Counselling Patients with Hypertension at Health Centres – a Nursing Perspective

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To all the public-health nurses in Sweden

“Ingen vet vad hon förmår förrän hon har försökt”
(Anonym)

ABSTRACT

Counselling in hypertension care relating to lifestyle changes, i.e. non-pharmacological treatment regarding smoking, alcohol, weight, diet, physical activity and stress, aims to reduce complications such as stroke and myocardial infarction. Many patients have several risk factors to deal with. There are few studies of nursing in hypertension care in Sweden and this issue therefore needs to be investigated in greater detail.

The aims of this thesis were to analyse the communication between patients and nurses about lifestyle changes in hypertension care at health centres and to evaluate the effects of nursing interventions. In the first study, the Nurse Practitioner Rating Form was used to explore what 21 randomised public-health nurses discussed with hypertensive patients and their communication. In the second study, variables from 100 patients were collected to explore the effectiveness of using a hypertension nursing programme at a nurse-led clinic. The third study comprised consultation training for 19 randomised nurses, at nurse-led clinics in southern Sweden, with audio-recorded consultations with 36 patients before the training and 35 after the training. The recordings were analysed using content analysis.

The results reveal that non-pharmacological treatment was not provided to any great extent during visits for blood pressure measurement with public-health nurses at open hours, but a great deal of information and advice was provided. One significant correlation was, however, found. The more years the nurses had been working, the more likely it was that their health promotion was psychosocially oriented in the consultations. The patients and nurses generally met at an equal communication level in their conversations. Starting a nurse-led hypertension clinic following a hypertension nursing programme resulted in many medication adjustments when assessing the patients' treatment and blood pressure levels. The most positive changes were seen in blood pressure, blood lipids and exercise. Consultation training on the stages of change model and patient centredness resulted in the nurses acquiring a more distinct structure for their consultations and relevant information was supplied in a more individually adapted way. The number of words and turns increased in the consultations. The nurses paid attention to support more frequently, irrespective of the stage of behavioural change the patient had reached. Negotiations about reasons for and where to begin behavioural change increased in the consultations. A model for nurses counselling patients in hypertension care was suggested, applying Orem's self-care deficit theory of nursing.

It is concluded that public-health nurses in normal practice at health centres did not perform counselling on non-pharmacological treatment to any great extent. Applying a hypertension nursing programme resulted in positive changes in patients' blood pressure, blood lipids and exercise. After consultation training, the nurses acquired a more distinct structure for their counselling, with more words and turns, and negotiations about reasons for and where to begin behavioural change increased.

The results of this thesis could be of help when planning and starting nurse-led clinics in hypertension care and when developing a national hypertension nursing program. To improve the care for hypertensive patients it is suggested that nurses at nurse-led clinics should have the opportunity for recurrent counselling training and education in the cardiovascular area.

Keywords: Nursing, hypertension, counseling, lifestyle, health behavior, patient-centered care, stages of change model, motivational interviewing, self-care, patient compliance

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ORIGINAL PAPERS

The thesis is based on the following papers, which will be referred to by their Roman numerals

I. Drevenhorn, E., Håkansson, A., & Petersson, K. (2001). Counseling hypertensive patients – An observational study. Clinical Nursing Research, 10(4), 369-386.

II. Drevenhorn, E., Kjellgren, K. I., & Bengtson, A. Following a programme in hypertension care. (in press, Journal of Clinical Nursing).

III. Drevenhorn, E., Bengtson, A., Allen, J., Säljö, R., & Kjellgren, K. I. Counselling on lifestyle factors in hypertension care after training on the stages of change model. (in press, European Journal of Cardiovascular Nursing).

IV. Drevenhorn, E., Bengtson, A., Allen, J., Säljö, R., & Kjellgren, K. I. Patient centredness in counselling hypertensive patients after counselling training for nurses: a content analysis. (submitted).

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CONTENTS

ABBREVIATIONS AND DEFINITIONS

BMI	Body mass index
Consultation	The visit the patient makes to the nurse
Counselling	The conversation that takes place between patient and nurse during a visit
DBP	Diastolic blood pressure
Drink	One drink or 10-15 g of 100% alcohol = 15 cl table wine
HDL-cholesterol	High-density lipoprotein-cholesterol
LDL-cholesterol	Low-density lipoprotein-cholesterol
Holding the floor	Being the one who is speaking
NP	Nurse practitioner
NPRF-instrument	Nurse practitioner rating form
Nurse (sjuksköterska) or Public-health nurse (distriktssköterska)	In the thesis and the papers, the nurses are specified at the beginning of the texts, but further on in the texts the shorter "nurse", is used for both categories. Public-health nurses were observed in Study A and a public-health nurse followed the hypertension nursing programme in Study B. The nurses at the nurse-led clinics in Study C were from both of the categories of nurse and public-health nurse.
SBP	Systolic blood pressure
SOC model	Stages of change model
Turn	A person's uninterrupted utterance
WHR	Waist hip ratio

INTRODUCTION

This thesis focuses on counselling related to non-pharmacological treatment, which means lifestyle changes regarding smoking, alcohol, weight, diet, physical activity and stress for patients with hypertension. It is estimated that one quarter of all the adults in the world have hypertension (Kearney *et al.*, 2005). Hypertension is a major risk factor for cardiovascular diseases such as stroke and myocardial infarction (de Backer *et al.*, 2003). Deaths from cardiovascular causes account for around 20% of mortality worldwide and some 50% of deaths in the developed countries (WHO, 1995). As a result from extensive research, non-pharmacological (Haskell, 2003) and pharmacological treatment have been found to be important when it comes to reducing the risk of cardiovascular complications. Non-pharmacological treatment is the first choice of treatment for patients with moderately high blood pressure and should always be used simultaneously with pharmacological treatment (de Backer *et al.*, 2003).

In Sweden, 10% of the population are treated with antihypertensive medicines (SBU, 2004) and of these about 14% reach target blood pressure (<140/90 mmHg) (Kjellgren *et al.*, 1998). Sales of antihypertensive medicine total SEK 1.6 billion a year in Sweden and involve more than 600,000 treated patients (SBU, 2004). This cost should be related to the benefits resulting from a lower incidence of coronary heart diseases and stroke (SBU, 2004). Non-adherence to treatment is the most important factor in uncontrolled blood pressure (Krousel-Wood *et al.*, 2004). To increase the number of patients with controlled blood pressure, the nurse can play an essential role in motivating patients to take part in their treatment. The nurse is also important when it comes to securing continuity and the follow-up of patients.

Risk factors and lifestyle changes

One risk factor for cardiovascular diseases is a history of hypertension in the family (Guidelines Committee, 2003). In general, male gender, post-menopausal women, increasing age, tobacco use, high consumption of alcohol, defective food habits, psychosocial stress and low physical activity are risk factors for cardiovascular disease, especially when it is combined with hypertension. A stressful psychosocial environment affects people and is of importance for the gradual induction of primary hypertension (Björntorp *et al.*, 2000; Levenstein *et al.*, 2001). The metabolic syndrome, defined as three or more of the variables of abdominal fatness, high cholesterol, low HDL-cholesterol, high triglycerides, elevated blood sugar, hypertension or insulin resistance, is another risk factor (Eckel *et al.*, 2005). The metabolic syndrome predisposes people to type 2 diabetes with an accompanying increased risk of cardiovascular death. A person with the metabolic syndrome is most often a physically inactive person.

Smoking and taking snuff increase the risk of cardiovascular disease and death (Fant *et al.*, 1999) and stopping the use of tobacco is generally recommended (Guidelines Committee, 2003; SBU, 1997). More than four drinks of alcohol a day increase the risk of raising blood pressure. Alcohol consumption is regarded as high when it exceeds 210 g of 100% alcohol a week for men and 140 g for women (Rydberg *et al.*, 1993). Light to moderate alcohol consumption, which means about 25 g for men and

15 g for women a day, on the other hand, is associated with beneficial effects relating to peripheral vascular disease (Hill, 2005).

Weight reduction has an advantageous effect on blood pressure (Artinian, 2001; Mulrow *et al.*, 2003), blood lipids (Tang *et al.*, 1999; Thompson *et al.*, 2003) and insulin resistance (Diabetes prevention program research group, 2002; Tuomilehto *et al.*, 2001). Overweight is defined as a body mass index (BMI) of 25-29.9, while obesity is 30-34.9 (WHO, 2000). Waist circumference is also used to determine overweight. For men, a waist of 94-102 cm, and for woman, a waist of 80-88 cm represents an increased risk of cardiovascular disease. The weight should be reduced to achieve a waist of 94 and 80 cm respectively, even if the BMI is <25 (Lean *et al.*, 1995; Sönmez *et al.*, 2003). The recommendation when it comes to affecting both overweight and dyslipedemia is the consumption of fat, 30-energy% at the most, with a small amount of saturated fat and an intake of 30 grams of fibre a day (Hu & Willett, 2002; NNR, 2004). Reducing salt intake has a beneficial effect on reducing blood pressure (Alderman & Cohen, 2002).

Physical activity, dynamic oxygen-demanding work like walking, bicycling, swimming, dancing or aerobics, reduces blood pressure (Halbert *et al.*, 2006a) and blood lipids (Halbert *et al.*, 2006b). The best result is achieved when the activity is performed at sub-maximum level, i.e. about 60-80% of the maximum pulse. Regular physical activity of the above-mentioned types for 20-30 minutes two to three times a week is required to achieve physical fitness. Physical activity also has an advantageous effect on all the risk factors in the metabolic syndrome (Eckel *et al.*, 2005). Physical and physiological stressors will only produce stress responses after they have been defined as threatening to a person. Perceived negative stress can be reduced by joining groups practicing relaxation techniques, such as meditation, tai chi and self suggestion or counselling on how to deal with the redeeming psychosocial stress factors (Schneider *et al.*, 2005).

Nursing in hypertension care

Nursing in hypertension care implies blood pressure measurement and counselling on lifestyle changes (Bengtson & Drevenhorn, 2003) and also means supporting the patient in the treatment with antihypertensive medication. Blood pressure measurements should be performed using a standardised method to avoid false high and low values (Drevenhorn *et al.*, 2001). When the nurse measures blood pressure, the values are often lower than the physician's, as a result of the white-coat effect (La Batide-Alanore *et al.*, 2000). The health care environment per se and, in addition, an unfamiliar person being present can start a reaction, which affects the blood pressure.

Counselling on lifestyle changes involves both education about the importance of adjusting lifestyle and motivation for change. Most patients with hypertension see a public-health nurse at their local health centre to have their blood pressure measured between follow-up visits to the general practitioner. Counselling should be integrated in these visits for blood pressure measurements. Many of the patients do not know their target blood pressure. They frequently understand neither the meaning of blood

pressure nor what they can do themselves to improve their prognosis and have fewer complications (Kjellgren *et al.*, 1997). Not understanding or having this knowledge may contribute to withdrawing taking medicines or managing personal risk factors (Willey *et al.*, 2000).

There is more opportunity to have a well-functioning organisation to treat patients with hypertension both non-pharmacologically and pharmacologically when nurses and physicians work together in a team. There are no appreciable differences in care between nurses and physicians in terms of the health outcomes for patients, in the process of care or the costs, but patient satisfaction is higher with nurse-led care according to a Cochrane review (Laurant *et al.*, 2004). It is important that the patients are given knowledge about the meaning of hypertension and are counselled on lifestyle changes when they visit their health centre. An extra complicating factor is the fact that many hypertensive patients do not have just one risk factor to deal with but several. As a result, heavy demands are imposed on the nurses to enable them to help the patients achieve lifestyle change. The change in lifestyle is meant to increase blood pressure control and reduce cardiovascular complications. Not many studies of nursing in hypertension care have hitherto been performed (Aminoff & Kjellgren, 2001). Because of this (Fridlund, Hildebrandt, Hildingh & Lidell, 2006), there is limited knowledge on the topic and this thesis could perhaps bridge some of the gap when studying the nurses' management of patients with hypertension at health centres.

AIMS

The overall aim of this thesis was twofold: a) to analyse the communication between nurses and patients about lifestyle changes in hypertension care and b) to evaluate the effects of nursing interventions.

Specific aims

- To observe what kind of non-pharmacological treatment was given by the nurses during visits for blood pressure measurement and to measure the nurse's and the patient's activity level using the instrument Nurse Practitioner Rating Form (Paper I).

- To explore the effectiveness of using a structured nursing intervention program with patient-centred counselling for hypertensive patients (Paper II).

- To analyse the effects of nurses' training on the use of the Stages of change model when counselling hypertensive patients to perform lifestyle changes (Paper III).

- To analyse how nurses used patient-centred counselling with hypertensive patients after consultation training (Paper IV).

BACKGROUND

Communication

Counselling on lifestyle changes is based on *communication* between patient and nurse. This communication can be verbal or non-verbal (Boyd, 1992). The first impression in a meeting is affected by many details. To give space and not intrude on the other person's territory it is wise to sit at right angles to each other with a table in between. Nonverbal communication is expressed in the way we sit, eye contact, staring or shifting gaze, facial expression, bodily contact and movements. These non-verbal components are also part of patient centredness in counselling. Communication creates a rapport between nurse and patient, which means that caring is an interpersonal process. Interpersonal skill in nursing involves personal qualities, dispositions towards others, communication skills and disposition towards self, among other things (Morrison & Burnard, 1997). It is important to remember that the relationship between caregiver and the care-taker is not equal. The caregiver is allowed to ask the most intimate questions, while the contrary is not allowed. Counselling is designed to make a person confident enough to choose and to be able to take a particular course of action (Burnard, 1999). To act, the patient needs to be able to identify the things he/she has to do, stop doing, continue to do and to accept. Counselling is always voluntary (Morrison & Burnard, 1997).

Applying interpersonal skills in an efficient way is not an easy task. A study based on audio-recorded consultations between hypertensive patients and nurses at health centres and a specialist clinic showed that the nurses dominated the interaction by using more words, initiating more topics and using more discourse space than the patients (Aminoff & Kjellgren, 2001). Videotaped counselling sessions at a Finnish hospital contained both patient-centred and nurse-centred features, which alternated during the conversations, but nurse-centred features were predominant (Poskiparta *et al.*, 2001). Patients indicated in some conversations that they wanted to participate, but the nurses continued to follow their own agenda and gave advice that was not related to the patient's needs. The counselling became a disempowering process.

Patient-centred counselling and motivational interviewing

"Client-centred counselling" was first coined by Carl Rogers (Burnard, 1995; Rogers, 1999). The concepts of patient, person and client centredness are used interchangeably in the literature. *Patient centredness* is defined from a nursing perspective as a nursing action that encourages the patients to disclose how they see their own world, what they are experiencing and the meanings these experiences have for them (Kasch & Dine, 1988). The goals for patient centredness are to encourage the patients to express concerns, to help them to be more active in the consultation and to let them say what information they require (Rollnick *et al.*, 2002). Giving the patients greater control of decision-making and reaching joint decisions are also included. Patient centredness in counselling is achieved by using open questions, listening and encouraging with verbal (e.g. 'ums' and paraphrasing) and non-verbal prompts (e.g. nods), clarifying, summarising and with reflective listening. When counselling on behavioural changes, the use of *motivational interviewing* with special features added to patient centredness is bene-

ficial. This is because the subject of change is often raised by the health-care provider and there is potential for disagreement. Motivational interviewing embraces

- assessing importance, confidence and readiness for changing behaviour with an exchange of information,
- helping the patient to weigh up the pros and cons for change,
- identifying perceived threats to health and of vulnerability and
- negotiating what, the goal for, reason for and where the patient should start the change.

It is reported that 51% of people who received motivational interviewing as treatment for problems involving alcohol, drugs, diet and exercise improved at follow-up compared with 37% of people who received usual or no counselling (Burke *et al.*, 2003). The efficacy of motivational interviewing can be explained in part by the fact that *shared decision-making* presupposes patient-centred counselling strategies. When both the nurse and patient are involved in the decision-making process, they share information with each other, the patient is encouraged to express treatment preferences and they agree on the treatment to be implemented (Charles *et al.*, 1999). The Swedish health and medical services act (HSL 1982:763) states that care should be given based on respect for patients making their own decisions and their integrity. This approach is in line with the concept of *concordance* that implies bringing patients into a full therapeutic partnership in which the consultation becomes a negotiation between equals (Marinker, 2006). Interviews with 49 hypertensive patients about what influences participation in managing their own hypertension revealed that the patients went from no attempt to some attempts to change lifestyle (Sims, 1999). Barriers like limited time, finances, arthritis, weather constraints and ageing were mentioned. Some of the interviewees wanted to participate more and wanted to have more advice and information, e.g. about side-effects, drug interactions and hypertension in general.

In counselling, nursing actions are directed towards the goal of helping patients to accept the fact that they have hypertension. The nurse has to help the patients to understand that medications and lifestyle modifications can control but are generally unable to cure hypertension and to persuade them to use specific strategies to achieve the necessary lifestyle changes. When a patient is confronted with the need for lifestyle change, strategies are essential to handle a situation that could be experienced as demanding. *Coping* comprises a person's strategies to handle trying situations and demands that are appraised as taxing or exceeding a person's resources (Lazarus, 1991). A primary appraisal focuses on whether something of relevance to the person's well-being has occurred, while the secondary appraisal deals with coping options. In coping with hypertension, the patient cognitively appraises the impact of the diagnosis and views the event as challenging, threatening or benign (McEntee & Peddicord, 1987).

Once a decision about lifestyle change has been made, the patient faces the challenge of *adherence* to the plan. Haynes, Taylor and Sackett (1979) defined compliance as the extent to which a patient's behaviour coincides with medical or health advice. Since then, there has been a shift from using the term compliance to using adherence, as compliance implies an authoritative connotation where the patient is a passive re-

sponder to the clinician's authoritative demands (Schaffer & Yoon, 2001). Poor adherence to treatment, i.e. a way of coping with no successful outcome, can also depend on the fact that the person has not actually changed his/her opinion or has not understood the message completely (Nordenfelt, 2000). The person is perhaps not convinced to change his/her behaviour to avoid illness or has not been given the appropriate help to adopt another habit. From a Swedish study, it is concluded that, when patients are to follow a prevention programme involving a change of diet and exercise, it is important to assess the perceived advantages and disadvantages of continuing with their present behaviour and to discuss perceived barriers to change (Näslund *et al.*, 1996). Perceived symptoms are usually an indicator of disease and can be used as a motivator and guide for treatment (Leventhal *et al.*, 1998). Hypertension is a good example of poor sensitivity and is therefore a poor motivator for treatment adaptation. People cannot feel or estimate their blood pressure level or when it changes (Brondolo *et al.*, 1999). It is then important to discuss this matter with patients to help them think more carefully about the types of information they use to guide treatment decisions. Interviews with hypertensive patients revealed that adherence to treatment regimens ranged from blatant refusal to total commitment (van Wissen *et al.*, 1998). Participants who were less adherent were those who had not identified any symptoms of hypertension. Participants also described a fear of consequences like stroke or myocardial infarction. Some participants valued the non-pharmacological interventions as options to help reduce their blood pressure, while others felt medication was primary and did not attempt to change their existing lifestyle.

Changing lifestyle could be expressed as executing self-care. *Self-care* was defined in 1978 as a process whereby a lay person can function effectively on his own behalf in health promotion, in disease detection and treatment at the level of primary health care (Levin, 1981). Counselling conducted in a patient-centred way, where chronically ill patients become more active, may lead to treatment plans that are more structured around the patient's beliefs and are therefore more likely to produce self-care (Michie *et al.*, 2003). Hypertension can be experienced as being at increased vascular risk. As this 'at risk' is less obvious than being ill, the nurse-led self-management has to be organised so that the patient actively participates in problem definition and realistic and personalised goal-setting (Sol *et al.*, 2005). It is important that the interventions are guided by patients' willingness for change and self-efficacy. Support for behavioural changes and follow-up visits are also necessary parts.

Stages Of Change (SOC) model

If lifestyle changes are to be successful, the patient has to be motivated. Motivation means mobilising mental and behavioural effort to achieve a goal (Lazarus, 1991). A tool for the nurse to use in counselling is the Stages Of Change (SOC) model or Trans-Theoretical Model (TTM) (Prochaska & DiClemente, 1982). The model contains five stages of behavioural change:

- precontemplation (becoming aware of the problem)
- contemplation (developing intention for change)
- preparation (making plans for action)
- action (integrating new behaviour into daily activities)

- maintenance with relapse (temporary retrograde) or termination (maintaining behavioural changes within social environment)

In the precontemplation stage, patients may not have information about the consequences of their behaviour and, if they have, they have no intention to change their behaviour within the next six months (Prochaska *et al.*, 2002). The patients are not motivated to change their behaviour and do not think about or take an interest in the matter. Patients in the contemplation stage are aware of their high-risk behaviour and the pros and cons of changing. They are about to change behaviour within the next six months or they balance here for a long time weighing up the pros and cons of changing behaviour. In the preparation stage, patients take action within the next month when they have a plan of action. In the action stage, patients have made a change in their lifestyle within the last six months. In the next stage, maintenance, patients work at preventing relapse as they are exposed to temptations in daily life. When maintaining their healthy behaviour across challenging situations, they feel confident with their self-efficacy. After this stage, which lasts for six months to about five years, the termination stage follows in which patients perceive no temptations and have achieved 100 per cent self-efficacy. The SOC model describes how the learner goes through a cycle from contemplation to trial to action to maintenance, possibly to relapse and back to contemplation again over and over again (Fig. 1). Some patients continue in this way and some end up with total maintenance with a termination resulting in healthy behaviour (DiClemente & Prochaska, 1998).

To progress through the stages, patients are involved in processes of change (Prochaska *et al.*, 2002). The raising of consciousness is a process in which patients obtain information about the problem behaviour in the precontemplation and contemplation stages. When patients assess their prospective self-image if action is taken, dramatic relief and self-re-evaluation occur. Patients re-evaluate how the changed habit will affect their social environment. During the preparation stage, self-liberation with a belief in one's own ability to change can be perceived. Helping relationships occur in the action stage and deal with social support to change or maintain changed behaviour. Counter-conditioning acts as a substitute for problem behaviour and contingency management relates to the way patients can reward themselves or get a reward from someone else to maintain a new behaviour. Stimulus control involves a way of preventing situations, which could elicit a temptation to relapse. To experience social liberation, available alternatives like smoke-free zones in smoking cessation are required.

The SOC model was first used in studies of smoking cessation, but it has been assessed as being of use in other health problem behaviours such as quitting cocaine, weight control, high fat diet, adolescent delinquency, condom use, sunscreen use, radon gas exposure, exercise acquisition and mammography screening (Prochaska *et al.*, 1994). Motivational interviewing can be used in the model to assess in what stage a patient is and different stage-directed strategies can then be used (Compton *et al.*, 1999; Shinitzky & Kub, 2001).

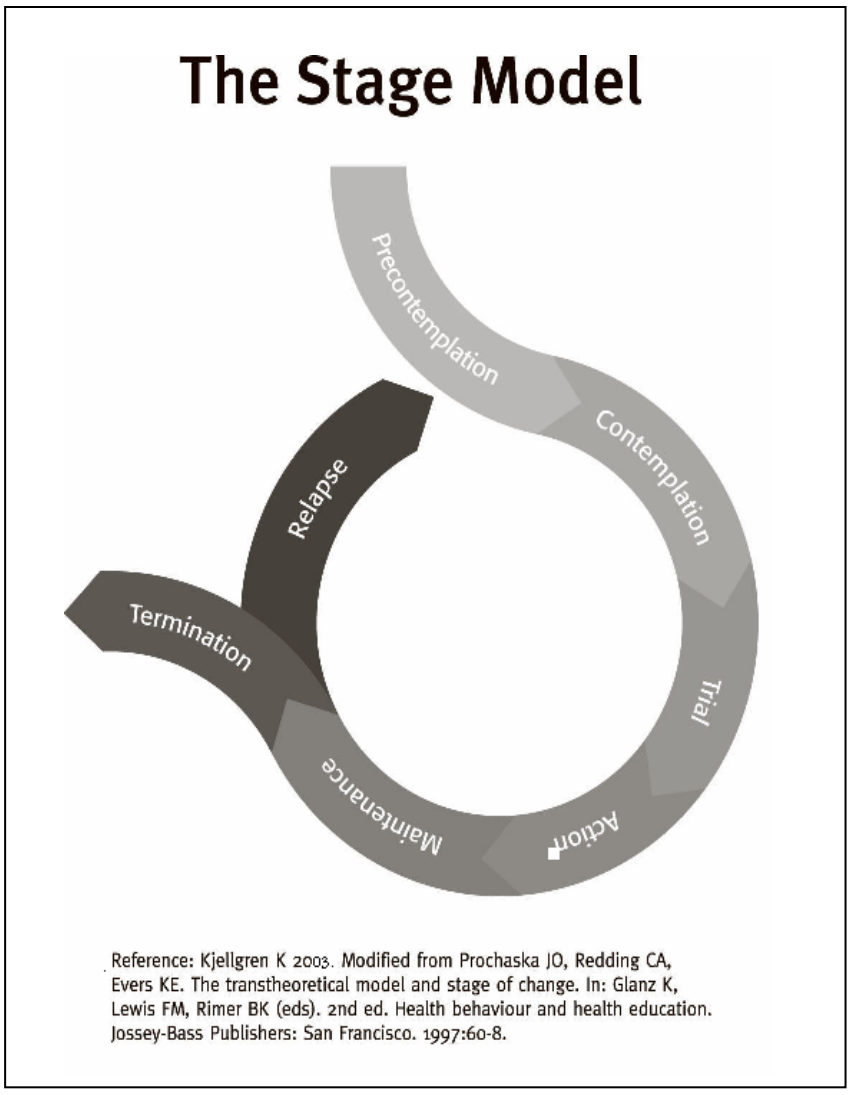

Figure 1. The Stages Of Change model. (Illustration from Kjellgren K. Kvickbok om Att följa sin behandling. (2003). Published with the permission of Pfizer Inc.).

Nurse-led clinics

Nurse-led clinics at health centres are a fairly new phenomenon in Sweden. The most known and most common are clinics for diabetes and asthma. They are also more popular and welcome, as visits by patients to these clinics produce economic reimbursement based on decisions from the political parties governing the medical service. Nurse-led clinics for hypertension care are usually not included in the economic reimbursement model and are therefore not supported by the heads of the health centres. In Sweden, there were reports from the Skaraborg study on the feasibility of involving nurses in hypertension care at health centres during the 1980s (Råstam *et al.*, 1986a); this led to lower blood pressure levels (Råstam *et al.*, 1986b). The value of working in teams at the health centres was also emphasised. Other countries report the benefits of teamwork (Trilling & Froom, 2000) in which nurses were assessed as being good at following guidelines. A study of an evaluation of introducing a nurse-led clinic resulted in increased control of blood pressure (<140/90 mmHg) from 17 to 44% among the patients in one year (Pheley *et al.*, 1995). Another randomised, controlled study

involving hypertensive patients reported a decrease in alcohol and salt intake and reduced weight and blood pressure (Woollard *et al.*, 1995).

In addition to communicating in an effective way with the patient about lifestyle changes, the nurse needs to have the content of what is going to be communicated sanctioned. In Sweden, no national hypertension programmes are available, apart from reports from the Swedish Council on Technology Assessment in Health Care (SBU, 2004), recommendations from the Medical Products Agency (Läkemedelsverket, 2006) and European guidelines (Guidelines Committee, 2003). There are, however, suggestions in the literature about what a hypertension programme could comprise (Roberts & Banning, 1998; Sutcliffe, 1993). According to a Cochrane review, it is important to have an organised system of regular follow-up and review of hypertensive patients, where nurse-led care may be a promising way of delivering care (Fahey *et al.*, 2003).

Factors that may affect communication

Concepts related to the patient

When patients are confronted with the need for lifestyle change, emotions are experienced which could be perceived as harmful, threatening or benefiting a person's well-being (Lazarus, 1991). The demand for lifestyle change is appraised in different ways depending on several factors, which in turn affect the strategy that is chosen to handle the problematic behaviour. All human beings have *attitudes and beliefs* about things that are perceived as important in life. An attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour (Eagly & Chaiken, 1993), while a value can be defined as a personal belief about the worth, desirability, goodness, truth and beauty of a particular idea or object (Stroebe & Stroebe, 1995). Values can be regarded as the basis for decision-making. If, for example, one's perception of *health* and body is not a valued one, the patient will not be interested in investing time or effort in working for a lifestyle change (Gleit, 1992a). Interviews with hypertensive patients revealed varying feelings about hypertension and its treatment: some did not care, some were serious, some adjusted well and others felt frustrated (Lahdenperä & Kyngäs, 2001). Kjellgren, Svensson, Ahlner & Säljö (1997) found in other interviews that it was not uncommon for patients to associate high blood pressure with unhealthy living. Patients were more likely to identify drugs as a means of controlling blood pressure than managing lifestyle factors. If hypertension is not perceived as a serious state, the patient is usually less inclined to agree with the need for recommended treatment.

In counselling, the patients' *autonomy* has to be respected. To be sufficiently autonomous, a patient should be informed, be able to comprehend the information, believe it and weigh up the information to arrive at a choice of whether or not to consent to further counselling (Aveyard, 2000). Patients also have different *personalities and traits* that affect the interpretations and appraisals of proposed suggestions about lifestyle changes (Friedman & Schustack, 1999). Research in the field of health behaviours related to personality reports that healthy older adults with greater conscientiousness (efficient, organised, responsible) demonstrated significantly greater perceived health

competence, which was in turn strongly related to exercise, dietary/health information and relaxation/social support. The only health behaviour predicted by conscientiousness and neuroticism (anxious, tense, worrying) was relaxation/social support behaviours (Marks & Lutgendorf, 1999).

Perceived *vulnerability* to disease threat, i.e. the perception of a risk of being physically hurt by illness, varies among individuals (Spiers, 2000). The individual patient's perception of and challenges to self and of resources to withstand the demand for lifestyle change should be considered in nursing practice that focuses on risk factors. The likelihood of engaging in positive action to change behaviour (readiness to learn) depends on the individual's perception of being well, chronically ill or having an acute illness (Rogers & Prentice-Dunn, 1997). A hypertensive patient can be placed between well and chronically ill which means that motivation to learn about any aspect of health care is based upon the acceptance of self-responsibility for health.

The personality characteristic of *hardiness* is relevant when it comes to the way hypertensive patients respond to suggestions about lifestyle change (Kobasa 1979). The concept means that hardy individuals have a high sense of commitment to self and work, perceive life change as challenging rather than threatening and maintain a sense of control in life rather than powerlessness. Hardy hypertensive patients are found to be more likely to participate in patient education programmes (Pollock *et al.*, 1990). Another important concept is *sense of coherence* (Antonovsky, 1979). In this concept, interest focuses on what causes health instead of what causes diseases. A person with a feeling of coherence has an attitude that expresses a long-lasting and deep faith in the world's predictability and thinks there is a high likelihood that things will turn out as well as can reasonably be expected. This differs from the concept of locus of control. Sense of coherence in no way implies that one is in control; instead it implies that one is involved as a participant in the processes shaping one's destiny. Whether power is in the person's own hands or elsewhere is not a crucial issue. When it comes to *locus of control*, if persons see the effect of what is happening to them as a result of luck, chance, or fate or as being under the control of powerful others, this is labelled as a belief in external control (Rotter *et al.*, 1972). However, if it is perceived as a consequence of one's own behaviour or will, it is termed internal locus of control. Control or lack of control can be experienced when the competence system is taxed in new situations, especially when old beliefs about how to realise goals and capacities of the self are insufficient to handle the problem in order to achieve the desired outcome (Skinner, 1995). Perceived control influences outcomes through its effects on motivation and coping. A study of patients with cardiovascular disease or hypertension and obesity involved in a 24-day residential programme reports that there was a significant increase in health locus of control beliefs (more external) related to weight decrease at the six-month follow-up (Jordan-Marsh & Neutra, 1985). The subjects who achieved better results in HDL-cholesterol and triglyceride levels were more likely to have an internal locus of control, which suggests that they were successful in following the dietary prescription.

The individual's perception of self-efficacy is an important predictor of health behaviour change. Perceived *self-efficacy* refers to beliefs in one's capabilities to execute the actions required to achieve planned goals (Bandura, 1997). If people believe they have no power to produce results, they will not attempt to make things happen. Self-efficacy is consequently the base for motivation and influences goal-setting and reinforcement. A meta-analysis about predictors of positive health practices concludes that self-efficacy, social support and perceived health status are important factors to assess before introducing nursing interventions to make health practices easier (Yarcheski *et al.*, 2004). *Social support* is defined by Lindsey (1992) as the provision of information that leads people to believe they are cared for, loved, esteemed, valued and member of a *network* of communication and mutual obligation. A significant relationship between weight loss and a reduction in waist circumference with social support from a partner was reported from a study involving 137 overweight, hypertensive patients (Burke *et al.*, 2002). The change was maintained after 16 months.

Concepts related to the nurse

When counselling hypertensive patients, nurses make use of their *professional knowledge* and skills to help the patients, through performed self-care, to reach their treatment goals. The importance of health education as a part of nursing has been recognised for a long time. Nurses at nurse-led clinics in hypertension care must master a professional autonomy, as they manage the consultations on their own. The nurses also need an understanding of patients' physiological and psychosocial state to make an assessment together with the patient to determine the kind of education that is needed. This encompasses an holistic view, which is necessary in order to help a patient to decide on behavioural change. Even a well-informed and behaviourally skilled patient must generally be highly motivated and receive support to initiate and maintain preventive behaviour (Fisher & Fisher, 1992). For many people, changing one's lifestyle is equivalent to finding a new personal identity (Grueninger, 1995).

The nurse must then choose education strategies, which means instructional methods, behavioural strategies and educational aids (Burnard, 1999). Educational aids as a complement to verbal communication could include instruction sheets, pamphlets, brochures, booklets or computer-assisted instructions (Boyd, 1992). Effective teaching is a combination of the use of good communication skills and effective educational strategies. Information, clear, honest and adequate, should be given to patients as required (Salazar, 1995). It is estimated that a person is only able to recall half of what is heard after a counselling session and remembers best the information from the first third and the last quarter of the session. This underlines the importance of just giving key information verbally and supplementing it with written information to take home. Goal-setting helps the patient to focus on mobilising energy and effort and to motivate a search for strategies for action (Bayne & Tschudin, 1998). The health care provider's objective risk assessment in hypertension care and the patient's subjective risk perception are seldom identical (Grueninger, 1995). This is because there is usually no perceptible feedback about the effect of treatment of hypertension; it is successful if no complication occurs.

There are some studies evaluating counselling performed by nurses. In a controlled trial, hypertensive patients in the intervention group with six 45-minute counselling sessions on lifestyle change experienced a significant improvement in blood pressure control and weight loss compared with a group who had one visit lasting 15 minutes (Woollard *et al.*, 1995). Motivational interviewing was used as a counselling strategy. Another study involving group sessions in hypertension care including education about risk factors reports a limited additional benefit on outcome variables compared with standard care (Lindholm *et al.*, 1995) In a similar study, the SBP fell by 5-6 mmHg and antihypertensive medication was started less frequently (Iso *et al.*, 1996). It is concluded in a Cochrane review that interventions for preventing coronary heart disease using personal or family counselling and education produce modest reductions in blood pressure, blood cholesterol and smoking (Ebrahim & Davey Smith, 2000).

In counselling on lifestyle changes, it is important for the nurse to show the patient respect, irrespective of whether or not the patient is prepared to perform behavioural change. This approach embraces being the *patient's advocate*. The advocate should inform the patient and promote informed consent, empower the patient and protect the rights and interests of the patient (Schwartz, 2002). The *empowerment* part means that the nurse should enable patients to choose to take control over and make decisions about their lives (Rodwell, 1996). As the nurse-patient relationship is supposed to be based upon mutual respect and equality, nurses should facilitate the empowerment of patients rather than empower them, i.e. the patient must be active in the process.

THEORETICAL FRAMEWORK

As counselling on lifestyle changes focuses on the patient's performance of self-care, Dorothea Orem's nursing theory of self-care (Orem, 1995) is presented as a theoretical framework. The theory is applied to a suggested model for nurses counselling patients in hypertension care.

Self-care deficit theory of nursing

Orem introduced her self-care deficit theory of nursing in 1956, with further refinements in 1990 (Orem, 1995). Presuppositions for the theory are that people develop and exercise intellectual and practical skills through learning and manage themselves to maintain the motivation essential for continuing daily care. Self-care is a cultural element and affects the way in which or how individuals are able to act. Their preferences also affect the self-care people do or do not perform when it comes to changing life situations, as they have ideas of what health means, as well as ideas of how to judge that they are healthy or unhealthy. The nurse chooses an appropriate method from different helping methods. They include acting for another, guiding patients to choose an appropriate activity or treatment, and providing physical or psychological support to prevent unpleasant situations and decisions. They also include providing and maintaining an environment that supports personal development and goal-setting, plus teaching and assisting learning about subjects such as health, how to select foods or administering medication. Orem makes a distinction between professional nursing care and everyday care.

Orem's theory consists of three parts; the theories of self-care, self-care deficit and nursing systems (Orem, 1995). Self-care is an action of persons who have the capability to take care of themselves in different situations. They have the agency or power to act to regulate internal and external factors that affect their own functioning in terms of health and well-being. The ability to perform self-care, the individual's power of self-care agency, is different depending on capabilities and circumstances related to self-care demands and health disorders. Self-care deficit means that capabilities for self-care do not meet some or all of a person's self-care demands because of the number and variety of limitations. Conditions such as disturbed memory, lack of knowledge, impaired functioning or learning disabilities could represent self-care deficits. The theory of nursing system is the important organising part in the entire theory. The nursing system is made up of the deliberately selected and performed actions of nurses, nursing agencies, and could be of long or short duration for persons who have health-related action deficits. It is desirable that the nurse has social, interpersonal and professional-technological skills. The system could be wholly or partly compensatory or supportive-educative with the goal of helping the patients to regain their self-care. The supportive-educative system is the only system in which a patient's requirements for help are confined to decision-making, behaviour control and acquiring knowledge and skills. The nurse needs to be able to envisage the wholeness of situations and give power to the patient. The nursing system is appropriate for children and adults, individuals, groups and relatives. The nursing systems applicable to hypertension care are in part the partly compensatory system but mostly the supportive-educative system.

In patient education in nursing practice, Orem's self-care model is particularly relevant for the development of patients' self-care skills (Gleit, 1992b). Orem's theory has been used as a theoretical framework in a variety of nursing papers. For example, it was used in a paper

- for developing a protocol from the supportive-educative nursing system for testing a nursing-management strategy for patients' self-care behaviours regarding medication for congestive heart failure after discharge from hospital (Fujita & Dungan, 1994),
- for describing how the theory could be applied in nurse practitioners' (NP) work in primary care settings (Geden *et al.*, 2001) and
- for categorising the barriers patients with heart failure experience in self-care behaviour (Jaarsma *et al.*, 2000).

A proposal for a model for nurses counselling patients in hypertension care

From the literature review of hypertension, counselling and non-pharmacological treatment, a very complex situation grew up around performing lifestyle change. Changing lifestyle appeared to be a complex matter for the patient to face and perform and a complex matter for the nurse as a counsellor to manage. To sort things out and find a way for nurses to manage to counsel patients, a model was constructed to put together the concepts found in the review. The suggested counselling management model with the applied Orem's theory (Fig. 2) shows the factors related to the patient (Drevenhorn *et al.*, 2003a) and the nurse that may affect the communication process designed to bring about a change in behaviour.

Into the encounter with the nurse, the patients bring certain attitudes and beliefs, a view of health, the need for autonomy, their own personality and traits, perceived vulnerability, hardiness, a sense of coherence, locus of control, self-efficacy and social support and network. Patients' attitudes and beliefs affect lifestyle changes, views of health and adherence to medication. Personality, traits and perceived vulnerability also determine how and why patients behave as they do. Performing a lifestyle change is easier for patients with high levels of hardiness, sense of coherence, locus of control and self-efficacy, as these concepts affect their understanding of and efficiency in handling demands for lifestyle change. Having social support and networks available is a predictor of good health. Social support also serves as protection from stress and influences coping processes.

The nurse brings the nursing system into the encounter with the aim of helping the patients to achieve self-care activities in their efforts to change behaviour. In this context, the applied theory of nursing system comprises the SOC model, motivational interviewing, counselling skills, and professional knowledge, while the nursing actions are patient advocacy, empowerment, support and health education. Using the SOC model combined with motivational interviewing is a tool to make the counselling patient centred. When the communication between the nurse and patient is patient-centred, the counselling becomes empowering, which enables patients to choose to take control. Counselling skills comprise the ability to build a rapport and talk with the patient in a patient-centred way, correctly to assess in what stage the patient is for a behaviour and

pay the appropriate attention to the patient. In the interaction with the patient, the nurse uses selected parts of the nursing system to assess the patient's self-care deficits.

From the interaction in the communication, shared decision-making should emerge, with goal-setting that is made in concordance between patient and nurse. It is important that patients are able to exercise their autonomy in decision-making processes and are protected by the nurse's patient advocacy when needed. From the decisions that are made about performing self-care, the patients have to develop self-care agencies to perform behavioural change through their own coping and with the assistance of nursing agencies, i.e. the nurse's interventions. The desired outcome is a change in lifestyle with the goal of adherence to treatment and the maintenance of new behaviour.

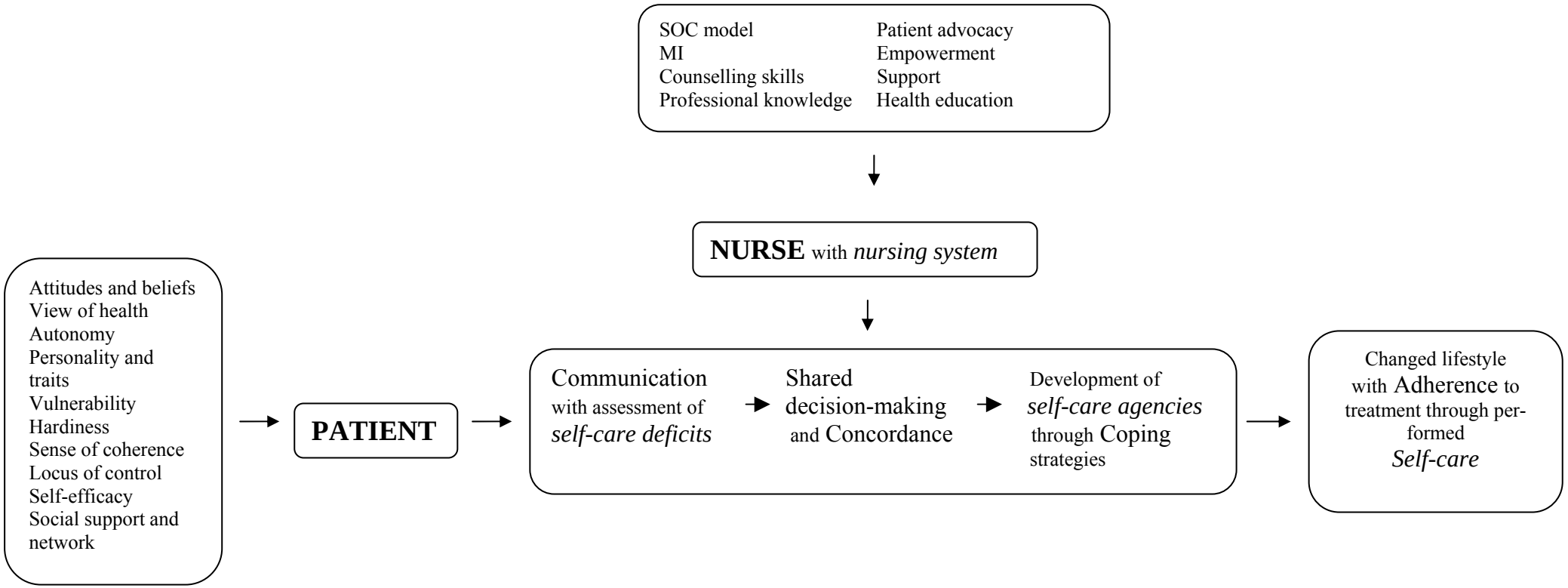

Figure 2. The counselling management model for nurses in hypertension care. An outline of concepts involved in a consultation about lifestyle changes. The concepts related to the patients' disposition and willingness to change lifestyle behaviour are grouped by the patient, the concepts related to the nurses' performance when counselling patients on lifestyle changes are grouped by the nurse and the concepts related to the encounter between nurse and patient are presented in the process of the consultation. The application of Orem's self-care deficit theory of nursing is shown in italics.

METHODOLOGY

Research design

The design of the thesis is divided into three parts. The design for Study A (Paper I) is descriptive cross-sectional with 21 randomised public-health nurses, for Study B (Paper II) one group pretest-posttest with 100 patients and for Study C (Paper III, IV) a randomised pretest-posttest with audio recordings, 36 before and 35 after the intervention, performed by 19 nurses (Table 1). Study B (Paper II) was chosen to have a pretest-posttest design as no other nurse-led clinic was available to act as a control. The studies range from observing what public-health nurses talked about with hypertensive patients in Paper I (Study A) to describing the effects on patient variables that could be detected when a structured hypertension nursing programme was introduced in the consultations in Paper II (Study B) and finally what happened in the consultations after consultation training to randomised nurses in Papers III and IV (Study C). Mixed methods in the research design was chosen to reflect knowledge claims based on pragmatic grounds, which emphasises the problem as being the most important aspect to understand instead of stressing the methods that are used (Cresswell, 2003). Pragmatic research is usually concerned with the consequences of actions and is problem centred and real-world practice oriented. The mixed methods approach provides an understanding of the research problem by gathering both numerical and textual information.

Participants

Of 99 public-health nurses employed at 22 health centres in a district of Skåne County in 1998, 25 nurses were randomised to participate in Study A (Paper I). Fifteen nurses without special education for public health and less than two years' experience were excluded before randomisation. This was because two years' training is the minimum for being assessed as a competent public-health nurse according to the local definition of levels of competence. The nurses at the first author's (ED) health centre, who had been involved in testing the instrument that was going to be used, were also excluded. Four of the randomised nurses were not able to participate as they did not work with adult patients or were on sick leave. The 21 participating nurses had been working for 15-40 years since their registration and three to 22 years as public-health nurses since their special education.

In 2000, all 177 patients diagnosed with hypertension at a health centre located in southern Sweden were consecutively invited to participate in Study B (Paper II). Of these 177 patients, 21 patients were also diagnosed with diabetes. One hundred chose to participate and of these 11 patients had diabetes. There was no difference in distribution according to gender and age between the invited and the participating patients (see Table 4, Paper II).

The recruitment of nurses at nurse-led clinics in hypertension care for Study C (Papers III, IV) started in March 2003 using the register of nurses of the Swedish Hypertension Society with a request to participate in the larger randomised, controlled SOPHI study (Sjuksköterskans omvårdnad av patienter på hypertonimottagning (Nursing manage-

ment of patients in hypertension care)). The requests to the nurses in southern Sweden (Skåne, Blekinge, Halland, Småland, Göteborg, Västergötland, Östergötland) were sent out in stratified, randomised order. After 269 requests had been sent out, eight nurses agreed to participate and be randomised to an intervention or control group. As very many of the nurses stated in their answers that they did not work at a nurse-led clinic in hypertension care, another strategy for recruitment was chosen. Another reason was the approaching shortage of time as, according to the research plan, the intervention with at least 16 nurses had to start with the first group in the middle of November, while the second was due to start in December. Before the intervention, the nurses were supposed to have an enrolment visit and to have made audio recordings. After the summer of 2003, an inventory of existing nurse-led clinics at health centres was made for the same area of southern Sweden as before, adding Bohuslän and Dalsland, resulting in 142 nurse-led clinics. The inventory and recruitment of nurses continued during the time of the intervention, as 12 nurses who initially agreed to participate in the intervention subsequently refused to do so, some of them for family reasons but also because they were not given leave of absence. The inventory was extended to

Table 1. Overview of the research design of the studies

Study	**Paper**	**Aim**	**Design**	**Participants**	**Data collection and analysis**
A	I	To observe what kind of non-pharmacological treatment was given by the nurses during visits for blood pressure measurement and to measure the nurse's and the patient's activity level using the Nurse Practitioner Rating Form (NPRF instrument).	Randomised, descriptive, cross-sectional	21 public-health nurses	Structured observations (NPRF instrument) Statistical analyses (Mann-Whitney U test, chi-square test and Spearman's rank test)
B	II	To explore the effectiveness of using a structured nursing intervention program with patient-centred counselling for hypertensive patients.	One group pretest-posttest	100 patients	Laboratory and lifestyle variables Statistical analyses (Student's t-test, Mann-Whitney U-test, chi-square test, Pearson's test and Spearman's rank test)
C	III	To analyse the effects of nurses' training on the SOC model when counselling hypertensive patients to perform lifestyle changes.	Randomised pretest-posttest	19 nurses 71 patients	36 audio recordings before and 35 after the intervention Content analysis
C	IV	To analyse how nurses used patient-centred counselling with hypertensive patients after consultation training.	Randomised pretest-posttest	19 nurses 71 patients	36 audio recordings before and 35 after the intervention Content analysis

encompass the whole of Sweden during the winter, which gave another 86 clinics, making a total of 228 clinics. Due to the delayed recruitment and the many withdrawals, a third group had to be created to run the intervention in February 2004. As the intervention group had to be filled to maintain the scheduled research plan, all the recruited nurses from Götaland and Svealand were selected to join the intervention group, until 19 nurses had taken part in the intervention. The nurses in the control group did not take part in any activity reported in this thesis.

The nurses participating in the intervention group (n=19) were 38 to 59 years of age (mean=47) and had been working for four to 36 years (mean=20) since their registration. The nurses had been working at the nurse-led clinic for hypertension for between one and 16 years and 13 of them had completed special education (public-health) for working at health centres.

Interventions

Following a hypertension nursing programme (Paper II)

A structured hypertension nursing programme was developed in collaboration with the staff at the health centre as an intervention for Study B. The programme was followed during the study period from the patients' first visit to the public-health nurse to the last visit after 15 months, with visits every three months. All the participating patients visited the same public-health nurse on every visit. On the first visit, three months after their yearly visit to the physician, all the patients were given an educational handout describing hypertension and the associated risks of stroke and myocardial infarction. The handout also contained information on how to change risk profiles in relation to smoking, alcohol consumption, physical activity, overweight and blood lipids. The effects and side-effects of different groups of antihypertensive medication were also included.

Patients who were overweight (body mass index (BMI) 25.5-30), had an increased waist circumference (94-102 cm for men, 80-88 cm for women) (Lean *et al.*, 1995) or increased blood lipids (S-cholesterol >5.0 mmol/l or S-triglycerides >1.8 mmol/l for men, >1.6 mmol/l for women) were given information and were counselled with simple advice on diet (Table 2). When the BMI was ≥30.5 or the waist circumference was very increased (>102 cm for men, >88 cm for women), the patients were given individual counselling on diet after one to two days of obtaining a diet history. If a satisfactory effect on blood lipids was not achieved (according to the limits for men and women respectively) with a change of diet for six months, the physician was consulted for an assessment of possible pharmacological treatment. Individual counselling on stopping smoking was offered to smokers. High alcohol consumption (>210 g 100% for men, >140 g 100% for women) was commented on and the patients were informed about the risks of their high consumption. Patients who did not perform any physical exercise were counselled on the benefits of activity for 30 minutes two to three times/week, such as cycling, brisk walking or swimming, or vigorous physical activity, like spinning, aerobics, ball sports or jogging. If the patients perceived stress above comfort level they were counselled on how to deal with it. The patients were asked

about the name and dosage of their medicines and to describe the mechanism of action in their own words. The patients with incomplete knowledge were given information.

If the blood pressure was increased (≥140 and/or ≥90 mmHg), follow-up appointments were scheduled to assess and optimise the treatment that was given. More frequent visits were offered during a period when more intense counselling was required regarding diet, smoking, alcohol consumption, physical activity and stress management. At the regular follow-up visits every three months, all the patients were counselled in relation to their individual risk profiles. The participating diabetic patients had regular check-ups following the Swedish diabetes programme every three months with a nurse specialising in diabetes.

Consultation training (Papers III, IV)
The course in consultation training in hypertension care for nurses for Study C was residential and lasted for three days during the winter of 2003 and 2004 on three occasions, with five, six and eight participants at each. The nurses were trained in patient-centred counselling (Rollnick *et al.*, 2002), the SOC model (Prochaska & DiClemente, 1982), guidelines for cardiovascular prevention (de Backer *et al.*, 2003), lifestyle factors and pharmacological treatment. What was meant by patient centredness for health behaviour change is described in Table 3. The nurses were encouraged not to feel uncomfortable with silent moments and to use expansive ways of putting questions such as "Tell me more…". To get practice after the lessons, consultations between the nurses and simulated patients were video recorded. The video recordings were to take a maximum of 15 minutes and took place with a maximum of three group members and two supervisors present. The group members had one or two aspects of the counselling to cover using the Prismatic model (Hedberg, 1999), which had been further developed to suit this special training. The supervisors operated the camera. The Prismatic model was designed to cover assessments of patient perspectives, the use of the SOC model, the use of time spent, social perspectives, gender aspects, agendas, medical aspects, explanations and body language in the consultations. Assessments of the

Table 2. The content of simple advice on diet

Distributing food throughout the day
Reducing the intake of energy-rich food
Choosing light dairy products and low-fat cheese
Choosing cooking fat high in mono- and/or polyunsaturated fat (olive or rape-seed oil)
Eating fish more often
Eating chicken rather than pork and beef
Choosing bread and cereals rich in fibres
Cutting off visible fat
Choosing low-calorie delicatessen products
Eating more fruit, vegetables and root vegetables
Distinguishing between weekdays and special occasions

performed counselling training were made during recordings and then, after all the recordings had been made, once more at playback with two supervisors participating. A discussion then followed in the groups to review what had taken place in the consultations.

An educational booklet (Following one's treatment step by step – working booklet for patients) (Drevenhorn *et al.*, 2003b) describing the stages involved in behavioural change was produced for the patients as a working booklet specially designed for the study. The booklet contains information about hypertension and risk factors and there is space for making individual notes. One page is designed for a final summing-up of the patient's risk factors where the patient can consider the order in which to deal with them. Another booklet was produced for the nurses (Following one's treatment step by step – instructions for health-care personnel) (Drevenhorn *et al.*, 2003c) to be used as guidance in counselling the patients in the consultations with examples of stage-specific questions.

Data collection

Instrument and observations (Paper I)

The study was introduced to the 21 public-health nurses with a letter a month before they were contacted by phone to make an appointment. All the nurses had open hours for patients to come to the clinic for problems of all kinds. When a patient arrived at the clinic to have a blood pressure measurement, an observation could take place if the patient approved of the observer's presence in the room. All the observations were carried out by one of the authors (ED), and during the open hours during one day, a maximum of three observations and mostly one or two were made. When the nurse left

Table 3. Features of patient centredness (Rollnick *et al.*, 2002) in counselling for health behaviour change

Patient centredness
Using open questions
Using expansive ways of putting questions
Reflecting on what is said
Perhaps provoking the patient
Allowing pauses
Identifying the patient's perceived threats to health
Identifying the patients' perceived vulnerability to complications
Making it easier for the patients to obtain and assimilate relevant knowledge
Helping the patient to see opportunities for changing behaviour
Helping the patient to weigh up the pros and cons of changing behaviour
Identifying the patient's beliefs in the power of changing behaviour
Negotiating the reason for behavioural change
Negotiating where the patient should start his/her behavioural change
Negotiating the goal for changing behaviour
Negotiating the behaviour the patient should change
Summarising the counselling

the room to let the patient rest, the author left too, so as not to disturb the patient's rest. The nurses could not be asked whether the patient had received any non-pharmacological treatment before, because there was usually no access to the patient's record in the examination room. At several health centres, the nurses were not responsible for certain patients or a specific catchment area. Instead, the nurses let the patients in one after another. This meant that some of the patients were new to the nurse, even if they had been to the office before.

The NPRF instrument (Prescott, Jacox, Collar & Goodwin, 1981) was used to investigate the kind of non-pharmacological treatment that was given by the nurses and to measure the nurse's and the patient's communication level while the blood pressure was measured. The observations were non-participant. The instrument contains three parts: the activity area, the content area and the global scale. The first part, the activity area, deals with the kind of tasks that are performed during the visit, with registrations every 30 seconds (Table 4). Any activity that was performed during a 30-second observation period was registered, even if the activity did not last for a whole 30 seconds. During one 30-second period, there could be several activities that were in progress and were registered. When any part of non-pharmacological treatment regarding smoking, alcohol consumption, weight, diet, physical activity or stress was mentioned, a note was made once for each part at each observation. The second part, the content area, deals with psychosocial and somatic aspects of the existing problem and the health promotion in the conversation. The third part, the global scale, is a scale from 1 to 7 on which both the patient and the nurse are assessed as to their level of communication in the encounter.

Another instrument was developed to define the technique the nurse used for measuring blood pressure (Drevenhorn *et al.*, 2001). After testing this instrument, three observations of each nurse were thought, after discussion between the observers, to be enough to cover the internal validity of the instrument and the reliability in the observation situation (Polit & Hungler, 1999). This is why three observations were made of each participating nurse. The NPRF instrument was found to be easy to fill in but required some practice in order quickly to define somatic and psychosocial aspects of problems and health promotion in the conversations. The authors of the NPRF instrument (Goodwin *et al.*, 1981) have examined its reliability and validity and point out that, before use, the inter-rater reliability must be determined. The validity of the third part of the NPRF instrument, the global scale, is not known.

Laboratory and lifestyle variables (Paper II)

Blood pressure was measured using a standardised technique (Drevenhorn *et al.*, 2001) and BMI and waist-hip ratio (WHR) (Lean *et al.*, 1995) were registered on every visit every three months. Tests for blood glucose, renal function and blood lipids were assessed at the start and the end of the study, together with history of smoking, alcohol consumption, physical activity (activity performed to raise the pulse for at least 30 minutes, such as cycling, brisk walking or swimming), perceived stress and other diseases. In the same way, the patients were asked about their knowledge of own medication (knowing the name of the medication and dosage and being able to describe in

one's own words the mechanism of action), physical problems and previous non-pharmacological treatment. Patients with the metabolic syndrome were specifically identified due to their higher risk profiles. To be classified as having the metabolic syndrome, three or more of the risk factors: elevated blood pressure (≥130/85 mmHg), increased waist circumference (>102 cm in males, >88 cm in females), elevated triglycerides (≥1.7 mmol/l), reduced HDL-cholesterol (<1.0 mmol/l in males, <1.3 mmol/l in females) or elevated plasma glucose (≥6.1 mmol/l) should be present (de Backer *et al.*, 2003). The 11 diabetic patients had data collected from their records.

Table 4. The structure of the NPRF instrument (Prescott *et al.*, 1981) with its three parts

1. Activity area with tasks performed	
History taking Physical examination Treatment Advice and instructions Factual information Explanation Demonstration Out of the room Other	
2. Content area	
Existing problem	
Somatic aspects: e.g. pharmacological discussions, visits to the physician and changes in the body as a consequence of high or low BP	Psychosocial aspects: e.g. the patient's emotional experience of, for instance, side-effects of medicine, hospital visits and stress at work
Health promotion	
Somatic aspects: non-pharmacological treatment, other problems taken care of	Psychosocial aspects: counselling designed to increase the patient's understanding and motivation for lifestyle change
3. Global scale	
Level 2 (low)	
Nurse does not attempt to identify client's feelings, has a disinterested manner and does not individualise the approach.	Client can identify problems, is inattentive and responds with 'I don't know' or with poorly thought-out answers.
Level 4 (medium)	
Nurse elicits concerns or feelings from the client but does not explore them in depth, has a friendly and interested manner and individualises approach to the client in some areas.	Client gives appropriate responses to questions, is comfortable and co-operative during the visit and identifies potential problems.
Level 6 (high)	
Nurse consistently explores client's feelings or concerns in depth, has a supportive, empathetic and attentive manner and individualises approach to the client in all areas.	Client recognises responsibility for own health care, appears spontaneous and positive and is able to identify an approach to problems.

Audio recordings (Papers III, IV)
The 19 nurses in the intervention group audio-recorded their consultations with two patients before the consultation training and with two other patients within three months after the training. The patients were diagnosed with hypertension and might or might not be on medication. They could have had hypertension for several years or have been recently diagnosed and there were no requirements in terms of gender or age, but the nurse should not have met them before as hypertensive patients. As not all the nurses had access to two patients both before and after the course, there were 36 recordings before the intervention and 35 after the intervention. Due to technical problems one of the recordings before the intervention could not be used, resulting in 35 recordings before and 35 after. The nurses carried out the audio recordings themselves after receiving instructions from one of the researchers (ED) in the project.

Analyses
Statistical analyses (Papers I, II)
Normal distribution was investigated for the quantitative continuous variables. A two-sided parametric test (Student's t-test) was performed on normally distributed variables and a non-parametric test (Mann-Whitney U-test) was performed on non-normally distributed continuous variables, discreet or qualitative variables. A chi-square test was used when comparing groups or qualitative variables. Correlations were calculated using Spearman's rank test for quantitative, non-normally distributed variables (Papers I, II) and Pearson's correlation test was used for quantitative, normally distributed variables (Paper II). The significance level was set at $p<0.05$. The SPSS 7.0 (Paper I) and SPSS 10.1 (Paper II) statistical computer program was used.

Content analyses (Papers III, IV)
Content analysis is a method that is used to explore the content of a text and reflects attitudes, interests, values and reveals the focus of the talk (Krippendorff, 2004). It describes the characteristics of the communication in a specific context, what was said to whom, and classifies words or linguistic expressions. In the analysis, the researcher describes elements in the text and ends up interpreting the data. The elements can be words or sentences that are counted. Elements can also be metaphors, associations and connotations that can be described. In this analysis, words were counted and deductively identified predefined categories were used (Weber, 1990).

The recorded consultations were transcribed verbatim according to Linell (1995). Before transcription, the recordings were listened to by the researchers (ED, AB, KK) in order to obtain a first impression of the consultations. After the transcription, the author (ED) edited the transcriptions while listening to the recordings, corrected words/passages that had not been heard correctly and changed the names of people and places to maintain confidentiality. The transcriptions were then read several times. The researchers (ED, KK) listened to the recordings and validated the transcriptions independently. The words and turns (a person's uninterrupted utterance) were counted. The results of the analyses are presented both quantitatively and qualitatively (Sandelowski, 2000). The analyses were performed using QSR NUD*IST Vivo 1.2 software.

The coding process started by identifying text relating to risk factors and behavioural change belonging to the area of non-pharmacological treatment, i.e. smoking, alcohol, weight, exercise, blood lipids and stress. The coded passages in the text, the units, could be a sentence, several sentences or just some words and these passages sometimes needed to be seen in their context in order to be assessed as being relevantly coded. After all the recorded consultations were coded, the coding was started again with the first coded consultations to check for any inconsistency in the coding procedure. The main coding was performed by one researcher (ED) and three researchers (ED, AB, KK) were involved in discussions about identifying text for coding and the features of the categories to validate the coding. The coded excerpts were compared to verify any inconsistency in the coding. To confirm the validity of the coding, examples (excerpts) from the text are presented in Papers III and IV.

Stages of change (Paper III)

Text from the transcribed consultations which was identified as relating to areas of non-pharmacological treatment was coded as belonging to a given stage (Reed *et al.*, 1997) according to what the patient expressed clearly or what could be inferred from the context of the consultation. If, during the inventory of the risk factors, the patient obviously did not have a particular risk factor, the text was coded as belonging to the maintenance stage, e.g. not smoking, taking regular exercise or not exceeding the level of high alcohol consumption. The text from each risk factor was then scrutinised to determine the way in which the nurse had paid attention to the individual patient's varying readiness for change. Categories for coding were developed from Nolan's guidelines (Nolan, 1995) (Table 5) to describe how the nurses paid attention to the patients' utterances. The guidelines described the task the nurse should perform depending on in what stage the patient was. As the nurses did not fulfil the criteria according to the guidelines, the categories of giving information, identifying stage, giving support and a combination of giving information and support were added (Table 5).

Patient centredness (Paper IV)

The analysis of patient centredness was performed on the identified text relating to the lifestyle area and behavioural change as in Paper III. As part of the patient centredness analysis, assessments and counting of open and closed questions were made. The specific elements of patient centredness (Table 3) were put into categories and the text was then coded into these predefined categories. When the categories were identified in the recordings, the result was put together in a diagram for each nurse to look for any pattern that might emerge (Krippendorff, 2004). This means looking for any differences in the use of patient centredness before and after the training.

Table 5. A brief description of the guidelines for attending to patient's readiness for change (Nolan, 1995, p.18A) with categories added to describe how the nurses paid attention to the patients' utterances in each stage

Patient's stage	**Practitioner's task**	**Categories for coding**
Precontemplation	Help patient identify personal priorities and lifestyle goals. Build rapport.	Information Stage identified Support Fulfilled*
Contemplation	Build motivation by having patient review pros and cons. Provide encouragement and information.	Information Stage identified Support Information and support Fulfilled*
Preparation for action	Increase commitment by supporting, teaching coping skills and negotiating date for change.	Information Stage identified Support Information and support Fulfilled*
Action	Ensure adaptive lifestyle practices replace previous behaviours. Check availability of social support and skills for managing situations that can trigger relapse.	Information Stage identified Support Information and support Fulfilled*
Maintenance	Review support for new lifestyle habits and reinforce targeted goals.	Information Stage identified Support Information and support Fulfilled*

* All criteria fulfilled for attending to patient's readiness to change according to the guidelines

Ethics

All the studies were conducted in accordance with the Ethical Declaration of Helsinki (WMA, 2000). Study A (Paper I) formed a component part of the clinic's quality progress (SOSFS 1996:24) with the approval of the local ethics committee in 1998 and was conducted with the permission of the senior physician in the primary-care area. When performing the non-participant observations, the public-health nurses were asked for written consent and the nurses then asked the patients whether they approved of the observer's presence, after which the patients were asked a second time when they were introduced to the observer.

The patients in Study B (Paper II) participated voluntarily in the study or had data collected from their records after written informed consent was obtained. In Study C (Papers III, IV) an ethical dilemma was proposed, as conversations that normally exist behind closed doors between two people were studied. The audio recordings between patient and nurse were made with only the nurse and patient taking part. Both parties participated voluntary after giving informed consent and the tapes and all the material are treated as strictly confidential. The studies were approved by the ethics committee at the University of Lund, LU 526-99 (Study B) and by the Local Ethics Committee of the Faculty of Medicine in Göteborg Ö363-00 (Study C).

RESULTS

Non-pharmacological treatment given by public-health nurses during visits for blood pressure measurements (Paper I)

Of the average time, 15.2 minutes (SD 6.5), for a visit for blood pressure measurement 12 minutes were spent on resting and conversation. At 19 observations, of the 63, the nurse had a conversation during the patient's rest before measurement and at 24 observations there was some talk between rest and blood pressure measurement. Patients on their first visit to the nurse were interviewed during two to 11.5 minutes (4-23 periods) and for three minutes (6 periods) on return visits. The association between longer interviews and patients' first visit was not statistically significant. History-taking was performed for 2-3.5 minutes (4-7 periods) with 27 of the 63 patients and for 6-11.5 minutes (12-23 periods) with 10 patients. Short advice and information-giving lasting 0.5-2.5 minutes (1-5 periods) occurred most frequently in the conversations. Explanations were uncommon. Eighty-six per cent of the patients were asked if they were on medication. One of these patients said that she did not take the prescribed medicine. In 18 of the conversations, there was a psychosocial aspect of existing problems such as perceived side-effects of medicine or stress at work in accordance with the NPRF instrument's definitions.

Twelve of the nurses mentioned non-pharmacological treatment with 18 patients. The most common topics were discussions about diet and physical activity and the least common topic was alcohol. Twelve (19%) patients were informed about the somatic aspects and 15 (25%) patients about the psychosocial aspects of the non-pharmacological treatment. There was no statistical significance when it came to the use of non-pharmacological treatment at new visits compared with return visits or the time the nurse had worked in primary care. The more years the public-health nurse had been working in primary care, the more likely she was to refer to the psychosocial ($p=0.024$) and somatic aspects ($p=0.026$) of health promotion.

Nurses' and patients' communication level during consultations (Paper I)

At 43% of the visits the nurse and patient met at Level 4, which meant that the nurse was kind and interested and the patient responded by being relaxed and cooperative. In 25% of the observations the patient's communication was on a higher level and the nurse's on a lower level and the opposite situation occurred in 14% of the conversations.

Effectiveness of using a structured nursing intervention programme for hypertension (Paper II)

The average level of SBP decreased significantly ($p=0.015$) from 141.9 to 137.5 mmHg and the DBP non-significantly for 52% of the 83 patients. Of the 14 smokers, two patients stopped smoking. Two patients with high alcohol consumption (>210 g 100% alcohol) were found among the men and one was found among the women (>140 g 100% alcohol). The women lost weight ($p=0.005$) but their WHR increased significantly. At the end of the study 35.4% of the patients had a BMI of ≤25 compared with 31.9% at the start. Men reduced their triglycerides levels ($p=0.034$), but no

other significant changes in blood lipids were recorded. Four patients started blood-lipid-lowering medication. Two patients with elevated blood glucose, previously unknown, were identified as diabetics.

A significant ($p=0.035$) shift in physical activity was seen from no activity at all to intermediate (n=7) and from intermediate to high (n=2), which was correlated to a reduction in blood pressure. Four of the nine non-diabetics who were identified as having the metabolic syndrome at baseline did not have it after 15 months, but, on the other hand, four new non-diabetic patients met the criteria.

The patients' medication was changed in 35% of the cases and 11% changed the dosage of their regular medication ($p<0.001$). Symptoms that could be interpreted as side-effects from medicine, such as headache, skin problems, fatigue, stomach trouble and cold hands and feet, were perceived by 11% of the patients. Seven patients with diagnosed hypertension were not medicated at baseline and two patients were still not receiving medication after 15 months. The men increased medication with diuretics, while the use of diuretics among the women decreased, but the use of single treatment with β-blockers decreased in both groups.

An overall description of the recorded consultations (Papers III, IV)

The thirty-five recordings made by the 19 participating nurses before the consultation training and the 35 made after it were analysed. The mean length of the recorded consultations increased from 18 to 20.5 minutes and the number of words increased. The number of turns increased, but the long turns were reduced for both nurses and patients. After the training, there was an increase for all the areas of non-pharmacological treatment that were mentioned in the consultations.

Nurses' use of the Stages Of Change (SOC) model in counselling (Paper III)

All the criteria for paying attention to patient's readiness to change (Nolan, 1995) (Table 5) were met in nine consultations before the training and in seven consultations after it. These criteria were mainly met by three nurses, while the remainder were equally divided between seven nurses. No counselling either before or after the training met the full criteria for attending to patient's readiness to change in the first, precontemplation, stage, which involves supporting the patient to identify personal priorities and lifestyle goals. In the maintenance stage, the most frequent way in which the nurses paid attention was by simply identifying the patient's behaviour and not making any further comments. After the training, attention was paid to support more frequently in the action and maintenance stages than before. A great deal of information about the benefits, or warnings about the adverse effects, of different behaviours was provided in all stages, even if information is only appropriate in the precontemplation and contemplation stages. Three nurses obviously followed the booklet that had been specially designed for the SOPHI study and talked about all behaviours. Pauses of four or five seconds did not appear to make the patient or the nurse uncomfortable after the training. The question about alcohol consumption was sometimes opened with a justification for putting the question on this subject. Excerpts illustrating how the nurses paid attention to the varying stages the patients' were in are given in Paper III.

Patient centredness in counselling hypertensive patients (Paper IV)

Open and closed questions were used by the nurses to the same extent before and after the training. A closed, direct question was most common in relation to smoking and taking snuff, but a question put in that way could also be asked in relation to physical exercise. A closed question could also be put with a suggestion about how the behaviour was exercised or in a negated sentence. Some nurses consistently used open ways of putting a question with "how is, how about" or a short "do you" question or just said "alcohol" with a questioning intonation. The expansive way of leading the counselling forward was found very rarely both before and after the training. Two turns were found to be mildly provocative after the training, but no such questions were found before the training. The use of reflection as a conversational method appears to be a style the nurse does or does not have. Isolated changes in the use of reflection could be seen.

Perceptions of threats to health in general and perceived vulnerability occurred occasionally in the consultations and were difficult to distinguish while coding. Before the training, the patient's apprehensions were disregarded in four consultations, but after the training no such approach could be found. After the training, information was generally supplied whenever relevant more frequently than before and the nurse asked the patients what they knew about a topic before starting to give information. The nurse then could fill in gaps of knowledge, correct the patients or support them. A slight increase in weighing up the pros and cons and identifying beliefs about non-pharmacological treatment was seen. Negotiating reasons for and where to start a change of behaviour was discussed twice as often in consultations after (n=15) the training compared with before (n=9). Goals for behavioural change, e.g. how far or for how long the patient should take walks or the estimated ideal weight, were discussed in a few consultations both before and after the training. Negotiations about the behaviour that was important to change occurred in half as many consultations after the training compared with before.

Summing up at the end of the visit took place in nine consultations both before and after the training and it was more or less the same nurses who did this. The diagrams (Tables 6, 7) give examples of the way a pattern could be found from the coding. For nurses A, B and C, no obvious difference in their counselling style was found when comparing before and after the training, although nurses A and B had a patient-centred style from the beginning. Nurses D and E increased their use, but nurse F reduced her initially high use of patient centredness in the consultations. Excerpts illustrating different parts of patient centredness are presented in Paper IV.

Table 6. Examples showing where no obvious differences in the pattern of using patient centredness could be detected before and after the training. The figures represent the number of times in each consultation the categories could be identified when lifestyle changes were counselled. Each nurse audio-recorded two consultations before and after the consultation training.

Categories describing patient Centredness	Nurse A				Nurse B				Nurse C			
	Before training		After training		Before training		After training		Before training		After training	
Open question	3	5	2	2		2	2	3		1		3
Closed question	1	2	3	3	3	3	2		2	1	2	1
Expansive expression												
Reflection	13	3	4	2	1	7	6	2	1	1		
Provoking												
Pauses		6	13	4	2		2	2		3		3
Identifying threat to health		1				3	1					
Identifying perceived vulnerability	1				1		1					
Disregard												
Obtaining and assimilating relevant knowledge			2	3	5	2	2	2		1	2	4
Seeing opportunities for change	1		1		4	10						
Weighing up pros and cons				4	1	1	3	1				
Identifying trust in non-pharmacological treatment	1				1							
Negotiating reason for change			1			1	3	2				
Negotiating where to begin the change	1	1		2	1	2	2					
Negotiating the goal for change	1		1	1	1							
Negotiating what to change	2		1			2						
Summarising						1						

Table 7. Examples showing where differences in patterns of using patient centredness could be detected before and after the training. The figures represent the number of times in each consultation the categories could be identified when lifestyle changes were counselled. A cipher is put in the first column for nurse E to indicate that no units for coding patient centredness could be found. Each nurse audio-recorded two consultations before and after the consultation training.

Categories describing patient Centredness	Nurse D				Nurse E				Nurse F			
	Before training		After training		Before training		After training		Before training		After training	
Open question	1		1	3	0		2	3	4	2	4	1
Closed question	1		4	2		1	3	1	1	1	1	2
Expansive expression									1	2		
Reflection			4	2				6	7	4		1
Provoking												
Pauses	1	2	2	1			9	4		2		1
Identifying threat to health	1		2				1	1				1
Identifying perceived vulnerability												
Disregard		1										
Obtaining and assimilating relevant knowledge			11	4			3		1		1	2
Seeing opportunities for change			4							1	1	
Weighing up pros and cons			1	3						2		
Identifying trust in non-pharmacological treatment	1		2							2		
Negotiating reason for change			2									
Negotiating where to begin the change			3	1			4		1	1		
Negotiating the goal for change												
Negotiating what to change	2		2	2			1			1		
Summarising	1	1		1				1				1

DISCUSSION

Methodological considerations

The studies in this thesis started with a descriptive study to show the kind of non-pharmacological treatment Swedish public-health nurses gave to hypertensive patients at health centres using the NPRF instrument (Study A in Paper I). An evaluation of a newly established nurse-run clinic in which patient variables were collected then followed (Study B in Paper II). After these two initial local studies in which the daily practice at health centres was described, an intervention study with consultation training for nurses from nurse-led clinics in southern Sweden followed (Study C in Papers III, IV). The research questions from each study determined the method that was used. There is an advantage to use a mixed method approach as data are gathered and analysed in different ways, which can give a richer understanding of the research problem (Cresswell, 2003). In triangulation the use of mixed methods is a way of strengthening the design when studying a phenomenon (Halcomb & Andrew, 2005). The phenomenon studied in this thesis is communication about lifestyle change, where data were collected both by an instrument (quantitatively in Study A) and by audio recordings (qualitatively in Study C). The triangulation continued with multiple approaches with both numerical analyses of the quantitative data and categorisation of the qualitative text data and, finally, with multiple researchers involved in the analyses.

The NPRF instrument (Study A in Paper I) was useful for judging how the public-health nurses spent their time with the patient while measuring blood pressure. The instrument has not been used in Sweden before and not in consultations with hypertensive patients. It was developed to describe a nurse practitioner's (NP) work in the USA and is oriented to education. For this reason, the instrument was chosen, as the NP works in very much the same way with health education as the Swedish public-health nurse. The randomisation of the observed nurses, although there were just a small number of them, strengthens the results and possibly makes them valid for other nurses at health centres as well. The health centres were located in both rural and urban geographical areas. The authors of the instrument (Goodwin *et al.*, 1981) remark that, when the instrument is used in its present form, close attention needs to be paid to the global scale during rater training and inter-rater reliability must be determined prior to actual use. These requests were fulfilled prior to the observations.

As a follow-up to the first study, Study B (Paper II) was performed with the development of a local hypertension nursing programme before establishing a nurse-run clinic with scheduled appointments for the patients. The invited patients could not be randomised to intervention or control groups, as there were no other nurse-led clinics for hypertension care in the organisational district. It is not possible or desirable for one nurse to manage both intervention and control group. Nor was any other nurse available to manage the nurse-led clinic, which meant that the same nurse who managed the patients also collected and analysed the data. This might have affected the interpretation of the analysis. The number of patients was low, as only 100 of the 177 invited patients chose to participate in the study and 17 patients were lost to follow-up. Due to limited resources, the study was planned to close after 15 months' follow-up. As

changing lifestyle often takes several years of contemplation before actually being implemented, especially if more behaviours are affected (Rollnick *et al.*, 2002), a longer follow-up period might have produced other results.

Study C (Papers III, IV) involved consultation training for 19 nurses at nurse-run clinics at health centres in southern Sweden. When they were invited to take part in the study, the nurses chose whether or not to be enrolled with the knowledge that they were going to be randomised to an intervention or control group. The nurses needed their manager's permission and had to be able to participate in the training for three days and stay overnight. Twelve of the nurses who had initially chosen to participate in the study withdraw between the time of inclusion and the day of the start of the training. As a result, the nurses who finally participated were a select group of highly motivated nurses, which was perhaps the best case scenario. All the withdrawals also affected the randomisation procedure, as the nurses included during a period of three months were taken to the intervention group to fill the training groups. The nurses were educated in small groups. Each containing five, six and eight participants. These small numbers made the groups very intimate and created a base for security during the video-recorded consultation training with simulated patients and the following self-reflection and review of their performance. Taking turns in front of a camera at a course to train special behaviour when approaching patients is an important experience (Latter *et al.*, 2000) and self-reflection via videotaping together with tutors improves communication skills (Poskiparta *et al.*, 1999). Even though the nurses in our study experienced both taking turns in front of a camera and self-reflection during the training, only a limited influence could be detected regarding the way they stage-directed their counselling according to the SOC model. It is suggested by Conn (1994) that counselling should focus on the processes in the SOC model instead of the stages.

All the researchers (AB, ED, KK) listened to the recordings and the transcriptions were read several times. The transcriptions were also validated independently by two researchers (ED, KK). To define reliability the coding was checked for inconsistencies and discussions about the coding strategy were held between researchers (Krippendorff, 2004). When coding for filling in instruments, raters are trained and inter-rater reliability is tested to achieve a certain level of agreement, but this was not appropriate for the analyses used in Study C (Papers III, IV). Instead, an inter-rater reliability discussion about how to define the categories for stage identification (Paper III) was held between the researchers (ED, AB, KK) until agreement was reached. For the categorisation of patient centredness (Paper IV), the validity was defined by referring to a definition. The results were analysed combining qualitative and quantitative methods and described with excerpts to verify the analyses. These excerpts were also compared to verify any inconsistency.

When evaluating the counselling training regarding the use of the SOC model and patient centredness, we analysed the data in both a quantitative and qualitative way in order to describe ways of counselling that would not otherwise have become apparent (Sandelowski, 2000). It is of interest to investigate both the distribution of length of time for which the participants were holding the floor and the way the special features

of the counselling that we studied were performed. The results from counting how often in the consultations special features of patient centredness occurred were presented for each nurse in diagrams to look for any pattern (Krippendorff, 2004) (Tables 6, 7). The diagrams showed that training even interfered with an initially satisfactory patient-centred approach. Revealing patterns is also a way of making the data transparent. Some of the changes in the counselling could possibly also be explained by simple maturation over time and not only as a result of the training. In this study, unlike in Study A (Paper I), the verbal communication with interaction about self-care was studied, something for which Courtney and Rice (1997) criticised the NPRF instrument, used in Study A, for not capturing.

General discussion of the findings

For this thesis, the counselling management of hypertensive patients at health centres was studied in everyday practice firstly when no nurse-led clinics had been established, then when a clinic had been set up and finally after consultation training for nurses working at established nurse-run clinics.

Non-pharmacological treatment

Study A (Paper I) showed that, when patients came to the health centre for blood pressure measurements the public-health nurses did not provide non-pharmacological treatment to any great extent. When asked, the public-health nurses answered that the content of the visit was complete in 97% of the visits. In spite of this, it was evident from the observations that the patients were not treated in the optimum manner, as some part of non-pharmacological treatment was only discussed at 28% of the visits. At a first visit, it is likely that there will be many more questions to deal with, but the time spent on history-taking was even shorter for patients on their first visit with the nurse than at follow-up visits. The visits focused on the blood pressure measurement and the medication, which 80% of the patients were asked about on their first visit. It is not known whether this scarcity of counselling on lifestyle was only due to lack of time during the open hours or perhaps lack of interest or deficient knowledge. Nevertheless, this lack of counselling on the important area of nursing in hypertension care, non-pharmacological treatment (Bengtson & Drevenhorn, 2003), needs to be pointed out. Another organisation with scheduled appointments would increase the opportunity to arrange time for counselling. Needless to say, it is also important to ensure that the nurses have a knowledge of cardiovascular diseases, pharmacological treatment and how to talk about non-pharmacological treatment.

In Study A (Paper I), a great deal of information and advice was provided by the public-health nurses and the same thing applied in Study C (Papers III, IV) before the training. The education and training gave the nurses a structure for their consultations. They supplied relevant information in a more individually adapted way, even though there were still a great deal of information, irrespective of in what stage the patient was. Information-giving appears to be something with which nurses are very comfortable (Burnard & Morrison, 1991; Lawson, 2002). Questionnaires to health-care personnel revealed that it was easy to provide health information and advice to patients, but devising personal behavioural change programmes was the most difficult step to

take (Laitakari *et al.*, 1997). Poskiparta *et al.* (2001) even report from video-recorded counselling sessions that nurses gave information from leaflets, even though the patients said that they had already been given that information.

After the training, more lifestyle areas were brought up for discussion (Paper III). The education, which also contained training on how to use the SOC model, contributed to the structure of the consultations. The usefulness of having the SOC model as a framework in health-promotion is pointed out in a review of promoting evidence-based practice (Crookes *et al.*, 1997) and in a review of motivating behavioural change (Shinitzky & Kub, 2001). As a result of the education, the nurses also had their knowledge of hypertension and its treatment updated, which gives confidence in the treatment of patients and the opportunity to popularise the topic in question (Weir *et al.*, 2000). The educational booklet that was developed (Drevenhorn *et al.*, 2003b) in order to be used with the included patients also helped the nurses to guide the patients to discuss every lifestyle-related area. This was also evident in the case of alcohol, which is known to be an emotive topic that is difficult to talk about (Lock *et al.*, 2002). The emotive feeling is shown in those cases in which the nurses apologised for bringing up the subject (Paper IV). When asked about the usefulness of the booklets, the nurses expressed their appreciation about having a tool to use in counselling patients where the patients were encouraged to participate in decisions about their treatment.

Hypertension nursing programme

One way of dealing with the lack of counselling on non-pharmacological treatment in everyday care at health centres shown in Study A (Paper I) could be to develop a national hypertension nursing programme to be used at nurse-led clinics (Sol *et al.*, 2005). The advantages of nurse-led clinics have been demonstrated by the reduction in cardiovascular disease and death in the group of high-risk persons (Haskell, 2003). Evidence suggests benefits from nurse-led management due to the rigorous application of guidelines and the more appropriate use of medication (Oakeshott *et al.*, 2003). When implementing a hypertension nursing programme at local level, it would be obvious that the nurses cannot manage the patients on their own but need to collaborate with the physicians at the health centres. By following such a programme, it would also become clear that the counselling calls for time to be reserved for scheduled appointments. Furthermore, the patients require several visits to follow up behavioural changes they initiate to obtain support and further counselling. This is very important when it comes to enabling the maintenance of the new behaviour according to Nolan's guidelines on stage-directed counselling (Nolan, 1995).

The advantages of following a hypertension nursing programme were shown in Study B (Paper II). The mean SBP of 141.9 mmHg decreased significantly, although that level was lower than the 156.5 mmHg found in a descriptive study of treated hypertensive patients in Sweden (Cederholm *et al.*, 2002). The number of patients who achieved the target blood pressure of SBP <140 mmHg increased by 5%, while the corresponding figure for DBP <90 mmHg was 10%. These changes might be due to the fact that one third of the patients changed their medication during the study period, but it was also due to increased physical exercise. It was hoped that following the hy-

pertension nursing programme would help the participants to reach every individual target value regarding blood pressure, blood lipids and weight and to increase their physical activity and stress management through both medication and counselling. Because of this, it is impossible to distinguish the effects medication had on the outcomes from the effectiveness of counselling. Generally speaking, keeping blood pressure well controlled contributes to economic benefits for the national economy, as well as helping patients avoid unnecessary complications (WHO & ISH, 2003) and suffering. Without the established nurse-led clinic, the three patients who had a high consumption of alcohol, the two previously unknown diabetic patients and the patients with the metabolic syndrome would have continued as before and had not had the chance to start any medication or consider lifestyle change. The same circumstances applied to the patients' blood lipids where a change of diet was not sufficient for four patients who had to start medication in addition to the diet. After 15 months, a larger number of patients of both sexes were below the individual limit value for blood lipids.

Communication

The communication between nurses and patients was analysed in Studies A (Paper I) and C (Papers III, IV). In Study A, the global scale of the instrument showed that patients and nurses most often met at an equal communication level in their conversations. This meant that the nurse was friendly and interested but did not explore patients' concerns in depth and the patient gave appropriate responses, was comfortable and co-operative. These results are in accordance with what Poskiparta *et al.* (1999) found when studying Finnish nurses' reflectivity in counselling patients. They state that the nurses needed training in communication skills. In Study C (Papers III, IV), the communication skills actually improved after training with more words and number of turns in the consultations. The turns also became shorter with fewer words and the consultations became more focused. This means that the counselling was more interactive and the nurses did not hold the floor to the same extent as before. Making sure that the patient is encouraged to talk about the behaviour that needs changing and how is an important sign of patient centredness in analyses of consultations (Rollnick *et al.*, 2002).

The consultation training comprised over stage-directed counselling, motivational interviewing and patient centredness. These three parts are intimately connected. Stage-directed counselling automatically becomes patient-centred, as it focuses on the patients' concerns and perspective, and motivational interviewing becomes stage-directed, as it is impossible to build up motivation if the counselling is not directed at the stage the patient is in. Attention was paid to support (Paper III) after the training, irrespective of in which stage the patients were, and this might mirror a more positive attitude to the patient. The educational booklet (Drevenhorn *et al.*, 2003b) containing information about lifestyle changes and a description of the stages involved in behavioural change was a useful educational aid for the nurses to emphasise the patients' own decision to consider their personal risk profile when performing any self-care. Negotiations about the reasons for and where to begin behavioural change increased after the training. This could be interpreted as a greater awareness of the stage the patient was in and a wish to put the patient in the centre. This is a very important point

as, when individuals are given a choice, their self-determination and intrinsic motivation is increased (Iyengar & Lepper, 2002). Moreover, to be truly intrinsically motivated the patient must feel free from pressures such as rewards or costs and action must be experienced as autonomous (Deci & Ryan, 1985). Study A (Paper I) also revealed that more experienced public-health nurses offered significantly more psychosocially directed health promotion, which means that their counselling was patient-centred.

Giving a great deal of information to a patient when it has not been requested, as was seen in the consultations before the training (Paper III), is a way of ignoring and not respecting the patient. The communication is disturbed and becomes disempowering. In empowering counselling, the patient's former experience and knowledge are taken into account in reflective listening and information is supplied when needed. This problem in counselling is illustrated by Poskiparta, Kettunen and Liimatainen (1998) in their analysis of reflective questioning about exercise before discharge from hospital, where they found that the nurses only used a few reflective questions and did not react to the patients' expressed worries. One single training period is apparently not sufficient to change a well-established agenda and conduct. This is confirmed in a review of evaluations of communication training programmes in nursing care where a limited effect on the nurses' counselling was found (Kruijver *et al.*, 2000). Recurrent consultation training could perhaps help to achieve skills in reflective listening, supply information when appropriate and still keep the counselling about lifestyle changes structured.

The counselling management model for nurses in hypertension care

To capture factors that affect the desired outcome of counselling i.e. lifestyle changes a model was constructed (Fig. 2), as a first literature review of hypertension, counselling and non-pharmacological treatment revealed the complex issue. The model should be seen as a framework for supporting the nurse to perform relevant nursing actions and interventions (Whitehead, 2001) and could conceivably, with further theorisation, be developed into a middle range theory (Liehr & Smith, 1999). An attempt was made to collect the most important factors relating to the patient, the nurse and their communication process concerning lifestyle changes in hypertension care. For example, it is crucial for patients to be independent, autonomous, when choosing to change lifestyle, i.e. to perform self-care (Orem, 1995). The studies in this thesis focused on both the nurse and the communication with the patient in Studies A (Paper I) and C (Papers III, IV) and on the outcomes of the communication in Study B (Paper II) (Fig. 3). Interventions involving the introduction of a hypertension nursing programme (Study B) and giving the nurses consultation training (Study C) focused on the concepts related to the nurse as tools to communicate in a more structured and interactive way with the aim of assisting patients' development of self-care agency to change lifestyle (Orem, 1995)

The individual patient's personality and traits affect the communication (Daly, 2002), attitudes and beliefs. The patient's perceived vulnerability, sense of coherence, locus of control and self-efficacy, among other things, also have an influence (Drevenhorn *et*

al., 2003a). The nurse faces a challenging task when meeting hypertensive patients who sometimes have multiple problematic behaviours. The nurse is good at giving support, as reported from Study C (Paper III) in this thesis and other research (Burnard & Morrison, 1991), and this is included in the recommended stage-directed counselling in the preparation, action and maintenance stages (Nolan, 1995). Supportive communication provided by health-care personnel is also recommended by Burleson and McGeorge (2002), but Bellg (2003) presents an objection to giving support, as it has limited meaning for the internalisation of new behaviours. He proposes that new behaviour that is only internalised at an integrated level is a prerequisite for maintenance. As support is an external regulation, the behaviour would be unstable and subject to change when the external conditions change. Wagner, Burg and Sirois (2004) found a trend towards increased social support from a friend or family member with advancing stage in the SOC model for smoking cessation. This is not a contradiction but in fact agrees with what Bellg proposed, as advancing in the SOC model is not the same as maintaining a new behaviour. It takes six months to five years to be 100 per cent confident about a new behaviour (Prochaska *et al.*, 2002).

Research shows that one of the most important factors for the nurse is to assess the patient's self-efficacy beliefs for behavioural change to make health practices easier (Bandura, 1997; Taylor, 1991; Yarcheski *et al.*, 2004). This is also a central part of motivational interviewing (Rollnick *et al.*, 2002). In overall terms, it appears to be useful to work with the SOC model to obtain a structure for the consultation and counselling that is given in a patient-centred way may lead to treatment plans that are more centred around the patient's beliefs and therefore more likely to produce self-care (Michie *et al.*, 2003). As the hypertensive patient is 'at risk', which is less obvious than being sick, the nurse has to make the patient an active participant in decisions regarding treatment and goal-setting (Sol *et al.*, 2005). It is crucial for the nurse to make a deliberate assessment of the patient's self-care deficits in order to choose the appropriate nursing actions, such as health education (Orem, 1995). Counselling skills appear to be of value in nurses' empowermental attitudes, in patient advocacy and in supporting the patient.

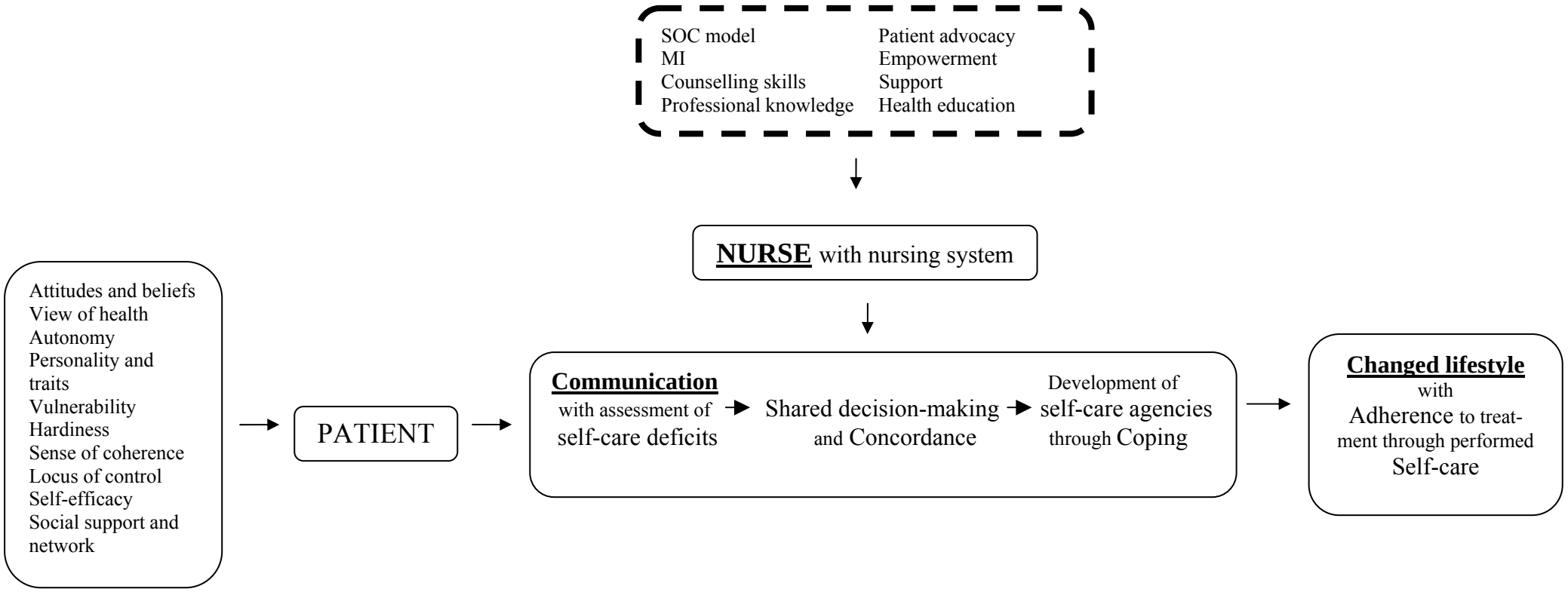

Figure 3. The proposed counselling management model for nurses in hypertension care with concepts involved in counselling about lifestyle changes. The areas studied in this thesis are underlined and the area that underwent interventions is marked with a broken line.

CONCLUSIONS

The observations of public-health nurses, the variables from following a programme at a nurse-led hypertension clinic and the audio recordings from established nurse-led hypertension clinics have all been collected from everyday practice at health centres. There is therefore good reason to believe that the data represent what actually happens at clinics. The results from this thesis revealed the following:

During visits for blood pressure measurement with public-health nurses at open hours

- non-pharmacological treatment was not provided to any great extent
- a great deal of information and advice without explanations was provided
- patients and nurses most often met at an equal communication level
- more experienced nurses offered more psychosocially oriented health promotion

Starting a nurse-led hypertension clinic following a hypertension nursing programme resulted in

- many medication adjustments
- positive changes in first and foremost blood pressure, blood lipids and exercise
- the realisation that follow-up periods of several years are needed for non-pharmacological treatment

Consultation training on the SOC model and patient centredness resulted in

- counselling becoming more focused, with more words and turns
- the nurses acquiring a more distinct structure for their counselling
- relevant information being generally supplied in a more individually adapted way
- the nurses paying attention to support more frequently, irrespective of in which stage the patient was
- negotiations about the reasons for and where to begin behavioural change increasing

IMPLICATIONS

Lifestyle change is a demanding task to perform. Hypertensive patients who are presented with these demands need to be counselled in a professional way. Motivation-building counselling cannot be performed in passing while measuring blood pressure during the public-health nurses' busy open hours at health centres. This kind of counselling calls for a more in-depth dialogue. Because of the great benefits this group of patients experiences from avoiding the metabolic syndrome and complications in the form of stroke and myocardial infarctions there should be reserved time for these consultations. The nurse must have time for history-taking relating to previous diseases and medication, assessing the patient's individual risk profile and counselling the patient. Making appointments with the patients could lead to continuity of person and care and also quality of care, as there would be more opportunity for the nurse to prepare the consultation.

To have a good structure in the hypertension care following a programme appears to be necessary. At the present time, there is no developed national hypertension nursing programme in Sweden. It would be a great advantage to have a research-based national programme that could be used at nurse-led clinics. To make good teamwork possible, the national programme could then be further developed and applied, according to local circumstances, in collaboration with the physicians at the health centres. Teamwork is valuable for the patients and gives confidence to both the health-care personnel and the patient, as the patient receives the same information and meets the same attitude from both the physician and the nurse. Lifestyle changes, from the first contemplation of a need for change to actual action, sometimes take several years. It is then very important to be aware of this when deciding on when to perform evaluations of the care.

To be able to counsel hypertensive patients, the nurses require education about non-pharmacological treatment and also on how to perform counselling in a stage-directed, patient-centred way. Lectures on how to perform counselling are not enough. Training is also needed. Recurrent consultation training can give structure to the consultation and increase individually adapted communication in assessing lifestyle behaviour.

Recommendations for future research

Once a national hypertension nursing programme has been developed, its implementation and usefulness need to be evaluated. How well the programme will be distributed throughout the country needs to be investigated. How the adaptation will be made locally is another issue to study. The health centres can follow the patients' progress over time when it comes to areas such as blood pressure, blood lipids and level of exercise, but in order to draw conclusions from the nurses' counselling, a randomised controlled trial has to be designed. The study has to last for at least four or five years, preferably longer, with the follow-up of patients in order to be able to conclude anything about lifestyle changes. Interviews with hypertensive patients could be conducted to reveal what determines whether or when a behavioural change is made in

order to obtain a richer picture and an understanding of what happens in the process of lifestyle change.

Not much research has been performed on nurses' communication in general or on the effects of consultation training. The results reported in this thesis from the ongoing SOPHI study and upcoming results may be used to guide the development of consultation training in the future. We do not know much about what patients expect and want from consultations at a nurse-led clinic. By interviewing patients in more detail, we can obtain access to information about the kind of care and treatment patients would prefer and this could then be of use in designing and organising hypertension care.

POPULÄRVETENSKAPLIG SAMMANFATTNING

Samtal med patienter med högt blodtryck på vårdcentral i ett omvårdnadsperspektiv

Avhandlingen handlar om samtal om icke-farmakologisk behandling, dvs livsstilsförändring angående tobak, alkohol, vikt, motion och stress, för patienter med högt blodtryck (hypertoni). Hypertoni är en folksjukdom med stor risk för komplikationer i form av slaganfall (stroke) och hjärtinfarkt. I Sverige behandlas 10% av befolkningen med blodtryckssänkande läkemedel till en kostnad av 1,6 miljarder kronor. Endast 14% av dessa når målet att ha blodtryck lägre än 140/90 mmHg. Förutom läkemedelsbehandling vid hypertoni ska alltid icke-farmakologisk behandling ges. Risken för att utveckla sjukdomar i hjärta och kärl är större om man använder tobak, har hög alkoholkonsumtion, felaktiga matvanor, psykosocial stress och har låg fysisk aktivitet. Män löper större risk än kvinnor. Hypertoni i släkten och stigande ålder är ytterligare riskfaktorer.

Sjuksköterskans omvårdnad av patienter med hypertoni består dels av blodtrycksmätning, dels av samtal om livsstilsförändring samt att stödja patienten i läkemedelsbehandling. Blodtrycksmätning ska utföras enligt en standardiserad metodik för att undvika felaktigt lågt eller högt värde. Mellan läkarbesöken mäter de flesta patienter med hypertoni sitt blodtryck på sin vårdcentral hos en distriktssköterska. Vid dessa besök bör samtal om livsstilsförändring ingå. Många patienter saknar tillräcklig kunskap om sitt blodtryck eller vad de kan göra själva för att påverka blodtrycksnivån. Detta kan medverka till att patienten beslutar att inte ta läkemedel eller att utföra livsstilsförändring.

Vid en litteraturgenomgång framkom många begrepp, som är relevanta att ta hänsyn till vid samtal om livsstilsförändring. För att få en översikt och klargöra sambanden mellan begreppen sammanställdes de i en modell. Modellen är tänkt att vara ett hjälpmedel för sjuksköterskan och att skapa förståelse för det komplexa förhållandet som patienter ställs inför vid krav om förändring av beteende dvs. att utföra egenvård. Patientens egna attityder och värderingar, syn på hälsa, behov av självbestämmande, personlighet och olika karaktärsdrag, upplevelse av sårbarhet för sjukdom, känsla av sammanhang, behov av kontroll, tillit till egen förmåga, sociala stöd och sociala nätverk är exempel på begrepp som påverkar hur samtalet om livsstilsförändring och själva förändringen utfaller. Sjuksköterskan bidrar med sin professionella kunskap, skicklighet i att samtala och en struktur och teknik för samtalet i form av Stegmodellen (SOC model) och Motiverande Samtal för att stödja patienten i att ändra livsstil. Att undervisa, agera som advokat för patienten och att ge stöd i samtalet på ett sådant sätt att patienten upplever makt över sin egen situation ingår också i sjuksköterskans omvårdnad.

En god kommunikation mellan patient och sjuksköterska underlättar livsstilsförändring. Är samtalet patientcentrerat, dvs att patienterna ges utrymme att berätta om sina egna erfarenheter och upplevelser och att beslut om behandling tas gemensamt av både patient och sjuksköterska, ökar sannolikheten att patienten fullföljer sin behandling. I

ett sådant samtal bör en diskussion ske om vilken egenvård patienten ska genomföra. Hur egenvården utförs påverkas också av de strategier som patienten använder för att hantera och klara av situationen. Som teoretisk ram har omvårdnadsteoretikern Dorotea Orems egenvårdsteori använts i modellen.

Syftet med avhandlingen var att studera kommunikationen mellan patienter och sjuksköterskor om livsstilsförändring i hypertonivård och att utvärdera effekter av dels införande av vårdprogram för omvårdnad av patienter med hypertoni och dels samtalsträning för sjuksköterskor.

I studie A (artikel I) observerades 21 slumpvis utvalda distriktssköterskor för att se om vad och hur de samtalade med patienter som kom för blodtrycksmätning på öppen mottagning på vårdcentraler. Ett observationsformulär användes vid de 63 observationerna. Studien visade att distriktssköterskorna inte samtalade om livsstilsförändringar i någon större utsträckning utan istället gavs mycket information och råd. Desto fler år distriktssköterskan hade arbetat desto oftare hade samtalet en psykosocial inriktning. Patienterna och distriktssköterskorna möttes oftast på samma kommunikationsnivå i samtalet.

I studie B (artikel II) samlades data in från 100 patienter för att undersöka effekten av införandet av en sjuksköterskeledd hypertonimottagning på en vårdcentral. Ett vårdprogram för omvårdnad vid hypertoni utvecklades och följdes av en distriktssköterska under 15 månader. Efter avslutad studie hade fem av sju patienter med diagnosen hypertoni, som inte behandlades med läkemedel, påbörjat medicinering. En tredjedel av patienterna bytte läkemedel och en positiv trend sågs i blodtryck, blodfetter och motionsaktivitet.

I studie C (artikel III och IV) fick 19 slumpvis utvalda distriktssköterskor och sjuksköterskor verksamma på sjuksköterskeledda hypertonimottagningar på vårdcentraler utbildning i samtalsmetodik. I utbildningen ingick att träna användning av stegmodellen där patienterna stegvis förändrar sin livsstil och att arbeta patientcentrerat med simulerade patienter. Träningen videofilmades och analyserades i smågrupper. Utbildningen utvärderades med hjälp av ljudbandinspelningar av samtal på sjuksköterskornas mottagningar. Samtalen analyserades enligt metoden innehållsanalys. Studien visar att sjuksköterskorna fick en bättre struktur i samtalen och att en mer individuellt anpassad information gavs efter utbildningen. Stöd gavs oavsett på vilket steg i förändringsarbetet patienten befann sig. Antalet repliker ökade och sjuksköterskorna minskade tiden för hur länge de själva talade i samtalen. Att väga för- och nackdelar med livsstilsförändring mot varandra och att identifiera värderingar om beteendeförändring ökade något efter utbildningen. Diskussion om anledningen till och hur en förändring skulle påbörjas ökade i samtalen.

Sammanfattningsvis kan sägas att distriktssköterskor inte samtalade om livsstilsförändringar i någon större utsträckning när patienter kom för blodtrycksmätning på öppen mottagning. Införandet av en sjuksköterskeledd hypertonimottagning där ett vårdprogram för omvårdnad följdes resulterade i positiva förändringar i patienternas blod-

tryck, blodfetter och motionsaktivitet. Efter utbildning i samtalsmetodik fick sjuksköterskor en bättre struktur i sina samtal.

Avhandlingen styrker vikten av att distriktssköterskor och sjuksköterskor på sjuksköterskeledda hypertonimottagningar på vårdcentraler får möjlighet till återkommande utbildning i samtalsmetodik och ökad kunskap inom hjärt- och kärlområdet. Ett nationellt vårdprogram för omvårdnad vid hypertoni finns inte i Sverige idag, vilket är en brist. Vid utvärdering av genomförda livsstilsförändringar är det viktigt att ha många års framförhållning då beteendeförändringar ofta tar många år av övervägande för att komma till stånd.

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