow their doctors' suggestions than the patients from Hong Kong or mainland China.

3.2.10.3 Health care professionals' views about discussing patients' ability to adhere to a treatment plan

Both of the two studies that explored health professionals' views about discussing patients' ability to follow a treatment plan focused on doctors' communication. One of these studies used a quantitative methodology whilst the other used qualitative techniques. Makoul, Arntson and Schofield's (1995) research, which is discussed in sections 3.2.5.4 and 3.2.10.1, found that doctors reported that it was fairly important to discuss patients' ability to follow their treatment plan. The doctors gave this communication task a score of 7 on a scale from 0 (not at all important to accomplish) to 10 (crucially important to accomplish). In addition, as discussed in section 3.2.5.4, some of the 15 doctors interviewed by Roberts and Volberding (1999) claimed that when discussing adherence with patients with HIV it is essential to ask specific questions about the number of doses they have missed. Even those doctors who reported that they did not ask patients specific questions also stated that this technique was a good idea, although one doctor argued that it was not his role to delve into the details of how patients manage their routines.

3.2.10.4 Summary of the research on health care professionals discussing patients' ability to adhere to a treatment plan

A number of studies showed that both patients and practitioners felt that practitioners assessed patients' ability to follow a treatment plan. In relation to patients with HIV, some practitioners also claimed that in order to improve adherence they discussed potential barriers to adherence with their patients or talked to patients' partners about the treatment regimen. However, analysis of videotaped GP consultations showed that doctors only discussed patients' ability to adhere to a treatment in a small minority of cases, despite the fact that the doctors in this study stated that this was an important task to achieve. Finally, other research suggested that US patients felt that

their doctors discussed their ability to follow their recommendations less than patients from mainland China or Hong Kong.

3.2.11 Health care professionals offering patients medicines or advising them to use or not use medicines

Six studies examined health care professionals offering or advising patients to use or not use medicines. Two of these studies assessed the extent to which health care professionals offered medicines or encouraged their use and the factors affecting this behaviours, whilst all six investigated the consequences of health care professionals offering medicines or advising patients to use or not use them. All of the studies examined patients' experiences of HCPs' offering and encouraging patients to use HRT using postal surveys or telephone interviews. All but one study used quantitative methodologies. The research in this section are discussed under the following sections:

- * extent to which health care professionals offer patients medicines or encourage their use,
- * factors affecting health care professionals offering patients medicines or encouraging their use,
- * effects of health care professionals offering patients medicines or advising them to use or not use medicines,
- * summary of the research on health care professionals offering patients medicines or advising them to use or not use medicines.

3.2.11.1 Extent to which health care professionals offer patients medicines or encourage their use

Two studies investigated the extent to which health care professionals offered women HRT or encouraged them to use it. Topo, Hemminki and Uutela (1993) conducted a survey of 1308 postmenopausal Finnish women aged between 45 and 64 years, who were identified from the Finnish population register. As discussed in section 3.1.7.1, 43% of the women stated that they had been offered HRT by a doctor, whereas only 26% of women had asked for it. It is also worth noting that some women reported that they had been offered HRT when consulting for reasons other than the menopause. The second study involved telephone interviews with 1082 women aged between 50 and 80 years in the US (Newton et al, 1998). As discussed in section 3.2.9.1, 19% of the women felt that their doctor had been very encouraging about HRT, whilst 28% of the women said their doctor had not been at all encouraging.

3.2.11.2 Factors affecting health care professionals offering patients medicines or encouraging their use

Both of the studies that investigated the factors affecting health professionals offering or encouraging patients to use medicines are described in section 3.2.11.2. Topo, Hemminki and Uutela (1993) found, perhaps unsurprisingly, that 88% of the women who reported that they asked for HRT said that they had been offered it by a doctor, compared to only 27% of women who had not asked for it. In addition, the respondents were more likely to state that they had been offered HRT if they were younger, had a longer general education and lived in urban areas. Furthermore, patients were more likely to report that they had been offered HRT by a gynaecologist than by another doctor, even when patients' education, age and place of residence were taken into account. In agreement with this research, Newton et al (1998) found

that amongst past and current users of HRT, older women were less likely to feel their doctor had been encouraging about HRT.

3.2.11.3 Effects of health care professionals offering patients medicines or advising them to use or not use medicines

Six studies examined the effects of health care professionals offering patients HRT or encouraging them to use or not use it. Topo, Hemminki and Uutela's (1993) survey, which is discussed in section 3.2.11.1, showed that 86% of women who had been offered HRT had used it, compared to only 12% of women who had not been offered it. In another survey of 1114 menopausal US women, a third of the respondents stated that they did not use HRT because their doctor or other practitioner had never offered it to them (Rabin et al, 1999). This reason was more commonly reported by the women in this sample who were aged between 60 and 80 years than those who were aged between 50 and 59 years or over 80 years. In addition, 29% of the women who reported that they did not want to take HRT stated that they had never been offered it. Interviews with 17 UK women conducted by Griffiths (1999) also showed that some women had taken HRT because their doctor suggested it.

Two studies showed that most women did not base their decisions to take or stop taking HRT on their doctors' advice. A postal questionnaire in the UK found that only 13 of the 54 women (24%) who had discontinued HRT had done so based on their doctor's advice (Kadri, 1991). Newton and her colleagues (1997) also found that 54% of the women who had stopped using HRT said that they had done so on their own, and only 23% had stopped using HRT due to doctors' advice. Younger women were particularly more likely to have stopped using HRT on their own. This study, which was based on telephone interviews with 1082 US women aged between 50 and 80 years, also found that only 30% of the women who were current or past users of HRT claimed that the reason they had used HRT was their doctors' advice. The two most common reasons given for using HRT were menopause-related symptoms (49%) and osteoporosis prevention (33%). In addition, only 13% of the current users who stated that they had changed the way they took HRT stated that they had done so because of their doctors' advice. Of those women who had never used HRT, 13% stated this was because their doctor had advised against it, whilst 10% said it was because their doctor had not mentioned it. As discussed in section 3.2.9.3, a later article about this study reported that women who felt that their doctor had been encouraging about HRT were more likely to use it (Newton et al, 1998).

3.2.11.4 Summary of the research on health care professionals offering patients medicines or advising them to use or not use medicines

As stated above, all the literature in this area focused on communication about HRT. The research indicated that around 40% of women were offered HRT or encouraged to use it by their doctor. Some women were offered HRT when they were consulting for reasons other than the menopause. Women were more likely to report that they had been offered or encouraged to use HRT if they had asked for it, were younger, had had a longer education and lived in urban areas. In addition, more of the patients stated that they had been offered HRT by a gynaecologist than by another doctor. There is some evidence of a link between being offered or encouraged to use HRT and patients' HRT use. The vast majority of patients who had been offered HRT had used it and a third of patients stated that the reason that they did not use HRT was because they had never been offered it. However, other research showed that for the

majority of women, their decisions to start or stop taking HRT, or to change the way they used it, were not due to their doctors' advice.

3.2.12 Health care professionals bargaining with medicines

Only one study indicated the extent to which health care professionals bargained with medicines. In this study, Hunt, Valenzuela and Pugh (1997) conducted interviews with 44 low-income Mexican American patients with non-insulin dependent diabetes mellitus. Some of these patients reported that doctors often used insulin as a threat and offered to not give an insulin prescription as a reward for adherence with diet or exercise regimens. In some cases, patients stated that they had made explicit agreements with their practitioners to meet specific target glucose levels by particular dates. Finally, some of the patients in this study reported that the fact that practitioners used insulin as a threat led them to believe that doctors had negative views about insulin which reinforced their own concerns.

3.2.13 Health care professionals repeating information about medicines, expressing uncertainty about information or emphasising particular facts

Four articles examined the extent to which health care professionals expressed uncertainty about, or repeated, information about medicines or emphasised particular medication facts. In Livingstone's (1996) research, which is also discussed in section 3.1.6.1, 43 audiotaped interactions between elderly patients and pharmacists about prescribed medications were analysed. The findings showed that pharmacists provided information to patients about medicines in 15 of the encounters and emphasised the importance of particular information in four of these interactions. In addition, the pharmacists rarely appeared to be uncertain about their advice. As discussed in section 3.1.10, this study also found that pharmacists repeated information in 13 of these cases. Wilson et al's (1992) study, based on 44 audiotaped interactions between patients and community pharmacists in the UK, showed that patients who initiated two or more topics were given more repeated information by the pharmacist.

The two other studies, which were conducted in the UK, focused on women's experiences of discussing HRT with their doctor. In Kadri's (1991) research, some of the 539 women who completed a postal questionnaire stated that their doctor had appeared divided about the pros and cons of HRT. These women reported that they had found this unhelpful. Qualitative interviews with 16 women conducted by Bond and Bywaters (1999) also showed that they felt their doctors expressed uncertainty about HRT. In this study, some women reported that when their doctor had prescribed them HRT they seemed uncertain about how long it could and should be used for as a treatment for symptoms and/or for prophylactic reasons.

3.2.14 Health care professionals interrupting or rushing patients

Two studies examined the extent to which health care professionals interrupted or rushed patients during discussions about medicines. One of these studies examined doctors' communication, whilst the other focused on pharmacists. Wood et al (1997) interviewed 25 patients who had been asked by their doctor to change their prescription from ranitidine to cimetidine. All but one of the patients reported that their GP had not rushed the consultation and had explained the issues well. Sleath's (1996) research also indicated that pharmacists rarely rushed patients when discussing medicines. This study was based on the observations of 196 interactions between US

community pharmacists and patients in which a prescription was collected. In only 1% of the encounters did the pharmacist interrupt, ignore or rush the patient.

3.2.15 Health care professionals expressing affect

Only one study examined health care professionals expressing affect (emotion) during discussions about medicines (Siminoff et al, 2000). This research, which is discussed in section 3.1.4.2, was based on audiotaped consultations between 50 breast cancer patients and 15 oncologists about adjuvant therapy. All the patients' and doctors' utterances during the consultations were coded using the Roter Interaction Analysis System. A median of 8% of the doctors' utterances in each consultation were found to be affective (i.e. involved a display of empathy, reassurance, criticism etc.). The findings also showed that there was a link between doctors' expression of affect and patients' regret about the treatment decision three months after the consultation. Patients who consulted with doctors who expressed more affect were more likely to report that the treatment choice was the right decision and that they did not regret the choice. However, these patients also tended to display poorer understanding of their treatment. Nevertheless, there was no relationship between doctors' expression of affect and patients' satisfaction with the visit.

3.2.16 Health care professionals' views about discussing the cost of medicines

One study explored health care professionals' views about discussing the cost of medicines with patients (Stevenson et al, 1999a). In this study, 21 GPs were interviewed about the influences on their prescribing costs. One of the themes that emerged was that some doctors felt embarrassed about discussing changing repeat prescriptions to generic alternatives to reduce prescribing costs. In addition, some of the participants reported that they avoided discussing the financial reasons for such changes with patients and instead provided other justifications for them.

3.3 BOTH PATIENTS' AND HEALTH CARE PROFESSIONALS' COMMUNICATION ABOUT MEDICINES

Most of the research discussed in this section examined the general aspects of communication between health care professionals and patients that could not be attributed to either the patient or the professional alone. The findings are discussed under the following headings:

- 3.3.1 Patients and health care professionals discussing medicines,
- 3.3.2 Patients discussing medicines with different types of health care professionals,
- 3.3.3 Shared decision-making about medicines,
- 3.3.4 Factors causing communication problems.

3.3.1 Patients and health care professionals discussing medicines

Of the 21 articles included in this section, 17 examined the extent to which patients and health care professionals discussed medicines, ten investigated the factors affecting the extent of these discussions and two looked at the consequences. Thirteen of the articles reported research based on patients' or professionals' reports of the extent to which they discussed medicines, whilst the others involved a direct assessment of communication, such as audiotaping or observations. Most of the research examined communication between patients and doctors and used quantitative methodologies. Only nine articles focused on discussions about specific medicines,

including HRT, nicotine patches and antihypertensive medication. The research in this area is discussed under the following sections:

- * extent to which patients and health care professionals discuss medicines,
- * factors affecting patients and health care professionals discussing medicines,
- * effects of patients and health care professionals discussing medicines,
- * summary of the research on patients and health care professionals discussing medicines.

3.3.1.1 Extent to which patients and health care professionals discuss medicines

Eleven of the 17 articles discussed in this section investigated the extent to which doctors and patients discussed medicines and seven examined the extent of pharmacists' and patients' communication. Five of the articles examining the extent to which doctors and patients discussed medicines assessed discussions about OTC or prescription medicines or all medicines in general. One of these studies, which was conducted in the US and Canada by Sleath and her colleagues (1999), indicated the length of time that patients and doctors discussed medicines for. The findings of this study were based on 467 audiotaped consultations between patients using long-term medications and their primary care doctors. All the consultations included in the study involved some discussion about medicines. The findings showed that medicines were discussed on average for just under four minutes, which accounted for approximately 20% of each encounter. Another study carried out in the US involving two surveys of patients showed that they felt that they talked to their doctors more often about prescription medicines than OTC medicines (Smith, Cunningham and Hale, 1994). 218 patients completed the survey about prescription medicines and 110 patients returned their responses to the OTC questionnaire. In both surveys the patients were asked to rate the extent to which they talked to their doctor about prescription/OTC medicines on a scale of one (never) to 5 (every time). The mean response for prescription medicines was 3.33, whereas the mean for OTC medicines was only 1.92.

A qualitative study by Stevenson et al (2000) indicated the extent to which patients and GPs in Britain discussed medicines. This study was based on 62 audiotaped GP consultations involving patients who were consulting with a problem for which they expected a prescription. Discussion about medicines occurred in all of these consultations and constituted between 1% and 77% of conversation turns. When interviewed by researchers three patients revealed that they were using OTC medicines and yet there was no discussion of this in their consultations.

Two other studies looked at the extent to which patients and doctors discussed the benefits and/or risks or side effects of medicines (Frederikson, 1995; Makoul, Arntson and Schofield, 1995). In Frederikson's research, 35 patients who consulted with 35 different GPs completed a questionnaire after their consultation. In the questionnaire, the patients were asked to rate how their doctors performed various information-exchange tasks. The patients gave an average rating of 2 for their doctor having had discussed the side effects of their medication on a scale of 1 (side effects not discussed) to 7 (all possible side effects discussed).

Makoul and his colleagues videotaped 271 consultations between GPs and patients in England in which a new prescription was given. Patients were also asked to complete a questionnaire after their visit. The videotape data showed that the benefits of

medicines were discussed in just over half of the consultations. However, discussion about side effects, precautions or risks of medicines occurred in only 27%, 7% and 2% of the consultations respectively. Consultations in which these three issues were discussed lasted on average 1.5 minutes longer than consultations in which these issues were not discussed. This research also showed that patients' reports of having discussed the side effects of medicines during consultations did not always correspond to the videotape data. One hundred and twelve patients reported that their doctors had not fully explained the risks, whereas 114 patients stated that the risks had been fully explained. Analysis of the videotaped consultations showed that there was some discussion of side effects, precautions or risks in 19 of the 112 consultations (17%) involving patients who had reported that they had not had the risks fully explained. Moreover, in 55 of the cases (48%) involving patients who felt that the medication risks had been fully explained, no discussion of the risks were observed.

Six of the articles in this section examined the extent to which patients and doctors discussed particular medicines, namely antihypertensive medicine, diabetes medicine, antiepileptic medicine, nicotine replacement therapy and HRT. Kjellgren et al (1998) examined 51 audiotaped follow-up visits between hypertensive patients and their doctors and found that a significant proportion of the communication was about medicines and their effects. Hampson, McKay and Glasgow (1996) audiotaped two successive visits between two doctors and 44 diabetes patients and found that medicines were discussed in half (22) of the first visits, in 43% (19) of the second visits and in three-quarters (33) of either visit. However, there was no correlation between the extent to which medicines were discussed in the two visits.

In relation to the extent of communication about epilepsy medication, a survey of 99 patients with epilepsy showed that a significant minority of patients reported that they had not discussed medicines with their doctors during the past year (Freeman and Richards, 1994). Only 51% of the patients in this study reported that they had discussed their medication in the past year, 23 stated that they had discussed it between one and five years previously, 16 reported a longer time or said that they had never discussed it, whilst the remaining nine patients gave no definite answer. The research on patients' and doctors' communication about nicotine replacement therapy examined the extent to which future discussions of this medicine had been arranged (Haxby et al, 1994). In this study, questionnaires were completed by 76 patients who collected a prescription for nicotine patches at 17 US pharmacies. The findings showed that just over half of the 72 participants who had been regular smokers had arranged an appointment with their doctor to discuss how they were doing with the nicotine patch.

The other two studies that focused on particular medicines examined communication about HRT (Newton et al, 1997; Schneider, 1997). Newton and her colleagues conducted telephone interviews with 1082 women aged between 50 and 80 and Schneider's study was based two face-to-face surveys of 929 and 1489 women aged 40 to 65. The findings of these two studies showed that between 33% and 47% of the women who had not used HRT stated that they had discussed the therapy with their provider. However, over a third of the patients in Schneider's research who had discussed HRT with their doctor stated that they had decided themselves not to use HRT. Furthermore, almost 10% of the respondents who currently used HRT stated

that they had never reviewed their therapy with a doctor, although a possible explanation for this is that they may have not been using it for very long.

Six of the articles that examined communication between patients and pharmacists focused on discussions about prescription or OTC medicines or all medicines in general. Savage (1995) observed pharmacists at two UK pharmacies over two weeks, during which time 505 prescription issues and 74 OTC events were observed. There was verbal contact between the pharmacist and the consumer in around two-thirds of prescription issues. The average lengths of these discussions for the two pharmacies were 17 and 18 seconds, whereas the average times spent talking about OTC medicines were 71 and 62 seconds. The pharmacists in this study spent less than a quarter of their time doing counter activities, and less than 8% of their time was spent talking to patients about medicines or health. Schommer and Wiederholt (1995) also used observations in order to assess the extent to which patients and pharmacists discuss medicines. In this study, 360 interactions during which patients received a prescription from pharmacists at 12 US community pharmacies were observed. The extent to which the pharmacists and patients interacted varied between 30% and 100% in the different pharmacies. On average, communication occurred in 74% of cases, which is slightly higher than that observed in Savage's study.

Other research, conducted by Sleath (1996), examined the length of time that patients and pharmacists discussed prescription medicines. This study was based on 196 observed interactions between patients and pharmacy staff in eight US community pharmacies. In all of the interactions a prescription was collected and there was some discussion between the patient and the provider. The lengths of these encounters were between 11 and 439 seconds. The average length was found to be 114 seconds, which is over six times as long as those discussions observed by Savage. This is most likely due to the different ways in which the two studies measured the length of interactions. Sleath measured the length of the entire interaction, which often involved more than one prescription being issued, whereas Savage only measured the length of time spent giving advice and answering questions per prescription issue or OTC event. However, the substantial difference between the two findings may have also reflected the differences between patient-pharmacist interactions in the US and the UK.

The three other studies that examined the extent to which pharmacists and patients discussed medicines investigated older patients' perceptions of this communication. Ranelli and Coward (1996) conducted telephone interviews with 400 adults aged 65 years or above who were randomly selected from a list of US households with phones. The findings showed that almost half of the respondents (48%) discussed medicines with their pharmacist at least once a month and that only 31% reported that they communicated with their pharmacist about medicines less than every two months. In contrast to these findings, in Jones, Seymour and Woodhouse's (1997) study the vast majority of patients stated that they never discussed medicines with a pharmacist. This research involved 435 people aged over 65 drawn from a patient register in Wales, who were interviewed on two occasions, six months apart. When asked whether they discussed medicines with a pharmacist, only 5% of the patients stated that they did this at least sometimes, whereas 79% stated that they never did and would not. In addition, the findings showed that the medication regimen of 101 of the patients (23%) had changed between the two interviews, yet only 15 of these patients reported that they had discussed the change with a pharmacist. Smith, Cunningham

and Hale's (1994) research, which is described above, found that patients reported that they discussed OTC medicines with pharmacists slightly more often than they discussed prescription medicines.

The final article discussed in this section reported two questionnaire surveys that examined the extent to which hypertensive patients discussed medicines with their pharmacists (Beijer and Blaey, 1999). The first survey was completed by 1330 patients who collected a prescription for antihypertensive medication at community pharmacies during the month before Dutch hypertension week in 1998. In agreement with the findings of Jones, Seymour and Woodhouse's research discussed above, the vast majority (88%) of patients reported that they had never discussed their medication with a pharmacist. The second survey, completed by 221 community pharmacists, asked about their interactions with patients during the hypertension week. During this week patients were invited to go to their pharmacy to discuss their medication use and any problems that they were experiencing with their medicine. The findings of this survey showed that the pharmacists reported talking to 4480 patients during this week; an average of 20 patients per pharmacist. The topics that were most commonly discussed were drug actions (29%), side effects (26%) and compliance (15%).

3.3.1.2 Factors affecting patients and health care professionals discussing medicines

Three of the ten articles on the factors affecting the extent to which patients and health care professionals discussed medicines focused on patients' communication with doctors about prescription and OTC medicines. As discussed in section 3.3.1.1, Makoul, Arntson and Schofield (1995) videotaped 271 consultations between patients and GPs in which patients received a new prescription. The findings showed that the extent to which patients and doctors discussed side effects, precautions and risks about medicines depended on the type of medicine that was prescribed. For example, there was some discussion of these issues in 12 of the 16 consultations (75%) when central nervous system medications were prescribed. However, side effects, precautions and risks were only discussed in the minority of consultations in which prescriptions were given for medicines for muscle/joint problems (12 of 27; 44%), respiratory conditions (7 of 22; 32%), infections (16 of 88; 18%) and skin problems (1 of 20; 5%). It is not known whether those categories of medicines for which there was more discussion about the side effects, precautions or risks were those that actually had more negative aspects or were perceived to have more negative aspects by the doctor.

Another quantitative study compared the findings of two patient surveys conducted in mainland China and Hong Kong which examined patients' perceptions of the extent to which they and their doctors discussed medicines (Smith and Smith, 1999). The surveys involved 397 Hong Kong participants and 444 people from mainland China, all of whom were aged over 45. The findings showed that the respondents from mainland China reported that they talked to their doctors about medicines significantly more often than those from Hong Kong. However, there was no association between patients' perceptions of their communication with doctors and their age, income, education or gender. In addition, a qualitative study conducted in the US, in which 20 doctors were interviewed about communication about prescription medicines, indicated that doctors felt that they spent longer discussing

medicines with patients who were more anxious than with those who were more familiar and comfortable with a particular medicine (McGrath, 1999).

Three of the studies in this section focused on the factors affecting women's perceptions of their communication with doctors about HRT (Hunter, O'Dea and Britten, 1997; Newton et al, 1997; Schneider, 1997). As discussed in section 3.3.1.1, Newton et al conducted telephone interviews with 1082 US women aged between 50 and 80. The findings showed that a greater proportion of younger women (i.e. those aged between 50 and 59 years) had discussed HRT with their provider than older women. Schneider's cross-national survey of 1489 women aged between 40 and 65 (see section 3.3.1.1) showed that HRT users in different countries differed in terms of the extent to which they reported having reviewed their HRT use with their doctor. Over 60% of HRT users in France and Germany stated that they discussed their use of HRT with a doctor each time they received a new prescription, compared to only 40% of women in the UK and 16% of women in Spain. The third study on HRT, conducted by Hunter, O'Dea and Britten, was based on in-depth qualitative interviews with 45 women aged between 49 and 51. The findings showed that patients who had fewer symptoms were more likely to report that they had weighed up the advantages and disadvantages of taking HRT with their doctor. In contrast, those patients who were desperately seeking treatment were less likely to have had such discussions.

The remaining four studies in this section used quantitative methodologies to examine the factors affecting the extent to which pharmacists and patients discussed prescription or OTC medicines or all medicines in general. Three of these studies, which are described in section 3.3.1.1, were based on observations of interactions between patients and pharmacists in UK and US community pharmacies (Savage, 1995; Schommer and Wiederholt, 1995; Sleath, 1996). Schommer and Wiederholt's study in the US showed that, when collecting a prescription, patients were more likely to have verbal contact with pharmacists if the pharmacist personally transferred the prescription to the patient, and if communication about the medicine was considered to be important by the patient, pharmacist and researcher. Moreover, prescription transfer by the pharmacist was predicted by the communication being more important, the pharmacist being less busy and the pharmacist having a higher counsellor role orientation (i.e. having a more positive attitude towards communicating with patients). It was therefore suggested that prescription transfer was a mediating variable between the pharmacists' counsellor role orientation, importance of information and lack of time and the occurrence of verbal contact between the patient and the pharmacist. There was no relationship between patients' privacy and the occurrence of verbal contact or prescription transfer.

In Savage's research in the UK, 505 interactions in two pharmacies were compared in order to determine the impact of there being a dispensing technician available on the occurrence of verbal contact between patients and pharmacists when a prescription medicine was dispensed. No significant difference was found between the site with a technician and the site without one, yet the findings did show that locums made verbal contact less often than the owners or managers.

The studies by Savage, Schommer and Wiederholt, and Sleath also examined the factors affecting the length of time that pharmacists and patients spent discussing medicines. Savage's research, which was conducted in the UK, found no significant

differences between the sites with or without a technician or between pharmacists of different statuses in terms of the average verbal contact time per prescription issue or OTC event. In addition, there were no significant differences between sites or pharmacists in terms of the percentage of the pharmacists' overall time that was spent talking to patients about prescription medicines or OTC medicines or health.

However, the findings of Schommer and Wiederholt and Sleath showed that discussions between patients and pharmacists were more likely to be longer if:

- * the communication was considered to be more important,
- * the patient had a more positive attitude towards communicating with pharmacists,
- * the pharmacist used a more participatory approach (based on the extent to which the pharmacists asked questions, engaged in social conversation, greeted the patient, identified him/herself, bid the patient farewell, did not interrupt or ignore the patient and did not seem rushed and the extent to which the patient asked questions),
- * the patient was given more information during the interaction.

Savage's study showed that discussions about OTC medicines were on average three times longer than those about prescription medicines, although this difference was not significant. Furthermore, Sleath's study indicated that there was a tendency for discussions to be longer if there were fewer people waiting nearby. However, Schommer and Wiederholt found no relationship between length of discussion and patient privacy, which was also assessed by the number of other people nearby as well as patients' perceptions of privacy. Finally, Sleath's research demonstrated that the length of interaction was not related to patients' and pharmacists' gender, age or race, the type of pharmacy (i.e. independent, Health Maintenance Organization or chain), the number of medications received or the type of prescription (i.e. new or repeat).

The fourth study that examined the factors affecting the extent to which pharmacists and patients discussed medicines was based on telephone interviews with 400 people aged 65 and over in the US (Ranelli and Coward, 1996). This research found that patients living in rural areas reported that they discussed medicines more frequently with their pharmacist than those living in urban areas.

3.3.1.3 Effects of patients and health care professionals discussing medicines

The two studies discussed in this section investigated the impact of patients having discussions with health professionals about medicines on their understanding and satisfaction. Frederikson's (1995) research, which was based on questionnaires completed by 35 patients after a GP consultation, found that there was a low correlation between patients' ratings of their doctor having discussed the possible side effects of their medicines and patients' satisfaction. The second study was a cross-sectional survey about HRT completed by 215 peri- and post-menopausal women in the US (Appling et al, 2000). This research found that women who reported having discussed HRT with a health professional had a greater understanding of HRT and the menopause. Regression analysis showed that 31% of the variance in knowledge was predicted by having talked to a health professional, education and age.

3.3.1.4 Summary of the research on patients and health care professionals discussing medicines

In relation to communication between doctors and patients, none of the included studies examined the proportion of consultations in which medicines were discussed.

However, the research showed that, in those consultations when medicines were discussed, this discussion constituted about 20% of each encounter. Older patients also reported having discussed prescription medicines more often than OTC medicines with their doctors. Furthermore, the research indicated that patients and doctors discussed the benefits of medicines in most consultations, whereas discussions about side effects, risks and precautions were not as common. In relation to specific conditions and medicines, the literature suggested that most patients with diabetes or epilepsy and most women using HRT discussed medicines with doctors, although a significant minority did not.

The factors that were found to influence the extent to which patients and doctors talked about medicines were the patient's country of residence and the type of medicine being discussed. Furthermore, interviews with doctors indicated that they felt that discussions about medicines were longer when patients were less familiar and comfortable with the medicine. In terms of discussions about HRT, women in their 50s were more likely to report having discussed HRT with their provider than older women, and women who experienced more symptoms were more likely to state that they had discussed the pros and cons of using treatment with their doctor. Having discussed HRT with a health professional was associated with greater patient understanding of menopause and HRT. However, it is not clear whether this is because women's understanding was enhanced by these interactions or because women who were more informed were more likely to seek discussions with their health providers. Finally, there was no link found between having discussed the side effects of various treatments with a doctor and patients' satisfaction after their visit.

In relation to patients' communication with pharmacists, verbal contact about prescription issues was shown to occur in around 66% to 74% of cases. There were mixed findings concerning the length of time pharmacists and patients spent discussing medicines. A UK study showed that the average length of time spent giving advice was around 17 seconds per prescription, yet US research found that patients and pharmacists talked for an average of 114 seconds in encounters in which one or more prescriptions were issued. There were also mixed findings concerning the extent to which older patients discussed their medicines with pharmacists. Research conducted in the US showed that just under half of patients discussed their medicines with pharmacists at least once a month, yet studies conducted in Wales and the Netherlands showed that the vast majority of patients said that they never did, and never would, discuss medicines with a pharmacist.

In terms of the factors affecting whether or not patients and pharmacists discussed medicines, the literature indicated that verbal contact was more likely when the pharmacist personally transferred the prescription, the communication about the medicine was considered to be more important, the pharmacist had a more positive attitude towards communicating with patients, there was enough time and the pharmacist was an owner or manager rather than a locum. Moreover, when discussions did occur, they were more likely to be longer when they were considered to be more important, the patient had a more positive attitude towards communicating with pharmacists, the pharmacist used a more participatory approach and the patient was given more information during the interaction. Finally, patients from rural areas reported that they discussed their medicines more frequently with pharmacists than those from urban areas did.

3.3.2 Patients discussing medicines with different types of health care professionals

Eight articles investigated the type of health care professionals patients discuss medicines with (also see section 3.1.3 for the research on patients' preferences about discussing medicines with particular types of health care professionals). All of these studies examined the extent to which patients had discussions with different health care professionals and one study also investigated the factors affecting the type of health care professionals patients discussed medicines with. All of the findings that are discussed in this section are quantitative. Four of the studies examined communication about various OTC and/or prescription medicines, whereas the others focused on particular medicines, including HRT, antihypertensive medication and corticosteroids. Five of the studies examined the extent to which patients discussed medicines with either doctors, nurses or pharmacists, whilst the remaining three studies focused on patients' discussions with different pharmacy personnel. The research in this section is discussed under the following sections:

- * what type of health care professionals patients discuss medicines with,
- * factors affecting the type of health care professionals patients discuss medicines with,
- * summary of the research on the type of health care professionals patients discuss medicines with.

3.3.2.1 What type of health care professionals patients discuss medicines with

In this section we will first discuss the five studies that compared the extent to which patients discussed medicines doctors, nurses and pharmacists. Then we will present the findings of the three articles that examined the extent to which patients discussed medicines with different pharmacy staff. Smith, Cunningham and Hale (1994) compared older patients' perceptions of the extent to which they discussed OTC and prescription medicines with doctors and pharmacists. This research, which is discussed in section 3.3.1.1, was based on a survey about prescription medicines completed by 218 patients and a survey about OTC medicines completed by 150 patients. The findings showed that patients reported that they discussed prescription medicines more often with doctors than with pharmacists but that they talked about OTC medicines more frequently with pharmacists than with doctors.

Four of the other studies that investigated patients' communication with doctors, pharmacists and nurses focused on discussions about particular medicines, namely HRT, antihypertensive medication, and asthma medication. All of these studies were based on data from patient questionnaires or interviews. Boulet's (1998) study examined the extent to which asthma patients discussed their medication concerns with their primary care doctors. This research was based on a telephone survey of 603 patients with asthma in Canada who were recruited from the general population. The findings showed that 81% of the patients who had discussed their concerns about inhaled corticosteroids with a professional had done so with their family doctor. Furthermore, in Stevenson et al's (1999b) research, only five of the 17 asthma patients recruited through UK GP surgeries who were interviewed reported that they had discussed their medicines with practice nurses or pharmacists.

Research involving patients taking antihypertensive medication also showed that the majority discussed medication problems with GPs, whilst only a small proportion

talked to a practice nurse about them (Lip and Beevers, 1996). As discussed in section 3.1.8.2, this study showed that 78% of the 948 patients who were surveyed via their GP stated that when they had experienced unacceptable side effects they first told their GP. Only 7% reported that they had talked to a practice nurse, whilst 10% stated that they did not discuss their side effects with a professional and either continued taking their medicine or stopped taking it. The fourth study focusing on communication about particular medicines showed that patients discussed HRT with a GP or practice nurse more often than with a hospital doctor (Griffiths, 1995). The findings of this study, which were based on a postal survey of 1225 women aged between 20 and 69 years registered at UK GP surgeries, showed that 168 women had discussed HRT with only a GP or practice nurse, 17 had discussed it with only a hospital doctor, and 38 had discussed it with both.

Only one of the three studies that investigated the types of pharmacy personnel whom patients discussed medicines with was based on direct analysis of discussions (Savage, 1995). As discussed in section 3.3.1.2, in this study observations of 505 prescription issues and 74 OTC events at two UK pharmacies showed that, when collecting a prescription, patients were more likely to have discussions with pharmacy managers or owners than with locums. However, there were no significant differences between locums and owners or managers in terms of the average length of their discussions with patients about OTC or prescription medicines. The two other studies, by Ranelli and Coward (1996) and Krska and Kennedy (1996), which were based on patient reports, also found that patients discussed medicines more frequently with pharmacists than with other pharmacy personnel. In Ranelli and Coward's study, data collected from telephone interviews with 400 adults aged 65 or over showed that 65% stated that they regularly discussed how to use their prescription medicines with a pharmacist, whereas only 35% stated that they usually had such discussions with non-pharmacist personnel. Krska and Kennedy's study was based on data from questionnaires completed by 202 customers who purchased an OTC medicine at a pharmacy. They found that patients were more likely to report that during this visit they were asked about their use of concurrent medicines by a pharmacist rather than an assistant.

3.3.2.2 Factors affecting the type of health care professionals patients discuss medicines with

Only one study examined the factors affecting whom patients discussed medicines with (Ranelli and Coward, 1996). This research, which is discussed in section 3.3.1.1, was based on telephone interviews with 400 adults aged 65 years or above who were randomly selected from a list of US households with phones. The findings showed that, compared to patients who lived in urban areas, patients in rural areas were more likely to discuss medicines with pharmacists than with non-pharmacist personnel.

3.3.2.3 Summary of the research on the type of health care professionals patients discuss medicines with

The literature showed that patients reported that they discussed prescription medicines and their concerns about them more often with doctors than with pharmacists or nurses. This research was based on patients' reports about their communication about asthma medication, antihypertensive medication and HRT as well as prescription medicines in general. However, there was some evidence that patients discussed OTC medicines more with pharmacists than with doctors. The findings also showed that

patients tended to discuss prescription medicines with pharmacy managers/owners more often than with locums and with pharmacists more often than other pharmacist personnel. In addition, more patients reported that they were asked questions about OTC medicines by pharmacists than by pharmacy assistants. Finally, only one factor was found to affect whom patients communicated with. The research showed that patients in rural areas were more likely to state that they discussed medicines with pharmacists, rather than non-pharmacist personnel, than urban patients were.

3.3.3 Shared decision-making about medicines

Eleven articles investigated shared decision-making about medicines. Articles were included in this section if they examined the level of involvement of patients versus practitioners in discussions about medicine decisions according to either the authors or the patients/practitioners included in the study. We also included articles, based on direct analysis of communication, about practitioners taking patients' preferences into account when making decisions. However, findings on shared decision-making and the involvement of patients in discussions about medicines are also described in many of the other sections. The sections that are especially relevant to this area are those on patients' involvement in discussions about medicines (section 3.1.4), health care professionals' involvement in discussions about medicines and encouragement of patients' involvement (section 3.2.2), and health care professionals involving patients in decision-making about medicines (section 3.2.8).

Of the eleven articles that investigated shared decision-making, nine examined the extent to which patients and professionals shared decisions about medicines, two looked at the factors affecting this behaviour and one investigated the consequences. The majority of these articles reported qualitative research and most of the studies focused on patients' communication with doctors. Nine of the articles reported research on communication about particular medicines including chemotherapy, antibiotics, HRT and antihypertensive medication. The research in this section is discussed under the following headings:

- * extent to which health care professionals and patients share decisions about medicines,
- * factors affecting shared decision-making about medicines,
- * effects of shared decision-making about medicines,
- * summary of the research on shared decision-making about medicines.

3.3.3.1 Extent to which health care professionals and patients share decisions about medicines

Two of the nine articles discussed in this section reported quantitative findings about the extent to which patients and practitioners shared decision-making, whilst the other six articles were based on qualitative research. The two studies that used quantitative analysis were based on patient reports. One of these studies involved a survey of 394 US asthma patients who had been prescribed with inhaled corticosteroids (Chambers et al, 1999). Sixty-six percent of the patients reported that they agreed or strongly agreed that they and their doctor decided together about treatment for their asthma. However, Schneider's (1997) research on HRT, which was based on a cross-national survey of 1489 women aged 40 to 65 years in France, Germany, Spain and the UK, showed that most of these women felt that the decision to start using HRT was based on their own choice. The women varied in terms of the extent to which they felt that such decisions were influenced by their doctors.

Six of the seven remaining articles in this section reported studies that involved the direct analysis of communication between patients and health care professionals. Most of this research showed that shared decision-making was rare. Kjellgren et al (2000) analysed 51 audiotaped follow-up visits between hypertensive patients and their doctors and found that medication had been changed or a new medication had been introduced in 14 of the consultations. The findings showed that there was little or no mutual discussion with the patient about this change/introduction in ten of these visits. Indeed, the authors noted that decisions about new prescriptions were made almost entirely by doctors, with hardly any input from patients. However, decisions about changing treatment were often based on patients' experience of the treatment and changes were rarely suggested without doctors having had inquired about the effects and side effects of the medication. The findings also showed that some doctors inquired whether patients agreed with the treatment decision at the end of the visit. During many of the consultations the doctors used various techniques in order to demonstrate that they were sharing decisions with the patient, even when this did not appear to be the case. For example, they used inclusive terms, such as "we", when expressing their decisions about medicines. Some doctors were also noted as having used words such as "may", "could" or "maybe" in order to soften the instructions they gave to patients.

Diaz's (2000) research, in which conversation analysis was used to examine consultations between doctors and patients about chemotherapy, also showed that treatment decisions were based on patients' self-assessment of their health in addition to doctors' presentation of test results. However, it was noted that in most cases the decision was prefaced by a review of the tests' findings rather than by the patients' self-assessment.

Three other articles describing two qualitative studies that examined the extent to which patients and doctors engaged in shared decision-making about medicines reported that there was little evidence that it had occurred (Elwyn et al, 1999; Gwyn and Elwyn, 1999; Stevenson et al, 2000). This is despite the fact that in both studies it was noted that the doctors had an interest in involving patients in decision-making. The sixth study in this section provided some evidence that community mental health nurses took account of patients' beliefs and motivations about medicines in order to negotiate the management of their medicines (Latter et al, 2000). This study involved two nurses working in a community mental health nursing team who provided care to clients with enduring mental health problems. Twelve nurse-patient interactions, which took place in the clients' homes, were audiotaped and 21 were observed. The findings indicated that nurses sought and acted upon patients' preferences and wishes. There was little evidence of nurses using coercion. Nurses' reactions to patients' views about their condition and treatment were dependent upon the implication they had for adherence. When patients had beliefs that facilitated medicine-taking, nurses worked with these beliefs and did not try to change them, even when the beliefs were related to the patients' hallucinations. However, when patients had beliefs that stopped them from adhering to their medicine regime, nurses tried to modify these beliefs.

The only study that examined patients' perceptions to investigate the impact of shared decision-making explored women's experiences of discussions about HRT (Griffiths,

1999). One of the 17 women interviewed for this study reported that she had had an extensive discussion about the risks and benefits of HRT with her doctor. This woman reported that she decided herself to stop using HRT.

3.3.3.2 Factors affecting shared decision-making about medicines

The two studies that investigated the factors influencing shared decision-making were based on patient reports. Schneider's (1997) research indicated that women with particular attitudes towards HRT were more likely to be involved in shared decision-making. As described in section 3.3.3.1, this study involved a cross-national survey of 929 women about HRT. The findings showed that the respondents' attitudes towards menopause and HRT fitted into one of three categories: proactive/inquiring, sensitive/worried and unconcerned/accepting. The women in the proactive/inquiring group, who made up 30% of the sample, intended to follow their doctors' advice but wanted to learn more about their condition. These women were more likely to report that both they and their doctor had been involved in making decisions about their HRT use. In contrast, the 44% of women who were in the sensitive/worried group were more likely to stop using HRT without consulting their doctor. The findings of this study also showed that, out of the women who were current or previous users of HRT, those from Germany were more likely to feel that they had been more influential in the decision to begin HRT than the women from France, Spain or the UK. The second study, in which focus groups were held with patients with respiratory disease, showed that some of these patients felt that shared decision-making was unworkable due to doctors' attitudes (Smith, Francis and Rowley, 2000).

3.3.3.3 Effects of shared decision-making about medicines

The only study that examined the impact of patients and health care professionals sharing decisions about medicines focused on HRT (Dayan-Lintzer and Klein, 1999). In this study, telephone interviews were conducted with 394 women who used HRT. The findings showed that 55% of the women who said that they had chosen the treatment with their doctor reported that they were satisfied with their HRT, compared to 47% of the women who said that their doctor suggested the treatment and only 41% of those who had asked their doctor for HRT.

3.3.3.4 Summary of the research on shared decision-making about medicines

Most of the research in this section, which was based on direct analysis of consultations, indicated that doctors and patients did not usually make shared decisions about medicines. However, a few studies did show that doctors took account of patients' experiences of their medicines when making decisions about treatment changes. Research based on asthma patients' reports demonstrated that most of these patients felt that they participated in making decisions about their treatment. In terms of the factors affecting shared decision-making, women who were more proactive and interested in learning about their condition were more likely to feel that they were involved in decision-making about HRT. In addition, German women were more likely to report that they were influential in the decision to start using HRT than women from the UK, Spain or France. Other research on HRT also indicated that women who had made decisions with their doctor about HRT were more satisfied with the treatment than those who reported that they or their doctor alone had proposed the therapy. Finally, some patients claimed that shared decision-making is not feasible due to doctors' attitudes towards involving patients in decisions.

3.3.4 Factors causing communication problems

Only one article reported findings about the factors that caused non-specific communication problems (Livingstone, 1996). This research indicated that for some elderly patients, poor hearing led to communication problems during their interactions with pharmacists. This study was based on 43 audiotaped interactions between UK community pharmacists and patients aged over 60 about prescription medicines. The authors noted that in four of the interactions communication problems were caused by patients' poor hearing.

4. Results of intervention studies

4.1 TYPES OF INTERVENTION STUDY

Eighteen of the articles included in the review described 16 separate studies that assessed the efficacy of interventions. Three types of intervention studies were included (see Table 7):

- * those involving two-way communication between health care professionals and patients about medicines as part of the intervention, although two-way communication was not assessed as an outcome (*process only studies*),
- * those in which the intervention did not involve two-way communication, although some aspect of two-way communication was assessed as an outcome (*outcome only studies*),
- * those in which two-way communication was both part of the intervention and assessed as an outcome (*outcome and process studies*).

Table 7 – Types of intervention studies included in the review

Type of study	Intervention	Assessment of the intervention	Outcome measures relevant to the review
Process only	Involved two-way communication about medicines	No outcome measures assessed two-way communication about medicines	All outcome measures
Outcome only	Did not involve two-way communication about medicines	Some outcome measures assessed two-way communication about medicines	Only those outcome measures that assessed two-way communication about medicines
Outcome and process	Involved two-way communication about medicines	Some outcome measures assessed two-way communication about medicines	All outcome measures

The *process only studies* were those that involved two-way communication about medicines **as part of the intervention itself**. These studies examined the impact of these interventions on various outcomes, none of which were themselves relevant to two-way communication about medicines. These outcomes included patients' attitudes towards their medication, patients' medication adherence and changes in patients' medication problems. For these studies, all the outcomes were relevant to the review as they all indicated the impact of two-way communication about medicines.

As an example, Hanna (1993) conducted a *process only study* that involved adolescent female patients at family planning clinics who were seeking oral contraceptives for the first time (see section 4.5). The intervention was a consultation between these patients and nurses at the clinic involving a two-way discussion about the benefits of and barriers to oral contraceptive use. The outcomes that were assessed to evaluate the intervention included patients' perceptions of the benefits of their medication and patients' adherence. None of the outcome measures assessed the impact of the intervention on two-way communication about medicines. As the intervention **itself** involved two-way communication about medicines (i.e. the discussions between the patients and the nurses) all of the outcomes that were assessed were relevant to the focus of our review as they indicated the impact of the two-way communication.

The *outcome only studies* evaluated the impact of interventions that **did not** involve two-way communication about medicines, such as a training seminar for professionals and an advertising campaign directed at patients. These studies were relevant to the review as they investigated the impact of these interventions on two-way communication about medicines. These studies also assessed various other outcomes that were not related to two-way communication about medicines, such as patients' recall of medication information, compliance and use of health services. However, the findings for these outcomes were not relevant to the focus of our review, as they do not tell us anything about two-way communication about medicines. The only findings of these studies that were relevant to the review were those that demonstrated the impact of the intervention on two-way communication about medicines.

An example of an *outcome only study* is that conducted by Airaksinen, Ahonen and Enlund (1998) (see section 4.4). In this study the intervention that was evaluated was an advertising campaign in pharmacies encouraging consumers to ask questions about their medicines. Although the aim of this intervention was to improve communication about medicines, the intervention was in the form of an advertising campaign and therefore did not involve **two-way** communication between professionals and patients. However, this study examined the impact of the intervention on various outcomes relating to two-way communication about medicines including the number of questions patients asked, the duration of counselling, and the extent to which pharmacists tailored the information they provided to patients' needs. These outcomes were relevant to the focus of the review because they demonstrated the impact of the intervention on two-way communication about medicines. However, other outcomes that were assessed which did not measure an aspect of two-way communication about medicines, such as the amount of information given to patients, were not relevant to the review.

The *outcome and process studies* were those that involved two-way communication about medicines as part of the intervention itself **and** assessed the impact of the intervention on two-way communication. These studies examined the impact of interventions on various outcomes, some of which were relevant to two-way communication about medicines and some of which were not. As with the process only studies, all the outcomes were considered to be relevant to the review as they all indicated the impact of two-way communication about medicines.

An example of an *outcome and process study* is that carried out by Barnett, Nykamp and Ellington (2000) (see section 4.4). They investigated the impact of an intervention in which patients were given a written message asking them to write questions for their pharmacist and then the pharmacist incorporated the answers into the counselling they provided to that patient. This study examined the impact of the intervention on various outcomes related to two-way communication about medicines, such as the number of questions patients asked, as well as other outcomes, including patients' recall of information and compliance. As the intervention **itself** involved two-way communication about medicines (i.e. the discussion with the pharmacist) all of the outcomes that were assessed were relevant to the focus of our review as they indicated the impact of the two-way communication.

As stated above, the review identified 18 articles that described 16 separate intervention studies. A table outlining the design and findings of each of these studies is given in Appendix J. Of these sixteen studies, seven were outcome only studies, five were process only studies and four were outcome and process studies. Fifteen of the intervention studies were quantitative and one used a combination of quantitative and qualitative methods. Sixteen of the articles identified were written in English and two were written in French. All of the studies were conducted in North America or Europe. The countries in which they were conducted were:

- * United States of America (7 studies),
- * United Kingdom (4),
- * Switzerland (3),
- * Finland (1),
- * Canada (1).

Most of the studies examined communication about specific medicines including chemotherapy, antihypertensive medicine, oral contraceptives, psychotropic medicines and analgesia. Five of the studies involved communication between doctors and patients, six focussed on patients' communication with pharmacists and the remaining five interventions involved nurses or medical assistants. The research in this section is discussed according to the type of health care professional it involved and is discussed under the following headings:

- * intervention studies involving communication between patients and doctors,
- * intervention studies involving communication between patients and pharmacists,
- * intervention studies involving communication between patients and nurses or medical assistants.

4.2 ASSESSMENT OF THE METHODOLOGICAL QUALITY OF THE INTERVENTION STUDIES

The quality of the design and reporting in all the intervention articles was assessed using eight criteria utilised by the EPPI-Centre of the Institute of Education, University of London (see section 2.4). The 18 intervention articles fulfilled between 2 and 8 of the criteria, with the average score being 5.6. Table 8 shows the number of studies that met each of the eight criteria. Almost all of the studies provided data on the number of participants recruited to each group and most had clearly defined aims. Only ten of the studies used random allocation to different groups. The full results of the quality assessment are given in Appendix K.

Table 8 – The number of intervention articles that met each of the methodological quality criteria

Quality Assessment Criteria	N
1. Clear definition of the aims of the intervention	15
2. A description of the study design and content of the intervention sufficiently detailed to allow replication	11
3. Use of random allocation to the different groups including the control or comparison group(s)	10
4. Provision of data on numbers of participants recruited to each condition	17
5. Provision of pre-intervention data for all individuals in each group	10
6. Provision of post-intervention data for all individuals in each group	13
7. Attrition reported for each group	12
8. Findings reported for each outcome measure indicated in the aims of the study	13

4.3 INTERVENTION STUDIES INVOLVING COMMUNICATION BETWEEN PATIENTS AND DOCTORS

Five intervention studies focussed on communication between patients and doctors. Four of these studies were outcome only studies and one was a process only study. Three of the outcome only studies assessed the impact of training sessions given to doctors and two were conducted by the same team of researchers (Aufseesser-Stein et al, 1992; Clark et al, 1998, 2000; Lacroix et al, 1992). Lacroix and her colleagues examined the impact of a ten-hour intensive seminar on eight doctors' behaviour when prescribing medications to patients. The aim of the seminar was to identify the doctors' perception of the most important communication tasks to achieve when prescribing. All the doctors were recruited from an outpatient clinic in Switzerland. In order to assess the impact of the seminar, 24 of the doctors' consultations were recorded before the seminar and another 24 consultations were recorded three months later. Six of the eight tasks identified by the doctors as being important when prescribing involved one-way provision of information from the doctor to the patient, such as explaining the purpose of the therapy, the side effects, how to use the medicine and the role of the patient and doctor in managing the treatment. The two two-way communication tasks that were considered to be important were reiterating the patients' complaint and asking the patients to repeat the instructions the doctors had given on how to use the medication in order to check the patients' understanding. The findings showed that before the seminar, the doctors reiterated the patients' complaints in only four of the 24 consultations and did not ask patients to repeat the instructions of how to take their medicine in any of the visits. However, after the seminar the doctors repeated the patients' complaints in 15 of the 24 interactions and asked 16 patients to repeat their medication instructions. Despite the fact that the doctors achieved many more of the communication tasks during the consultations after the seminar, these interactions were on average only 37 seconds longer than those before the seminar.

Lacroix and her colleagues repeated the study described above with a larger sample of 34 GP and clinic doctors in Switzerland (Aufseesser-Stein et al, 1992). In this study, the doctors attended a one-day seminar on communication about prescribing, in which they were asked to identify the important communication tasks to achieve when prescribing, assess their own consultations and develop an interview schedule for consultations with patients. In order to assess the impact of the intervention, 122 of

the doctors' consultations before the seminar and 108 of those after were recorded. Interviews were also conducted with 49 and 38 of the participating patients before and after the seminar respectively. The list of communication tasks that were considered to be important to achieve when prescribing was almost identical to that generated in the first study. The findings showed that after the seminar the doctors asked ten times as many more patients to repeat their medicine instructions. In addition, in the consultations after the training the doctors reiterated the patients' complaints five times as often than in the consultations before. Furthermore, the patients who consulted the doctors after the seminar recalled more information about their medicines.

The third outcome only study, which was reported in two articles (Clark et al 1998, 2000), investigated the impact of an intervention aimed at improving the communication between paediatricians and patients with asthma. Seventy-four US doctors were randomly assigned to an intervention or a control group. The intervention, which was based on the theory of self-regulation, consisted of two group meetings that used interactive methods to help doctors to:

- * have interactive conversations with patients in order to obtain the information needed to make therapeutic decisions,
- * create a supportive atmosphere that would enable patients to be candid,
- * reinforce patients' families' efforts to self-manage the treatment,
- * provide patients with a long-term therapeutic plan,
- * build patients' confidence in controlling their symptoms.

The doctors in the control group did not attend these meetings. A random selection of 637 of the doctors' patients was also recruited. Outcome measures were assessed by questionnaire at baseline, midpoint (5 to 22 months post-intervention) and final evaluation (2 years post-intervention). The midpoint findings from the doctor questionnaires showed that the doctors who attended the meetings were significantly more likely to report that they addressed their patients' specific fears about their new medicines than the doctors in the control group. However, the doctors in the intervention group stated that they spent less time with their patients than the doctors in the control group did, although this difference was not detected at the final evaluation. The final evaluation data showed that patients whose doctors were in the intervention group were more likely to feel that their doctor had addressed their specific fears and concerns about medicines and had made it easy to follow their medication instructions. Furthermore, two years after the intervention, the findings indicated that the intervention led to patients having fewer hospitalisations.

The fourth outcome only study, conducted by Dow, Verdi and Sacco (1991), evaluated the impact of a communication skills programme compared to a medication education programme. In this study, 48 patients at an intensive residential mental health unit in Florida were randomly assigned to attend one of the programmes. Both programmes consisted of five sessions over a two-and-a-half-week period. The aims of the communication skills programme included:

- * to teach the patients to ask medication-related questions, report their current symptoms and make specific requests,
- * to improve their communication skills, such as eye contact, voice volume and non-verbal behaviour,

- * to provide them with the ability to identify and use resources to improve communication, such as making telephone calls and recording side effects.

The medication education programme was designed to provide patients with information about their medicines. Before and after the programmes, the patients completed a questionnaire and underwent a behavioural role-play assessment with a psychologist who acted as the patients' psychiatrist. The patients were aware that they were participating in a role-play but were told to behave as if they were talking to a psychiatrist.

This study assessed the impact of the two interventions on many aspects of two-way communication about medicines. According to the mock psychiatrist's ratings of the patients' communication during the behavioural assessment, the patients who underwent communication skills training showed significant improvement in social skills, eye contact, skill in asking medication questions, being assertive in seeking information and acquiring knowledge about medication. The ratings given by the researchers supported all these findings except in relation to eye contact, which was not rated by researchers. The patients in the communication skills programme group were also observed as having asked more medication questions and more questions in general and as having longer discussions. In contrast, the psychiatrist's and researchers' ratings showed that the patients in the medication education programme only showed significant improvement in the extent to which they asked questions about the intended therapeutic effect of their medication. The questionnaire data showed that the communication skills programme led to a greater increase in patients' knowledge of their medicines than the education programme. Moreover, the patients in the communication skills group were rated by the mock psychiatrist as being more likely to comply than the patients in the medication education group, although there was no significant difference between the groups in this respect according to the researchers' ratings.

The process only study, which was conducted by Evans and his colleagues (1996), investigated the impact of administering medication fact sheets to psychiatric inpatients. In this study, patients admitted into three adult psychiatric wards in the UK who were taking psychotropic medication were recruited from three admission cohorts. The 10 patients in the first cohort, who did not see the fact sheets, represented the control group. The 11 patients in the second cohort were approached six weeks later and were given a fact sheet about one of their medications. After another six weeks, a third cohort of 12 patients read one of these fact sheets with a doctor who answered their questions about it on two occasions. The fact sheets provided information about drug action, side effects and the precautions required when taking the medicine. Semi-structured interviews were conducted with the patients from the two intervention groups before they were given the fact sheet and again a week later. The patients in the control group were also interviewed on two occasions, one week apart. The patients who were in the group that discussed the fact sheet with a professional showed a significantly greater increase in their knowledge of their medications after the intervention than the patients in the other two groups.

In summary, interventions involving seminars for patients and professionals were both effective in improving their communication about medicines. In particular, the three outcome only studies that evaluated interventions involving training sessions for

doctors showed that after the intervention doctors were more likely to reiterate patients' complaints, ask patients to repeat the medication instructions they had been given address patients' fears about their new medication and make it easier for patients to understand medicine instructions. One of these interventions was also found to have a positive impact on patients' medication knowledge. The interventions in two of these studies and the communication skills programme evaluated by the fourth outcome only study resulted in longer consultations, although in one of these studies this was only a short-term effect. In addition, the communication skills programme led to improvements in patients' communication skills including assertiveness in seeking information, asking medication questions and social skills. However, this intervention had no significant impact on patients' perceived control when consulting with doctors or on the extent to which they reported problems or symptoms or made medication requests or suggestions. The study that examined an intervention involving two-way communication about medicines, in which patients and professionals discussed a medicine fact sheet, showed that the intervention resulted in increases in patients' medication knowledge.

4.4 INTERVENTION STUDIES INVOLVING COMMUNICATION BETWEEN PATIENTS AND PHARMACISTS

Six studies have examined the impact of interventions involving communication between patients and pharmacists. Two of these studies were outcome only studies, one was a process only study and three were outcome and process studies. One of the outcome only studies, conducted by Kradjan and his colleagues (1999), evaluated a community pharmacy-based asthma management programme. In this study, US pharmacies were randomly assigned to an intervention or a control group. At least one pharmacist from each of the 44 pharmacies in the intervention group received training on asthma management guidelines, how to communicate with doctors and patients and how to provide counselling on inhalers. The intervention pharmacists used a computer algorithm that identified patients who may need a consultation with their doctor about adding a new prescription or counselling about how to use their inhaler or overuse of inhalers. The 46 pharmacies in the control group did not receive any training about the asthma management programme and provided patients with usual care. A mailed questionnaire was completed by 184 asthma patients from the intervention pharmacies and 494 from the control pharmacies. This study assessed the impact of the intervention on one aspect of two-way communication. The findings showed that the patients in the intervention group were significantly more satisfied with the amount of time their pharmacist spent helping them to understand their drug therapy and answering their questions about their medicines. However, the authors noted that they had asked patients to rate their satisfaction on a five-point scale and that the difference between the mean agreement ratings for the intervention and control groups was 0.1 thus indicating that this finding may not indicate a real difference between the two groups.

The second outcome only study investigated the effect of an advertising campaign run by WHO and the EuroPharm Forum which aimed to encourage patients to ask their pharmacists questions (Airaksinen, Ahonen and Enlund, 1998). The campaign was promoted in 580 private pharmacies in Finland and was advertised through the mass media, posters in the pharmacies, medication cards, and special folders for prescriptions. The purpose of the campaign was to encourage consumers to ask their pharmacists five questions:

- * How does my medication work?
- * How and when do I use it?
- * For how long do I use it?
- * What are the most typical side effects of my medicine?
- * Whom do I contact if problems occur?

The impact of the intervention was assessed through observations of pharmacist-consumer interactions at seven test pharmacies before the campaign began and at 3 and 12 months after the campaign. A total of 541 interactions were observed at baseline, 457 at 3 months and 433 at 12 months. The patients were also interviewed after their interaction. The findings showed that only 12% and 23% of the customers knew about the questions at 3 and 12 months respectively. Moreover, the intervention did not appear to have an impact on the number of questions patients asked, with approximately only 6% asking questions throughout the campaign. When patients were asked why they had not asked for information the most common reason given was that they thought they already knew the answers to the core questions (see also section 3.1.6.5). Less than 20% of the patients stated that they had not asked questions because the pharmacist had already given enough information and less than 10% said it was because they felt the pharmacists' information was unnecessary. Interestingly, none of the consumers gave being in a hurry as a reason for not asking questions. Although no change was observed in the pharmacists' spontaneous provision of oral or written information, there was an improvement in the way information was provided. Specifically, after the campaign began pharmacists were more likely to show courtesy and empathy and to tailor the information they provided to customers' needs, and were less likely to appear to be in a hurry.

One of the outcome and process studies was also aimed at encouraging patients to ask their pharmacists questions (Barnett, Nykamp and Ellington, 2000). In this study, 323 patients presenting with a new prescription at six US community pharmacies were randomly assigned to three comparison groups:

- * The patients in the first intervention group were given a written prompt instructing them to write down any questions that they wanted to ask their pharmacist about their medication or condition and then the pharmacist provided counselling which incorporated the answers to their questions,
- * The patients in the second intervention group were given a different written prompt encouraging them to ask questions, and were then provided with usual counselling by the pharmacist,
- * The patients in the control group received normal counselling by the pharmacist.

The interactions between the pharmacists and the patients in each group were observed and questionnaires were completed by both the patient and the pharmacist after the consultation. In order to assess the impact of the intervention on adherence, patients were telephoned five days after their visit and were asked to perform a pill count.

The findings of Barnett et al's study showed that 56 of the 106 patients who were told to write their questions for the pharmacist did so. All but two of these patients wrote three questions or less. The most common questions were about:

- * side effects (52 patients),
- * whether the medicine should be taken with food (14),

- * interactions with food or medicines (12),
- * how to take the medicine (11),
- * how the medicine works (10).

In order to examine the impact of patients writing questions, the authors restricted the analysis of the second intervention group to the 56 patients who wrote questions. The findings showed that writing questions had a significant impact on the two-way communication between the pharmacists and the patients. The patients who wrote down their questions asked significantly more questions during their encounter with the pharmacist than those patients in the control group. The interactions involving patients who wrote questions were also significantly longer than those involving the patients in the other two groups. Furthermore, the pharmacists reported higher satisfaction with the information they gave to these patients than to those in the control group. However, there were no significant differences between the groups in the pharmacists' or patients' satisfaction with the interaction, the amount of information provided by the pharmacist or recalled by the patient, or the patients' compliance with their medication.

The second outcome and process study, which is described in two articles (Gourley et al, 1998; Solomon et al, 1998), involved a patient-centred pharmaceutical intervention that was implemented with patients with hypertension or chronic obstructive pulmonary disease (COPD). Patients who attended 11 US ambulatory medical centres were randomly assigned to an intervention or a control group. The patients in the intervention group made five clinic visits over six months, during which the pharmacist assessed the patients' knowledge and management of their condition, quality of life and compliance, provided patients with standardised counselling, and encouraged them to ask questions. There were 63 patients with hypertension and 43 patients with COPD in the intervention group. The 70 hypertensive patients and 55 COPD patients in the control group only made two visits to the clinic, at the beginning and end of the six months, and received usual care. The patients in both groups completed a questionnaire at their last visit. The patients' questionnaire responses indicated that the intervention had a positive impact on their two-way communication with their pharmacists. In particular, the intervention patients were significantly less likely to agree that their pharmacist was impatient and did not listen to their concerns and were significantly more likely to agree that their pharmacist followed up their questions and concerns. The intervention was also shown to have a positive impact on the hypertensive patients' knowledge of their condition and there was a tendency for all the patients in the intervention group to show greater improvements in quality of life than those in the control group. The results for the hypertensive patients indicated that the intervention led to decreases in their systolic blood pressure, fewer hospitalisations and visits to other health professionals and increased adherence. However, the intervention had no significant impact on health outcomes, adherence or hospitalisations for the COPD patients, although those in the control group made more visits to other health care providers.

Like Gourley et al, the third outcome and process study by Blenkinsopp and her colleagues (2000) assessed the impact of a patient-centred pharmaceutical intervention targeted at hypertensive patients. In this study, previous research and the findings from interviews with 40 hypertensive patients were used to develop a brief

questioning protocol for pharmacists to use with patients. The protocol contained questions about:

- * whether the patient was having any problems with medication,
- * how often the patient had forgotten to take the medicine, increased or reduced the dose, missed doses or stopped taking the medicine altogether,
- * what side-effects the patient experienced,
- * whether the patient wanted more information about his/her condition or medication,
- * if the patient had any questions.

The 25 community pharmacists who volunteered to participate were randomised into intervention or control sites and were asked to recruit 20 patients receiving treatment for hypertension. The pharmacists in the intervention group delivered the intervention to a total of 117 patients on two or three occasions, two months apart, and on each occasion the pharmacists recorded the patients' responses to the questions, the actions the pharmacists took and the length of the conversation. The pharmacists in the control group provided normal care to another 115 patients. Data from the patients' medical records showed that those who had uncontrolled blood pressure before the study were significantly more likely to have controlled blood pressure after the study if they received the intervention than if they were in the control group. The patients in the intervention group also reported significantly increased adherence and greater satisfaction with several aspects of pharmacy services after the intervention. In relation to the impact of the intervention on two-way communication about medicines, the intervention patients were more likely to feel that their pharmacist would explain what their prescription medicine does if they asked than the control patients.

The final intervention study discussed in this section, which was an outcome and process study, evaluated an adherence support service for elderly patients (Raynor et al, 2000). The service was provided by UK community pharmacists to 143 patients aged over 65 years who lived alone and were prescribed at least four regular medicines. The pharmacists made two home visits to each patient in order to review the patient's medicines, assess his/her adherence, and discuss an action plan with him/her. There was no control group. At visit one, 94% of patients were found to have at least one medication problem. In most cases, the pharmacists' response to these problems was to discuss them with the patient or provide advice, although almost a quarter required consultation with the GP. At visit two, 53% of patients had had a reduction in the number of medicines they were prescribed, whilst 11% had been prescribed additional medication. Although the findings showed that many of the medication problems had been resolved by the time of the follow-up visit, 58% of the patients still had at least one problem. The intervention led to a significant increase in adherence and most of the patients felt that the service had made their medicines easier to manage. In relation to the design of the intervention, all of the patients reported that they were happy to be visited at home, although some stated that they would have preferred to have met with the pharmacist at the pharmacy or at their GP surgery.

In summary, the intervention involving a computer system that prompted pharmacists to take particular actions with asthma patients appeared to have a positive impact on two-way communication about medicines. The patients who received this service

were significantly more satisfied with the amount of time their pharmacist devoted to discussing their medication regime with them, although the difference between the intervention and the control group was fairly small. The two interventions that were designed to encourage patients to ask their pharmacists questions were only partially effective. The advertising campaign had a positive impact on pharmacists' communication but had no significant impact on patients' question asking behaviour or the duration of the interactions.

In contrast, the intervention in which patients wrote down their questions for pharmacists resulted in longer consultations during which patients asked more questions. Interestingly, despite the fact that this intervention involved pharmacists incorporating the answers to patients' questions into their counselling, it had no significant impact on the information provided by the pharmacists, although it did enhance pharmacists' satisfaction with the information they gave. It was also found to have no impact on patients' medication knowledge or compliance. The other interventions that involved two-way communication about medicines between patients and pharmacists appeared to be more effective. In particular, they were found to lead to increases in patients' health outcomes, knowledge of their disease and treatment, adherence, and satisfaction with pharmacy services and their pharmacists' communication, and decreases in the number of medicines they were prescribed, their medication-related problems and the cost of their medication. Furthermore, in one of these studies over half of the intervention patients stated that the intervention had made their medicines easier to manage. In conclusion, the most effective interventions involving two-way communication between patients and pharmacists appeared to be those that provided new services for patients, rather than those that attempted to improve existing communication. These new services comprised of at least two visits with a pharmacist, either at the patient's home or at the pharmacy, during which pharmacists enquired about patients' use of medicines, identified any problems they were having, and took appropriate action.

4.5 INTERVENTION STUDIES INVOLVING COMMUNICATION BETWEEN PATIENTS AND NURSES OR MEDICAL ASSISTANTS

Five of the interventions identified by this review involved communication between patients and nurses or medical assistants. One of these was an outcome only study, one was an outcome and a process study and three were process only studies. The outcome only study evaluated an intervention that was targeted at epilepsy patients in general practice surgeries (Mills et al, 1999). In this study, 14 UK general practices were allocated to the intervention or control group. At the seven intervention practices, an epilepsy specialist nurse provided education for the primary health care teams, liaised with health professionals, and met with a total of 128 patients who wanted to have an appointment. During the consultation with patients, the nurse assessed the patients' needs, performed clinical examinations, made referrals and provided advice, education and support. This study was not considered to be an outcome and process study as two-way communication about medicines was not part of the design of the intervention, although the nurse-patient consultation may perhaps have included communication of this kind. Baseline and one-year follow up questionnaires were completed by 148 patients at the intervention practices, 75 of whom had consulted with the epilepsy nurse and some of whom had not. A total of 155 patients at the control practices also completed these questionnaires.

At one-year follow up there were no significant differences between all the intervention patients and the control patients in whether or not they had discussions with their GP, hospital doctor or other practice staff (excluding the epilepsy nurse) about the side effects of antiepileptic medication, its interactions with other drugs or alcohol, or its impact on contraception or pregnancy. However, of the intervention patients, those who consulted the nurse were significantly more likely to have discussed their medications' side effects and its interactions with other drugs or alcohol with a hospital doctor or GP than those who had not seen the nurse. Interestingly, patients who saw the nurse were also more likely to report that epilepsy had a negative impact on their future plans and ambitions, overall health and standard of living than those intervention patients who had not seen the nurse.

The outcome and process study examined the effect of telephone contact with a medical assistant on patients' adherence (Schechtman, Hiatt and Hartz, 1994). In this study, patients with hyperlipidemia attending an active lipid clinic who received a new prescription for niacin or bile acid sequestrants were randomised to the intervention (n=81) or control (n=81) group. The patients in the intervention group received five telephone calls from the medical assistant within one month of starting their medication. During the telephone calls the medical assistant asked whether the patient was experiencing any medication problems and offered advice. Both the control and the intervention patients had appointments at the clinic every two months during the six-month study period, and at each visit the patients were asked about the side effects they had experienced and their adherence. Adherence was also assessed through pharmacy prescription records. In relation to the impact of the intervention on two-way communication about medicines, the findings of this study showed that there were no significant differences in the reporting of adverse effects between the intervention and control patients. However, it is interesting to note that ten of the patients in the intervention group initiated contact with the medical assistant to report adverse effects, whereas none of the control patients contacted the lipid clinic staff to discuss their medication. There was no significant difference between the two groups in their medication adherence.

One of the process only studies also evaluated a telephone service (Kelly, Faught and Holmes, 1999). This intervention involved a telephone call made by a gynaecological oncology nurse to patients who were receiving chemotherapy for ovarian cancer. During the call, the nurse assessed the chemotherapy side effects experienced by the patients and their ability to manage them. There was no control group in this study. Twenty-seven of the 31 patients who completed a questionnaire about their perceptions of the service stated that they had found it helpful and 26 patients felt that the questions the nurse asked about the side effects of the chemotherapy were appropriate. In addition, 25 of the patients reported that most of their issues had been dealt with during the telephone call. Some patients stated that they would have liked to receive further calls when they were halfway through their treatment and after the chemotherapy was finished. One patient also remarked that the service had enabled her to have her concerns addressed without having to travel to the clinic and another said that it had given her family the opportunity to ask questions or express concerns about the treatment and the disease.

Hanna (1993) conducted a process only study which evaluated the impact of a nurse intervention aimed at improving female adolescents' adherence with oral

contraceptives. Patients who attended two US family planning clinics who were seeking oral contraceptives for the first time were randomly assigned to a control and an intervention group. The 25 control patients and the 26 intervention patients received contraceptive education in the form of written materials and videos. The intervention patients also participated in a 10 to 15 minute consultation with a nurse in which:

- * the perceived benefits and barriers of oral contraceptive use and the potential barriers to adherence were identified,
- * the patients' goal of preventing pregnancy by using an oral contraceptive was confirmed,
- * an adherence regimen to manage the identified barriers was developed.

The patients' perceptions of their contraceptive were assessed immediately after the first visit and three months later and adherence with medication and appointments was also assessed at three months. The findings showed that the intervention had no impact on the patients' perceptions of the benefits of oral contraceptives or barriers to their use. Nevertheless, at three months the patients in the intervention group were significantly more adherent than the patients in the control group.

The final process only study examined the impact of an intervention in which nurses assessed patients' fears and expectations about post-operative analgesia (Wilder-Smith and Schuler, 1992). The intervention was delivered by a night nurse, who was experienced in pain and palliative medicine, to 164 consecutive patients admitted to a surgical gynaecological hospital ward. The patients were admitted to the recovery room between 11am and 2pm and the intervention began at 10pm. At this time the nurse asked the patients if they wanted analgesia and, if not, why. The nurse also explained the aims of analgesia, answered the patients' questions and instructed them to call at any time if they felt uncomfortable or anxious or were in pain. There was no control group in this study. At the beginning of the intervention, almost a quarter of the patients (N=40) said that they did not want analgesic medication. The reasons given for not wanting analgesia were that it is bad for the body, that post-operative pain is normal, a fear of addiction and not wanting to disturb the nurse. However, 30 of the 40 patients who did not want analgesia at 10pm wanted it in the following period. The authors claimed that these 30 patients decided to accept analgesia because of the information the nurse gave them in response to the reasons they gave for not wanting the medication. However, as there was no control group or reports from these patients about why they decided to accept analgesia, it is questionable whether this claim is supported by the findings.

In summary, the interventions involving nurses/medical assistants appeared to be less effective than those involving doctors or pharmacists. However, some positive outcomes were observed. The outcome only study, which evaluated the impact of an epilepsy nurse service, showed that the intervention patients who met with the nurse were more likely to have discussions about medicines with their doctors. However, this finding may reflect differences between patients who wanted to consult the nurse and those who did not, rather than be a result of the intervention itself. The two studies that evaluated telephone service interventions indicated that they had some positive effects. In particular, the intervention for hyperlipidemia patients appeared to encourage them to contact staff themselves in order to discuss their medication problems, although it had no significant impact on patients' reporting of side effects

or their adherence. Furthermore, the patients' evaluation of the telephone service for chemotherapy patients showed that the vast majority found it helpful. The intervention providing a face-to-face nurse consultation designed to improve adherence with oral contraceptives was found to be effective. Finally, there was some evidence to suggest that nurses addressing patients' reasons for not using analgesia led to patients agreeing to use it, although further research is needed to investigate this finding as no comparison group was used in this study.

4.6 RECOMMENDATIONS

A wide range of interventions aimed at improving two-way communication between patients and professionals (i.e. those assessed by outcome studies) appear to be effective. In particular, training seminars for professionals result in improvements in their communication with patients. In addition, communication skills programmes for psychiatric inpatients can improve their general communication skills and their ability to communicate with doctors about their medicines. Three different types of pharmaceutical services are associated with improved patient satisfaction with their pharmacists' communication. These services are a computer system prompting the pharmacist to take particular actions, a patient-centred approach in which the pharmacist assesses patients' experience of their condition and treatment, and a structured questioning protocol used by pharmacists to identify patients' medication problems. In terms of encouraging patients to ask pharmacists questions, advertising campaigns do not appear to be effective although they may improve pharmacists' communication. However, asking patients to write down questions for pharmacists was demonstrated to be an effective strategy, whereas simply giving patients a message encouraging them to ask questions was not. Face-to-face and telephone conversations with nurses appear to encourage patients to have discussions about their medicines with other professionals.

Interventions that involve two-way communication about medicines (i.e. those evaluated by process studies) appear to have an impact on many outcomes including patient medication knowledge, satisfaction, changes in health and adherence. Interventions in which patients are provided with written information may lead to greater increases in patients' medication knowledge if a professional also goes through the information with the patient and answers their questions. However, encouraging patients to write down questions for their pharmacist and then having the answers to their questions incorporated into the counselling has no impact on patients' satisfaction, medication information or compliance, although it may enhance pharmacists' satisfaction. Interventions involving pharmacist services in pharmacies or in patients' homes may result in increases in patient knowledge, health outcomes, adherence and satisfaction with their care and in decreases in medication problems and the cost of medication. Although telephone services assessing patients' medication experiences are considered to be useful by patients they do not appear to affect adherence. However, face-to-face discussions with a nurse about the benefits and barriers of medicines may lead to increased adherence.

5. Discussion

This review investigates published empirical evidence of relevance to the concept of concordance. It draws on 134 articles, 18 of which were intervention studies. The search term “concordance” could not be used on its own as its meaning in this sense is not yet well established in the literature. Therefore the studies identified in the review do not discuss concordance directly, rather research evidence focusing on two-way communication between patients and health care professionals about medicines is used to consider concordance.

The studies identified involved communication between patients and doctors, pharmacists and nurses. Studies were based on either perceptions of communication or direct observation. The majority reported on the former. Studies of perceptions can tell us participants’ views about whether concordance is being achieved and which elements of concordance participants find acceptable. Observational studies can give us an account of the extent to which concordance is actually being practised.

The review includes studies that employed either or both qualitative and quantitative methods. More than three-quarters of the studies used a quantitative methodology. The studies identified used a variety of methodologies, focused on different groups of people, health care professionals and medicines and were based in different countries and settings. All of these contextual factors will have had an effect on the results of individual studies. The research reported is mainly cross-sectional and not longitudinal.

The findings of the review are presented in two main sections, the non-intervention (section 3) and the intervention studies (section 4). This distinction is maintained here. The discussion is organised according to the following headings:

- * The meaning of concordance,
- * The extent to which elements of concordance have been identified in practice,
- * The impact of a move towards concordance,
- * Factors affecting concordance,
- * The barriers to concordance,
- * The efficacy of interventions designed to improve aspects of two-way communication about medicines,
- * Gaps in the existing evidence base and areas for future research – implications for policy-makers and practitioners,
- * Limitations,
- * Conclusions.

5.1 THE MEANING OF CONCORDANCE

The term concordance was originally conceived, and has most commonly been used, to define a process of prescribing and medicine-taking based on partnership. In a concordant consultation the patient and the health care professional participate as partners to reach an agreement, drawing on the expertise of the health care professional as well as the experiences, beliefs and wishes of the patient to decide when, how and why to use medicines.

In this section, we draw on elements contained within this definition of concordance to show the extent to which concordance is being put into practice, as well as to

consider the barriers to, and consequences of, concordance. It is the existence of these elements, which are necessary but not sufficient for concordant practice, which we have considered in relation to the studies identified by the review. The elements we considered were identified from the research included in the review, however there may be other aspects that have not yet been researched. These elements are as follows:

- i. Whether medicines are referred to by name so that subsequent discussion may take place on an equal footing.
- ii. Whether patients are asked their opinions about, and experiences of, taking medicines and whether these are then explored.
- iii. Whether both health care practitioners and patients ask questions indicating the extent to which both participants are involved and are seeking an exchange of information.
- iv. Whether health care practitioners express their own views about medicines.
- v. Whether patients feel that it is appropriate for them to initiate medication topics and discuss medicines, including stating why they do or do not take their medicines.
- vi. Whether patients feel confident that they have sufficient knowledge about their condition and/or the treatment such that they are able to contribute to the consultation.
- vii. Evidence that patients' beliefs and motivations concerning medicines are listened to and taken into account in the consultation.
- viii. Whether there is any checking of the patients' understanding of treatment.
- ix. When medicines are discussed whether all elements are discussed equally, not just the aspects which are thought to encourage adherence.
- x. Whether there is any evidence of shared decision-making being attempted or achieved (although concordance is possible without shared decision-making, for example if after being given the opportunity to participate the patient has requested that the doctor should take the final treatment decision).

5.2 THE EXTENT TO WHICH ELEMENTS OF CONCORDANCE HAVE BEEN IDENTIFIED IN PRACTICE

In relation to communication about medicines, some doctors referred to medicines by name thus lessening the chances of misunderstandings. Yet doctors did not always refer to medicines by name. Pharmacists rarely referred to the name of the medicine. Not referring to medicines by name may lead to misunderstandings and may be problematic both in the consultation in ensuring that the practitioner and patient are referring to the same medicine and also in empowering patients to obtain information outside the consultation so that they are able to take part in more concordant interactions with various health professionals.

Doctors asked most patients a number of questions about medicines. Many of the questions were about what medicines they were taking and details of the regimen. These technical details provide a background for concordance, but are not sufficient for an understanding to be developed upon which a concordant consultation can be conducted. Questions about patients' experiences of taking medicines and views about medicines, which are central to concordance, were only asked in a minority of consultations.

Moreover, analysis of videotaped consultations indicated that patients tended to overestimate the extent to which they were asked their opinion about medicines, suggesting that we should be wary of relying too heavily on research based on patients' perceptions and rather look to observational studies.

Patients believed that talking to health care professionals about medicines is important and useful and there was a suggestion that patients are happy to discuss concerns if encouraged by a health care professional to do so. In general, patients perceived that doctors encouraged them to ask questions about their medicine, gave them time to do so and even told them what to do if they had questions after the consultation. Quantitative studies that examined patients' perceptions about the time they had to discuss medicines showed that two thirds of patients felt they had enough time, although private practice was cited as providing more time. These results suggest that some of the elements of communication that are needed in order for concordance to be achieved are taking place.

Patients expressed a preference for discussing medicines with their usual doctor, which shows the importance of continuity of care. This has implications for concordance suggesting it may initially be easier to achieve concordance in settings that have greater scope for continuity of care, such as primary care, and in relation to particular type of conditions, namely chronic rather than acute illnesses.

People were more likely to tell the doctor they had changed their regimen if their reason for the change was to alleviate side effects, presumably as they felt this would be seen as a more justifiable reason for acting in this way. Yet, despite stating it as an important task to achieve, doctors only discussed patients' ability to adhere in a minority of cases. Analysis of audiotaped consultations found that even when the topic of adherence was raised it was not always discussed with patients and that doctors commonly responded to reports of non-adherence by changing the medication or providing education. Thus, although other evidence appears to suggest that patients feel comfortable talking about their medicines and asking questions, it would appear the key issue of adherence is not discussed.

Analysis of consultations suggested that, despite patient reports indicating the opposite, patients rarely initiate medication topics and tend to take a passive role when discussing medicines with health care practitioners. Moreover, the studies reviewed did not support the notion of the demanding patient. Indeed in relation to HRT it was suggested that women were being persuaded by their doctors to accept a prescription. Even when people have a preference to be, or not to be, given a prescription they do not necessarily voice it in the consultation. Research also showed how people might belittle the usefulness of treatments in the consultation so as to save face if they are not offered a treatment. These findings suggest that patients are not as confident discussing treatment as their reports suggest. This has implications for the likelihood of the success of concordance as it relies on open discussion about treatment options.

Some studies reported that patients felt that it was inappropriate for them to participate in discussions, as they believed they had insufficient knowledge to make a contribution. Some patients felt that "the doctor knows best" so they did not need to

ask questions. Given the time limits imposed on consultations, practitioners were perceived to be too busy to answer questions. This power imbalance in the consultation means patients may feel they have to agree with the doctor. Other barriers to asking questions included embarrassment and lack of awareness of what they should ask. If patients do not feel comfortable asking questions then it is unlikely that there will be a sufficient exchange of information in order for a concordant consultation to be achieved.

Just as with doctors, pharmacists tended to initiate and then dominate discussion with patients about medicines. Only some of them checked patients' understanding of their medicines. This may be problematic for concordance if patients feel intimidated and unable to express their own agendas. Patients reported that they talked to their GP about both prescribed and OTC medicines. Where discussion was reported, there was more discussion about benefits than side effects, risks or precautions. This is problematic for concordance, as people need to be fully informed if concordance is to be realised. When the patient expressed their views of medicines, including their concerns about side effects, the doctor did not always explore them. Moreover some patients who reported side effects had their experience refuted by the GP. Some patients reported that they felt unable to have discussions due to GPs' reluctance to engage in such discussions. Equally crucially for concordance, is that practitioners did not express their own views about medicines. If practitioners are unwilling or unable to engage in discussions about medicines then concordance will not be possible.

Shared decision-making is rare between doctors and patients. However, patients may be asked if they agree with a decision at the end of a consultation and techniques including the use of words such as 'we', or 'may', 'could' or 'maybe' are used to soften instructions. Thus the appearance of sharing is present but not the reality. This is an issue for concordance, as health care professionals may believe they are implementing concordance although they are not. Health care professionals agreed that patients should be involved in decision-making about their treatment, yet did not believe they achieved this in over a third of their consultations.

Most of the research identified related to doctor-patient communication and few studies involved an in-depth examination of patient-pharmacist communication. One of these studies, which examined interactions between pharmacists and parents of children with cancer, suggested that asymmetry in participants' power and involvement in discussions is reduced when patients reveal knowledge of the treatment. The use of technical terms by patients also reduced this asymmetry. Thus patients' expression of their knowledge can lead to a more equitable relationship, which is a necessary requirement for concordance.

There is limited research on two-way communication between patients and nurses about medicines. The research identified suggested that patients assess communication in consultations with nurses favourably. Thus community mental health nurses were found to take account of patients' beliefs and motivations about medicines. Another small study reported that patients felt that nurses gave them the opportunity to ask questions. A study in which nurse-patient interactions were audiotaped reported that nurses checked patients' understanding of treatment. However as this was one of the only studies that examined communication directly it

is difficult to assess communication between patients and nurses in relation to concordance. Moreover, there were no studies of nurse practitioners. As the nurse practitioner role involves decisions about treatment and prescribing this is likely to affect both the content of, and interactions in, consultations.

5.3 THE IMPACT OF A MOVE TOWARDS CONCORDANCE

Only one study examined the impact of patients asking questions on how they felt after the consultation. Although patients who asked more questions gained a greater understanding of their treatment, they were found to be more dissatisfied with the consultation and have more regrets about their treatment decisions. Yet doctors associate patients who ask questions with being assertive and interested. This suggests that there may be a misunderstanding with doctors presuming patients are more involved because they have asked questions, while from the patient's point of view asking questions may be indicative of dissatisfaction rather than involvement.

When patients were encouraged to talk, and perceived they were listened to, they were more satisfied and adherent. Patient participation in discussions about medicines and greater involvement in decisions were found to lead to greater subsequent understanding of treatment, more satisfaction about both the visit and doctor behaviour, and less regret about the treatment decision. One study showed people were more likely to be satisfied if they felt they had chosen the treatment with the doctor, but there was also evidence that some patients would rather the doctor made the decision, feeling it is the doctor's responsibility to decide about treatment. In terms of concordance, a patient's desire not to participate and a wish for the practitioner to take the treatment decision does not rule out the achievement of concordance so long as the patient is informed when making this decision.

Having considered the evidence for the positive effects of patient participation in the consultation, there was also evidence that patients may stop using medicines if they do not feel their concerns are taken seriously. In addition, if patients do not express their views and concerns there may be negative consequences such as mismatches and misunderstandings between doctors and patients about expectations for prescriptions. Misunderstandings and mismatches can result in dissatisfaction, as well as the use of unnecessary medicines and non-adherence.

5.4 FACTORS AFFECTING CONCORDANCE

There were mixed findings about the effects of patients' age, race or place of residence on involvement in discussions about medicines. Due to differences in health care systems and influence of differences in medical culture, it is difficult to compare research conducted in different countries. However patients in different countries did report different levels of involvement. There was little consistency in terms of the demographic characteristics of patients who asked questions. However, there was some evidence that patients who were white and male were more likely to participate in discussion about medicines and that patients asked their doctors more questions when starting a new medicine and when consulting with a younger doctor. Older patients may also be less likely to ask questions, although these findings were not consistent. Patients were more likely to ask their pharmacist questions if they shared similar views about each other's roles.

There was no significant relationship between various doctors' and patients' characteristics and the extent to which patients using long term medication told the doctor about an adherence problem.

Health care professionals' question asking was not affected by their characteristics, although patients on lower incomes and those taking more medicines were asked more questions. Inconsistencies between findings means further research is needed to investigate the impact of patients' race, age, gender and country of residence on providers' question asking and the relationship between questioning and patients' expression of medication complaints and adherence.

Although the review reported mixed findings about the extent to which patients want to be involved in discussion and decisions about medicines, women consistently wanted to be involved in decisions about HRT. Thus there is variation between patients and situations.

5.5 THE BARRIERS TO CONCORDANCE

The research included in this review suggested that the majority of patients do not feel they have been given the opportunity to ask questions or to discuss particular aspects of medicine-taking, such as wanting to stop using medicines or their concerns about the negative effects of drugs. This was true in relation to consultations with both doctors and pharmacists. Moreover, both observational as well as interview and focus group studies showed that doctors either did not encourage patients to raise their concerns, which is central to concordance, or ignored the concerns that patients did express.

In addition, patients frequently altered or stopped taking medicines without consulting a health care professional. No studies looked at the proportion of non-adherent patients who reported this to their doctor, but some studies reported that patients feared their doctor would be angry if they were aware of their non-adherence. This suggests that patients do not feel confident sharing their beliefs and concerns, which is a barrier to concordance.

Doctors spend more time speaking than patients and were more likely than the patient to initiate all medicine topics, except the patient's opinion about medicines. Furthermore, pharmacists have been found to spend more time on counter activities and less on talking to patients about their medicines or health. Pharmacists do not offer counselling about either prescription or OTC medicines in the majority of cases. Thus practitioner behaviour may be a barrier to concordance.

There was evidence that when patients expressed preferences for medicines that doctors did not agree with, the doctors tried to change the patient's mind. The model of concordance states that practitioners should convey their beliefs to the patient but that they must also elicit and respect the patient's opinion. The evidence that some doctors work to educate or convince patients to follow their opinion is problematic for concordance as it indicates a lack of respect for the patient's view if it differs from the practitioner's. However, more research is needed to examine the way in which health professionals attempt to persuade patients and if they do so in a concordant manner.

Patients appear to make a distinction between what they perceive to be suitable to discuss with pharmacists and with doctors, as they asked different questions of different health care professionals. Thus for example patients appeared to prefer to discuss prescribed medicines with the doctor but were more likely to discuss OTC medicines with the pharmacist. They were less willing to discuss changes to their medicine regimen with pharmacists. These differences may partially relate to the lack of privacy in consultations with pharmacists. Moreover, in relation to communication with pharmacists both observational studies and those reporting pharmacists' perceptions suggested some people do not want counselling by the pharmacist and are irritated by attempts to provide it. This means patients may be unwilling to take part in concordant consultations. Thus the way in which concordance can be incorporated into consultations is likely to vary according both to the professionally dictated role of the health care professional involved, but also the patient's perceptions of the health care professional's role.

Concordance requires agreement based on mutual participation and the research suggested that some patients felt that shared decision-making was not feasible due to doctors' attitudes towards involving patients in decisions. Therefore there are a number of barriers to the achievement of concordance that may be summed up as the extent to which the patient is able and feels it is possible and appropriate to participate in the consultation, together with the extent to which health care professionals facilitate participation.

5.6 THE EFFICACY OF INTERVENTIONS DESIGNED TO IMPROVE ASPECTS OF TWO-WAY COMMUNICATION ABOUT MEDICINES

The intervention studies included in the review were classified according to whether they were process only studies (involving two-way communication between health care professionals and patients about medicines as part of the intervention, although not assessing this as part of the outcomes), outcome only studies, (where the intervention did not include two-way communication about medicines but this was assessed as an outcome), or process and outcome studies.

There were six interventions that focused on communication between doctors and patients. Two of the interventions sought to improve patients' communication skills. These led to an increase in patients' knowledge about medicines and communication skills, although there was no impact on the extent to which patients reported problems or symptoms, made medication requests or suggestions, or their perceived control. The other four interventions involved training sessions for doctors and were found to lead to improvements in doctors' general communication with patients and in patients' medication knowledge.

There were seven interventions involving patient-pharmacist interactions, two aimed at patients and five aimed at pharmacists. Two interventions were designed to encourage patients to ask questions and these were found to be partially effective. The use of advertisements to encourage patients to ask questions had a positive impact on pharmacists' communication but had no significant impact on patients' question asking behaviour, the amount of information pharmacists provided or the duration of the interaction. When patients were asked to write down the questions they wished to ask they asked more questions and there were longer consultations.

However there was no significant impact on the information provided by pharmacists and or on patients' satisfaction, medication knowledge or compliance.

The five interventions targeted at the pharmacist showed an increase in patient health outcomes (blood pressure control), adherence, satisfaction with pharmacist services and pharmacists' communication and knowledge of their disease and treatment as well as decreases in the number of medicines prescribed, medication related problems and the cost of medication.

It appears that in terms of concordance if pharmacists are reminded of the fact that patients may ask questions then this may be sufficient to improve the way they provide information. Interventions targeted at the pharmacist directly were more likely to encourage changes towards concordant practice.

Finally there were five interventions that focused on interactions between patients and nurses or medical assistants, two involving telephone services and three involving face to face discussion of medicines with a nurse. The telephone services had some positive effects with people feeling better informed and more likely to contact the clinic with specific queries. The three interventions in which patients discussed their medicines face to face with a nurse showed that patients were more likely to have subsequent discussions with the doctor and to be more adherent with both medicines and appointment attendance.

The studies in which two-way communication was assessed as an outcome of an intervention indicated that providing training on communication to professionals or patients could improve some aspects of two-way communication. The studies involving two-way communication about medicines as part of the intervention itself showed that structured interactions in which patients are asked about their experiences and concerns have many positive effects including increases in patient knowledge, adherence, health outcomes and satisfaction. It also appears that face-to-face interactions are more effective than telephone contacts.

5.7 GAPS IN THE EXISTING EVIDENCE BASE AND AREAS FOR FUTURE RESEARCH - IMPLICATIONS FOR POLICY MAKERS AND PRACTITIONERS

There was limited research on communication between nurses and patients and little in-depth analysis of communication between pharmacists and patients. Research is needed to look at the impact of concordance on issues such as the relationship between health care practitioners and patients and its impact on patients' further use of services, and adherence. However, if concordance is rarely practised it will be difficult to assess its effects. Moreover, the research identified by this review mainly looked at the simple elements of concordance such as question asking and the basic sharing of information. There was little research that examined the fundamental elements of concordance such as whether an exchange of views is taking place, whether health care professionals respect patients' views and if health care professionals and patients are working together towards joint decisions.

It is important to be aware of the methodology used when assessing the results of the studies identified. Where both quantitative and qualitative studies have been conducted, in some instances the overview presented by the quantitative study

conceals important details. For example, quantitative studies suggested that two-thirds of respondents felt that they had been given sufficient time to discuss their medicines, however qualitative studies in the same area suggested that particular aspects of medicine taking such as wanting to stop taking a particular medicine or concerns about the negative effects were not discussed. This is important as these aspects are crucial for concordance. Moreover, discrepancies found between results from studies using self-report and those in which interactions between health care professionals and patients were audio- or videotaped suggested that studies using self-report might exaggerate the extent to which information and views are actually shared. It is also of note that two of the studies which presented evidence to suggest that patients and professionals can communicate as equals, both used in-depth analysis of the consultation as their methods of analysis. This is important when considering the planning of further research in this area.

In terms of implications for policy makers and practitioners, a wide range of interventions aimed at improving two-way communication between patients and professionals (i.e. those assessed by outcome studies) appear to be effective. Successful interventions included training seminars for professionals that resulted in improvements in their communication with patients, while more interactive pharmaceutical services were associated with improved patient satisfaction with pharmacists' communication. In terms of encouraging patients to ask pharmacists questions, advertising campaigns do not appear to be effective, although asking patients to write down questions for pharmacists was more so. Face-to-face and telephone conversations with nurses appear to encourage patients to have discussions about their medicines with other professionals.

Interventions that involve two-way communication about medicines (i.e. those evaluated by process studies) appear to have a positive impact on many outcomes including patient medication knowledge, satisfaction, changes in health and adherence.

5.8 LIMITATIONS

There are a number of limitations relating to the scope, search strategies and analysis of the results of the review. It only includes articles published between 1991 and 2000. The allocation of index terms (keywords) to articles in the electronic databases we searched is not always done consistently and it is likely that some relevant articles were not identified as a result. Our review was particularly susceptible to the problem of poor indexing as many of the search terms we used are so general that more specific terms (e.g. 'female' rather than 'patients') may have been indexed instead. The articles identified by the other searching techniques we utilised showed that inconsistent indexing had led to some articles being missed by our electronic database searches.

We chose not to restrict inclusion of studies according to study design so as to include all relevant work, however this does mean that the review includes studies asking different types of research questions, which are investigated using a variety of different methodologies and designs. We did not have the resources to analyse the results according to the different methodologies but we have provided the references so that it is possible for anyone who is interested to conduct this analysis. Lack of

resources has also meant we have not pooled the results, or provided point estimates of confidence intervals.

The methodological quality of studies was not used to exclude studies nor did it influence the summary of the findings. We used a quality measure with the intervention studies, but due to the fact there are no established measures to evaluate descriptive studies and our lack of resources the non-intervention studies were not subject to a quality assessment. Therefore, the fact that we have described, and to a limited extent compared, the findings of studies of varying quality and design should be taken into account when considering the conclusions and implications of the review.

5.9 CONCLUSIONS

The studies included in the review identified the extent to which some of the necessary building blocks for concordance, such as patients and health professionals asking each other questions, are in evidence. The findings suggest that patients are involved in discussions about medicines and that there is some attempt at involving patients in decision-making. However, there has been limited research on issues such as the exchange of views about medicines or the extent to which decisions are shared, and consequently we cannot draw conclusions about the extent to which concordance is actually happening. Nevertheless, the studies identified indicate that at present there are many barriers to concordance, particularly patients' and professionals' attitudes towards their communication and decision-making roles, and therefore it is unlikely that concordance is taking place.

The aspects of health care practitioner communication with patients that were examined are quite different from the aspects of patients' behaviour that were examined. Health care professionals believed that patients should participate, yet their behaviour can impede as well as enhance patient participation in discussion about medicines. The key is the communication style. It has been suggested that for a concordant consultation to occur the practitioner should listen carefully and empathetically to enable the patient to express their views and that they should disclose their own concerns and views and try to identify with the patient. Evidence suggests that this is an effective strategy for increasing patients' disclosure of their views (Smith-Dupre and Beck 1996). We should however be wary of appearing to encourage practitioners to over identify with patients' problems as this may be resisted by patients who are anxious to retain some level of familiarity with the established pattern of the health care professional-patient relationship. Moreover, it could also lead to a misreading of the signals and hence concerns about over-familiarity and professional distance. However, such concerns are not relevant at the present time as in much of the research identified the relationship retains the asymmetry typical of paternalistic health care professional-patient interactions.

The review included different methodologies and publications in languages other than English. Different research methodologies and research done in different countries and different cultures produce results which are not easily comparable. Moreover, the expression of a preference for participation in discussions and decisions varies with different types of medicines and conditions. When asked for their perceptions people believe themselves to be more active and to get more information than is the case when consultations are observed. This has consequences for the assessment of

research results in relation to concordance making it difficult to make overarching generalisations.

A recent review commissioned by the Task Force on Medicines Partnership to test the hypothesis that overall compliance rates will have improved following the launch of new and potentially more effective medicines examined medicine taking in relation to 11 therapies (Carter, Taylor, and Levenson, 2003). Non compliance was shown to be a significant problem across all the therapy areas investigated. The review included the views of individual patients and patient support groups about issues important to them in medicine taking. It was clear that many people want more information about their conditions and treatments and better dialogue with health professionals. The review found that involving patients as partners in managing their own condition is key to more effective use of medicines and that although an understanding of the condition and treatment is critical, provision of information alone is not the solution. Carter et al's review noted that the provision of information is necessary but not sufficient for compliance. This is also true for concordance. The systematic review reported here found that, although there was evidence to suggest that information is exchanged in consultations, there was limited evidence relating to an open exchange of views about medicines and how these may then be inputted into a decision about treatment options. This may be because this is not happening in practice and therefore such research may be necessary to prompt discussions of this nature.

On a more positive note, there was evidence that in situations in which patients feel secure in their knowledge base then communication becomes less asymmetrical (Pilnick 1998), and that, by using self-disclosure, listening attentively to views and concerns and encouraging patients to talk, an open exchange in the consultation, such as that aspired to by supporters of concordance, may be achieved (Smith-Dupre and Beck 1996). Moreover, those interventions which were found to improve communication also had a positive effect on adherence and satisfaction. Thus there is, albeit limited, evidence of the possibility of a move towards concordance and of the positive benefits of so doing.

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Appendix A: Abbreviations

BAS	Bile acid sequestrants
C	Control group
CDSR	Cochrane database of systematic reviews
COPD	Chronic obstructive pulmonary disease
DARE	Database of abstracts of reviews of effectiveness
5.10 GKT	Guy's King's and St. Thomas'
GP	General practitioner
HAART	Highly active antiretroviral therapy
HCP	Health care professional
HRT	Hormone replacement therapy
I	Intervention group
MDI	Metered-dose inhaler
MeSH	Medical subject heading
N	Number of participants
NHS	National Health Service
NIDDM	Non-insulin dependent diabetes mellitus
NS	Not significant
OTC	Over the counter
PQ	Patient questionnaire
PR	Psychiatrist rating
QA	Quality assessment score
RR	Researcher rating
SCI	Social Science Index
SHO	Senior house officer
SSCI	Social Science Citation Index
T	Time

Appendix B: Systematic review protocol

Systematic review of communication between health care professionals and patients or consumers which focuses on medicine-taking and prescribing.

Background

A report by a multi-disciplinary working party set up to enquire into failures of compliance in medicine-taking concluded that if a real difference is to be made in achieving effective medicine-taking then a different model of the relationship between patients and prescribers must be developed (The Royal Pharmaceutical Society of Great Britain, 1997). The working party called this model concordance.

The working party published a literature review on drug adherence (McGavock et al, 1996). The systematic review outlined here has a wider remit. It considers the existing literature that informs the model of concordance. The aim is to provide a basis for the future development of both research and teaching.

As the term concordance is relatively new, this systematic review examines communication between patients or consumers and health care professionals focusing specifically on communication about prescribing and / or medicine-taking. The review identifies both qualitative and quantitative studies that investigate communication about medicine-taking and / or prescribing. It presents details of interventions and the outcome measures used to assess these interventions.

Specific objectives

To identify studies concerned with person to person communication about prescribing and / or medicine-taking.

To identify any interventions involving communication about prescribing and / or medicine-taking, to describe the outcome measures used to assess these interventions and to summarise their effectiveness.

To describe and assess the quality of the methods used in the studies identified, in particular whether the methods are appropriate to answer the research question and whether the results presented support the conclusions drawn.

To indicate areas for future research.

Criteria for considering studies for this review

Types of study

Papers that report the results of either a qualitative or a quantitative research study.

Types of participant

Human subjects, patients and non-patients, any health care professionals, including nurses and pharmacists.

Types of intervention

Any intervention concerned with person to person communication about prescribing and / or medicine-taking.

Search strategy for the identification of studies

The search period for the review is 1991 to 2000, with articles of all languages included. Records of the results will be kept for each stage. Foreign language papers will be reviewed and summarised by international colleagues.

The following databases will be searched: Medline, Embase, Cinahl, Psycinfo, Social Science Citation Index and Science Citation Index. The reference lists of identified studies will also be checked. The following relevant journals will be hand searched as they do not appear on the databases: *Health*, *Health Expectations*, and *Journal of Health Services Research and Policy*.

Existing traditional and systematic reviews will be checked (Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effectiveness (DARE), NHS National Research Register (NRR)). The website sosig.ac.uk (Social Science Information Gateway) will be checked for relevant references. The Concordance website is constantly checked for references to relevant literature and a request for relevant references will be posted on the bulletin board. Additional references will be sought via personal communication.

Methods of the review

Two reviewers will independently screen the titles, abstracts and keywords of the electronic search results. They will independently select studies that fulfil the selection criteria and meet to resolve disagreements. When disagreements can not be resolved, the studies will be included at this stage. Full articles of all the included studies will be collected and those that are deemed to examine communication about prescribing and / or medicine-taking will be organised according to whether or not they involved an intervention.

Appendix C: Subject headings used to search EMBASE, CINAHL and PsycINFO

Subject headings used to search Embase

Keywords*

Health care professional:

Health auxiliary

Anesthetist or Hospital personnel or Hospital physician or Medical staff or Nursing staff or Resident

Female physician or General practitioner or Hospital physician or Medical assistant or Medical expert or Medical personnel or Medical specialist or Medical staff or Medical student or Occupational physician or Pediatrician or Physician or Physician assistant or Psychiatrist or Psychotherapist or Radiologist or Resident or Surgeon

Dentist or Dietician or Health practitioner or Health visitor or Midwife or Nurse or Nurse practitioner or Occupational therapist or Paramedical personnel or Paramedical profession or Pharmacist or Physiotherapist or Rescue personnel

Patient/consumer:

exp patients

consumers

Medicine-taking or prescribing:

non prescription drug

drug therapy

drug use

prescription

self medication

patient compliance

Communication:

doctor patient relation

nurse patient relationship

physician attitude

nurse attitude

patient satisfaction

patient attitude

informed consent

decision making

interpersonal communication or nonverbal communication or persuasive communication or

verbal communication

patient education

consultation

* exp before a subject heading indicates that the term was “exploded”, i.e. the conceptually narrower terms associated with the term were searched for as well as the search term itself (e.g. “exp patient” retrieved articles with the keywords “cancer patient”, “chronic patient” etc. as well as those with the term “patient”).

Subject headings used to search Cinahl

Keywords*

Health care professional:

Health Personnel or Dentists or Expert Clinicians or Mental Health Personnel or Midwives or Nurses or Nursing Assistants or Personnel, Health Facility or Pharmacists or Physicians
Expert Nurses or Nurses, Male or Registered Nurses
exp Advanced Practice Nurses
exp Nurse Practitioners
Practical Nurses
Staff Nurses
Nursing Staff, Hospital
Anesthesiologists or Physicians, Family or Physicians, Women or Radiologists or Surgeons

Patient/consumer:

exp Patients
Consumers

Medicine-taking or prescribing:

prescriptions, drug
drugs, prescription
drugs, non-prescription
drug therapy
drug utilization
patient compliance
medication compliance
treatment refusal
self medication
self administration

Communication:

exp professional-patient relations
professional-client relations
nursing role
physician's role
exp attitude of health personnel
patient attitudes
patient centered care
consumer participation
exp consumer satisfaction
decision making
informed consent
communication or communication barriers or negotiation or nonverbal communication
patient education

* exp before a subject heading indicates that the term was "exploded", i.e. the conceptually narrower terms associated with the term were searched for as well as the search term itself (e.g. "exp patient" retrieved articles with the keywords "cancer patients", "diabetic patients" etc. as well as the term "patient").

Subject headings used to search Psycinfo

Keywords*

Health care professional:

Clinicians or Health Personnel

Medical Personnel or Dentists or Pharmacists or Psychiatric Hospital Staff

exp Nurses

exp Paramedic Personnel

Physicians or Family Physicians or General Practitioners or Gynecologists or Internists or

Neurologists or Obstetricians or Pediatricians or Psychiatrists or Surgeons

Mental Health Personnel or Clinical Psychologists or Psychotherapists

Patient/consumer:

exp Patients

Clients

Medicine-taking or prescribing:

drug therapy

drug usage

prescribing (drugs)

prescription drugs

non prescription drugs

self medication

treatment compliance

treatment refusal

treatment withholding

Communication:

communication or interpersonal communication or nonverbal communication or persuasive

communication or verbal communication or negotiation

therapeutic processes

client participation

decision making

client attitudes or client satisfaction

informed consent

client education

health personnel attitudes

health attitudes

drug usage attitudes

* exp before a subject heading indicates that the term was “exploded”, i.e. the conceptually narrower terms associated with the term were searched for as well as the search term itself (e.g. “exp patient” retrieved articles with the keywords “geriatric patients”, “surgical patients” etc. as well as the term “patient”).

Appendix D: Inclusion and exclusion criteria

Systematic review of communication between health care professionals and patients or consumers which focuses on medicine-taking and prescribing.

Specific objectives

To identify studies which are primarily concerned with person to person communication about prescribing and / or medicine-taking.

To identify any interventions designed to improve communication about prescribing and / or medicine-taking, to describe the outcome measures used to assess these interventions and to summarise their effectiveness.

Inclusion criteria for articles

Studies may involve either patients or the general public, and any health care professional.

Studies may take place in any health care setting in any country and be written in any language.

Studies must fit at least one of the criteria listed below.

- (1) The study investigated two-way person to person communication between health care professionals and patients/consumers about medicine-taking or prescribing. The study may have examined the communication directly (e.g. by audiotaping an interaction) or investigated it as perceived by the health care professional and/or the patient/consumer.
- (2) The study evaluated an intervention involving two-way person to person communication about medicine-taking or prescribing.
- (3) The study evaluated an intervention that aimed to improve two-way person to person communication about medicine-taking or prescribing.

Exclusion criteria for articles

Articles should be excluded if:

1. they did not assess person to person communication between patients/consumers and health care professionals
2. e.g. studies about interprofessional communication, whether or not clinicians followed treatment guidelines or doctors' attitudes towards patients' or consumers' drug taking in which the patient or consumer was not directly referred to, and studies in which the only reference to communication between patients/consumers and health care professionals was speculation by the authors.
3. they only investigated the provision of, desire/expectation for, or satisfaction with information on the part of the patient/consumer or the health care professional and did not consider other aspects of the interaction.
4. they did not make any reference to the prescribing of medicines or medicine-taking
5. e.g. studies about medical devices, orthodontics, exercise therapy, counselling, organ transplantation or prescriptions that are not for medicines (e.g. exercise prescription).
6. the only reference they made to medicine-taking was about the use of compliance/adherence as an outcome measure for an intervention.
7. they only focused on techniques used to measure adherence.
8. they only referred to illegal drugs or alternative/complementary therapies.
9. they focused on non-human subjects.
10. they focused on forms of communication that were not person to person (that were not also discussed between the patient/consumer and the health care professional)
11. e.g. studies about leaflets and computer-based programs only used by the patient/consumer or the health care professional.
12. they only referred to communication about medical treatments in general and did not focus on medicine-taking or prescribing.
13. they only examined hypothetical communication between health care professionals and patients/consumers.
14. they only referred to the relationship between health care professionals and patients/consumers and did not examine aspects of communication about medicine-taking or prescribing.

15. they only investigated health care professionals' views of 'patient pressure' to prescribe, which were not supported by other data.
16. they only examined the length of consultations.
17. they only examined the involvement of patients/consumers in their treatment or decision-making without referring to communication between the patients/consumers and health care professionals.
18. they did not describe the manner, content or consequences of the communication involved in the study.
19. they only included quotes from patients or health care professionals about communication about medicines which were not discussed in the text.
20. they were discussion papers, reviews, letters, conference proceedings, meeting abstracts or reports, editorials or book reviews or other papers that cited no original data.

IF IN DOUBT BE OVER-INCLUSIVE

Key terms

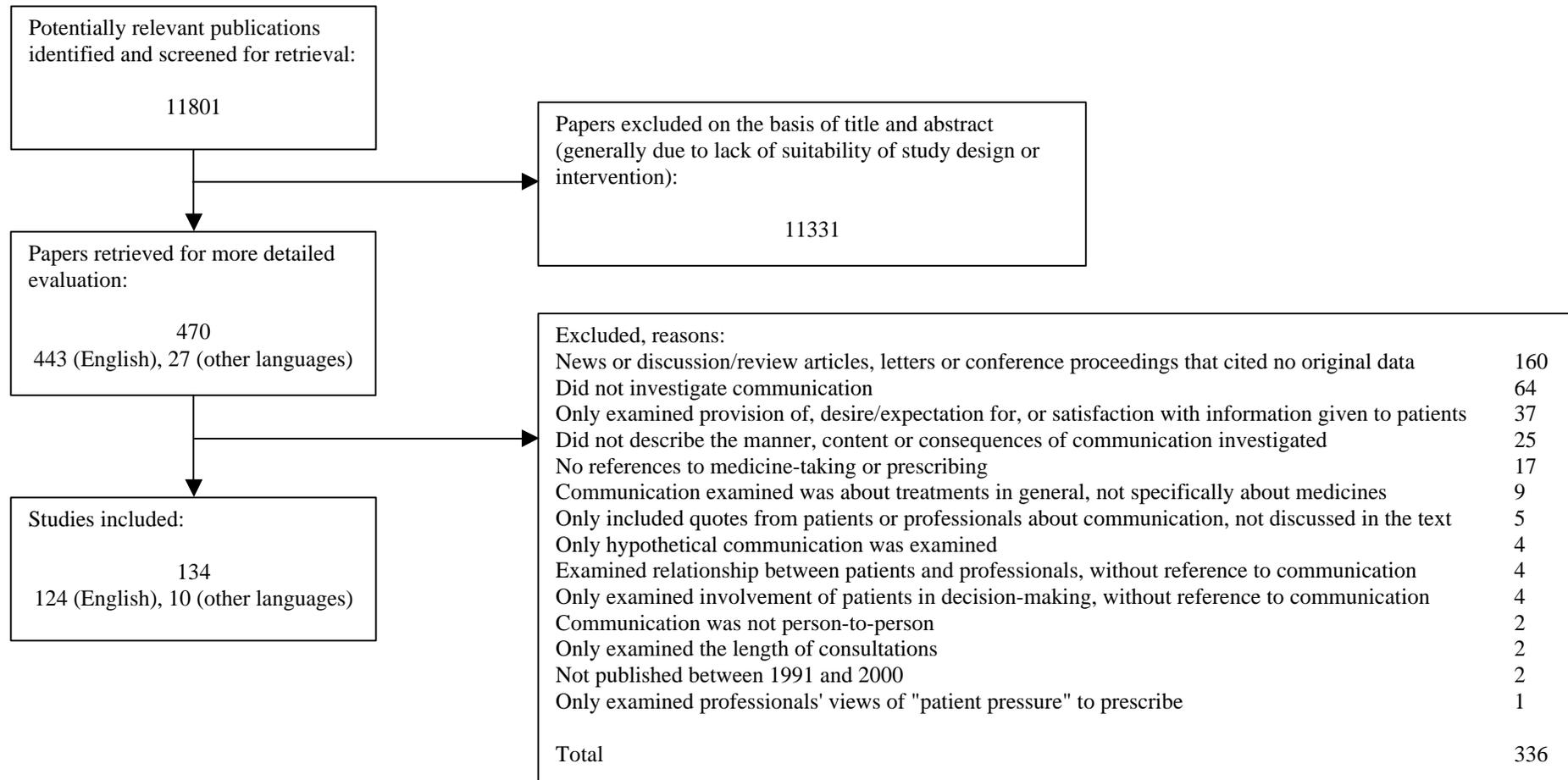
Communication

Person to person interactions between health care professionals and patients/consumers. Two-way interaction not just provision of, or desire/expectation for, information.

Treatment

Pharmaceutical products (i.e. products that are either prescribed or possible to buy with or without a pharmacist). Includes oxygen (medical), oral contraceptives, immunisation, and anaesthetics; excludes herbal medicines, bone marrow transplants, dialysis, nutritional hydration, and advance care directives.

Appendix E: Flowchart of articles included in the review



Appendix F: Data extraction forms

These are Word versions of the Access forms that were used.

INCLUSION FORM

What type of article is it? Study Intervention

ID code:

Reviewer:

Date of extraction:

Database details:

Major or Minor?

Language:

Article information

First author (surname):

Source:

Title:

Volume:

Start page:

End page:

Study characteristics

Research objectives:

When writing the BRIEF OUTLINE please include the following information if possible:

- 1. study design (e.g. qualitative/quantitative, RCT etc.)*
- 2. types of participants*
- 3. setting*
- 4. procedure*
- 5. central or relevant measures*

Occasionally some details of the results may be necessary to indicate the study's relevance to the review

Brief outline of study:

Notes:

EXCLUSION FORM

ID code:

1st Reviewer:

Date of extraction:

Database details:

Language:

Article Information

First author (surname):

Source:

Title:

Volume:

Start page:

End page:

Article type:

Reasons for exclusion:

Notes:

Appendix G: Material for the reviewers of the non-English language articles

Letter to reviewers

[DATE]

[NAME]

[ADDRESS]

Dear [NAME]

Re: Systematic review of communication between health care professionals and patients or consumers which focuses on medicine-taking and prescribing

We contacted you recently requesting your assistance with a systematic review that is being conducted by the Guy's, King's and St Thomas' Concordance Unit. The focus of the review is communication between health care professionals and patients/consumers about medicine-taking and prescribing.

We would be grateful if you could help us with our research by reading the [No.] [Language] articles enclosed and answering questions about them in English. In return for your assistance we will acknowledge you by name on all the articles we publish about the review. Unfortunately, we are unable to pay you.

Articles written in languages other than English are often overlooked in reviews. However, we consider their inclusion to be important for the thoroughness of the review and for the enhanced ability to generalise the findings.

Please find enclosed a copy of the following documents:

- [No.] [Language] articles
- Document A: Exclusion checklist
- Document B: Inclusion form
- Document C: Exclusion form
- Document D: Background information

You have already been sent electronic versions of all these documents (excluding the articles).

If you are willing to help us with the research please follow the instructions outlined in the enclosed flow chart. For each article, please complete the electronic versions of the checklist and inclusion/exclusion form and return them by e-mail. If you are unable to do this, please complete paper copies and return them by post.

Please include as much information as possible about each article so that we can understand what the study involved and describe it fully in our report. We may want to contact you for additional information.

If you have any questions please contact Kate Cox by telephone ((+44) (0)20 7840 9405), fax ((+44) (0)20 7793 7232) or e-mail (kate.cox@kcl.ac.uk).

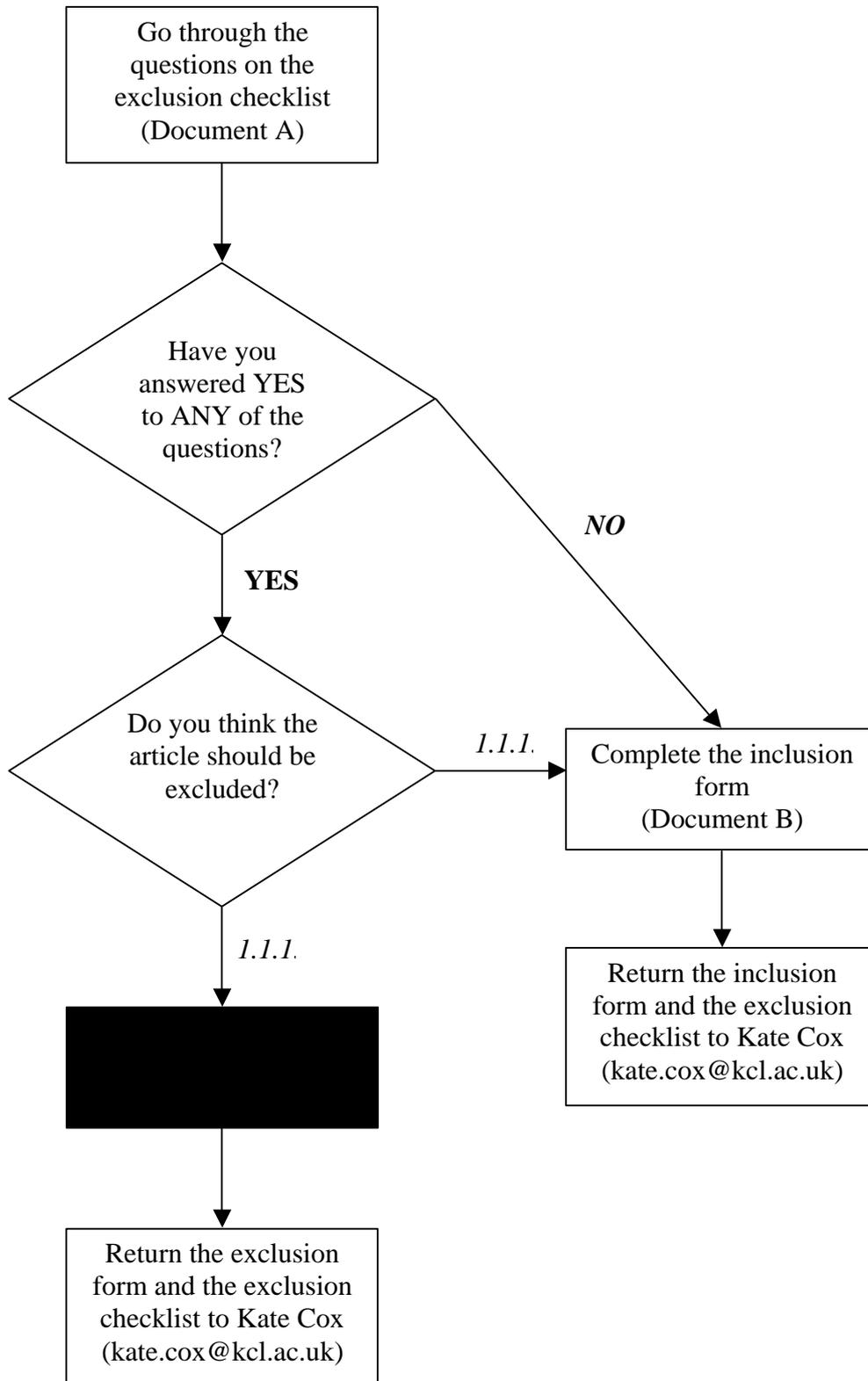
Thank you in advance for your help with our research.

Yours sincerely

Kate Cox

FLOWCHART

FOR EACH ARTICLE:



Document A

Exclusion Checklist

The aim of our research is to review both qualitative and quantitative studies that examine communication between health care professionals (i.e. doctors, pharmacists, nurses, dentists etc.) and patients/consumers about medicine-taking or prescribing.

Please go through the questions on this sheet to decide whether or not the article should be included in our review. The questions are based on our exclusion/inclusion criteria (see Document D). There are three main reasons for excluding a study: (A) it does not report any original data, (B) it only examines communication that is not about medicine-taking or prescribing, or (C) it does not examine communication as we have defined it.

SECTION 1

Reviewer:

Language:

First author:

Year published:

Title:

SECTION 2

If you answer YES to any of the questions below please place a cross in the appropriate box.

A. No original data reported

1. Is the article:

- a. a review
- b. a discussion paper
- c. a letter
- d. conference proceedings
- e. a meeting abstract
- f. an editorial
- g. a book review

2. Does the article describe an intervention or study WITHOUT reporting any of the findings – e.g. it proposes a study that has not yet been carried out?

B. Not about medicine-taking or prescribing

3. Does the article ONLY examine communication about:

- a. illegal drugs
- b. advance care directives
- c. alternative or complementary therapies
- d. non-pharmacological treatments (e.g. exercise, bone marrow transplants, dialysis, nutritional hydration, medical devices or orthodontics)

C. Not relevant communication

4. Does the article *ONLY* examine communication between health care professionals, rather than between health care professionals and patients/consumers?

5. Does the article *ONLY* examine the length of consultations, rather than actual communication?

SECTION 3

All studies that are included in our review must fit our inclusion criteria. If you think that the study does not fit the criteria for a reason that is not listed above, please state the reason below. (Please do *NOT* exclude articles because of faults with the methodology or interpretation of their findings).

Reason for exclusion:

If you have answered *NO* to all the questions above and think that the article should be included in the review please tick the box and complete the inclusion form (Document B).

OR

If you have answered *YES* to any of the questions above and think that the article should be excluded from the review (or think that the article should be excluded for another reason which you have written above) please complete the exclusion form (Document C).

If you have any queries about whether or not the study should be excluded please contact Kate Cox:

Tel: (+44) (0)20 7840 9405

Fax: (+44) (0)20 7793 7232

E-mail: kate.cox@kcl.ac.uk

THANK YOU FOR YOUR ASSISTANCE

Document B

Inclusion Form

Please only complete this form if you have completed the exclusion checklist (Document A) and have decided to *INCLUDE* the study. If, after completing the checklist, you think the article should be excluded please complete the exclusion form (Document C) instead of this form.

Please fill out the form below in English. Please answer as many of the questions as possible and give as much detail as you can so that we can include the study in the review. In some cases the questions may not be relevant to the study or the information needed to answer the question may not have been provided in the article. If this is the case please state this.

Please scroll down to the beginning of Section A and click on the shaded area next to the word 'Reviewer' and type your name. All the subsequent shaded areas in this document indicate where you should type your answers. The boxes will grow to fit what you type.

A. GENERAL INFORMATION
Reviewer:
Language:
First author:
Year:
Title:

B. STUDY CHARACTERISTICS
Country in which the study was conducted:
Research objectives:
Brief summary of what was done:

Study design (e.g. qualitative/quantitative, RCT, questionnaire survey etc.):
Setting (e.g. GP surgery, outpatient clinic):
Number of patients/consumers:
Type of patients/consumers:
Number of health care professionals:
Type of health care professionals:
Details of any control groups used:
Sampling methods:
Numbers of people who agreed and refused to participate in the study:
Medical condition:
Medicines under study:
Any other relevant information:

<i>C. OUTCOME MEASURES AND RESULTS</i>
Give details of the measures used:
Give details about the development and validation of any new measures used:
Give details of any statistical tests or other analyses used:
Give details of the central and/or relevant findings:
Give details of the authors' conclusions and implications:
Any other relevant information:

<i>D. INTERVENTIONS</i> (If the study does not involve an intervention please proceed to section E)
Brief outline of the intervention:
Is this intervention tested in the study? <input type="checkbox"/> (To answer yes please click in the shaded box to place a cross)
Give details of any outcome measures used to assess the intervention:
Give details about the development and validation of any new measures used:

Give details of how effective the intervention was found to be:
Any other relevant information:

<i>E. QUALITY OF THE STUDY</i>
Are the methods used appropriate for the research question(s) asked? <input type="checkbox"/> Comments:
Are the analyses used appropriate for the research question(s) asked? <input type="checkbox"/> Comments:
Are the conclusions drawn supported by the data presented? <input type="checkbox"/> Comments:
What are the main limitations of the study?
Any other relevant information:

When you have completed this form please send it, with the exclusion checklist (Document A), to Kate Cox by e-mail (kate.cox@kcl.ac.uk). We may want to contact you for additional information about this article.

THANK YOU FOR YOUR ASSISTANCE

Document C

Exclusion Form

Please only complete this form if you have completed the exclusion checklist (Document A) and have decided to *EXCLUDE* the study. If, after completing the checklist, you think the article should be included please complete the inclusion form (Document B) instead of this form.

Please fill out the form below in English. We will be presenting details about the articles that have been excluded at this stage in the report about the systematic review. We may want to contact you for additional information about the article(s) that you have been asked to review.

Reviewer:
Language:
First author:
Year:
Title:
Research objectives:

Brief summary of what was done:

Reason(s) for exclusion:

Any other relevant information:

When you have completed this form please send it, with the exclusion checklist (Document A), to Kate Cox.

THANK YOU FOR YOUR ASSISTANCE

Document D

Background Information

Systematic review of communication between health care professionals and patients or consumers which focuses on medicine-taking and prescribing.

Background

A report by a multi-disciplinary working party set up to enquire into failures of compliance in medicine-taking concluded that if a real difference is to be made in achieving effective medicine-taking then a different model of the relationship between patients and prescribers must be developed (The Royal Pharmaceutical Society of Great Britain, 1997). The working party called this model concordance. The concordance website (www.concordance.org) has been established by the Concordance Coordinating Group in order to provide information and stimulate further research and debate about concordance.

The systematic review examines the existing literature that informs the model of concordance. The aim is to provide a basis for the future development of both research and teaching. The review identifies research concerning the communication between health care professionals and patients or consumers about prescribing and medicine-taking. The review includes both qualitative and quantitative studies and presents details of interventions and the outcome measures used to assess these interventions.

Specific objectives

To identify studies concerned with person to person communication about prescribing and / or medicine-taking.

To identify any interventions involving communication about prescribing and / or medicine-taking, to describe the outcome measures used to assess these interventions and to summarise their effectiveness.

To describe and assess the quality of the methods used in the studies identified, in particular whether the methods are appropriate to answer the research question and whether the results presented support the conclusions drawn.

To indicate areas for future research.

Criteria for considering studies for this review

Types of study

Papers that report the results of either a qualitative or a quantitative research study.

Types of participant

Human subjects, patients and non-patients, any health care professionals, including nurses and pharmacists.

Types of intervention

Any intervention concerned with person to person communication about prescribing and / or medicine-taking.

Search strategy for the identification of studies

The search period for the review is 1991 to 2000, with articles of all languages included. Records of the results are kept for each stage. Foreign language papers will be reviewed and summarised by international colleagues.

The following databases have been searched: Medline, Embase, Cinahl, Psycinfo, Social Science Citation Index and Science Citation Index. The reference lists of identified studies will also be checked. The following relevant journals will be hand searched as they do not appear on the databases: *Health*, *Health Expectations*, and *Journal of Health Services Research and Policy*.

Existing traditional and systematic reviews will be checked (Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effectiveness (DARE), NHS National Research Register (NRR)). The website sosig.ac.uk (Social Science Information Gateway) will be checked for relevant references. The concordance website is constantly checked for references to relevant literature and a request for relevant references will be posted on the bulletin board. Additional references will be sought via personal communication.

Methods of the review

Two reviewers independently screened the titles, abstracts and keywords of the electronic search results. They independently selected studies that fulfilled previously defined selection criteria and met to resolve disagreements. When an agreement could not be reached about a study, it was included. Full articles of all the included studies were collected. Those that were deemed to examine communication about prescribing and / or medicine-taking were organised according to whether or not they involved an intervention.

Inclusion criteria for articles

Studies may involve either patients or the general public, and any health care professional.

Studies may take place in any health care setting in any country and be written in any language.

Studies must fit at least one of the criteria listed below.

1. The study investigates two-way person to person communication between health care professionals and patients/consumers about medicine-taking or prescribing, from the viewpoint of the health care professional and/or the patient/consumer.
2. The study evaluates interventions involving person to person communication about prescribing and / or medicine-taking.

Exclusion criteria for articles

Articles should be excluded if:

- 1) they do not assess person to person communication between patients/consumers and health care professionals

e.g. studies about interprofessional communication, those which focus on whether clinicians are following treatment guidelines, doctors attitudes towards patients' or consumers' drug taking in which the patient or consumer is not directly referred to, and studies in which the reference to communication between patients/consumers and healthcare professionals is speculative.
- 2) they only investigate the provision of, or desire/expectation for, information on the part of the patient/consumer or the health care professional and do not consider other aspects of the interaction.
- 3) they do not make some reference to prescribing or medicine-taking

e.g. studies about medical devices, orthodontics, exercise therapy, counselling, or organ transplantation.
- 4) the only reference they make to medicine-taking is the use of compliance/adherence as an outcome measure for an intervention, and fail to consider it as an integral part of the intervention.
- 5) they focus on techniques used to measure adherence.

- 6) they only refer to illegal drugs or alternative/complimentary therapies.
- 7) they focus on non-human subjects.
- 8) they focus on forms of communication that are not person to person (that are not also discussed between the patient or consumer and the health care professional)

e.g. leaflets, computer-based programs only used by the patient/consumer or the health care professional.
- 9) they only refer to communication about medical treatments in general and do not focus on medicine-taking or prescribing.
- 10) they only examine hypothetical communication between health care professionals and patients/consumers.
- 11) they only refer to the relationship between health care professionals and patients/consumers and do not examine aspects of communication about medicine-taking or prescribing.
- 12) they only investigate health care professionals' views of 'patient pressure' to prescribe, which are not supported by other data.
- 13) they only examine the length of consultations.
- 14) they examine the involvement of patients/consumers in their treatment or decision-making without referring to communication between the patients/consumers and health care professionals.
- 15) they do not describe the manner, content or consequences of the communication involved in the study.
- 16) they are discussion papers, reviews, letters, conference proceedings, meeting abstracts or reports, editorials or book reviews or other papers that cite no original data.

IF IN DOUBT BE OVER-INCLUSIVE

Key terms

Communication

Person to person interactions between health care professionals and patients/consumers. Two-way interaction not just provision of, or desire/expectation for, information.

Treatment

Pharmaceutical products (i.e. products that are either prescribed or possible to buy with or without a pharmacist). Includes oxygen (medical), oral contraceptives, immunisation, and anaesthetics; excludes herbal medicines, bone marrow transplants, dialysis, nutritional hydration, and advance care directives.

Appendix H: Codes of the findings of the non-intervention studies

1 Patient communication

- 1a** Extent to which patients ask questions about medicines (topic unspecified)
- 1b** Patients (not) expressing desire to use/not use medicines
- 1c** Patients (not) expressing having experienced side effects
- 1d** Patients (not) expressing concerns about taking medicines (inc. reasons for not needing them and side effects)
- 1e** Patients' reaction to HCPs offering counselling, questioning or trying to discuss medicines
- 1f** Patients having questions that they do not ask
- 1g** Patients (not) expressing their use of medicines/adherence
- 1h** Patients asking about how to take medicines
- 1i** Patients asking about side effects
- 1j** Patients asking about effectiveness of medicines
- 1k** How patients refer to medicines (e.g. name, action, colour)
- 1l** Patients having a passive role in discussions about medicines
- 1m** Patients expressing reasons for (not) taking medicines/complying
- 1n** Patients expressing their view of how the medication works
- 1o** Patients initiating discussions about medicines
- 1p** Patients repeating information given by HCPs
- 1q** Patients asking about other aspects of medicines (not side effects, effectiveness or how to take them)
- 1r** Patients' reactions to HCPs giving information without checking their knowledge
- 1s** Patients complaining in the consultation about information given by HCPs
- 1t** Patients having an active role in discussions about medicines
- 1u** Patients (not) expressing their attitudes towards medicines
- 1v** Patients' reactions to HCPs (not) giving a prescription

2 Factors affecting (or linked with) patient communication

- 2a** Factors affecting patients expressing their desire to use/not use medicines
- 2b** Factors affecting patients asking for advice about medicines
- 2c** HCPs encouraging patients to discuss aspects of medicine taking associated with patients discussing them
- 2d** Factors affecting patients expressing their use of medicines/adherence
- 2e** Patients' sex associated with patients' involvement in discussions
- 2f** Interrole congruence associated with patients' question asking
- 2g** Patients' race and education associated with extent to which patients speak during discussions about medicines
- 2h** Patients' and HCPs' nationality, race, age and sex associated with patients asking questions
- 2i** Number of medicines being used or prescriptions needed or given and prescription status (new or refill) associated with patients asking questions
- 2j** Patients' income associated with patients asking questions
- 2k** Patients' health associated with patients asking questions
- 2l** Number of patients' previous visits with HCP associated with patients asking questions
- 2m** Patients' view about who should make decisions about medicines associated with patients asking questions
- 2n** Factors affecting patients expressing their attitudes and concerns about medicines
- 2o** Country and patients' sex associated with patients initiating discussions about medicines
- 2p** Country associated with patients asking questions
- 2q** Factors affecting patients expressing having experienced side effects
- 2r** Patients' age, social class, no. of children at home and whether or not they have a chronic illness associated with patients' involvement in discussions

3 Effects of patient communication

- 3a** Effect of patients expressing their desire for medicine on patients being prescribed/given/offered medicines and HCPs feeling pressured to prescribe
- 3b** Effect of patients asking questions on provision of information to patients
- 3c** Effect of patients asking questions on HCPs asking patients questions
- 3d** Effect of extent to which patients speak during discussions about medicines on patients' knowledge, satisfaction with visit and satisfaction with decision
- 3e** Effect of patients asking questions on patients' knowledge, satisfaction with visit and satisfaction with decision
- 3f** Effect of patients asking questions on HCPs' perceptions of patients' irritation, assertion and interest
- 3g** Effect of patients asking questions on patients expressing their concerns about medicines
- 3h** Effect of patients expressing their concerns about medicines on HCPs changing the medicine regime, providing information and ignoring the patients' concerns
- 3i** Effect of patients asking questions on patients expressing their use of medicines/adherence
- 3j** Effect of patients expressing their concerns about medicines on patients expressing their use of medicines/adherence
- 3k** Effect of patients expressing their use of medicines/adherence on HCPs changing the medicine regime, providing information and ignoring the patients' problems
- 3l** Effect of patients expressing their desire for medicine on HCPs withdrawing from the discussion
- 3m** Effect of patients expressing their desire for medicine on use of medicines
- 3n** Effect of patients expressing their concerns about medicines on patients asking for a second opinion and their use of medicines and trust in HCPs
- 3o** Misunderstandings due to patients not expressing their expectations, views, concerns and desires
- 3p** Effect of patients asking questions on use of medicines/adherence
- 3q** Effect of patients expressing having experienced side effects on completion of treatment
- 3r** Effect of patients expressing their desire for medicines on patients' satisfaction

4 Patient attitudes towards communication

- 4a** Patients' views about the value of discussing medicines with HCPs
- 4b** Who patients want to discuss their medicines with (e.g. sex of HCPs)
- 4c** Patients' views about HCPs asking questions about medicines
- 4d** Patients' views about whether or not they should express their desire to use/not use medicines
- 4e** Patients' desire for HCPs to encourage them to ask questions or express their views or concerns
- 4f** Patients' reasons for (not) expressing their desire to use/not use medicines
- 4g** Patients' reasons for (not) expressing their views or concerns about medicines
- 4h** Patients' reasons for (not) accepting offer of counselling about medicines
- 4i** Patients' expectations about being asked questions about medicines
- 4j** Patients' reasons for (not) asking questions
- 4k** Patients' views about whether or not there was enough time to discuss medicines or ask questions
- 4l** Patients' reasons for not playing an active role in discussions about medicines
- 4m** Patients' desire to discuss the effects of medicines on social and sexual relationships
- 4n** Patients' feeling that they don't have the opportunity to discuss particular aspects of medicines
- 4o** Patients' reasons for (not) expressing their use of medicines/adherence
- 4p** Patients' views about expressing their use of medicines/adherence and HCPs' reaction
- 4q** Patients' views about the need for HCPs to answer patients' questions
- 4r** Patients' desire to be involved in decision making about medicines
- 4s** Patients' views about what questions they should ask about medicines
- 4t** Patients' desire to express their views about medicines
- 4u** Patients' views about whether or not they should ask questions
- 4v** Patients' views about HCPs offering counselling about medicines
- 4w** Patients' views about asking HCPs for advice
- 4x** Patients expectations of being given medicines if they asked for them

5 HCP communication

- 5a** HCPs (not) offering patients counselling about medicines
- 5b** Extent to which HCPs ask questions about medicines (topic unspecified)
- 5c** HCPs (not) asking patients about their attitudes or concerns about medicines
- 5d** HCPs (not) asking patients about their current or past use of medicines
- 5e** HCPs (not) asking patients about their experience of their treatment
- 5f** HCPs (not) asking patients if they want medicines
- 5g** HCPs (not) giving patients information when they ask for it
- 5h** HCPs (not) encouraging patients to express their views, concerns or experience of medicines
- 5i** HCPs (not) giving patients the opportunity or encouraging them to ask questions
- 5j** HCPs giving confusing advice
- 5k** HCPs use of medical language
- 5l** HCPs (not) taking account of patients' views when making decisions about medicines and involving patients in decision making
- 5m** HCPs trying to educate, persuade or pressure patients in order to change their views about medicines
- 5n** HCPs discussing medicines with patients' families to improve adherence
- 5o** HCPs (not) discussing with patients their ability to follow a treatment plan, barriers to adherence and strategies to overcome them
- 5p** HCPs giving advice or information when patients have not asked for it
- 5q** HCPs (not) checking patients' knowledge and understanding
- 5r** HCPs ignoring, disrespecting or not dealing with patients' views
- 5s** How HCPs refer to medicines (e.g. name, action, colour)
- 5t** HCPs having an active role in discussions about medicines
- 5u** HCPs assessing patients' suitability for particular medicine regimes
- 5v** HCPs telling patients that they can decide not to take the medicine if they want to
- 5w** HCPs emphasising the importance of certain information
- 5x** HCPs initiating discussions about medicines
- 5y** HCPs reassuring patients about medicines
- 5z** HCPs discussing patients' concerns about medicines
- 5aa** HCPs asking about other aspects of medicines (not attitudes or concerns, use of medicines, experience of treatment or desire for medicines)
- 5ab** HCPs treating patients as knowledgeable about medicines
- 5ac** HCPs (not) treating patients as equals
- 5ad** HCPs' use of a participatory approach with patients
- 5ae** HCPs (not) interrupting or ignoring patients or seeming rushed
- 5af** HCPs' reaction to patients expressing their concerns about medicines
- 5ag** HCPs' reaction to patients expressing their use of medicines/adherence
- 5ah** HCPs (not) expressing their views on medicines
- 5ai** HCPs referring to side effects in a general way
- 5aj** HCPs' reactions to patients asking questions
- 5ak** HCPs offering medicines
- 5al** HCPs' reactions to patients expressing their desire to use/not use medicines
- 5am** HCPs bargaining with medicines
- 5an** HCPs expressing affect

6 Factors affecting (or linked with) HCP communication

- 6a** Patients' expectations of HCP question asking associated with HCP question asking
- 6b** Patients' desire to be involved in decision-making associated with HCPs involving patients in shared decision-making
- 6c** HCPs' attitude towards patients' desire to be involved in decision-making associated with HCPs involving patients in shared decision-making
- 6d** Patients' age, sex and class associated with HCPs involving patients in shared decision-making
- 6e** Patients' past expression of anxiety and familiarity with medicine associated with time HCPs spend discussing medicines
- 6f** Patients' past expression of anxiety associated with assurance given by HCPs
- 6g** Patients' place of residence (e.g. urban or rural) and HCPs' gender, speciality, years in practice and

beliefs about the effectiveness of medicines associated with HCPs initiating discussions about medicines

- 6h** Patients' and HCPs' race, age and sex associated with HCPs asking questions
- 6i** Number of medicines being used or prescriptions needed or given and prescription status (new or refill) associated with HCPs asking questions
EPQ: Effect of patients asking questions on HCPs asking patients questions
- 6j** Type of health care facility and health care professional associated with HCPs asking questions
- 6k** Factors affecting HCPs' use of a participatory approach with patients
- 6l** Factor affecting HCPs initiating prescribing
- 6m** Patients' income associated with HCPs asking questions
- 6n** Patients' health associated with HCPs asking questions
- 6o** Number of patients' previous visits with HCP associated with HCPs asking questions
- 6p** Country associated with HCPs initiating discussions about medicines
- 6q** Country associated with HCPs asking questions
- 6r** Country associated with HCPs discussing with patients their ability to follow a treatment plan, barriers to adherence and strategies to overcome them
- 6s** Country associated with HCPs giving patients the opportunity or encouraging them to ask questions
- 6t** Country associated with encouraging patients to express their views, concerns or experience of medicines
- 6u** Country associated with HCPs taking account of patients' views when making decisions about medicines and involving patients in decision making
- 6v** Factors affecting HCPs offering medicines
- 6w** Type of medicine, previous HCP communication and patients' beliefs about medicines associated with HCPs encouraging expression of, listening to and discussing patients' concerns about medicines
- 6x** Interrole congruence associated with HCPs' question asking
- 6y** Patients' place of residence (e.g. urban or rural) associated with HCPs giving advice or information when patients have not asked for it

7 Effects of HCP communication

- 7a** Effect of HCPs asking patients if they want medicines on patients' expression of pain
- 7b** Effect of HCPs encouraging expression of, listening to and discussing patients' concerns about medicines on satisfaction with medicines and adherence
- 7c** Effect of HCPs negotiating, bargaining and compromising on patients' views about medicines
- 7d** Effect of HCPs telling patients what to do if they have questions on use of medicines and adherence
- 7e** Effect of HCPs asking about patients' prior use of medicines on use of medicines and adherence
- 7f** Effect of HCPs encouraging questions about medicines on use of medicines and adherence
- 7g** Effect of HCPs advising patients to use, change or stop using a medicine on patients' use of medicines
- 7h** Effect of HCPs' communication style on patients expressing their views on medicines
- 7i** Effect of HCPs not checking patients' knowledge on patients not receiving necessary information
- 7j** Effect of HCPs offering medicines on patients' use of medicines
- 7k** Effect of HCPs checking patients' knowledge on prescribing
- 7l** Effect of HCPs trying to educate, persuade or pressure patients on patients changing their views on medicines
- 7m** Effect of HCP affect on patients' knowledge, satisfaction with visit and satisfaction with decision
- 7n** Effect of HCPs asking questions on patients expressing their concerns about medicines
- 7o** Effect of HCPs asking questions on patients expressing their use of medicines/adherence
- 7p** Effect of HCPs referring to side effects in a general way on patients' views about medicines
- 7q** Effect of HCPs offering medicines on patients expressing their desire to use/not use medicines
- 7r** Effect of HCPs ignoring, disrespecting or not dealing with patients' views or concerns on patients' use of medicines
- 7s** Effect of HCPs asking questions on patients perceiving HCPs as being more able to help manage their therapy and prevent probs.
- 7t** Effect of how HCPs refer to medicines on patients' knowledge and use of medicines

8 HCP attitudes towards communication

- 8a** HCPs' views about shared decision-making
- 8b** HCPs' views about patients asking questions or playing an active role
- 8c** HCPs' views about asking patients about their medicine use
- 8d** HCPs' views about discussing patients' ability to follow a treatment plan
- 8e** HCPs' views about asking patients about their views on medicines
- 8f** HCPs' views about listening to patients' views about medicines
- 8g** HCPs' views about how they would react to patients expressing their use of medicines/adherence
- 8h** HCPs' views about the need to use simple language with patients
- 8i** HCPs' views about discussing the cost of medicines
- 8j** HCPs' views about patients expressing their desire to use/not use medicines
- 8k** HCPs' views about trying to educate, persuade or pressure patients in order to change their views about medicines
- 8l** HCPs' views about checking patients' knowledge about medicines

9 Patient and HCP communication

- 9a** Extent to which patients and HCPs discuss medicines
- 9b** Who patients have discussed medicines with
- 9c** Extent to which patients and HCPs engage in shared decision-making
- 9d** Amount of time spent discussing medicines
- 9e** HCPs and patients negotiating, bargaining and comprising in discussions about medicines
- 9f** Stages of discussions about medicines
- 9g** Patients and HCPs both being involved in discussions about medicines
- 9h** HCPs and patients arguing about medicines

10 Factors affecting (or linked with) patient and HCP communication

- 10a** Patients' experience of symptoms associated with patients and HCPs discussing medicines
- 10b** Patients' desire to use medicines associated with patients and HCPs discussing medicines
- 10c** Patients' poor hearing causing communication problems
- 10d** Type of medicines associated with patients and HCPs discussing medicines
- 10e** Patients' perceptions of the extent to which patients and HCPs discuss medicines associated with actual discussions
- 10f** Patients' and HCPs' race, income, education, age and sex associated with patients and HCPs discussing medicines
- 10g** Patients' place of residence (e.g. urban or rural) associated with patients and HCPs discussing medicines
- 10h** Patients' place of residence (e.g. urban or rural) associated with who patients discuss medicines with
- 10i** Health care site or type of health care facility associated with patients and HCPs discussing medicines
- 10j** Type of HCP associated with patients and HCPs discussing medicines
- 10k** Prescription transfer by the pharmacist associated with patients and HCPs discussing medicines
- 10l** The importance of communicating about medicines associated with patients and HCPs discussing medicines
- 10m** HCP and patient role orientation associated with patients and HCPs discussing medicines
- 10n** Lack of time associated with patients and HCPs discussing medicines
- 10o** Patient privacy associated with patients and HCPs discussing medicines
- 10p** Number of prescriptions and prescription status (new or refill) associated with patients and HCPs discussing medicines
- 10q** HCPs' use of a participatory approach with patients associated with patients and HCPs discussing medicines
- 10r** HCPs' provision of information associated with patients and HCPs discussing medicines
- 10s** Number of patients waiting nearby associated with patients and HCPs discussing medicines
- 10t** Country associated with patients and HCPs discussing medicines
- 10u** Factors affecting shared decision-making

10v Factors affecting length of time patients and HCPs discuss medicines

11 Effects of patient and HCP communication

11a Effect of having discussed medicines on patient satisfaction

11b Effect of having discussed medicines on patients' perceptions of having discussed medicines

11c Effect of shared decision making on patient satisfaction

Appendix I: Table of non-intervention studies

Study	Participants	Aim	Design	Section	Main relevant results
Agirre Lekue et al 1993	19875 patients and pharmacists in 10 community pharmacies in Spain .	To examine the extent to which people requested information about health issues in community pharmacies, the information they requested, and the information given to them by pharmacists.	Quantitative: 10 pharmacies were selected in rural, urban and suburban locations, representing the geographical location of pharmacies in the region. During a one-month period, the information given to and requested by patients in the pharmacies was recorded on a data collection sheet.	3.1.6.1	14% of consumers asked for information, and 56% of this information was about medicines.
				3.1.6.2	The questions patients asked were about use and how medicines should be kept (20% of patients), treatment and dosage (17%), impact and potency (16%), side effects (11%), illnesses (22%), and other topics (12%).
				3.1.6.3	The types of questions consumers asked differed between pharmacies in different locations. For example, a third of the medication questions asked by patients in rural pharmacies were about illnesses, whereas only 15% of the questions asked by patients visiting central urban pharmacies were about this topic. A greater proportion of dermatology and cosmetic questions were asked by patients at central urban pharmacies (17%) than by patients at rural (4%) or suburban (5%) pharmacies.
				3.1.6.4	31% of the information provided to patients was not requested by the patient. Much more of the unsolicited information was about medicines (90%) than the requested information (56%). The vast majority of unsolicited information provided by the pharmacist was about how to use and store medicines and dosage, whereas the information patients requested was more evenly spread over a wide range of topics. More of the information requested by patients was about the effect and potency of medicines than of the unsolicited information provided.
Altman et al 2000	42 ambulatory care nurses in France who had administered injections to patients in the last 16 months.	To investigate nurses' experiences of administering alpha injections to hepatitis C patients.	Quantitative: All 545 ambulatory care nurses in the area were posted a questionnaire about providing interferon alpha injections to hepatitis C patients. The questionnaire contained items about how much time the nurses spent with patients, what questions patients asked and how they responded to these questions. The questionnaire was completed by 42 nurses who had administered injections to patients in the last 16 months.	3.1.6.2	The nurses reported that they usually spent almost four minutes answering patients' questions. Patients often asked about the side effects or efficacy of the treatment.
Appling et al 2000	215 peri- and post-menopausal low-income urban women who received a mammography screening in a tertiary clinic in the US .	To examine low-income urban women's knowledge about menopause and HRT and the factors affecting their knowledge.	Quantitative: Peri- and post-menopausal women were recruited from a breast and cervical cancer screening program. 215 of the 240 women who were eligible participated. Interviews were conducted with the women about their knowledge of menopause and HRT, use of HRT, and communication with health professionals about it.	3.3.1.3	Women who reported having discussed HRT with a health professional had a greater understanding of HRT and the menopause. Regression analysis showed that 31% of the variance in knowledge was predicted by having talked to a health professional, education and age.

Study	Participants	Aim	Design	Section	Main relevant results
Bachiocco, Rucci and Carli 1996	126 patients who underwent thoracic surgery in Italy .	To examine the impact of psychological and pain variables on patients' requests for analgesia after surgery.	Quantitative: Before surgery patients completed questionnaires assessing their pain history and models, self-control expectancy, anxiety and personality; after surgery they were asked whether they had asked for painkillers and about their pain latency, intensity and duration.	3.1.7.1 3.1.7.2	30% of patients requested analgesia. Patients were more likely to request analgesia if they were younger, had a lower educational level, had used painkillers before, had not an operation in the past, used poor pain tolerance models in childhood, had higher scores on the psychopathic deviate, paranoia, psychasthenia, schizophrenia and neuroticism scales, considered themselves to be passive, and had pain that began earlier, was more severe or lasted longer. Requests were not related to patients' sex or use of poor pain tolerance models in adulthood. Logistic regression analysis showed that request for analgesia was predicted by educational level, pain intensity and duration, paranoia and previous analgesia use.
Barry et al 2000	35 patients consulting 20 GPs in the UK .	To investigate patients' agendas before GP consultations and the extent to which they are voiced in the consultation.	Qualitative and quantitative: 62 patients were interviewed before their consultation and both the GPs and the patients were interviewed afterwards. Consultations were audiotaped. 35 cases were analysed in depth.	3.1.7.1 3.1.8.4 3.1.7.3 3.1.8.2 3.1.8.4 3.1.8.5 3.1.9.4	22 patients had prescription request agenda items (N=26); 17 of these were voiced in the consultation. 9 patients had items about not wanting a prescription; 3 patients voiced them. If patients had told GPs of their antipathy to medicines then some unnecessary prescriptions may have been avoided. 15 patients had agenda items (N=19) about side effects; 11 items were voiced. Not voicing agenda items led to problematic outcomes, such as misunderstandings, not trusting the doctor, and nonadherence. 1 patient felt awkward about reporting nonadherence to the GP.
Bauchner, Pelton and Klein 1999	610 paediatricians in the US .	To investigate the impact of parents' requests for antibiotics on paediatricians' prescribing.	Quantitative: A random sample of 1000 paediatricians, who were members of the American Academy of Pediatrics, were sent a questionnaire about how often parents requested antibiotics when they were not indicated and whether they complied with these requests.	3.1.7.1 3.1.7.3	96% of doctors claimed that in the past month parents had requested antibiotics which the doctor felt were not indicated, and 40% said this had happened more than ten times. The majority of doctors reported that patients had requested specific antibiotics or different antibiotics to the ones they were going to prescribe. Almost a third reported that they had been asked for antibiotics by parents over the telephone. 44% said they rarely complied when parents requested antibiotics they did not feel were indicated. 22% reported that they never complied with such requests and 79% said they never complied when parents requested antibiotics over the telephone.
Beijer and Blaey 1999	1330 patients who collected a prescription for hypertension and 221 community pharmacists in The Netherlands .	To examine the impact of Dutch hypertension week on communication between patients and community pharmacists. During this week patients were invited to go to their pharmacy to discuss their medication use and any problems they had.	Quantitative: All patients who collected a prescription for hypertension during Dutch hypertension week were asked to complete a questionnaire about their compliance, reasons for noncompliance, and views about communication with pharmacists. 1554 community pharmacists were asked to complete a questionnaire about their communication with patients during this week.	3.1.3 3.3.1.1	31% of the patients reported that they wanted to discuss their medicine with a pharmacist, whilst 51% stated that they did not want to and 17% were unsure. 61% of patients said they only wanted to discuss medicines with their GP. A higher percentage of the patients who had discussed medicines with pharmacists before said that they would want to again. 88% of patients reported that they had never discussed their medication with a pharmacist. The pharmacists reported talking to 4480 patients during Dutch hypertension week; an average of 20 patients per pharmacist. The topics that were most commonly discussed were drug actions (29%), side effects (26%) and compliance (15%).

Study	Participants	Aim	Design	Section	Main relevant results
Blom et al 1998	6784 consumers, 21 pharmacists and 90 technicians in community pharmacies in The Netherlands .	To investigate the level of drug information given to patients in Dutch community pharmacies.	Quantitative: Pharmacists were selected due to their interest in patient education. 10 hours of audiotaped patient contacts with pharmacists or technicians were collected in 20 pharmacies. The information provided to patients was recorded.	3.1.6.4	Most of the drug information given by the pharmacist to the patient was unsolicited (i.e. not asked for by the patient).
Bond and Bywaters 1998	16 women aged between late 40s and 65 in the UK who had stopped using HRT at some point.	To explore patients' reasons for stopping using HRT.	Qualitative: A convenience sample was recruited through advertising and snowballing. In-depth unstructured interviews with the women about their experiences and views of HRT were audiotaped.	3.1.8.1	Some of the women had identified contraindications for using HRT but did not discuss these with their health care providers.
				3.2.7.1	Some patients reported that their doctors were not interested in their views about HRT.
Bond and Bywaters 1999	As above.	As above.	As above.	3.1.2	Some women felt that they had not had sufficient opportunities to ask questions about their treatment nor to discuss their concerns and that they were not encouraged to do so by doctors.
				3.1.8.5	
				3.2.6.1	
				3.2.7.1	
				3.1.3	One woman preferred to discuss HRT with a female doctor.
				3.1.4.4	Many women wanted to argue with doctors about HRT and to discuss the issues so that they could make an informed decision.
				3.1.8.5	
				3.1.6.2	Some patients asked their doctors questions about how long to use HRT and what to expect after withdrawal, which the doctors could not answer.
				3.1.6.4	
				3.1.7.1	Some women found it difficult to persuade their doctors that they did not want to use HRT. One woman argued about the risks with her gynaecologist who dismissed her concerns.
3.1.8.1					
3.1.8.4	Some patients felt that when they expressed their concerns about HRT to health care providers, their views were not listened to or respected, which helped lead to patients stopping using HRT.				
3.2.7.1					
3.2.7.3					
3.2.9.1	One woman felt pressured by their GP to stop using HRT.				
3.2.13	When doctors prescribed HRT they appeared uncertain about how long women should use it and how it should be used.				
Boulet 1998	603 asthma patients aged 16 years or over in Canada .	To examine asthma patients' attitudes towards medicines.	Quantitative: A national telephone survey was conducted with a general population sample. Patients were included if they had a doctor's diagnosis of asthma or reactive/hyperreactive or irritable airways.	3.1.8.1	25% had discussed their concerns about inhaled corticosteroids with a health care professional. 31% of patients had not discussed their concerns about corticosteroids as they were not aware that they were used to treat asthma.
				3.1.8.5	
				3.1.8.4	75% of patients felt their concerns had been "eased through" these discussions.
				3.2.7.1	
3.3.2.1	81% of patients who had discussed their concerns about inhaled corticosteroids with a professional had done so with their family doctor.				

Study	Participants	Aim	Design	Section	Main relevant results
Bradley et al 1998	2765 patients attending 6 UK GP practices.	To investigate patients' attitudes towards OTC drugs.	Quantitative: Patients were asked to complete a questionnaire before their consultation with their GP about their use and views of OTC medicines.	3.2.5.4	51% of the 2271 patients who responded about their prior use of OTC medicines felt their doctor should routinely ask about their OTC medicine use. These patients were more likely to be aged 25 to 80, be in the highest social class, be liable for prescription charges, use OTC medicines regularly or use herbal or homeopathic remedies. 2% preferred their doctor not to ask; most of these patients were female.
Britten et al 2000	Same as Barry et al 2000	To identify misunderstandings between GPs and patients relating to prescribing decisions.	Same as Barry et al 2000	3.1.7.1	0 of the 5 patients who received unwanted prescriptions told their doctor that they did not want them.
				3.1.7.3	Therefore, some doctors assumed that patients wanted a prescription when they did not and some patients were led to believe that drug treatment was necessary when it was not.
				3.1.8.1 3.1.9.1 3.2.5.1	Misunderstandings identified included patients not reporting their medical history (e.g. side effects) as they thought their doctors knew about it, patients not expressing their views of or concerns about medications, patients concealing their use of alternative or OTC medicines, doctors not asking about patients' use of alternative or OTC medicines, doctors not knowing that patients had altered or were confused about the dosage of their medication.
				3.1.8.4 3.2.7.1	When patients did express their beliefs or concerns the doctors often did not explore or accept them.
				3.1.8.5 3.2.5.4	When interviewed some GPs said they did not need to know patients' preferences about medication as this information was unimportant or because they already knew what they were, although this was not necessarily the case.
Brydon and Asbury 1995	180 patients admitted for elective surgery at a UK hospital.	To examine patients' attitudes towards pain and analgesia.	Quantitative: Patients completed a quantitative questionnaire the night before surgery about their views of pain and analgesia.	3.1.7.4	On average, patients strongly disagreed that they "should not bother staff by asking for painkillers".
Bultman and Svarstad 2000	100 patients with a new prescription for an antidepressant enrolled from 23 US community pharmacies.	To examine the impact of doctors' communication style on the knowledge, medication beliefs, satisfaction and adherence of patients prescribed a new medication for depression.	Quantitative: Patients were interviewed by telephone at the beginning of their treatment about their knowledge and beliefs about antidepressants and their doctors' initial communication. Patients were interviewed again 2 months later about their doctors' follow-up communication and their use and experience of the medication.	3.1.8.4 3.2.5.1 3.2.7.1	Patients gave a high rating to their doctor for helping them with their medication concerns during their initial visit. Approximately 60% of the 86 patients who had follow-up communication strongly agreed that their doctor encouraged them to express medication problems and asked about and listened to their medication concerns. 38 patients strongly agreed that their doctor helped solve their problems.
				3.2.7.2	Patients who felt their doctors used a more collaborative style in the follow up visit (i.e. encouraged them to express their medication problems, asked about and listened to their medication concerns and helped solved their problems) were more likely to have positive initial beliefs about antidepressants and report that their doctor had a more collaborative communication style in the initial visit.
				3.2.7.3	Patients who felt their doctor had a more collaborative follow up communication style were more satisfied with their antidepressant and were more adherent.
Butler et al 1998	21 UK GPs and 17 of their patients who had recently consulted for a sore throat or upper respiratory tract infection.	To explore patients' and GPs' perceptions about antibiotics for sore throats and possible reasons for overprescribing.	Qualitative: Semi-structured interviews were conducted with GPs in their surgeries and patients in their homes about antibiotic prescriptions for sore throats. The interviews were audiotaped and analysed qualitatively.	3.1.7.1 3.1.7.4	A third of the patients had expected antibiotics to be prescribed but only 1 patient said this in the consultation. This patient was not given a prescription but was satisfied as she had a good relationship with her doctor and was happy with the information she received. Most of the other patients said they did not voice their expectation as they felt it was their doctor's responsibility to decide about treatment.
				3.1.7.3 3.2.5.1	The GPs tried to gauge patients' willingness to have non-antibiotic treatment but gave prescriptions when patients expressed resistance.
				3.1.8.5 3.2.5.4 3.2.7.4	The GPs felt they should listen to patients' concerns and take them seriously as it may help reduce prescribing. Many GPs thought doctors should explore patients' expectations about receiving a prescription, yet two GPs felt this might be seen as confrontational.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.4.3	Some GPs claimed that prescribing might be reduced if doctors assessed and enhanced patients' knowledge about the side effects of antibiotics and resistant bacteria.
				3.2.5.1	1 doctor asked patients about what treatment they wanted.
				3.2.9.3	GPs felt that trying to convince patients not to use antibiotics was generally unrewarding and time-consuming, yet was highly satisfying when successful.
Cadd et al 2000	100 inpatients in two palliative care units in Australia .	To investigate the extent to which patients' bowel care management (BCM) preferences were incorporated into their care.	Quantitative: Patients completed a questionnaire about their BCM preferences and whether or not they were asked about their bowels and BCM on admission. Patients' notes were also audited.	3.2.5.1	69 patients reported that a doctor and/or nurse asked them about their bowels on admission; 5 stated that they were asked specifically about their use of medication for their bowels.
Catz et al 2000	72 HIV positive US outpatients on highly active antiretroviral therapy.	To investigate the prevalence and correlates of, and barriers to, adherence with antiretroviral therapy.	Quantitative: Structured interviews were conducted with patients recruited from an outpatient clinic about barriers to adherence and behavioural strategies used to overcome them.	3.1.6.5	45 (63%) patients reported that forgetting to ask questions about treatment at clinic appointments was a barrier to adherence. Asking a doctor, nurse or pharmacist about medication when they saw them or by telephone were considered to be strategies to promote their own adherence by 94% and 75% of patients respectively.
Chambers et al 1999	394 US patients with asthma aged 18-49 years taking inhaled corticosteroids.	To determine the relationship between health beliefs and adherence with asthma treatment.	Quantitative: Patients recruited from 12 family practices completed a questionnaire about their adherence, attitudes towards their medication and health beliefs.	3.3.3.1	66% of patients reported that they agreed or strongly agreed that they and their doctor decided together about treatment for their asthma.
Chen and Britten 2000	25 patients and 3 clinical pharmacists based in UK general practices.	To determine the feasibility of using primary care pharmacists as medication counsellors.	Qualitative: Patients were referred by a primary health care trust member or were self-referred. The pharmacist-patient consultations, which took place in the practices or in patients' homes, were audiotaped and analysed qualitatively.	3.1.8.1	Patients were willing to talk about their medicines in detail with the pharmacist. Patients' medication concerns were about the numerical dosage of a tablet, inadvertent overdosage, the reputation of the drug, cultural differences, the prescribing "environment", cost and experience of other medicines. Many of these concerns were associated with patients' perceptions of their medicine's potency. There was a relationship between patients' perceptions of the potency, side effects and the acceptability of their medicines.
Chewning and Schommer 1996	355 patients collecting a prescription at 19 US community pharmacies.	To determine what information patients want from their pharmacists and barriers to patients asking pharmacists questions.	Quantitative: The patients completed a questionnaire about the questions they most wanted their pharmacist to answer when they get a new prescription and reasons for people not asking pharmacists questions. [The study also assessed an intervention - a brochure about pharmacists' role - which was not relevant to the focus of the review.]	3.1.6.5	The questions patients most wanted their pharmacist to answer about a new prescription were about: side effects (60% of patients), directions for how to take and store medicines (51%), interactions with food, alcohol or other medicines (25%), administration (e.g. refills or price; 16%), purpose and effectiveness (12%), other topics (i.e. contraindications, continuity of therapy, and monitoring; 14%). 82% said they would not have different questions if they had a repeat prescription. The most important barriers to patients asking questions were: fear or embarrassment (22%), lack of awareness about the questions they can/should ask (20%), pharmacy barriers (e.g. the pharmacist being too busy or rude or no privacy; 18%), trust in or loyalty to their doctor (17%), patient barriers (e.g. too busy, ill or distracted with children; 7%), doctor had answered questions (4%), other (e.g. lack of confidence in pharmacist or think of questions later; 8%).
Cole and Slayter 1999	21 inpatients admitted to a Gynecological Oncology Service in Canada .	To assess the level of care patients received from their community pharmacists and the impact of a summary form for seamless pharmaceutical care.	Quantitative: A pharmaceutical care plan was drawn up and given to the patients' community pharmacists. A quantitative telephone survey was conducted with the patients about their communication with pharmacists. [The intervention is not relevant to the focus of the review.]	3.1.6.1	2 patients stated that they never asked their community pharmacists questions about their prescriptions.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.6.4	16 of the 19 patients who did ask questions reported that their pharmacist always answered them.
Comolet, Rakotomalala and Rajaonariora 1998	149 patients who were treated for tuberculosis in Madagascar in 1993.	To compare the characteristics of patients who completed or defaulted from tuberculosis treatment.	Quantitative: A retrospective study in which 38 of all the 98 patients who did not complete their tuberculosis treatment in 1993 (defaulters) were traced. These and 111 other patients from the same centres who did complete the treatment (controls) were interviewed.	3.1.8.2 3.1.8.4	38 of the defaulters claimed they had experienced side effects compared to 41% of the controls. 18 (47%) of the defaulters said that they had reported their side effects to their doctor compared to 41% of the controls. There was no significant difference in the reporting of side effects to the doctor between the two groups.
Dayan-Lintzer and Klein 1999	394+ menopausal women taking HRT in France . [The number of women in the group meetings was not reported.]	To examine the attitudes and experiences of HRT users and the impact on their compliance.	Qualitative and quantitative: 4 group meetings were held with menopausal women about their views on menopause, its treatment and the doctors' role. A random selection of people with telephone numbers in France was telephoned to identify menopausal women using HRT. 394 women completed the telephone survey. 196 were using an HRT patch, and 198 used another form of HRT.	3.1.4.4 3.1.8.5 3.2.7.4 3.1.7.3 3.3.3.3	In the group meetings the participants reported that it was important to have a dialogue with doctors about HRT and decide together about the right treatment. These patients argued that doctors should listen to their concerns as well as provide information. The telephone interview data showed that 55% of the women who said they had chosen the treatment with their doctor reported that they were satisfied with their HRT, compared to 47% of the women who said that their doctor had suggested the treatment and only 41% of those who had asked their doctor for HRT.
Diaz 2000	2 doctors and 16 of their outpatients receiving chemotherapy in a hospital medical oncology service in Spain .	To describe and analyse the social organisation of chemotherapy treatment consultations.	Qualitative: 16 doctor-patient consultations about chemotherapy were audiotaped and analysed using conversation analysis.	3.1.8.2 3.2.5.1 3.2.8.1 3.3.3.1	When enquiring about the impact of chemotherapy, doctors began by asking patients general questions, such as "how are you tolerating the treatment". In the example case provided, the patient responded by reporting tiredness and lack of appetite. When the patient did not provide sufficient information the doctor then asked about specific symptoms or side effects. Treatment decisions were based on patients' self-assessment of their health and doctors' presentation of test results, but in most cases the decision was prefaced by a review of the test results.
Donovan and Blake 1992	54 outpatients with rheumatological complaints at 3 rheumatology clinics in the UK .	To explore patients' reactions to advice and prescriptions given by doctors in rheumatology clinics.	Qualitative: Semi-structured interviews were conducted with the patients in their own homes before their first appointment. The consultations were observed and audiotaped and patients were interviewed after each consultation.	3.1.9.1	4 of the 19 patients who were prescribed second-line drugs did not take them as prescribed and yet none of these patients told their doctor.

Study	Participants	Aim	Design	Section	Main relevant results
Dua, Kunin and Van Arsdale White 1994	511 patients at 34 community pharmacies in India .	To investigate the use of antibiotics in India.	Quantitative: A stratified random sample of 34 community pharmacies in Nagpur, India was used. Structured interviews were conducted with patients who were observed requesting an antibiotic with or without a prescription. The most senior pharmacist in each pharmacy was interviewed.	3.1.6.2 3.1.6.4	In 2.5% of consultations the patient reported asking the pharmacist about the dose, frequency or duration of the administration of their medicine. In 3.5% on encounters the pharmacist offered this information without being asked.
Elwyn et al 1999	2 child patients and their parents consulting a GP in the UK with an upper respiratory tract infection.	To examine the discourse between patients and a GP when there is a disagreement about whether or not to use antibiotics to treat an upper respiratory tract infection and to determine the extent to which shared decision-making occurs.	Qualitative: 2 GP consultations were selected from a series of audiotaped visits as examples of cases when a conflict about the use of antibiotics had occurred. The GP involved had an interest in the participation of patients in treatment decisions. The consultations were analysed using discourse analysis.	3.1.4.1	The parents' involvement in decision-making was impeded by the GP.
				3.1.7.1	The parents expressed their desire for an antibiotic prescription and justified it by describing their experiences of antibiotics having been effective in the past.
				3.1.8.1	
				3.1.7.3	When the parents expressed their preference the GP responded by attempting to change their choice, which does not adhere to the shared decision making model. In both cases it appeared that there was no agreement but that one participant relinquished their preference.
				3.2.9.1	
				3.2.9.2	
				3.1.8.3	The GP adopted a defensive position that stopped the parents from being able to fully express their treatment preference or their reaction to the GP's reasons for not wanting to use antibiotics.
3.2.7.1					
3.2.5.1	In both cases the GP asked the parents about their treatment preferences.				
3.2.8.1					
3.2.9.1	The GP gave reasons (e.g. side effects or lack of effectiveness) for not wanting to use antibiotics.				
3.3.3.1	There was little evidence that shared decision-making occurred.				
Erickson, Kirking and Sandusky 1998	408 patients who collected a new prescription at a US pharmacy.	To investigate patients' perceptions about and satisfaction with the advice pharmacists give them when they collect a new prescription.	Quantitative: A telephone survey was conducted with 408 patients who had collected a new prescription at a pharmacy in the past 3 months using Medicaid, a national health insurance program for people on low incomes.	3.1.1	94% of patients said it was "important" or "very important" to talk to a pharmacist about their prescriptions; the remainder thought it was not important or did not care. Patients who said they had received counselling were more likely to say these discussions were important.
				3.2.1.1	71% reported that they had not been offered counselling.
				3.2.1.2	Of the 104 patients who were offered counselling, 67% accepted the offer.
				3.2.1.3	21 of the 33 patients who refused counselling said it was because their doctor had already given them an adequate explanation of their prescription.
Evans and John 1995	63 patients in 5 UK community pharmacies and 60 patients in 5 US community pharmacies.	To compare the prescription counselling activities in UK and US pharmacies.	Quantitative: In each pharmacy all the interactions between the pharmacist and patients for a set time period (4-9 hours) were audiotaped. All interactions in which the pharmacist offered information about prescription medicines were analysed.	3.2.5.2	The UK pharmacists asked a mean of 1.25 questions per interaction, whereas the US pharmacists only asked a mean of 0.95 questions. However, there was no significant difference between the two groups.
Extremera et al 1995	83 patients visiting 5 GPs after consulting with various private doctors in Spain .	To examine the impact of patients visiting private doctors on subsequent GP consultations.	Quantitative: Any patient consulting with the GPs in a general health centre who had visited a private doctor previously participated in the study. The GPs completed a questionnaire after the consultation about the patients' requests and whether or not they were met.	3.1.7.1	69 of the patients asked their GP to prescribe them a medicine that their private doctor had suggested.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.7.4	In 18 of the 69 cases in which patients had asked their GP for a prescription that a private doctor had suggested, the GP did not consider the request to be necessary.
Fahy and Smith 1999	1 woman in second stage labour in a hospital in Australia plus various staff at the hospital and a researcher who was acting as an advocate for the patient.	To analyse communication between patients and professionals using the subject positions theory.	Qualitative: An ethnographic design was used to examine a woman's experience of second stage labour in hospital and her interactions with various hospital staff members. A midwife researcher who acted as an advocate for the patient was also involved in these interactions.	3.1.4.1	The midwife told the patient that they were going to wait for the epidural to wear off but did not ask the patient how she felt about this decision. Later on after the patient had expressed her desire for a top up to her epidural, a doctor tried to persuade her against this approach. During this encounter, the patient appeared to have little power whilst the doctor enhanced his power by standing far away from the patient and by behaving aggressively.
				3.2.2.1 3.2.6.1 3.2.7.1 3.2.8.1	
				3.1.7.3	When the patient told the doctor that she wanted to have the epidural topped up he reacted by telling her that she was being selfish and that she might cause her baby to have brain damage.
Francke and Theeuwen 1994	26 women in The Netherlands who had recently undergone breast cancer surgery.	To examine the factors affecting whether or not breast cancer patients express their postoperative pain and ask for analgesia.	Qualitative: Women were recruited through their surgeons and newspaper advertisements. A grounded theory approach was used to collect and analyse interview data. The interviews were semi-structured and were conducted in the patients' homes within 6 months of discharge from hospital.	3.1.6.5	Some patients felt that if they had asked the nurses about pain medication the nurses would have answered, although some patients were worried about being troublesome. Other patients said they had not expressed their pain as the nurses were too busy to attend to it or to answer their questions about analgesia.
				3.1.7.2	Some women felt that painkillers had a very negative impact upon their health and were reluctant to ask for analgesia unless they were in severe pain. 1 patient who reported her pain to the nurses felt comfortable about asking for medication and appeared to have been encouraged by the nurses to express her pain.
				3.2.5.3	The patients were only asked about their pain for 1-2 days after the surgery and so they thought that it would be unusual to use painkillers after this stage.
				3.2.9.1	Patients had views about medications or their pain which prevented them from asking for analgesia, yet in most cases the nurses did not attempt to change these views.
				3.2.9.3	2 patients developed a more positive attitude towards pain medication as a result of their nurses encouraging them to express their pain.
Frederikson 1995	35 patients consulting 35 GPs in the UK .	To investigate patients' perceptions of information exchange in GP consultations and the impact on their satisfaction.	Quantitative: Each of the GPs was paired with a single patient from one of their surgeries. After their consultation with the GPs the patients completed a questionnaire about their doctors' communication and their satisfaction.	3.1.1	26 patients thought discussing possible side effects was essential; 3 patients thought it was desirable and only 1 felt it was unimportant.
				3.1.1 3.3.1.1	On a scale of 1 (side effects not discussed) to 7 (all possible side effects discussed), patients gave an average rating of 2 for their doctor having had discussed the side effects of their medication.
				3.3.1.3	There was a low correlation ($r = 0.2$) between patients' ratings of doctors having had discussed the possible side effects of their medicines and patients' satisfaction.
Freeman and Richards 1994	99 epilepsy patients in 4 general practices in the UK .	To examine the impact of continuity of care on the extent to which epilepsy patients discuss personally important aspects of their illness with their doctor.	Quantitative: 112 eligible patients with epilepsy were identified from practice records. Interviews were conducted with patients in their homes about their experience of their condition, use of medication, and communication with doctors.	3.1.3	Of the 74 patients who responded to the question about who they would most like to discuss their medicines with next, 53 named their usual doctor, seven said they would rather talk to another GP and 14 preferred a specialist. Those patients who named their usual doctor were more likely to have had a greater proportion of their previous consultations with the same doctor.
				3.1.7.1	55% of patients reported that they had not discussed their feelings about stopping medication with a GP or a specialist.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.7.2	There was no relationship between patients having had better continuity with one doctor and patients reporting that they had discussed their feelings about stopping medication with a doctor.
				3.3.1.1	51% of patients had discussed their medication with a doctor in the past year, 23 had discussed it between one and five years previously, 16 reported a longer time or said that they had never discussed it, whilst the remaining nine patients gave no definite answer.
Gerbert et al 2000	23 physicians, 8 nurse practitioners and 4 physician assistants who provide care in the US to HIV positive patients.	To explore practitioners' experiences and concerns regarding prescribing antiretroviral combination therapy for HIV.	Qualitative: 8 focus groups were conducted. The participants were identified by an expert and by contacting health care settings. All of the participants had at least 30 HIV positive patients in their current practice. The focus groups, which examined professionals' views and experiences of providing care to HIV patients, were audiotaped and analysed qualitatively.	3.1.4.4	Most participants wanted to share decision-making with patients.
				3.2.8.3	
				3.1.7.3	Most practitioners said they never refused to prescribe medicines when patients requested them. Some providers said that when they disagreed with patients' views about treatment, they tried to persuade them to change their mind, although they felt that ultimately the patient should make the decision.
				3.2.8.1	
				3.2.9.1	
				3.1.7.4	The practitioners reported that patients sometimes wanted medicines that were not appropriate. They also described cases when they had felt that the patient should begin a therapy yet the patient did not want to.
				3.2.5.1	Some providers avoided asking patients questions about their adherence that encouraged socially desirable responses. Many participants said they only had enough time to ask how many doses the patient had missed.
3.2.8.3	The participants acknowledged that in some circumstances they needed to make unilateral decisions, although they did not like to do so.				
3.2.10.1	To enhance adherence the practitioners sometimes discussed the medication regime with the patients' partners and worked together with patients to identify and address potential adherence barriers.				
Griffiths 1995	1225 women aged 20-69 years registered with 8 general practices in the UK.	To investigate women's perceptions of the media coverage of HRT, their sources of information about HRT, and views and experiences of communicating with GPs about it.	Quantitative: 1649 women aged between 20 and 69 were randomly selected from the practice lists. These patients were sent a questionnaire about their use of HRT, sources of information about it, impression of GPs' attitudes towards it and views of media coverage of HRT. The questionnaire was completed by 1225 women.	3.1.2	Two-thirds of the women who had discussed HRT with a health care professional felt they had had enough time to discuss it. Patients from the different practices had varying views about this issue, but these differences were not significant.
				3.1.7.1	Almost 15% of women who had discussed HRT with their GP or practice nurse felt they had had to persuade them to initiate therapy.
				3.3.2.1	168 women had discussed HRT with only a GP or practice nurse, 17 had discussed it with only a hospital doctor, and 38 had discussed it with both.
Griffiths 1999	42 women aged 20-69 years registered with 8 general practices in the UK.	To explore how women decide about whether or not to take HRT and what influences their decisions.	Qualitative: As part of an earlier survey (Griffiths 1995) women were asked if they would agree to be interviewed. 25 of the 566 women who agreed were randomly chosen to be invited for an interview. 17 women were interviewed about their individual attitudes towards HRT. Another 107 women were invited to focus groups. 25 women attended one of five focus groups about attitudes towards HRT.	3.2.11.3	Some women reported that they took HRT because their doctor suggested it.
				3.3.3.1	One of the women reported that she had had an extensive discussion about the risks and benefits of HRT with her doctor. She felt that the decision for her to stop using HRT had been hers.

Study	Participants	Aim	Design	Section	Main relevant results	
Gwyn and Elwyn 1999	1 child patient with tonsillitis and his parents consulting a GP in the UK.	To analyse a consultation in which shared decision-making is problematic.	Quantitative: 1 GP consultation was selected from a series of audiotaped visits as an example of a case when a conflict about the use of antibiotics had occurred. The GP involved had an interest in the participation of patients in treatment decisions. [The consultation was also analysed in Elwyn et al 1999.]	3.1.4.1	The parents' involvement in decision-making was impeded by the GP who enhanced the power asymmetry in the interaction by using new terminology, initiating the turn-taking sequences and controlling the choice of topics.	
				3.2.2.1		
				3.1.7.1		The parents expressed their desire for an antibiotic prescription and justified it by describing their experiences of antibiotics having been effective in the past.
				3.1.8.1		
				3.1.7.3		When the parents expressed their preference the GP responded by attempting to change their choice, which does not adhere to the shared decision making model. Indeed, the patient had to repeat his preference for antibiotics three times. At the end of the consultation it appeared that there was no agreement but that the parents relinquished their preference.
				3.2.9.1		
				3.2.5.1		The GP asked the parents about their treatment preferences.
3.2.8.1						
3.2.9.1	The GP gave reasons (e.g. side effects or lack of effectiveness) for not wanting to use antibiotics.					
3.3.3.1	There was little evidence that shared decision-making occurred.					
Hampson, McKay and Glasgow 1996	44 patients with type I or II diabetes consulting 2 primary care doctors in the US.	To compare the content and structure of two successive primary care interactions about diabetes management involving the same patients and physicians.	Quantitative: Two successive consultations between 44 diabetes patients and their doctors were audiotaped. The communication in the two visits was compared using the Roter Interactional Analysis System.	3.3.1.1	Medicines were discussed in 50% of first visits, 43.2% of second visits, and 75% of either first or second visits. The extent of discussion about medicines was greater in the first visits than in the second visits. There was no correlation between the extent of discussion about medicines in the first and second visits.	
Hargie, Morrow and Woodman 1992	261 members of general public in the UK.	To compare people's preferences and experiences of communicating with community pharmacists.	Quantitative: Members of the public were surveyed in shopping centres about their attitudes towards and experiences of communicating with pharmacists.	3.2.5.1	When asked what happens when they collect a prescription medicine, 42% said that the pharmacist hands the medicine to another member of staff to give it to them, 27% reported that the pharmacist hands them the prescription and encourages them to ask questions or express their concerns, 18% said the pharmacist puts the medicine in a bag and does not ask about their concerns and 13% said that the pharmacist hands them the prescription and will answer their questions but only if asked.	
				3.2.6.1		
				3.2.7.1	When asked what they would like to happen when they collect a prescription medicine, 16% said they would like the pharmacist to hand the prescription to another member of staff to give it to them, 66% said they want their pharmacist to encourage them to ask questions or express their concerns, 7% want the pharmacist to put the medicine in a bag and not ask about their concerns, and 11% would like the pharmacist to hand them their prescription and answer their questions if they ask.	
				3.2.5.4		
3.2.6.4						
3.2.7.4						
Hargie, Morrow and Woodman 2000	15 community pharmacists and 350 customers in the UK.	To examine community pharmacists' perceptions of what constitutes effective communication with customers.	Quantitative: 15 pharmacists analysed videotapes of their interactions with customers both individually and in groups. The pharmacists then met to develop a list of the most important communication skills needed by pharmacists.	3.2.5.4	Questioning was considered to be the third most important skill, after building rapport and explaining. The most important questioning skill was perceived to be asking about other medicines the patient is taking.	

Study	Participants	Aim	Design	Section	Main relevant results
Hassell et al 1998	Pharmacy staff and 2379 customers in 10 community pharmacies in the UK .	To investigate the advice given to customers in community pharmacies and customers' preferences for advice.	Qualitative: 2379 interactions between staff and clients were observed and coded. Over 1000 customers were interviewed about their visit and use of pharmacies. Telephone interviews were conducted with 44 customers who were given advice.	3.1.6.2	Customers asked their pharmacist about whether a particular medicine was effective, whether or not there were any side effects, if they were using the right medicine, and if they were taking it in the right way.
				3.1.6.4	Staff frequently gave patients unsolicited instructions about medicines.
				3.1.7.1	Customers requested OTC medicines in one of two ways. In most cases they asked for a particular product, otherwise they described their condition to the pharmacy staff who then recommended a product.
				3.2.1.2 3.2.5.3	Many customers did not allow pharmacists to engage in discussions about their medicines. When pharmacists attempted to check the suitability of a medication, some customers reacted in a hostile manner.
				3.2.4.1	Pharmacy staff often checked whether customers knew what to do with their medicines.
Haxby et al 1994	76 patients collecting a prescribed nicotine patch in 17 community pharmacies in the US .	To examine the characteristics of patients using nicotine patches and their perceptions of the patches.	Quantitative: Patients collecting a prescribed nicotine patch in pharmacies were asked to complete a questionnaire about their use and views of the patches.	3.1.7.1	66 patients (87%) had asked a physician for a nicotine patch, whilst 7 (9%) had been asked to try it by their doctor (4% chose other).
				3.3.1.1	40 of the 73 patients (55% who had been regular smokers) were scheduled for a follow up appointment with their physician to discuss how they were coping with the patch.
Higuchi et al 1999	22 doctors in a hospital circulatory ward in Japan .	To investigate doctors' views of the information patients are given about medicines in the hospital.	Quantitative: Doctors in a hospital circulatory ward completed a questionnaire about pharmaceutical management and advice services provided for patients in the hospital. [Surveys were also conducted with patients and nurses but the findings were not relevant to the review.]	3.2.4.3	9 doctors strongly agreed that the information that pharmacists provide to patients should be adapted to fit the individual patient's understanding of his/her medicines and desire for information, 5 doctors slightly agreed with this statement, no doctors disagreed with it.
Holloway 1996	20 patients being discharged from a hospital in the UK .	To investigate if patients are given sufficient information about their medicines when discharged from hospital.	Quantitative: Patients were interviewed on the morning they were discharged from hospital about their knowledge of their medicines and the information they received about them.	3.1.6.4 3.2.6.1	Only 10 patients felt they had been given the opportunity to ask questions about their medicines during their hospitalisation. 5 patients had 1-2 opportunities to ask questions, 1 had 3-4 opportunities, and 4 had more than 4 opportunities. All of these patients stated that they had been given the information they requested.
Hunt, Valenzuela and Pugh 1997	44 Mexican American patients consulting for NIDDM at 2 public clinics in the US .	To examine NIDDM patients' attitudes towards insulin injections and what these attitudes are based on.	Qualitative: Open ended in-depth interviews were conducted with the patients about their illness history, strategies for coping with diabetes, perceived barriers to care and concepts of the illness and its treatment	3.1.8.1	Some patients had talked to their health care providers about insulin in order to determine the truth about "frightening rumours" they had heard.
				3.2.12	Some patients reported that doctors often used insulin as a threat and offered to not give an insulin prescription as a reward for adherence with diet or exercise regimens. Some patients had made explicit agreements with their practitioners to meet specific target glucose levels by particular dates. Some patients reported that the fact that practitioners used insulin as a threat indicated that doctors had negative views about insulin which reinforced their own concerns.

Study	Participants	Aim	Design	Section	Main relevant results
Hunter, O’Dea and Britten 1997	45 women aged between 49 and 51 who were recruited from a general practice register in the UK .	To examine women’s reasons for deciding to take or not take HRT.	Qualitative: In-depth interviews were conducted with the women about their perceptions of HRT and reasons for taking it or deciding not to take it.	3.3.1.2	Women who had fewer symptoms were more likely to report that they had weighed up the advantages and disadvantages of taking HRT with their doctor. Those patients who were desperately seeking treatment were less likely to have had such discussions.
Ito 1999	Staff in 2 clinics and Vietnamese refugees taking preventative drug therapy for TB in the US .	To explore the impact of culture on compliance.	Qualitative: Observations were made at two health clinics. 24 ethnographic interviews and a focus group were conducted with Vietnamese patients. Staff in the clinics and members of the community were also interviewed.	3.1.8.2	All the interviewed clients had experienced side effects. The side effects reported to the clinic staff included feeling hot and irritable and the medication being too strong. All 12 clients in the focus group had complained of side effects to the clinic staff.
				3.1.8.4 3.2.7.1 3.2.9.1	When patients voiced their concerns about side effects to the clinic staff, the staff responded with objective, culturally meaningless explanations for their symptoms.
John and Evans 1996	314 community pharmacists in the UK .	To examine pharmacists’ attitudes towards written protocols for selling medicines and providing health-related advice.	Quantitative: Pharmacists at all 326 pharmacies in Gwent were posted a questionnaire about their attitudes towards written protocols. Telephone interviews were conducted with non-responders.	3.2.5.3	78% of pharmacists reported that some consumers resented pharmacists asking them questions when purchasing an OTC medicine.
Jones, Seymour and Woodhouse 1997	500 patients over 65 years recruited from a Health Service Authority register in the UK .	To examine elderly patients’ attitudes towards discussing their health and medicines with community pharmacists.	Quantitative: Semi-structured interviews were conducted with the patients about their attitudes towards communicating with pharmacists on two occasions, six months apart.	3.1.9.1	23% of patients (N=101) reported that their medication regime had changed in the 6 months between the two interviews. Of the 15 patients who had discussed this change with their pharmacist, 10 felt the advice they received was useful, nine were neutral and one felt it was unhelpful.
				3.3.1.1	
				3.3.1.1	5% of patients stated that they discussed medicines with a pharmacist at least sometimes, whereas 79% stated that they never did and would not discuss medicines with a pharmacist.
Jones and Britten 1998	22 patients in the UK who had received a prescription from their GP which they had not cashed.	To explore patients’ reasons for not cashing prescriptions.	Qualitative: 1000 consecutive patients who consulted with 4 GPs and received a prescription were contacted to identify those who had not cashed their prescription. These patients were interviewed in their homes about their reasons for not cashing it.	3.2.8.1	4 patients, all of who had consulted the same doctor, indicated that their doctor gave them permission to not cash their prescription if they did not want to.
Kadri 1991	539 women aged 44-64 years from a general practice in the UK .	To investigate perimenopausal women’s knowledge, views and experience of HRT.	Quantitative: All 701 women aged 44-64 years on the practice list were posted a questionnaire about their views and experience of HRT. The questionnaire was completed by 539 women.	3.1.2	65% of women who had discussed HRT with a health care professional felt they had had enough time to discuss it.
				3.1.7.1	Around a quarter of women had asked their doctor for HRT or for more information about it. 24% of these women reported that they would have had to or did apply pressure on the doctor to be given HRT.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.7.2	Women were more likely to have approached their GP to request HRT or get more information about it if they considered themselves to be in the 'change of life', if they had suffered more symptoms relating to the menopause, and if they had had a hysterectomy. There was no significant association between approaching a GP about HRT and women's social class or if they were postmenopausal or not.
				3.1.7.4	27 of the 408 women who reported that they had not approached their GP about HRT commented that they were too old to consider doing so.
				3.2.11.3	13 of the 54 women who had discontinued HRT had done so based on their doctor's advice.
				3.2.13	Some women stated that their doctor had appeared divided about the pros and cons of HRT, which they felt had been unhelpful.
Kim et al 1999	178 female clients and nurses, counsellors and doctors at various health centres in Kenya.	To investigate the extent to which clients and staff participate in discussions about family planning.	Qualitative: 178 family planning counselling sessions in Kenya were audiotaped and coded using the Roter Interaction Analysis System.	3.1.6.2	Most questions asked by the clients were about specific contraceptive methods including possible side effects.
				3.1.8.1	1 patient stated that she would prefer to have injections rather than pills because she frequently travelled and so would find it difficult to adhere to a regime.
				3.2.5.3	When patients were asked if they wanted a particular method of contraception they typically responded "injectable" or "I want the pill", although some clients who were more active also provided reasons for their requests.
Kjellgren et al 1998	51 hypertensive patients and 11 doctors at 2 primary care centres and a specialist clinic in Sweden.	To investigate communication between patients and doctors about antihypertensive medication.	Qualitative and quantitative: The follow-up visits of 51 hypertensive patients and their doctors were audiotaped. 33 patients were interviewed after their appointment.	3.1.4.1 3.1.5 3.1.8.2 3.2.2.1 3.2.3.1	Doctors tended to introduce the names of patients' medications, whilst patients usually referred to medicines by their description. In 10 visits medications were not referred to by name. Some patients found it difficult to remember and pronounce the names of medicines. 21 patients referred to the negative effects of medicines, but the term "side effects" was rarely used. Only 2 patients used medical jargon.
				3.1.4.1 3.1.6.1 3.1.6.2	Medication was the second most common topic raised by patients. The most commonly asked questions were about effects and side effects of drugs.
				3.1.6.4	Doctors rarely gave detailed information about the benefits of medicines unless the patient queried the reason for taking it.
				3.1.8.1 3.1.8.2	7 patients told their doctor that they would prefer not to take particular medications because of side effects, because the medicine was not important or because they wanted to determine if it was necessary. Patients talked little about their views of how their medication worked.
				3.1.9.1	The main reason patients gave their doctor for wanting to adhere to their medication regimen was their confidence in the doctor or the health system. Yet patients gave different reasons when interviewed by the researchers.
				3.2.4.1	When doctors provided patients with information about medicines they rarely assessed the patients' understanding of it
				3.2.5.1	The doctors asked 33 patients about their experience of specific side effects. Doctors did not make extensive assessments of patients' adherence.
				3.3.1.1	A significant proportion of discussions concerned medicines and their effects.
Kjellgren et al 2000	As above.	As above.	As above.	3.1.4.1 3.1.6.1	Medication was the second most common topic introduced by patients. It was raised by 9 patients.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.4.1 3.2.2.1	The doctors' interactional dominance meant the patients were left with the role of simply agreeing with the doctors' suggestions. Even when patients were given a new therapy they rarely participated in the decision-making process.
				3.1.4.2	Medication topics were more commonly introduced by male patients (8 of 26) than female patients (1 of 25).
				3.1.6.1	26 patients (51%) asked a question about medicines during their consultation.
				3.1.6.2	The most commonly asked questions were about effects and side effects of drugs. Other patient questions included the quantity of the drug, choice of drug, how long to take it and when to take it.
				3.2.5.1 3.2.8.1 3.3.1.1	Doctors rarely made medication changes without asking patients about the medicines' effectiveness or side effects.
				3.2.6.1 3.2.6.3 3.2.7.1 3.2.8.1 3.3.1.1	At the end of the consultation some doctors asked patients if they agreed with the treatment decision or if they had any questions. Few patients took advantage of this opportunity to ask questions.
				3.2.8.1 3.3.1.1	Mutual discussion between the doctor and patient about a change/introduction of medicine was obvious in only 4 consultations. Although doctors used inclusive dialogue to establish shared decision-making.
Krska and Kennedy 1996	202 customers purchasing OTC medicines at 24 community pharmacies in the UK.	To examine the expectations and experiences of customers purchasing OTC medicines.	Quantitative: 25 questionnaires were distributed by the staff in each pharmacy to consecutive customers who bought an OTC medicine. 202 patients (34%) completed the questionnaire, which asked about what happened, and what they expected to happen when they bought the OTC medicine.	3.2.5.1 3.2.5.2 3.2.5.2 3.2.5.4 3.2.5.4 3.3.2.1	40% reported that they were asked about concurrent medicines by a pharmacist or pharmacy assistant There was a significant correlation between patients reporting that the pharmacist asked them about their use of medicines during the visit and their expectation of being asked such a question. 9% expected that they would be asked about their medication use but were not asked. 37% patients had expected to be asked about the medicines they were taking or other illnesses. Patients who visited the pharmacy for advice were more likely to state that they had expected questioning about their use of medicines than those who went to buy a particular product. 6 patients reported that they objected to being asked these questions. Patients were more likely to report that they were asked about their use of concurrent medicines by a pharmacist rather than by an assistant during their visit.
Lambert et al 1999	59 GPs and 2625 of their patients in France.	To investigate the different ways in which patients intervene when doctors are preparing a prescription for them.	Quantitative: For all their consultations during a three-day period, the doctors recorded whether and how the patient intervened when they were preparing a prescription for the patient.	3.1.4.1 3.1.4.2	45% of patients made some intervention when their doctor wrote them a prescription. Some of these patients used written information, such as a previous prescription or their medication packaging, although the majority (61%) gave reasons for changing the content of the prescription without the use of written information. 70% of retired patients and 52% of housewives intervened, whereas only 22% of students intervened. Those patients who had repeat prescriptions, were older, and did not have a child at home were also more likely to intervene.
Latter et al 2000	85 nurse-patient interactions in a variety of clinical settings in the UK.	To examine nurses' role in medication education and to identify factors affecting their involvement.	Qualitative: 37 audiotaped and 48 observed nurse-patient interactions about medicines were analysed. 29 nurses and 39 patients were interviewed after these interactions. The interactions took place in a variety of clinical settings, e.g. general practices, hospital wards and community settings.	3.2.4.1	Some nurses checked patients' understanding of the information they had been given about their medicines.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.8.1 3.3.3.1	Community mental health nurses took account of patients' beliefs and motivations in order to negotiate the management of their medicines with them. When patients had beliefs that facilitated medicine-taking, nurses worked with these beliefs and did not try to change them. When patients had beliefs that stopped them from adhering to their medicine regime, nurses tried to modify these beliefs. There was little evidence of nurses using coercion.
				3.2.10.1	Some nurses assessed patients' suitability for self-medication.
Lavies et al 1992	52 patients undergoing cholecystectomy and 209 nurses and 38 junior doctors working on surgical wards in Australia .	To identify patients and health professionals' beliefs about and attitudes to postoperative analgesia.	Quantitative: Over a 7-month period, patients undergoing cholecystectomy were asked to complete a structured questionnaire 3 days after their operation about their experience of and attitudes towards pain and analgesia. All interns, registrars and nurses in the surgical wards were asked to complete a questionnaire about their attitudes towards analgesia.	3.1.7.1	When asked what they did when pain returned after a pain-relieving injection, 19 patients (37%) said they requested analgesia, whereas 31 patients (60%) waited for an injection to be given or offered.
Leemans and Laekeman 1995	62 final year pharmacy students in Belgium .	To examine the counselling community pharmacists provide to patients with coughs.	Quantitative: During their 6-months work experience in a community pharmacy, students had to fill out a report about 10 of their interactions with patients visiting the pharmacy with a cough. The students recorded what the patients' symptoms were, the questions they asked the patient, the medicine they provided and any information they gave to the patient.	3.2.5.1	In over 65% of cases the pharmacy students did not ask the patient relevant questions, such as whom the medicine was for, whether the patient had other symptoms, what kind of cough it was, what form of medicine the patient wanted, whether the patient used other medicine and how long the patient had experienced the symptoms.
Leemans and Laekeman 1998	78 community pharmacists in Belgium who experienced an educational intervention about cough medicines.	To evaluate 4 different educational methods for teaching pharmacists about cough medicines.	Quantitative: The pharmacists received 1 of 4 interventions: lecture and textbook, interactive workshop and textbook, audiocassette and textbook or textbook alone. As part of the evaluation, pharmacists were visited by a student pretending to be a patient to assess their counselling behaviour.	3.1.7.3 3.2.8.1	2 pharmacists gave a non-brand cough syrup to the "patient" despite the fact that the patient had asked for a brand medicine.
				3.2.5.1	The pharmacists rarely asked about co-medication and only a fifth asked whether the patient preferred a particular form of medication.
Lin et al 1995	155 primary care patients in the US starting a new prescription for an antidepressant.	To identify predictors of adherence to antidepressant therapy.	Quantitative: Patients were interviewed by telephone 1 month and 4 months after collecting the prescription. The interview included questions about their use of the antidepressant and reasons for discontinuing the therapy, and potential predictors of adherence.	3.2.5.1	61% of patients reported that their doctor had asked them about their previous use of similar medicines.
				3.2.5.3 3.2.6.3	Patients' reporting that they were asked about their prior use of similar medicines was associated with self-reported adherence after 1 month but not after four months.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.6.1	62% of patients reported that their doctor had told them what to do if they had medication questions after their appointment.
Lip and Beever 1996	2115 patients with hypertension, 178 GPs and 158 practice nurses in the UK.	To investigate hypertensive patients' reasons for stopping treatment, prescribing patterns for antihypertensives, and patients' and professionals' perceptions of side effects and compliance.	Quantitative: GPs and practice nurses completed a postal questionnaire about hypertensive patients' reasons for consulting and stopping therapy. 948 patients were surveyed via their GP and 1167 patients via a pharmacist. 600 of the latter patients were asked about their medication and side effects by the pharmacist ("prompted" patients). The survey asked patients about their views of compliance and experience of side effects.	3.1.6.2	48% of GPs reported that their patients asked questions about side effects "usually", "more often than not" or "always". 59% of patients surveyed via their GP stated that they had never asked about the possible side effects.
				3.1.6.5	
				3.1.6.4	64% of practice nurses stated that they would only tell patients about side effects if they asked. Only 23% of nurses said they would tell patients about the side effects without being asked. 19% did not routinely tell patients about side effects.
				3.1.6.5	60% of patients recruited via a GP who had not asked about the possible side effects of their medicines said this was because they did not think there were any side effects. Other patients had not asked because they did not want to waste the doctor's time, did not want to know about the side effects, had already been told by their GP about them or had read the leaflet in the medicine pack.
				3.1.8.2	Nurses stated that only 29% of their patients with hypertension talked about side effects they were or might be experiencing. 5% of patients recruited by a pharmacist who were not prompted talked about their medication to their pharmacist, and 1% of these patients spontaneously reported side effects. 50% of "prompted" patients said they "felt different" when taking their medication. Reported side effects included tiredness, dizziness, cough, headaches, and rash.
3.1.8.2 3.3.2.1	34% of patients surveyed via their GP said they had experienced unacceptable side effects. 78% of these patients first reported their side effects to their GP, 7% told their practice nurse and 9% stopped taking their medication straight away.				
Lip and Beever 1997	As above.	As above.	As above.	3.1.6.2	48% of GPs reported that their patients asked questions about side effects "usually", "more often than not" or "always". 59% of patients surveyed via their GP stated that they had never asked about the possible side effects.
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3.1.8.2 3.3.2.1	34% of patients surveyed via their GP said they had experienced unacceptable side effects. 78% of these patients first reported their side effects to their GP and 9% stopped taking their medication straight away.				
Lisper et al 1997	21 hypertensive patients at a primary health care centre in Sweden.	To examine hypertensive patients' perceptions of the medicines information they have been given and of their communication with professionals about their medicines.	Qualitative: Semi-structured interviews were conducted with the patients. The interviews comprised of mostly open-ended questions about their views of the information they had been given about antihypertensive drugs.	3.1.6.1	11 (52%) patients stated that they did not ask their doctor questions about their medicines
				3.1.6.5	Patients preferred oral communication with health providers about their medicines, rather than written communication, because it provided them with an opportunity to ask direct questions.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.5.1	Patients reported that they were asked by pharmacists whether they had used the medication before. If they answered yes then they were often not asked any more questions or given further information.
Livingstone 1996	43 elderly patients and pharmacists at 4 community pharmacies in the UK.	To investigate the information and advice provided to elderly patients about their prescription medicines.	Qualitative and quantitative: The interactions between the patients and pharmacists were audiotaped and analysed.	3.1.6.1	7 patients (16%) asked questions about their medicines. Of the 15 questions asked, 6 were open questions and 9 were closed. There were no leading questions.
				3.1.10	In 8 of the 15 encounters when the pharmacist provided information the patient repeated this information.
				3.2.13	The pharmacist repeated their own information in 13 of these cases.
				3.2.1.2	When pharmacists attempted to offer counselling or asked patients questions about their medicines some patients did not allow the pharmacist to engage in dialogue about their medicines and appeared irritated.
				3.2.3.1	Pharmacists used medical terminology in a small minority of cases.
				3.2.5.1	Pharmacists asked a question in 17 of the interactions (40%).
				3.2.6.1	6 patients were given an opportunity to ask questions about medicines. In these interactions it appeared that the pharmacist did not really expect the patient to ask any questions, as they quickly followed with a 'closing' remark.
				3.2.13	Pharmacists emphasised the importance of particular information in 4 interactions. The pharmacists rarely appeared uncertain about their advice.
				3.3.4	In 4 interactions communication problems were caused by patients' poor hearing.
Macfarlane et al 1997	76 GPs and 787 of their patients who consulted with acute lower respiratory symptoms in the UK.	To examine patients' views and expectations when visiting their GP with acute lower respiratory symptoms and the impact these have on GPs' prescribing.	Quantitative: During the consultation the GP recorded data on their certainty about their prescribing decision and the non-clinical factors affecting their decision. Patients completed a questionnaire about their views of their condition and treatment at home after the consultation.	3.1.7.1	A fifth of patients reported that they asked the GP for an antibiotic. Of the 561 patients who said they had wanted an antibiotic, only 26% said they had asked for one. 1 patient who did not want antibiotics and another who had not thought about requesting them also stated that they had asked for a prescription.
				3.1.7.3	When the patient had requested an antibiotic the doctor was significantly more likely to feel that his/her prescribing decision had been influenced by patient pressure.
Makoul, Arntson and Schofield 1995	36 GPs and 271 patients in the UK.	To investigate how patients and GPs discuss prescription medicines, their perceptions of these discussions and the congruence between perceived and actual communication.	Quantitative: 271 GP-patient consultations were videotaped and coded. Patients who received a prescription completed a questionnaire about the encounter and doctors completed a questionnaire about their attitudes towards consultations.	3.1.4.1	The most common medicine topics initiated by the patients were their opinion about medicines, possible side effects, name of the medicine, their ability to follow the treatment plan, possible risks of the medicine and intended benefits. Each topic was raised by the patient in less than 6% of consultations.
				3.2.2.1	
				3.2.5.1	In general, patients perceived that the doctor asked their opinion about taking the medicine prescribed, although the videotape data showed that discussion of patients' views occurred in a third of consultations. Doctors reported that it was quite important to ask patients what they think about their medication, yet they estimated that they obtained patients' views in less than half of their consultations.
				3.2.5.4	
				3.2.8.1	Doctors felt they involved patients in deciding upon a treatment plan in 64% of their consultations.
				3.2.8.3	Doctors reported that it was important to give patients instructions for taking the medicine.
				3.2.10.1	Doctors estimated that they discussed patients' ability to follow the treatment plan in 49% of their consultations, yet the videotaped consultations indicated that this issue was discussed in 8% of interactions.
3.2.10.3					

Study	Participants	Aim	Design	Section	Main relevant results
				3.3.1.1 3.3.1.2	The benefits of medicines were discussed in just over half of the consultations. However, discussion about side effects, precautions or risks of medicines occurred in only 27%, 7% and 2% of the consultations respectively. 114 patients stated that the risks had been fully explained yet in 55 of these cases no discussion of the risks were observed.
				3.3.1.2	The extent to which patients and doctors discussed side effects, precautions and risks about medicines depended on the type of medicine that was prescribed.
Makoul 1998	As above.	To investigate patients' desired level of reliance on their doctor to make decisions for them and it's link with doctors' behaviour in consultations.	As above.	3.1.4.4 3.2.8.2	57% of patients preferred to rely on their doctors to make decisions for them, whilst 43% were self-reliant. Doctors involved patients in shared decision-making in 45% of consultations. Doctors were less likely to share decision-making with patients who were physician-reliant than with those who were self-reliant.
				3.2.8.1	Doctors gave patients some responsibility for deciding how to deal with their condition in 42% of the consultations and involved patients in choosing a treatment for their condition in only 27% of cases.
				3.2.8.2	Doctors' involvement of patients in decision-making was not predicted by doctors' attitudes towards patients' reliance or patients' age or social class.
Marshall, Cunny and Lawson 1997	62 US males with HIV.	To identify the pharmacy needs of male HIV patients and to determine if these needs were being met.	Quantitative: 2 doctors and a community organisation serving people with HIV distributed questionnaires to 225 male patients with HIV. The questionnaire assessed patients' attitudes and experiences of pharmacy services.	3.1.2 3.1.6.4	40 respondents reported that their pharmacist spent as much time as necessary to answer their questions. Only 11 (18%) did not feel this was the case.
Maslen, Rees and Redfern 1996	236 community pharmacists in the UK.	To investigate pharmacists' involvement in the care of schizophrenic patients and their beliefs about their role with these patients.	Quantitative and qualitative: A questionnaire was posted to the pharmacy managers of 534 community pharmacies in the south of England. The questionnaire asked about their involvement in the care of schizophrenic patients and their beliefs about their role.	3.1.6.1 3.1.6.3	Most pharmacists reported that schizophrenic patients and their carers ask questions about medicines less than once a month. 27% stated that this set of patients and carers never ask questions. The frequency of questions asked by patients and carers was not affected by pharmacy ownership or location (e.g. village, city suburb etc.) or the number of prescription items dispensed by the pharmacy each week.
McGrath 1999	20 doctors from a variety of medical disciplines in the US.	To examine doctors' perceptions and experiences of communicating prescription medicine information to patients.	Qualitative: In-depth interviews were carried out with the doctors to assess their understanding of their role in communicating prescription information and the efficacy of various methods used to disseminate information to patients. A content analysis was performed.	3.1.4.4 3.1.8.5 3.2.7.4	Doctors felt it was necessary to listen to patients' views and take their concerns seriously and for patients to be willing to express their opinions and participate in discussions. They stated that patients needed to have a better understanding of the framework that doctors work in. It was felt that some patients did not participate in discussions due to intimidation, shyness, embarrassment, or not believing their contribution to be of value. The most useful sources of information for patients about prescription medicines were considered to be those that were two-way as they allowed patients to give feedback. One-way sources of information do not provide the explanations or interpretation of the facts that are necessary to suit each patient's circumstances and personality.
				3.1.6.1	It was reported that patients asked questions about prescription medicines more frequently than in the past but that such questions were still rare.
				3.1.6.5	When patients asked questions about their medicines it gave doctors an opportunity to reassure them about their treatment and to deal with their concerns. It was suggested that by asking questions patients may alleviate their fears about side effects.

Study	Participants	Aim	Design	Section	Main relevant results
				3.3.1.2	Doctors felt that they spent longer discussing medicines with patients who were more anxious than with those who were more familiar and comfortable with a particular medicine.
Meystre-Agustoni et al 2000	37 patients with HIV on antiretroviral therapy in Switzerland .	To explore HIV patients' beliefs and experience of their condition and the impact on adherence.	Qualitative: Patients were recruited via an HIV clinic and a private HIV specialist. In-depth interviews were conducted with the patients in order to examine their experience of their disease and treatment. The interviews were analysed using content analysis techniques.	3.1.2	Some patients felt that consultations concentrated too much on medical aspects of their treatment leaving little opportunity for discussion of other issues. Some wanted to discuss the effects of their treatment on their social and sexual relationships and said they would discuss such issues if encouraged to do so.
				3.1.8.3 3.1.8.5	
				3.1.6.5	Patients felt it was easy to ask their doctors about combinations of medicines, but found it more difficult to raise questions concerning the long-term effects of therapy. They also had doubts about their doctors' ability to answer questions about the long-term effects.
				3.1.9.1 3.1.9.2	Patients did not admit to their doctors the extent to which they changed their medicine-taking, particularly in relation to temporary interruptions. They were more likely to reveal their non-adherence when it was due to side effects as they wanted their doctor to understand why a change in their medication was needed.
				3.1.9.2	Only those patients with particularly strong self-determination told their doctor when they made substantial deviations from their medication regimens.
				3.1.9.4	Patients said they did not tell their doctor about their decision to change their medication regime because their doctor would not agree with their decision.
Montbriand 2000	443 older patients and 153 health professionals (doctors, pharmacists and nurses) in Canada .	To investigate older patients' and health professionals' perceptions and communication about prescription medicines and alternative treatments.	Qualitative and quantitative: Intensive ethnographic interviews were conducted with 25 people from each group (i.e. doctors, pharmacists, nurses and older patients). 2 focus groups were held and quantitative interviews were carried out with 443 patients and 153 health professionals.	3.1.6.5	Some patients felt they did not know how to ask health care professionals for information about their prescriptions.
				3.1.9.1 3.1.9.4	Out of the 338 patients using prescription medications, 34% had stopped taking their medication or had not used it as directed and had not reported this to a health professional. The main reasons patients gave for stopping using their medication were the expense, not understanding their diagnosis, or having an unpleasant reaction.
				3.1.9.4	38% of patients thought if they told a health professional about their non-adherence the practitioner would listen and give information. 16% felt they would be told they could return if needed. However, 44% said they would not tell their doctor about their non-adherence, and 3% believed their doctor would be angry. 80% of the practitioners thought they would listen and give information in this situation and 16% stated they would tell the patient they could return if necessary. 3 nurses said they would consult another practitioner.
Morris, Cantrill and Weiss 1997	40 community pharmacy consumers in the UK .	To explore consumers' experiences and expectations of purchasing OTC medicines.	Qualitative: Consumers who had purchased an OTC medicine from two pharmacies were recruited at the pharmacies and then interviewed by telephone. A semi-structured questionnaire was used which investigated patients' expectations of their most recent OTC medicine purchase and their attitudes towards pharmacists asking questions.	3.1.6.5	14 of the consumers stressed the importance of pharmacists being available to answer patients' medication questions.
				3.2.5.3	Some consumers stated that they bought medicines at supermarkets to avoid being questioned. 2 consumers reported that they had been asked unnecessary questions when buying an OTC medicine and 4 stated that they had felt unhappy or uncomfortable when they were asked questions relating to personal medical issues.
				3.2.5.4	15 patients expected to be questioned when purchasing an OTC medicine; most expected this because it had happened before. Over half of the consumers who visited the pharmacy for advice about symptoms did not expect questioning. Most consumers felt it was important for pharmacy staff to ask about whom the medicine was being purchased for, details of the condition being treated, and other medication being used. This information was considered to be necessary in order to ensure that the most suitable product was chosen, to confirm self-diagnosis and to protect against interactions between medications.

Study	Participants	Aim	Design	Section	Main relevant results
Morrow et al 1993	5 pharmacists and 51 clients in 5 community pharmacies in the UK.	To examine community pharmacists' question asking skills.	Quantitative: 5 community pharmacists were randomly chosen from 15 recruited via a poster appeal. The pharmacists' interactions with clients were videotaped for 3 hours.	3.2.5.1	There were 211 pharmacist questions during the interactions, 207 of which were closed. Only 29% of the closed questions were medication-related, whilst 39% were about symptoms and 16% were about the context of the consultation.
Morse et al 1991	40 patients with HIV in the US.	To examine the factors affecting HIV patients' compliance with medication regimes.	Quantitative: The patients were drawn from a sample of 60 asymptomatic HIV-positive patients in a multi-centre clinical trial. The trial nurses identified the 20 most and 20 least compliant subjects. These patients completed a questionnaire about psychosocial factors thought to effect compliance on two occasions, 6 months apart.	3.2.6.1	The patients reported that their nurse encouraged questions regarding their treatment at both time points.
				3.2.6.3	At both time points, nurses' assessments of patients' compliance were found to be positively related to patients' perceptions of the extent to which the nurses had encouraged them to ask questions about their treatment. [N.B. the nurses' compliance assessments were partially based on their perceptions of their communication and relationship with the patient, which may explain the relationship between communication and compliance.]
Nau, Ried and Lipowski 1997	198 patients with asthma enrolled in a health maintenance organisation (HMO) in the US.	To examine asthma patients' perceptions of the pharmaceutical care they receive and their pharmacists' ability to help them manage their disease and prevent problems.	Quantitative: Asthma patients were identified by pharmacists and the HMO database. A postal and telephone survey was conducted which assessed the level of pharmaceutical care the patients received and their perceptions of their pharmacists' ability to help them.	3.2.5.1	37% of patients said they received the lowest level of care (i.e. their pharmacist had recently asked them if they had any questions). 31% received the second level of care (i.e. they were asked if they had any questions, if they understood how to use their medications and if they had experienced any side effects). 6% received the highest level of care (i.e. they were asked all the questions in the lower two levels and they were asked if they had a plan for what to do if they had trouble breathing, how often they used their inhaler and how their breathing was). 25% of patients said their pharmacist had not asked them any of these questions recently.
				3.2.6.1	
				3.2.5.3	Patients who were asked more questions about their medicines by their pharmacists felt that their pharmacists were more able to help them manage their asthma therapy and prevent problems.
Nazareth and King 1993	6 GPs and 54 of their female patients who consulted with lower urinary tract symptoms in 2 general practices in the UK.	To identify the factors affecting GPs' management of lower urinary tract symptoms in female patients.	Quantitative: Women consulting with lower urinary tract symptoms over a 3-month period were recruited by the GPs. The GPs completed a questionnaire after the consultation, which included a question about whether the patient had asked for antibiotics or not. The patients also completed a questionnaire about demographic information and their health and gave a urine sample.	3.1.7.1	The doctors reported that 11 women requested an antibiotic. Those women who were found not to have a significant infection tended to be more likely to ask for an antibiotic.
				3.1.7.3	Patients' antibiotic requests were associated with antibiotic prescribing.

Study	Participants	Aim	Design	Section	Main relevant results
Newton et al 1997	1082 peri- or post-menopausal women aged 50-80 enrolled in a health maintenance organisation (HMO) in the US.	To examine women's reasons for starting, stopping or not starting HRT.	Quantitative: 1520 women aged 50-80 were randomly selected from the HMO database. A telephone survey was conducted with 1082 peri- or post-menopausal women about their reasons for initiating or not initiating HRT, changing the way HRT was taken or stopping HRT.	3.2.11.3	54% of women who had stopped using HRT said they had done so on their own; only 23% said they stopped due to doctors' advice. Younger women were more likely to have stopped using HRT on their own. 30% of current or past users of HRT claimed the reason they had used HRT was their doctors' advice. 13% of current users who had changed the way they took HRT had done so because of doctors' advice. Of those women who had never used HRT, 13% stated this was because their doctor had advised against it, whilst 10% said it was because their doctor had not mentioned it.
				3.3.1.1	47% of women who had not used HRT had discussed the therapy with their provider.
				3.3.1.2	A greater proportion of younger women (50-59 years) had discussed HRT with their provider than older women.
Newton et al 1998	As above.	To identify the sources of information women use when deciding about HRT.	As above.	3.2.9.1	19% felt their doctor had been very encouraging about HRT, 19% said their doctor had been somewhat encouraging, and 28% said he/she had not been encouraging at all.
				3.2.11.1	
				3.2.9.2	Amongst past and current HRT users, older women were less likely to feel their doctor had been encouraging. Age had no significant impact on the views of women who had never used HRT about their doctors' encouragement.
				3.2.11.2	
3.2.9.3	Women who reported that their doctor had been very encouraging about HRT were more likely to be current users (rather than never users) than those who said their doctors had been neither encouraging nor discouraging.				
3.2.11.3					
Oates, Snowdon and Jayson 1994	92 nurses, 54 student nurses, 19 nursing auxiliaries, 11 house officers and 200 inpatients in a UK hospital.	To investigate the perceptions of hospital staff and patients about why patients do not receive post-operative analgesia.	Quantitative: Nursing and medical staff on surgical wards were asked about the most common reasons for patients not receiving analgesics. Inpatients completed a questionnaire less than 3 days after their operation about if they had asked for or accepted analgesia and why.	3.1.7.1	36% of patients requested analgesia after their operation. 23% reported that they had felt reluctant to ask for analgesia and 14% said they refused painkillers.
				3.1.7.4	
				3.1.7.3	According to the nursing and medical staff, the most common reason that postoperative patients do not receive analgesia when they are in pain is that they do not ask for it. Other reasons included patients refusing analgesia, the prescription chart or keys to the medicine cabinet being unavailable, drugs being out of stock and there being no one there to check the drugs.
				3.1.7.4	
Parrott 1994	11 family physicians and 12 of their patients in the US.	To examine the information exchanged between family practice doctors and patients when a medicine is prescribed.	Qualitative: 12 family practice consultations in which a medicine was prescribed were videotaped. The patients were telephoned afterwards to assess their understanding and recall of the consultation. The videotapes and phone calls were coded to assess the information the doctor gave in the consultation and patients' understanding of this information.	3.1.6.2	When the doctor referred to the medicine prescribed as "the medicine" or gave other minimal descriptions, the patients did not ask for clarification. No patient asked for information about dosage and only one patient was given such information. No patient asked the doctor to repeat information or write information down.
				3.1.7.3	
				3.2.7.1	In one consultation the doctor was concerned about the risk of addiction and so suggested alternative treatments. However, as the patient stated that the alternatives had been ineffective, the doctor decided to give the prescription. In another consultation, a patient with acne asked about retinoic acid treatment and the doctor reacted by making a joke about it being an excessive therapy to use in this case. This reaction appeared to stop the patient from discussing the medicine further
				3.2.3.1	
3.2.5.1	Even when doctors asked patients about their use of medicines, they did not talk to patients about the implications of their answers in terms of addiction, side effects or interactions between medicines.				

Study	Participants	Aim	Design	Section	Main relevant results
Pilnick 1998	Pharmacists, patients and their carers at a paediatric oncology clinic in the UK. [Data on the number of participants were not given.]	To explore issues of asymmetry in the knowledge base of patients and pharmacists and how this is managed in their consultations.	Qualitative: 43 consultations between pharmacists, patients and carers at the clinic over a 2-month period were audiotaped. Fieldnotes were also collected during the consultations. Ethnography and conversation analysis were used to analyse the data.	3.1.4.1	The patients/carers and pharmacists assessed each other's knowledge and exchanged information in a way that minimised the power imbalance between them. Even when there was an imbalance between the knowledge of the two participants, the asymmetry between them was short lived. Patients' and carers' substantial knowledge and experience of the condition and treatment minimised the pharmacists' interactional dominance and consequently the patients and carers were able to express their views about the medication.
				3.2.4.1	
				3.1.4.2	In the only consultation involving both the patient's parents the father participated more in the discussion than the mother did. It was evident during this consultation that the father was a regular user of the clinic and had a greater level of knowledge about his child's medication than the mother. Pharmacists tended to provide less advice to fathers than mothers. In some of these interactions both the pharmacist and the father suggested that the father did not need further information as the mother had substantial knowledge and experience of the child's treatment.
				3.1.5 3.2.3.1	Both the pharmacists and the patients frequently used technical language when discussing medicines. The patients and carers rarely used mitigators, qualifiers or questioning intonation when using technical terms, suggesting that they felt comfortable with using medical language. Even when the pharmacist used non-medical terms, the patient or carer countered this by using technical language.
				3.1.11	One patient openly criticised the pharmacist for the way he explained the dosage of a medication.
				3.2.2.1	The pharmacists sometimes dominated discussions by initiating the topics for discussion. However, in some interactions pharmacists treated patients or carers as equals and as though they were knowledgeable about their medicines and were able to make decisions about them.
				3.2.4.2	When pharmacists gave information to patients without assessing the extent of their knowledge patients responded negatively.
3.2.5.1	Conversations tended to move straight from the greeting to the pharmacist providing information. This was usually due to the pharmacist asking about the patients' expectations about their medicines.				
Rabin et al 1999	General population sample of 1966 women over 50 in the US.	To investigate why menopausal women do not use HRT.	Quantitative: A survey was posted to 3600 women's home addresses, which were randomly selected from the local population. Non-responders were asked to respond over the telephone. The survey assessed women's knowledge and use of HRT, if they had been told about it by a doctor, and if applicable their reason for not taking HRT.	3.2.11. 3	33% of the respondents stated that they did not use HRT because their doctor or other practitioner had never offered it to them. This reason was more commonly reported by women aged between 60 and 80 years than older or younger women. 29% of the women who did not want to take HRT said they had never been offered it.
Ranelli and Coward 1996	400 people in the US general population aged over 65, half from rural and half from urban areas.	To compare the experiences of discussing medicines with pharmacists of older people living in rural and urban areas.	Quantitative: The participants were identified from a list of households with telephones. A telephone survey was conducted about their experiences of discussions with pharmacists about prescription medicines.	3.2.2.1	Only 39% of patients reported that discussions with pharmacists about medicines were usually initiated by the pharmacist.
				3.2.2.2	Patients who lived in rural areas were more likely to report that their pharmacists initiated conversations about their medicines than patients who lived in urban areas.
				3.3.1.1	48% of participants discussed medicines with their pharmacist at least once a month; only 31% communicated with their pharmacist about medicines less than every two months.
				3.3.1.2	Patients in rural areas discussed medicines more frequently with their pharmacist than those in urban areas.

Study	Participants	Aim	Design	Section	Main relevant results
				3.3.2.1	65% regularly discussed how to use their prescription medicines with a pharmacist, whereas only 35% stated that they usually had such discussions with non-pharmacist personnel.
				3.3.2.2	Compared to patients who lived in urban areas, patients in rural areas were more likely to discuss medicines with pharmacists than with non-pharmacist personnel.
Reutzel and Wilson 1992	21 community pharmacists in poor areas in the US.	To describe the function, capabilities and problems of urban pharmacies.	Qualitative: Pharmacists were interviewed about the structure and function of urban pharmacies and their views of the role of the community pharmacy in inner city areas. Observations made by the interviewers supplemented the results.	3.1.6.1	3 pharmacists reported that patients do not ask many questions about their medicines and do not want to be counselled. 1 pharmacist argued that some patients can even be offended by counselling.
				3.2.1.2	
				3.1.6.2	1 pharmacist reported that patients commonly ask if they can drink alcohol whilst taking a medication.
				3.2.3.3	4 pharmacists stated that some patients have a low educational level or have difficulties understanding written and oral communication and therefore it is important to use short and simple terms when providing information about medicines.
Roberts and Volberding 1999	15 doctors working in an HIV/AIDS hospital clinic in the US.	To explore how doctors communicate with HIV-positive patients about adherence to medicines.	Qualitative: 15 of the 18 doctors at the clinic agreed to participate. These doctors were interviewed about how and why they talk to their patients about adherence. The interviews were audiotaped, transcribed and analysed using open coding.	3.2.4.2	1 doctor reported that she had to feel that her patients had some understanding of HIV before she was willing to prescribe them antiretroviral therapy.
				3.2.10.1	
				3.2.5.1	Most of the doctors said they assessed adherence at every visit. Some doctors asked patients general questions such as "How are you doing with your medication?" Others began by asking general questions but then used more specific questions about how many doses the patient has missed. The doctors differed in terms of the time period they asked patients about, i.e. some asked patients how many doses they had missed in the last week whereas others asked patients about their adherence in the previous month.
				3.2.5.1	Some doctors reported that they asked specific questions about adherence to help patients think about why they had missed doses and to help them develop strategies to improve their adherence.
				3.2.10.1	
				3.2.5.4	Some doctors claimed it was important to ask specific questions about missed doses, and even those who did not usually use this technique considered it to be a good idea.
				3.2.10.3	
				3.2.9.1	Some doctors framed information in a particular way in order to discourage patients from starting medicine regimes to which the doctors did not think they could adhere.
				3.2.9.3	It was reported that some patients changed their decisions about taking medicines due to their doctors' persuasive communication.
3.2.10.1	Most doctors reported that they assessed patients' ability to adhere to a medication regimen before prescribing antiretroviral medicines and that they discussed adherence with patients once this medication had been prescribed. Some doctors assessed patients' ability to adhere by examining psychosocial factors, such as lifestyle and depression.				
3.2.10.3	1 doctor argued that it was not his role to delve into the details of how patients manage their routines.				
Rogers et al 2000	27 patients with heart failure from UK outpatient clinics and hospital wards.	To examine the experience of patients with heart failure, especially their communication with health professionals.	Qualitative: 27 patients were interviewed about the effects of heart failure on their everyday lives. The interviews were audiotaped and the data were coded independently by 2 researchers.	3.1.6.5	Some patients did not think they should ask questions about their drugs as they felt that their doctors knew what was best for them.
				3.1.8.1	Some patients had told their doctor about their concerns about medicines and had asked about the possibility of alternative therapies. Others said they did not feel able to raise these issues with their doctor.

Study	Participants	Aim	Design	Section	Main relevant results
Rolnick et al 1999	381 doctors and nurse practitioners in obstetrics and gynaecology, family practice, and internal medicine in a health maintenance organisation (HMO) in the US.	To investigate health care professionals' views and experience of providing counselling to women about HRT.	Quantitative: A questionnaire survey was posted to 500 health professionals at the HMO. The questionnaire asked about their perceptions of the benefits of HRT, their philosophy towards prescribing it and barriers to providing HRT counselling.	3.2.2.1	The majority of the health professionals reported that they initiated discussions with patients about HRT most of the time.
				3.2.2.2	The participants' belief that they, rather than their patients, initiated discussions of HRT was not affected by their gender, speciality, years in practice, or beliefs about the benefits of HRT. Speciality-specific analyses indicated that internal medicine doctors who stated that HRT was "extremely beneficial" were more likely to report that they had initiated discussions more than 75% of the time.
Savage 1995	4 community pharmacists in the UK.	To examine the time pharmacists spend advising patients about medicines and health, and whether this is affected by having a dispensing technician.	Quantitative: 4 pharmacists in 2 village pharmacies were observed for 2 weeks. 1 pharmacy had a trained dispensing technician; the other did not. The pharmacists' activities were recorded, including the number of prescriptions dispensed and the content of interactions with customers.	3.3.1.1	505 prescription issues and 74 OTC events were observed. There was verbal contact between the pharmacist and the consumer in around two-thirds of prescription issues. The average lengths of these discussions for the two pharmacies were 17 and 18 seconds, whereas the average times spent talking about OTC medicines were 71 and 62 seconds. The pharmacists spent less than a quarter of their time doing counter activities, and less than 8% of their time talking to patients about medicines or health.
				3.3.1.2	There was no significant difference between the two sites in terms of the occurrence of verbal contact between patients and pharmacists when a prescription medicine was dispensed. Locums made verbal contact less often than the owners or managers. There were no significant differences between the different sites or pharmacists in terms of the average verbal contact time per prescription issue or OTC event or the overall time spent talking to patients about medicines or health. Discussions about OTC medicines were three times longer than those about prescription medicines, although this difference was not significant.
				3.3.2.1	
Schneider 1997	2418 women aged 40 to 65 in France, Germany, Spain, and the UK.	To investigate women's knowledge and views of menopause and HRT and their reasons for using, never using or stopping using HRT.	Qualitative and quantitative: A market research organisation conducted face-to-face interviews with 1489 women about menopause and HRT. A different group of 929 women, identified by snowballing sampling, took part in a short focused interview about their attitudes towards and use of HRT.	3.1.4.4	88% felt that they should have a say in whether or not to begin HRT and in which formulation they use.
				3.1.9.2	Three clusters of attitudes were identified: proactive/inquiring, unconcerned/accepting and sensitive/worried. Proactive/inquiring women (30% of the sample) believed that doctors knew the most about menopause and wanted to follow medical advice, although they also wanted to be informed about their condition. These women were more likely to report that both they and their doctor had been involved in making decisions about their HRT use. Unconcerned/accepting women (25%) were not very interested in finding out about the menopause and had the lowest proportion of lapsed users. Sensitive/worried women (44%) tended to regard menopause as a difficult period in their life and were preoccupied with its symptoms. The women in this category who had become dissatisfied with HRT were more likely to stop using HRT without telling their doctor than those in the other groups.
				3.3.3.2	
				3.3.1.1	33% of post-menopausal and 40% of perimenopausal women who had not used HRT had discussed the therapy with their provider. Over a third who had discussed HRT with their doctor had decided themselves not to use HRT. Almost 10% of the respondents who currently used HRT stated that they had never reviewed their therapy with a doctor.
				3.3.1.2	Over 60% of HRT users in France and Germany discussed their use of HRT with a doctor each time they received a new prescription, compared to only 40% of women in the UK and 16% of women in Spain.
3.3.3.1	Most women felt that the decision to start using HRT was based on their own choice. The women varied in terms of the extent to which they felt that such decisions were influenced by their doctors.				

Study	Participants	Aim	Design	Section	Main relevant results
				3.3.3.2	Out of the women who were current or previous users of HRT, those from Germany were more likely to feel that they had been more influential in the decision to begin HRT than the women from France, Spain or the UK.
Schommer 1994	360 patients who received a prescription at 12 community pharmacies in the US.	To investigate the congruence between patients' and pharmacists' attitudes towards their communication roles and its impact on the length and content of their interactions.	Quantitative: 30 patients receiving a prescription at each pharmacy were randomly selected. The pharmacist-patient interactions were observed. The patients and pharmacists were interviewed afterwards about their perceptions of the time available for and privacy of the interaction, need for communication and attitude towards their communication roles.	3.1.6.1	37% of patients asked questions about medicines.
				3.1.6.3	Patients were more likely to ask a question when there was interrole congruence, i.e. when the patient and pharmacist shared a common definition of their communication roles.
				3.2.5.2	There was no relationship between pharmacists asking patients for feedback about their experience or concerns about medicines and interrole congruence.
Schommer and Wiederholt 1995	As above.	To examine the impact of participant and environment variables on communication between patients and pharmacists about prescription medicines.	As above.	3.3.1.1	The extent to which the pharmacists and patients interacted varied between 30% and 100% in the different pharmacies. On average, communication occurred in 74% of cases.
				3.3.1.2	Patients were more likely to have verbal contact with pharmacists if the pharmacist personally transferred the prescription to the patient, and if communication about the medicine was considered to be important by the patient, pharmacist and researcher. Prescription transfer by the pharmacist was predicted by the communication being more important, the pharmacist being less busy and the pharmacist having a more positive attitude towards communicating with patients. There was no relationship between patients' privacy and the occurrence of verbal contact or prescription transfer. Discussions were more likely to be longer if the communication was considered to be more important and if the patient had a more positive attitude towards communicating with pharmacists.
Schommer and Wiederholt 1997	As above. [Only 358 cases had usable data]	To investigate the impact of patient variables on the content of patient-pharmacist communication about prescription medicines.	As above.	3.1.6.4	Patients' question asking predicted the information they received about administrative elements, continuity of therapy, contraindications, purpose, side effects, interactions and monitoring and pharmacists asking patients for feedback about their experience or concerns about medicines. Patients' question asking did not predict whether they were told the name of the medicine or directions for its use.
				3.2.5.1	Pharmacists asked patients for feedback about their experience or concerns about their medicines in only 36% of consultations.
				3.2.5.2	Pharmacists were significantly more likely to ask for feedback from patients who asked questions and were older and male.
Siminoff et al 2000	50 outpatients who had had breast cancer surgery and 15 oncologists at 14 academic oncology and community based practices in the US.	To investigate the impact of communication between breast cancer patients and oncologists on patients' understanding and satisfaction.	Quantitative: Patients' consultations with their oncologist about chemotherapy and hormonal therapy were tape-recorded and coded using the Roter Interaction Analysis System. Patients were interviewed about their knowledge and satisfaction using a structured questionnaire immediately before and after their encounters and at 3-month follow-up.	3.1.4.1	Patients spoke a median of 38% of the utterances during each consultation.
				3.1.4.2	White patients spoke significantly more often, knew more about their treatment, and were less satisfied with their consultation than the non-white patients.
				3.1.4.3	Patients who made more utterances during their consultation tended to have greater comprehension of the treatment and were more satisfied with their visit. In particular, they were significantly more likely to feel that their doctor understood their treatment goals and was concerned about their fears. Three months after their consultation, these patients were more likely to feel that they had made the best treatment decision for them and that this decision had not been hard to make.
				3.1.6.1	All of the patients asked at least two questions during their consultations. The median number asked was 13.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.6.4	Patients who asked more questions were found to have a better understanding of the medicines, but were less likely to feel that their doctor had adequately explained the need for more treatment. They were also less likely to feel that the decision had been theirs to make and that it had been clear-cut.
				3.2.15	A median of 8% of the doctors' utterances in each consultation were found to be affective (i.e. involved a display of empathy, reassurance, criticism etc.). Patients who consulted with doctors who expressed more affect were more likely to report that the treatment choice was the right decision and that they did not regret the choice. However, these patients also tended to display poorer understanding of their treatment. There was no relationship between doctors' expression of affect and patients' satisfaction with the visit.
Sleath 1995	196 interactions between patients collecting a prescription and pharmacists in 8 US community pharmacies.	To examine the questions pharmacists ask patients about their medicines and how they are affected by patient and pharmacist variables.	Quantitative: The interactions between patients and pharmacy personnel were observed for 8 hours in each pharmacy. The observers recorded patient and pharmacist characteristics and behaviour and the context of the encounter. Of the 344 encounters observed, a pharmacist or intern interacted with the patient in only 196 cases. Only these 196 cases were included in the analyses.	3.2.1.1	Pharmacists rarely asked patients if they wanted counselling about the prescription medicines they were collecting, but were more likely to ask patients if they had any questions.
				3.2.5.1	When pharmacists asked patients questions about medicines they rarely referred to the medicine's name.
				3.2.3.1	When pharmacists asked patients questions about medicines they rarely referred to the medicine's name.
				3.2.4.1	10% of patients were asked by the pharmacist if their doctor had explained the medication. 6% were asked about their familiarity with the medicine and 1% were asked about their knowledge of how to take it.
				3.2.5.1	Pharmacists asked patients about medicines in 32% of the interactions. Of the 82 questions asked, only 6 were open-ended. The most frequently asked questions were about information the doctor had provided about the medicine (20), if the patient had questions about the medication (17), monitoring the patient's medication use (16), patient's knowledge of the medicine (11), whether the patient needed other medication or accessories (5), and allergies (4).
				3.2.5.2	Pharmacists' question asking was not related to patients' or pharmacists' age, race or gender, the type of prescription (i.e. new or repeat) or the type of pharmacy (i.e. independent, health maintenance organisation or chain). Patients who picked up two or more prescriptions were more likely to be asked a question by the pharmacist than those who only collected one.
				3.2.6.1	9% of patients were asked if they had any questions about their medicines.
Sleath 1996	As above.	To examine the extent to which pharmacists use a participatory approach with patients and the factors affecting it.	As above. [The assessment of the pharmacists' use of a participatory approach was based on various behaviours including if they greeted the patients, asked them questions, and did not rush or interrupt them].	3.1.6.1	32% of patients asked questions about medicines.
				3.2.2.1	Pharmacists used an extensive participatory approach in 13% of the interactions.
				3.2.2.2	Pharmacists were more likely to use a participatory approach with patients if patients were older and were picking up a repeat prescription rather than a new one. Use of a participatory approach was not affected by type of pharmacy (i.e. chain or independent), number of people waiting nearby, number of prescriptions being collected, patients' race or gender or pharmacists' age, gender or race.
				3.2.14	In only 1% of the encounters did the pharmacist interrupt, ignore or rush the patient.
				3.3.1.1	The encounters were between 11 and 439 seconds long. The average length was 114 seconds.
				3.3.1.2	Discussions were more likely to be longer if the pharmacist used a more participatory approach and if the patient was given more information. There was a tendency for discussions to be longer if there were fewer people waiting nearby. The duration of interactions was not related to patients' and pharmacists' gender, age or race, the type of pharmacy, the number of medications received or the type of prescription.
Sleath, Svarstad and Roter 1997	88 patients who received psychotropic treatment and their primary care doctors (number not reported) in 11 ambulatory care settings in the US and Canada.	To investigate the factors affecting whether the patient or doctor initiates prescribing of antipsychotic medication.	Quantitative: 508 patient-doctor interactions involving 118 different doctors were audiotaped. Analysis was restricted to the 88 interactions during which the patient received psychotropic prescriptions. The audiotapes were coded to determine whether the patient or doctor initiated prescribing. Doctors and patients completed a questionnaire after each visit.	3.1.7.1	Prescribing was initiated by the patient in 37 of the interactions (42%).

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.7.2 3.2.2.2	Patients were significantly more likely to initiate the prescribing if they had a family income of \$20 000 or more. Patient initiation of prescribing tended to be more likely if they received a repeat prescription and had had more previous visits to their doctor but it was not related to patients' gender, race, age, rating of physical or emotional health, or preference for the treatment decision to be made by the doctor or the patient. Logistic regression analysis indicated that patients' initiation of prescribing was predicted by patient income and previous visits to the doctor.
Sleath et al 1999	467 patients on long-term medication and primary care doctors (number not reported) in 11 ambulatory care settings in the US and Canada.	To investigate the factors affecting patients' and doctors' question asking about medicines.	Quantitative: 508 patient-doctor interactions involving 118 different doctors were audiotaped. Analysis was restricted to the 467 cases involving patients who were taking a long-term medication and who had some discussion of medicines during the visit. The content of the communication was coded. Doctors and patients completed a questionnaire after each visit. [Same study as above.]	3.1.6.1	Patients asked a mean number of 1.3 questions about medicines per consultation. 54% asked at least one question.
				3.1.6.2	The most frequent questions patients asked about medicines were about quantity or supply (16.4% of patients), what medications they were taking (14.8%), the condition their medicines were for (8.5%), dosage (8.5%), purpose (7.3%), interval (6.9%), name of the medicine (5.9%), and barriers or side effects (4.6%).
				3.1.6.3	Patients were more likely to ask questions if they were older or had started a new medication and if the doctor was younger. Patients' question asking was not affected by their gender, race, income, perceived health, previous visits to the doctor, or their beliefs about whether decisions about their treatment should be made by themselves or their doctor. The number of medicines the patient was taking and the physician's gender did not affect patients' question asking.
				3.1.6.4	Doctors considered patients who asked questions to be more assertive and interested but did not consider them to be more irritating.
				3.2.5.1	Doctors asked between 0 and 45 questions about medicines per consultation. The average number was 9.3 questions per visit. The most frequently asked questions were about what medication the patient was taking (80%), how the medicine was affecting the patient's condition (56%), quantity or supply of the medicine (51%), interval between doses (41%), dosage (41%), and barriers or side effects (27%). The least frequently asked questions were about addiction potential (3%), allergies (3%), interactions (1%) and contraindications (none).
				3.2.5.2	Doctors were significantly more likely to ask medication questions with patients who were non-white, had a lower income or were taking more continued medicines. Doctors' question asking was not related to prescription status, patients' or doctors' gender or age, patients' perceptions of their physical health or the number of their previous visits to their doctor.
				3.3.1.1	Medicines were discussed on average for just under four minutes, which accounted for approximately 20% of each encounter.
Sleath et al 2000	As above.	To investigate the factors affecting patients' expression of complaints about their medicines and adherence problems and how doctors react to these admissions.	As above.	3.1.6.1	54% of patients asked at least one question about medicines.
				3.1.6.4	The number of questions patients asked about medicines was not related to their expression of either a complaint about the medicine or an adherence problem during the consultation.
				3.1.8.1 3.1.8.2	Only 98 patients (21%) expressed a complaint about their medicines during their consultations. These complaints included side effects (44 patients), the medication not working (25), not liking taking the medicine (18), expense of the medication (8), and not wanting to use a generic instead of a brand medicine (3). The 18 patients who stated that they did not like taking their medicine complained about the tablets being too small, the medicine tasting unpleasant and not wanting to mix two insulins together.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.8.3 3.2.5.3	Patients were significantly more likely to express a complaint if they were asked more medication questions by their doctor, consulted with younger doctors, rated their health more poorly, and were using more medications. There was no significant relationship between expression of a complaint and patients' gender, race, age, income, rating of emotional health or previous number of visits or physicians' gender or the number of questions patients asked during the consultation.
				3.1.8.4 3.2.7.1 3.2.8.1	With 56 of the 98 patients who expressed a medication complaint the doctor responded by changing the patient's regimen. Regimens were changed for 6 of the 8 patients who complained about the cost of their medicine, 11 of the 18 patients who complained that they did not like their medication, 26 of the 44 patients who reported side effects, 12 of the 25 patients who felt their medicine was not working and one of the three patients who wanted to have a generic rather than a brand medication. The doctors also responded to patients' medication complaints by providing education (16 patients) or by ignoring it (26 patients). A third of patients who expressed a complaint also expressed an adherence problem.
				3.1.9.1	20% of patients expressed at least one adherence problem. Commonly expressed problems were having deliberately not taken medication as directed (56 patients), having run out of medication (27) and having forgotten or being confused about how to take medication (11).
				3.1.9.2 3.2.5.3	None of the factors investigated were significantly related to patients' expression of adherence problems during the consultation.
				3.1.9.3 3.2.7.1 3.2.8.1	In 42 of the 94 cases when the patient reported an adherence problem, the doctor responded by changing the medication regimen. This was significantly more likely when patients had stopped taking their medicine on purpose rather than when they had run out of medicine. In another 20 cases the doctor responded by teaching the patient how to be more adherent. Doctors ignored 31 patients when they expressed an adherence problem.
				3.2.5.2	Doctors were significantly more likely to ask medication questions with patients taking more continued medicines. Doctors' question asking was not related to doctors' age.
Smith, Cunningham and Hale 1994	368 patients aged over 65 years from the Florida Geriatric Research Program in the US.	To investigate elderly patients' perceptions of how they communicate with doctors about prescription and OTC medicines and their views about which communication topics are the most important.	Quantitative: Patients randomly selected from the Research Program were posted 1 of 2 surveys about communication about medicines. The first survey, which was about prescription medicines, was returned by 218 of the 300 patients who received it. The second questionnaire, which was about OTC medicines, was returned by 110 of the 150 patients sent it.	3.1.4.1 3.2.2.1 3.1.6.1 3.1.6.2 3.1.6.5 3.1.9.4	In relation to communication about both prescription and OTC medicines, patients reported that in discussions with pharmacists and doctors they raised medicine topics more often than the practitioners did. The findings also suggested that patients perceived that doctors take more initiative in discussing prescription medicines than pharmacists. Patients tended to ask doctors more questions about prescribed medicines whereas they tended to ask pharmacists more questions about OTC medicines. In relation to prescription medicines, the most common questions patients asked their doctors were about the reason for taking it, when to take it and side effects, whereas they most commonly asked pharmacists about side effects, when to take it and cheaper alternatives. In relation to OTC medicines, participants most commonly asked their pharmacists about side effects and the reason to take it, whereas with their doctors they most frequently asked about side effects, how long to take it, cheaper alternatives and interactions with other medicines. Patients reported that they would ask more questions if their doctor were not so busy and that if they were not informed about their medicines by their doctor, they would ask about them. Patients did not feel that their doctor would think that they were foolish if they told them that they used OTC medicines but thought that doctors are too busy to talk to their patients about OTC medicines.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.5.1	Patients felt that doctors asked them about their views on medicines and what their preferences for particular medicines were. Patients were slightly more likely to report that doctors asked them about their use of OTC medicines than their use of medicines prescribed by other doctors. The two topics which doctors asked most frequently about were patients' use of prescription and OTC medicines. Patients also reported that their doctor asked them how their medication was working. In discussions about OTC medicines, pharmacists were most likely to ask about patients' use of prescription and other OTC medicines. The questions most commonly asked by pharmacists in discussions about prescription medicines were if the patient would prefer a generic medicine and what prescription medicines they were taking.
				3.2.5.1 3.2.8.1	When asked about their last visit to their doctor, patients reported that they had not been asked to choose a treatment.
				3.2.6.1	Patients reported that their doctor encourages them to ask questions and sets time aside for them.
				3.2.7.1	Patients felt that their doctor waits for them to say what is on their mind.
				3.2.8.1	Patients stated that doctors did not usually suggest several prescription medicines and ask them which they preferred.
				3.2.10. 1	In general patients felt that doctors discussed with them their ability to follow their doctors' recommendations regarding prescription medicines.
				3.3.1.1	Patients reported that they talked to their doctors more often about prescription medicines than OTC medicines. Patients discussed OTC medicines with pharmacists slightly more often than prescription medicines.
				3.3.2.1	Patients discussed prescription medicines more often with doctors than with pharmacists but talked about OTC medicines more frequently with pharmacists than with doctors.
Smith and Smith 1999	841 members of the general public aged over 45 years in China . [The results were compared to those for the 368 US patients in Smith, Cunningham and Hale's (1994) study discussed above.]	To compare the perceptions of patients from US, Mainland China and Hong Kong about their communication with doctors and pharmacists about prescription medicines.	Quantitative: The questionnaire about prescription medicines used by Smith, Cunningham and Hale (1994) discussed above was translated into Chinese. This questionnaire was distributed by students in Hong Kong to their older relatives and acquaintances. Questionnaires were also given out by academics and students in Mainland China. 397 Hong Kong participants and 444 Mainland China participants completed the questionnaire. The results were compared to those of Smith, Cunningham and Hale discussed above.	3.1.4.2 3.2.2.1 3.2.2.2	Almost 60% of the participants from Mainland China stated that they usually initiated discussions about medicines with their doctor, compared to approximately 35% of the two other groups. Participants from Hong Kong were the most likely (41%) to report that they and their doctor raised the topic of medicines equally often, followed by those from the US (33%) and those from Mainland China (27%). Less than a third of the patients in each group claimed that their doctor usually initiated discussions about medicines.
				3.1.6.5	Patients in Mainland China and Hong Kong felt that the most important topics to ask their doctors about were how the medicine will help, what its side effects are, when to take it and how long to take it. The US patients considered the most important topics to be when to take the medicine, the reason for taking it, side effects and how long to take it. US and Hong Kong patients were more likely to say that they would ask more questions if their doctor were less busy than those patients from Mainland China. US patients were more likely to state that they would ask about their medicines if they were not told about them by their doctor than patients from Mainland China or Hong Kong.
				3.2.2.2	Patients in Hong Kong reported lower levels of doctor encouragement of patient participation than those in Mainland China or the US. The patients in the 3 groups did not feel that doctors usually asked them to choose their treatment or which medication they preferred.
				3.2.5.2	Patients from Mainland China and Hong Kong agreed to a greater extent that their doctors asked about their use of prescription and OTC medicines than the US patients. Patients from Mainland China were less likely to agree that their doctors asked about their opinion of their medicines and how their medication was working than patients from the US and Hong Kong.

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.6.2	Participants from Mainland China and the US were more likely to state that their doctor encouraged them to ask questions and set time aside for them to ask questions than those patients from Hong Kong.
				3.2.7.2	The patients in all three groups strongly agreed that their doctor waits for them to say what is on his/her mind.
				3.2.10.2	US patients were less likely to feel that their doctors discussed with them their ability to follow their doctors' suggestions than the patients from Hong Kong or Mainland China.
				3.3.1.2	Respondents from Mainland China talked to their doctors about medicines significantly more often than those from Hong Kong. There was no relationship between patients' perceptions of their communication with doctors and their age, income, education or gender.
Smith, Francis and Rowley 2000	People with arthritis, mental health problems or respiratory disease who were members of voluntary health organisations in the UK. [Number of participants was between 75 and 225; exact number not reported.]	To examine the experiences of people with arthritis, mental health problems and respiratory disease of using and obtaining information about their medicines.	Qualitative: People with arthritis, mental health problems or respiratory disease were recruited through national and local voluntary organisations (e.g. Arthritis Care and MIND). 12 group interviews were conducted, 4 with each chronic illness groups. Participants were asked about their preferred level of involvement in decision-making and their views about information seeking and adherence.	3.1.2	Some patients with mental health problems argued that, as GPs and psychiatrists were overloaded, they did not have enough time to discuss medicines fully with their patients. These patients claimed that in private practice they had more opportunity to raise and discuss their concerns about medications. Some of these patients felt they were unable to talk about stopping their medications due to GPs' reluctance to engage in such discussions.
				3.1.4.4	Some arthritis patients felt they did not have enough knowledge to participate in the decision-making process. Others thought it would be inappropriate for them to be actively involved and felt their role was to monitor and report the effects of their medicines to their doctors so that they could make a decision about the treatment. Other arthritis patients wanted to be given information so they could make decisions about their medication regimen on their own. Some patients with respiratory disease reported that doctors excluded them from the decision-making process and that doctors' attitudes were a barrier to shared decision-making. However, other respiratory patients did not want to be involved in making decisions about their medicines. Patients with mental health problems felt they did not have the opportunity to be involved in discussions and that their views were often ignored. It was noted by these participants that patients experiencing an acute phase of their illness would not be able to participate actively in the decision-making process.
				3.1.4.4 3.3.3.2	Some patients with respiratory disease felt that their doctors' attitudes were a barrier to shared decision-making.
				3.1.6.5	In all of the meetings held with patients with mental health problems, the participants stated that they needed to be proactive in obtaining information about medicines when interacting with health care professionals.
				3.1.7.2 3.1.8.3	The patients with mental health problems felt more able to ask for specific medicines in private practices.
				3.1.8.3 3.2.7.1	People with mental health problems claimed that their consultations focus on how their behaviour can be improved and that their concerns about and experience of their medication are not explored.
				3.1.8.4 3.2.7.1	Some people with mental health problems felt that when they expressed their opinions about medicines their views were not listened to, respected or taken into account when the effectiveness of their medication was evaluated. Other participants described experiences of being involved in decisions about medication. These patients felt involved because health professionals had listened and responded to their concerns and, as a result, changes were made to their medication.
				3.1.8.5	Some arthritis patients felt they needed information about their medication in order to challenge their doctors and to avoid being "fobbed off".

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.9.1	Some patients with respiratory disease or mental health problems made changes to their medicine-taking without consulting their doctor.
				3.1.9.3 3.2.5.1	Patients with arthritis said that when they get medicine at a pharmacy the pharmacist often asks them whether or not they have taken the medicine before and if they say that they have then they are not asked further questions nor are they provided with any information.
Smith-Dupre and Beck 1996	53 patients and a female family doctor in the US.	To examine how a primary care doctor and her patients discuss their goals in consultations.	Qualitative: A family doctor was recommended to the researchers as being someone with a patient centred approach. Patients' consultations with this doctor were observed and audiotaped. The data were analysed to identify themes relating to the participants' goals and how they were discussed. [The analysis of two consultations, both about antidepressants, were relevant to the systematic review.]	3.1.4.1	In one consultation the patient maintained the asymmetry typical of doctor-patient interactions. However, the doctor encouraged the patient to talk by listening carefully and empathetically, thus enabling the patient to voice her views on taking antidepressants.
				3.1.4.1 3.1.8.3 3.1.9.3	By disclosing her own concerns and views and by identifying with the patient, the doctor enabled the patient to express her feelings without losing face.
				3.1.7.1	One patient talked about the limitations of antidepressants in order to provide herself with an "out" if the doctor refused her request for them. This patient attempted to show respect for the doctor's control over the decision.
				3.1.7.1 3.1.8.1	One patient stressed the situational reasons for her request for a prescription for antidepressants.
				3.1.9.1	During one of the consultations, the patient "tearfully" apologised for stopping taking her antidepressants without having asked the doctor. The patient appeared to acknowledge the fact that her non-adherence would result in some sanction from the doctor, such as being made to feel guilty or being refused further medical care.
				3.1.9.3	When one patient admitted she had been nonadherent, the doctor stated that it "was a reasonable thing to do" and told the patient that there were similarities between her own and her patient's behaviour. The doctor also discussed other non-medication treatment approaches, such as counselling and self-help books.
				3.2.7.1	In one consultation the doctor used self-disclosure, encouraged the patient to talk and listened attentively to her views and concerns.
Stevenson et al 1999a	21 GPs in 8 high spending and 8 low spending practices in the UK.	To examine how GPs deal with the pressure from patients to prescribe whilst trying to cut the cost of their prescribing.	Qualitative: 44 general practices selected by a prescribing adviser were approached. Interviews were conducted with 1-2 partners at 16 practices who agreed to participate. The GPs were asked about the influences on their prescribing decisions and constraints on cost containment.	3.1.7.3	The GPs varied in the extent to which they were willing to grant patients' requests to change back from a generic to a brand product.
				3.1.7.4	GPs felt patients' expectations varied according to their educational attainment. 1 GP noted that patients who were more educated and informed and had been influenced by the media were more likely to voice their expectation in the consultation for newer and more expensive medicines.
				3.1.8.1 3.2.9.1	GPs believe that both doctors and patients are not explicit about their views about medicines in consultations. 1 GP reported that some patients express anger when they are not given a prescription.
				3.2.16	Some doctors felt embarrassed about discussing changing repeat prescriptions to generic alternatives to reduce prescribing costs. Some participants avoided discussing the financial reasons for such changes with patients and instead provided other justifications for them.
Stevenson et al 1999b	17 asthma patients in the UK.	To investigate how asthma patients get information about oral steroids.	Qualitative: Patients were recruited from a convenience sample of 4 GP surgeries. A random sample of 10 patients prescribed oral steroid medication at each practice were sent letters. 17 patients who agreed to participate were interviewed about their knowledge and views of their medicine and their relationship with their GP.	3.1.6.1	5 patients reported that they had asked their GP for information about medicines, 4 people had asked a pharmacist and only one had asked a nurse.
				3.1.6.2	2 patients said they had asked their doctor about side effects. 1 of these had heard about the potential side effects of oral steroids through a television programme.
				3.1.6.4	The five patients who had asked their GP for information about their medicines said that the information they received was not sufficiently detailed. 1 patient had been teased in the practice about the number of questions she asked.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.7.3 3.1.8.4 3.2.7.1	1 patient felt that, when she expressed her concerns about her medicine to her doctor, her point of view was ignored.
				3.2.3.1 3.2.3.2	GPs tended to refer to side effects in a general way, which led to patients having concerns about their medicines.
				3.2.6.1	Some participants had not been given the opportunity to ask questions about their medicines.
				3.3.2.1	5 patients had discussed their medicines with practice nurses or pharmacists.
Stevenson et al 2000	62 patients consulting 20 GPs in the UK.	To examine the extent to which patients and GPs share information and views about medicines in consultations.	Same as Barry et al 2000. [Qualitative and quantitative: Data from all 62 consultations were analysed.]	3.1.6.2 3.1.6.4 3.1.7.3 3.1.8.2 3.1.8.3 3.2.7.1 3.1.8.4 3.2.7.1 3.1.9.1 3.3.1.1 3.2.3.1 3.2.3.2 3.2.5.1 3.2.8.1 3.2.9.1 3.3.1.1 3.3.3.1	Some patients asked their doctor about how long their medicine would take to work and if they could drink alcohol whilst taking it. 1 patient asked why their friend with a similar problem was not prescribed medication. 2 patients asked about side effects. Patients also asked about when they should start a medicine, how long to take it for, and how much to take. Some doctors blocked patients' medication requests but most appeared to be happy about responding to patients' questions. Doctors did not fully explain their views about treatment which prevented shared decision-making from taking place. 8 patients reported having experienced side effects of previously prescribed medicines in their consultations. 1 patient's attempt to voice his concerns about the necessity of taking migraine medication was blocked by the doctor's communication style. In some consultations doctors failed to explore patients' concerns, discouraged them from expressing their views or expressed doubt about their experience of side effects. 16 patients told their doctor about their use of OTC medicines. 3 patients told the researchers about their use of OTC medicines but did not discuss them with their doctor. Doctors usually referred to medicines by name when discussing them with patients, but they did not always do so. Oblique terms (e.g. "the new medication") were sometimes used. When GPs did not adequately describe a medicine they were prescribing this sometimes led to the patient having misunderstandings about it. In some consultations doctors asked patients if they were allergic to the medicine being prescribed or if they had experienced problems when taking previously prescribed medicines. Sometimes doctors made assumptions about patients' views about medicines without asking them about it. GPs asked patients about their use of OTC medicines in 9 consultations. In 1 consultation it was decided that the medication dose should be reduced because the patient reported side effects. In 1 consultation the doctor argued against giving the patient antibiotics, but did not ask the patient whether she wanted them or not. Discussion about medicines occurred in all consultations and constituted between 1% and 77% of conversation turns. There was little evidence that shared decision-making about medicines had occurred.
Taylor 1994	151 consumers in 11 community pharmacies in Canada.	To identify people's reasons for not asking for advice about OTC medicines when purchasing them at community pharmacies.	Quantitative: Consumers at the community pharmacies who purchased an OTC medicine were observed. Consumers who did not receive any advice from pharmacy staff about the medicine were asked to complete a questionnaire about their reasons for not asking for advice. Patients were only included if they bought cough/cold products, products for allergic rhinitis, analgesics, laxatives or antacids.	3.1.6.1 3.1.6.5	Over half of the participants stated that they infrequently or never asked their pharmacist questions about OTC medicines. Less than 5% reported that they asked for advice most of the time. 6 consumers wanted advice but did not ask for it because the pharmacist was too busy, it was hard to get the pharmacist's attention or the consumer was in a rush.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.6.5 3.2.1.3	Approximately half the participants preferred to ask for advice than have it offered by the pharmacist.
				3.2.1.1	39% of respondents said they had never been offered advice about OTC products, whilst 32% said they had been offered advice infrequently. 7% were offered OTC advice all the time.
Topo, Hemminki and Uutela 1993	1308 postmenopausal women and 365 doctors of various specialities in Finland .	To examine women's and doctors' experiences and views of HRT.	Quantitative: A postal survey was sent to a random sample of 2000 women aged 46-64 years identified from the Finnish population register. 1308 postmenopausal women completed the questionnaire, which asked about consulting about menopause and their use of HRT. Another survey about menopause and HRT was sent to a stratified random sample of 500 GPs, gynaecologists, internists, and non-specialists.	3.1.7.1	Of the 1185 women who responded about discussing menopause with their doctor, 43% reported that they had been offered HRT by the doctor, whereas 26% had requested it.
				3.2.1.1.1	
				3.1.7.2	Women were more likely to have asked their doctor for HRT if they had had a longer general education and had urban residence.
				3.1.7.3	94% of the women who requested HRT from a doctor subsequently used it. 26% of the women who had never requested HRT used it.
				3.2.1.1.1	Some women reported that they had been offered HRT when consulting for reasons other than the menopause.
				3.2.1.1.2	88% of women who asked for HRT said that they had been offered it by a doctor, compared to only 27% of women who had not asked for it. Women were more likely to have been offered HRT if they were younger, had a longer general education and lived in urban areas. Patients were more likely to report that they had been offered HRT by a gynaecologist than by another doctor, even when patients' education, age and place of residence were taken into account.
				3.2.1.1.3	86% of women who had been offered HRT had used it, compared to only 12% of women who had not been offered it.
Trinkhaus 1991	779 first year students at a large business school in the US .	To investigate the extent to which people ask doctors and pharmacists for information about their medicines.	Quantitative: A survey was given to a convenience sample of 799 students. The students were asked if they asked pharmacists and doctors about their medicines. 779 students completed the questionnaire.	3.1.6.1	50% of participants said they normally asked their doctor questions about medications they are prescribed, whereas only 34% said they normally asked their pharmacist.
				3.1.6.3	Patients' gender and race were not linked to their reported question asking behaviour with their doctors and pharmacists.
Weiss et al 1996	228 GPs in the UK .	To examine GPs' concerns about prescribing and the impact they have on GPs' prescribing behaviour.	Quantitative: Questionnaires were sent to every practice and 1 in 2 GPs from 2 Family Health Services Authorities in southern England. The questionnaire asked about the non-clinical factors that influence GPs' prescribing and their prescribing behaviours. Of the 386 GPs surveyed, 228 completed the questionnaire.	3.1.7.4	43% of GPs reported that they find it irritating when a patient specifies what medications they would like prescribed.
White and Sander 1999	1230 children and 604 adults with asthma in the US .	To examine asthma patients' perceptions of the severity of their condition, use of medicines and experience of medication side effects.	Quantitative: 4536 members of the Allergy and Asthma Network/Mothers of Asthmatics were posted a questionnaire. The questionnaire included items about asthma severity, treatment and medication side effects.	3.1.8.2	Side effects of asthma medications were experienced by 61% of children and 66% of adults.
				3.1.8.5	Bronchodilators were used by 99% of the paediatric patients and by all of the adult patients, with the most frequently reported side effects being jitteriness, restlessness, tachycardia, coughs and shaky hands. 82% of the parents of the paediatric patients and 72% of the adult asthmatics had spoken to their doctors about the side effects they had experienced.

Study	Participants	Aim	Design	Section	Main relevant results
				3.1.8.3	Children were significantly more likely to experience side effects if they took bronchodilators orally (79%) than if they used a nebulizer (63%) or a metered-dose inhaler (MDI; 57%). There were no significant differences between these three groups in terms of whether they discussed their side effects with a doctor. For the adult patients, more side effects were experienced by the nebulizer users (79%) than by MDI (63%) or oral medication (74%) users. Adults who used nebulizers were significantly more likely to report side effects to their doctors than those who used other routes.
				3.1.8.4	29% of the adult patients said their doctor switched drugs when they complained of side effects, whereas 14% said their doctor adjusted the dose or regimen. In relation to the parents of the child patients, only 18% reported that their doctors responded by switching drugs, whereas a greater percentage (21%) were given an adjusted dose or regimen. Some patients said that doctors responded to their complaints of side effects by saying that they were to be expected, the benefits of the medicine outweighed the side effects, or that there were no alternatives.
				3.1.8.4 3.2.7.1 3.2.7.2	3% of children who used nebulizer or MDI stated that their doctors were "caring/sympathetic or were willing to listen to or discuss their bronchodilator side effects", compared to 12% of the oral medication users. For the adult patients, less than 4% of all three groups agreed with this statement.
				3.1.8.5	The most common reason given by parents for not telling doctors about their medication concerns was that they believed there were no alternatives. Almost a fifth of respondents said they had not raised their concerns because they already knew about the potential side effects of the medication.
Wilson et al 1992	Pharmacists and 44 patients in 2 UK community pharmacies.	To investigate patients' recollection of the information they are given about their medicines by community pharmacists and the factors affecting their recall.	Quantitative: 2 of the 11 pharmacies invited to take part agreed to participate. Interactions between patients and pharmacists about prescription and OTC medicines were observed and tape-recorded for 22 hours. 44 patients who were given advice by the pharmacist were interviewed by telephone the next day about how much information they recalled.	3.1.4.1 3.1.4.2 3.1.4.3 3.2.5.2 3.2.13	16 patients initiated more than one medication topic. There was no significant relationship between patients' initiation of medication topics and their gender. Patients who introduced more than one topic asked more questions and responded to more questions and comments from the pharmacists than those who introduced one topic or less. When interacting with patients who initiated more than one topic, pharmacists provided more information, repeated more information and asked more questions. Patients who initiated more than one topic recalled more pieces of information the next day, but they also forgot more information.
				3.2.5.1 3.2.5.3	Pharmacists asked patients a median of two questions. Patients who were asked more than two questions by the pharmacist were given more information at the pharmacy but they forgot more of this information the day after.
Wood et al 1997	93 asthma patients, 25 patients taking ranitidine and 5 GP partners in a UK practice.	To investigate the acceptability of three prescribing changes to patients and GPs.	Qualitative: A general practice made 3 changes to reduce their prescribing costs. 83 patients who changed from a brand to generic beclomethasone were posted a questionnaire. 25 of the 28 patients who changed from cimetidine to ranitidine agreed to be interviewed face-to-face. Telephone interviews were conducted with 15 of the 19 patients who changed from a beclomethasone Diskhaler to a metered-dose inhaler (MDI). The 5 practice partners were interviewed face-to-face. All participants were asked about their views of the changes.	3.1.6.5 3.1.7.3 3.2.1.2 3.2.5.3	Most of the patients who changed from ranitidine to cimetidine reported that when they discussed the change with their GP they felt happy about asking questions. Seven patients who changed from ranitidine to cimetidine reported that they asked their GP to change back to ranitidine because they felt that cimetidine was less effective or had side effects. None of these patients felt there was any resistance from their GP when they asked to change back. Only one of the patients who changed from ranitidine to cimetidine said they took up their doctors' offer to discuss it. All of the patients who were asked to change from a beclomethasone Diskhaler to an MDI reported that they did not mind, although one mother thought that her son was "put on the spot".

Study	Participants	Aim	Design	Section	Main relevant results
				3.2.14	All but one of the patients who changed from ranitidine to cimetidine felt their GP had not rushed the consultation and had explained the issues well.

HRT = hormone replacement therapy; MDI = metered-dose inhaler; NIDDM = non-insulin dependent diabetes mellitus; OTC = over the counter.

Appendix J: Tables of intervention studies

Intervention studies involving communication between patients and doctors

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
OUTCOME ONLY STUDIES					
Aufseesser-Stein et al 1992 (7)	34 GP and clinic doctors in Switzerland	I: Seminar to identify what doctors think should be discussed when prescribing medicines (No control group)	Doctors' consultations audiotaped before (N=122) and after (N=108) seminar; consulted patients interviewed before (N=49) and after (N=38) seminar	Doctor reiterated patient's complaint Doctor asked patient to repeat instructions	Increase Increase
Clark et al 1998 (5) Clark et al 2000 (5)	74 general practice paediatricians in the US	I: Interactive seminar based on self-regulation theory to help doctors develop partnerships with asthma patients C: No seminar	Doctors randomly assigned to I (N=37) or C (N=37). At baseline, midpoint (5-22 months post-intervention) and 2-year follow-up, doctors completed questionnaires and telephone interviews were conducted with a random selection of 637 of their asthma patients	Doctor asked child to demonstrate how to use inhaler Doctor addressed patient's fears about new medicine Doctor made it easy for the patient to follow medication instructions	NS (at midpoint) I > C (at 2-yr follow-up) I > C (at midpoint and 2-yr follow-up) I > C

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
Dow, Verdi and Sacco 1991 (5)	48 psychiatric inpatients in US	I: Communication skills programme C: Medication education programme	Patients randomly assigned to I (N=24) or C (N=24) group. Before and after patient questionnaires and behavioural role-play assessment with mock psychiatrist, which was assessed by the psychiatrist and audiotaped and coded by researchers	Perceived control in doctor-patient encounter (PQ) Perceived assertiveness (PQ) Medication question asking skill (PR and RR) Assertiveness in seeking information (PR and PR) Acquisition of medication knowledge (PR and RR) Social skill (PR and RR) Eye contact (PR) Patient reported problems/symptoms (RR) Medication request or suggestion by patient (RR) No. of medication questions patient asked (RR) Total no. of questions patient asked (RR) Duration of conversation (RR) Total time doctor spoke (RR) Total time patient spoke (RR)	NS NS (both groups increased) I > C (PR & RR) I > C NS NS I > C I > C I > C NS NS
Lacroix et al 1992 (7)	8 outpatient clinic doctors in Switzerland	I: Seminar to discover what doctors think should be discussed when prescribing (No control group)	Doctors' consultations audiotaped before (N=24) and after (N=24) seminar	Doctor reiterated patient's complaint Doctor asked patient to repeat instructions Duration of consultation	Increase Increase Increase
PROCESS ONLY STUDIES					
Evans et al 1996 (4)	33 psychiatric inpatients in UK taking psychotropic medication	I1: Medication fact sheet I2: Medication fact sheet read with doctor who explained it and answered questions C: No fact sheet	Patients from 3 admission cohorts in C (N=10), I1 (N=11) and I2 (N=12). Before and after intervention semi-structured interviews with patients	Patients' medication knowledge	I2 increase > I1 & C increase

C = control group; I = intervention group; N= number of participants; NS = not significant; PQ = patient questionnaire; PR = psychiatrist rating; QA = quality assessment score (out of a maximum score of 8 points); RR = researcher rating.

Intervention studies involving communication between patients and pharmacists

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
OUTCOME ONLY STUDIES					
Airaksinen, Ahonen and Enlund 1998 (2)	1431 customers at 7 private pharmacies in Finland	I: Advertising campaign in pharmacies to encourage consumers to ask five specific questions about their medicines (No control group)	At baseline (T0), 3 months (T1) and 12 months (T2) pharmacist-customer interactions were observed (N=541 at T0, N=457 at T1 and N=433 at T2); post-interaction interviews with customers	Pharmacist tailoring information to patients' needs Pharmacist showing courtesy and empathy Pharmacist not appearing to be in a hurry Number of questions patients asked Duration of counselling	Increase from T0 to T1 Increase from T0 to T1 Increase from T0 to T1 NS NS
Kradjan et al 1999 (6)	678 asthma patients at 90 US community pharmacies	I: Asthma management programme at pharmacy including training on asthma management and computer system that prompts pharmacist to give inhaler technique counselling, talk to patient about overuse of inhaler or contact doctor C: Usual care	Pharmacies randomly assigned to I (44) and C (46). C pharmacies were matched with I pharmacies based on location and whether chain or independent. All patients receiving asthma medication at the pharmacies mailed questionnaire. Questionnaires completed by 184 I patients and 494 C patients	Satisfaction with time pharmacist spent helping patients to understand their medication	I > C
OUTCOME AND PROCESS STUDIES					
Barnett, Nykamp and Ellington 2000 (7)	323 consumers collecting a new prescription at 6 US community pharmacies	I1: Patients given written message encouraging them to ask questions then normal counselling I2: Patients given message asking them to write questions for pharmacist who incorporated answers into counselling C: Patients received normal counselling	Patients randomly assigned to I1 (N=111), I2 (N=106) or C (N=106). Observations of interactions; patient and pharmacist questionnaires after interaction; telephone interviews with patients 5 days after interaction	2-way communication about medicines outcomes: Number of questions patients asked Duration of counselling per prescription <i>Other outcomes:</i> Provision of information provided by pharmacist Pharmacist satisfaction with information provided Pharmacist satisfaction with interaction Patient satisfaction with counselling Patient recall of medication information Compliance I2 only: % of patients who wrote questions	I2 > C I2 > I1 & C NS I2 > C NS NS NS NS NS 56 (53%) of patients

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
Blenkinsopp et al 2000 (8)	180 patients with hypertension at 20 English community pharmacies	I: Pharmacists used a structured questioning protocol to identify patients' adherence problems. Intervention delivered 3 times (2 months apart). C: Usual care (Both groups received training on hypertension and compliance)	Pharmacists were randomly assigned to I or C groups and each recruited 20 patients. During intervention pharmacists recorded patients' responses, their own actions and duration. 101 I patients completed 2 or 3 interventions. These and 79 C patients completed pre- and post-intervention questionnaires.	<p><i>2-way communication about medicines outcomes:</i></p> <p>1 patient satisfaction with pharmacy services item: Pharmacist will explain what patient's medicine is for if the patient asks</p> <p><i>Other outcomes:</i></p> <p>Other patient satisfaction with pharmacy services items</p> <p>Blood pressure control (when controlled before study)</p> <p>Blood pressure control (when uncontrolled before study)</p> <p>Self-reported adherence</p> <p>Prescription refill</p> <p>I only: Number of patient referred to HCP after medication problems identified during intervention</p>	<p>I > C</p> <p>I > C for several items</p> <p>NS</p> <p>I > C</p> <p>I > C</p> <p>I > C</p> <p>20 patients</p>

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
Gourley et al 1998 (6) Solomon et al 1998 (3)	231 patients with hypertension or COPD at 11 US ambulatory clinics	I: At 5 clinic visits pharmacy residents provided patient-centred care including assessment of compliance, quality of life and disease knowledge and management and standardised patient education C: At 2 visits pharmacy residents provided usual, non-standardised care	Patients randomly assigned to I (63 hypertension, 43 COPD) or C (70 hypertension, 55 COPD) group. At final clinic visit, all patients completed questionnaire	2-way communication about medicines outcomes: 3 patient satisfaction with care items: Pharmacist does not make sure patient understands importance of medication Pharmacist is impatient and does not listen to patients' concerns Pharmacist follows up on patients' questions and concerns Other outcomes: Other patient satisfaction with care items Quality of life Patients' knowledge of disease and its treatment Systolic blood pressure (hypertension patients only) Diastolic blood pressure (hypertension patients only) Other hypertension clinical outcomes COPD symptoms Compliance Hospitalisations and other HCP visits New prescriptions Attendance at emergency rooms	NS (hypertension & COPD patients) C > I (hypertension & COPD patients) I > C (hypertension & COPD patients) I > C for most items NS C > I (both groups increased; hypertension patients) NS (COPD patients) I reduction > C reduction NS (both groups decreased) NS NS I > C (hypertension patients) NS (COPD patients) C > I (hypertension & COPD patients) C increase > I increase (COPD patients) NS (hypertension patients) NS (hypertension & COPD patients)

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
PROCESS ONLY STUDIES					
Raynor et al 2000 (7)	143 elderly patients who lived alone and were at risk to non-adherence at 6 English community pharmacies	I: Home visit by community pharmacists during which patients' medicines were reviewed, medication-related problems were identified and an action plan was drawn up. At second home visit new medication regime was explained. (No control group)	30 patients were randomly chosen from list of eligible patients for each pharmacist. 143 patients were recruited. 2 months after the pharmacists' second visit a researcher visited the patients (N=125). At first pharmacist visit and 2 month follow up by researcher patients interviewed about their medicines, medication-related problems and adherence.	Number of medicines Medication-related problems Problem with medicine container Incorrect understanding of dose or schedule Purpose of medicine incorrect or unknown Reading labels or swallowing Incompatible OTC and prescription medicines Adherence Cost of medication Number of patients who felt the intervention had made their medicines easier to manage	Decrease Decrease Decrease Decrease Decrease Decrease Decrease Increase Decrease 67 (54%) of patients

C = control group; COPD = Chronic Obstructive Pulmonary Disease; I = intervention group; N= number of participants; NS = not significant; HCP = health care professional; OTC = over the counter; QA = quality assessment score (out of a maximum score of 8 points); T = time.

Intervention studies involving communication between patients and nurses or medical assistants

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
OUTCOME ONLY STUDIES					
Mills et al 1999 (6)	303 patients with epilepsy at 14 English general practices	I: Epilepsy nurse liaised with HCPs, educated the primary health care team and met with patients at practice or their home to provide information, advice and support C: Usual care	14 practices allocated to I or C group. Pre- and post-intervention and 1 year follow up questionnaires were completed by patients (I = 148, C = 155). 85 of the I patients had consulted with the nurse (I+).	In the past year had discussions with hospital doctor, GP or other practice staff about: Side effects of epilepsy medicine Interactions with other medicines Alcohol and epilepsy medicine Contraception/pregnancy and epilepsy medicine	NS (I+ > I) NS (I+ > I) NS (I+ > I) NS
OUTCOME AND PROCESS STUDIES					
Schectman, Hiatt and Hartz 1994 (7)	162 patients with hyperlipidemia at US active lipid clinic who were prescribed niacin or BAS for first time	I: Patients received 5 telephone calls from medical assistant in month after began therapy during which patients were asked about medication problems C: No telephone calls (Both groups received drug information sheets)	After clinic visit patients randomly assigned to I (29 BAS, 52 niacin) or C group (31 BAS, 50 niacin). All patients had clinic visits every 2 months for 6 months after beginning of therapy. At each visit patients interviewed by clinic staff and completed questionnaire.	<i>2-way communication about medicines outcomes:</i> Reported adverse medication effects Number of patients who initiated contact with medical assistant or clinic staff <i>Other outcomes:</i> Patients stopped medicine because of side effects Compliance (self-report) Compliance (pharmacy records) Dosages at 6 months	NS (BAS & niacin patients) 10 I patients, 0 C patients NS (BAS & niacin patients) NS (BAS & niacin patients) NS (BAS & niacin patients) NS (BAS & niacin patients)
PROCESS ONLY STUDIES					
Hanna 1993 (5)	51 female adolescents seeking oral contraceptives for first time at 2 US family planning clinics	I: Nurse-patient consultation in which they identified oral contraceptive benefits and barriers and developed an adherence regimen to manage barriers C: Usual care (Both groups received the clinics' standard contraceptive education)	At initial clinic visit patients were randomly assigned to C (N=25) or I (N=26). Contraceptive perceptions of all patients were assessed immediately post-intervention and at 3 month follow up (N=39). Adherence with medication and appointments was assessed at follow up.	Perceived contraceptive benefits of responsibility Perceived interpersonal contraceptive benefits Perceived contraceptive barriers Adherence with medicine and appointments	NS NS NS I > C

Study (QA score)	Participants	Comparison groups	Design	Outcome measures	Effects of intervention
Kelly, Faught and Holmes 1999 (3)	31 patients with ovarian cancer receiving chemotherapy at Canadian day care unit	I: Patients telephoned by a gynaecological oncology nurse 5-7 days post-treatment to assess the effects and side effects of the chemotherapy and the patients' ability to manage (No control group)	A sample of 50 patients who received the intervention was given a postal questionnaire assessing the impact of the service. 31 patients responded.	Number of patients who felt service was helpful Number of patients who thought side effect questions were appropriate Number of patients who thought that most of their issues were dealt with during the call	27 patients 26 patients 25 patients
Wilder-Smith and Schuler 1992 (7)	164 postoperative patients in surgical gynaecological ward at Swiss hospital	I: Patients were seen by a nurse specialised in pain treatment who asked if they wanted analgesia and, if not, why. The nurse then explained the aims and possibilities of analgesia and answered questions. (No control group)	On the first postoperative day patients were asked by the nurse if they wanted analgesia at 10pm (T0) and 6am (T1)	Patients who wanted analgesia	30 of the 40 patients who refused analgesia at T0 accepted it at T1

BAS = bile acid sequestrants; C = control group; I = intervention group; I+ = intervention patients who consulted with the nurse; N= number of participants; NS = not significant; HCP = health care professional; QA = quality assessment score (out of a maximum score of 8 points); T = time.

Appendix K: Results of the methodological quality criteria for the intervention studies

Article	1. Clear definition of aims of intervention	2. Enough info. on study, design & content of intervention to replicate	3. Random allocation to different groups	4. No. of participants recruited to each group given	5. Pre-intervention data given for individuals in each group	6. Post-intervention data given for each group	7. Attrition given for each group	8. Findings given for all outcome measures indicated in aims	TOTAL
Airaksinen, Ahonen and Enlund 1998	N	N	N	Y	N	N	Y	N	2
Aufseesser-Stein et al 1992	Y	Y	N	Y	Y	Y	Y	Y	7
Barnett, Nykamp and Ellington 2000	Y	Y	Y	Y	N	Y	Y	Y	7
Blenkinsopp et al 2000	Y	Y	Y	Y	Y	Y	Y	Y	8
Clark et al 1998	Y	N	Y	N	Y	Y	N	Y	5
Clark et al 2000	Y	N	Y	Y	N	N	Y	Y	5
Dow, Verdi and Sacco 1991	N	Y	Y	Y	Y	Y	N	N	5
Evans et al 1996	Y	Y	N	Y	N	N	N	Y	4
Gourley et al 1998	Y	Y	Y	Y	Y	Y	N	N	6

Article	1. Clear definition of aims of intervention	2. Enough info. on study, design & content of intervention to replicate	3. Random allocation to different groups	4. No. of participants recruited to each group given	5. Pre-intervention data given for individuals in each group	6. Post-intervention data given for each group	7. Attrition given for each group	8. Findings given for all outcome measures indicated in aims	TOTAL
Hanna 1993	Y	N	Y	Y	N	Y	N	Y	5
Kelly, Faught and Holmes 1999	N	Y	N	Y	N	Y	Y	N	4
Kradjan et al 1999	Y	N	Y	Y	N	Y	Y	Y	6
Lacroix et al 1992	Y	Y	N	Y	Y	Y	Y	Y	7
Mills et al 1999	Y	N	N	Y	Y	Y	Y	Y	6
Raynor et al 2000	Y	Y	N	Y	Y	Y	Y	Y	7
Schectman, Hiatt and Hartz 1994	Y	Y	Y	Y	Y	N	Y	Y	7
Solomon et al 1998	Y	N	Y	Y	N	N	N	N	3
Wilder-Smith and Schuler 1992	Y	Y	N	Y	Y	Y	Y	Y	7
TOTAL	15	11	10	17	10	13	12	13	