Quality of working life and quality of care

in Icelandic hospital nursing

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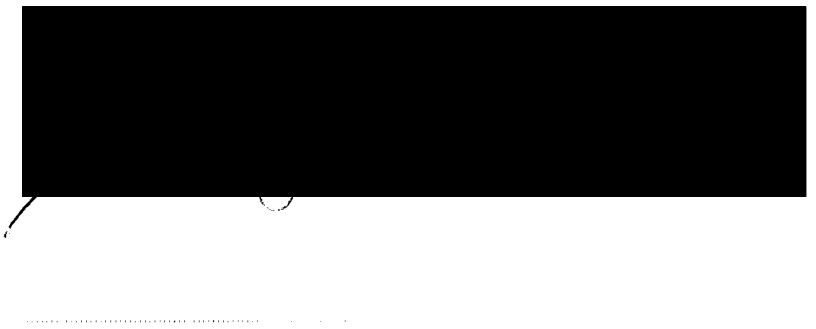
Declaration

This is to certify that the thesis comprises only my original work towards the PhD, that due acknowledgement has been made in the text to all other material uses and that the thesis is less that 100,000 words in length, exclusive of tables, figures, bibliographies and appendices.



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The following reviewed published abstracts and papers are based on the study

Gunnarsdóttir, S., Rafferty, A. M., Sigurðsson, H. Ó. (2004, June): *Nurse autonomy and professional self-governance in Iceland.* Paper presented at the conference "In sickness and in health", Reykjavík.

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Gunnarsdóttir, S. (2003, August): *Quality of working life: Icelandic nurses compared to five countries.* Paper presented at the conference "Hospitals in a changing environment", Reykjavík.

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Abstract

This thesis is a study about nurses' working environment in an Icelandic hospital (LSH), and its relationship with nurse job satisfaction, nurse burnout and nurse-assessed quality of patient care. The study focuses on ways in which nurses' working environment can be improved to meet increasing health care demands and nurse shortages with the ultimate goal of providing high-quality patient care. Previous studies show positive relationships between supportive management, professional autonomy, adequate staffing and good inter-professional relationships, on one hand, and nurse job satisfaction, nurse burnout and quality of patient care, on the other. The first part of the study is a cross-sectional survey among a large sample of hospital nurses using an instrument previously employed in international studies. The second part is a series of focus group interviews with a sub-sample of the survey to further expand the survey findings.

The study shows that working environment factors and nurse job outcomes are favourable for Icelandic nurses compared to nurses in five other countries. In this study the most important predictors of better nurse and patient outcomes are managerial support at the unit level, adequate staffing and good nurse-doctor working relationships. It is suggested that intrinsic job motivation, independent nursing practice, high educational background and supportive working environment of Icelandic nurses may contribute to their quality of working life and the quality of care they give their patients. The major contribution to knowledge from this study is to re-emphasise the important role of supportive frontline management, adequate staffing and good nurse-doctor working relationships, and to indicate the importance of intrinsic job motivation. Five new sub-scales to the key instrument are revealed, and a revised model on key determinants of nurse and patient outcomes is developed.

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There is a time for everything, and a season for every activity under heaven

Ecclesiastes 3;1

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Introduction

This thesis considers the working life of nurses in an Icelandic hospital. The study investigates nurses' working environment and its relation to nurse job outcomes and nurse-assessed quality of patient care. The study was conducted in the context of increasing health care demands and cost-effective efforts to enhance the capacity of health services to perform well.

Iceland is a Nordic welfare state with a population of around 300,000, enjoying quality of life and health status above average (Halldórsson, 2003). In Iceland, as in many other countries, nurses are a critical component of health care. They are important resources for health attainment and their contribution to the quality of health care is vital (WHO, 2002a). In the context of increasing demands for health care, and heightened public awareness of the contribution that nurses make to health attainment, the need for nurses seems to be growing in relation to numbers of patients (WHO, 2002a). Educational and health care systems, however, have not succeeded in meeting this growing need, and the critical shortage of nurses worldwide is a major health care problem (OECD, 2005).

In Iceland the shortage of nurses is a growing problem and the average shortage of practising nurses is estimated to be between 10% and 14% (Sigurðardóttir et al., 1999). Attrition from nursing practice in Iceland during the last 10 years (1993-2003) is estimated at 15% (Sigurðsson, 2004). Studies on the health care workforce are limited in Iceland, but increasingly human resources issues are accepted as an important contribution to the efficiency and the quality of health care services. Icelandic nurses provide a unique opportunity to explore the specific impact of a

range of contextual factors, such as a high level of education and autonomous professional status (Magnúsdóttir, 2003), on nurse and patient outcomes.

Chief among the factors contributing to the increased demand for nurses and nursing care are (1) economic expansion, (2) population growth, (3) an ageing population, (4) technological advantages, (5) increased patient acuity and (6) higher patient expectations (OECD, 2005). A poor working environment, exacerbated by cost containment, lack of resources and low salaries, is associated with nurse job dissatisfaction and burnout. These attributes and negative nurse job outcomes lead to high nurse turnover or limited attraction to nursing as a profession (Aiken, Clarke, & Sloane, 2002; Baumann, Brien-Pallas, Armstrong-Stassen, Blythe, Bourbonnais, & Cameron, et al. 2001; Petterson, Arnetz, Arnetz, & Horte, 1995; Saltsa, 2003). In turn, these conditions contribute to a reduced quality of patient care (Aiken, Clarke, & Sloane, 2002; Laschinger, Shamian, & Thomson, 2002; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002; Rafferty, Ball, & Aiken, 2001). Research in this area is increasing, but the challenge remains to identify supportive methods and mechanisms to create a more supportive nurse working environment across systems and cultures (McClure & Hinsaw, 2002). This thesis focuses on ways in which nurses' working environment can be improved, with the ultimate goal of improving the quality of health care. This is a vitally important issue in meeting the challenge of recruiting and retaining of nurses, to enable them to meet the demand for care and to improve patient care quality (West & Staniszewska, 2004).

Nursing is a very demanding job and is increasingly characterised by staffing shortages, deteriorating facilities, and high demands due to patient acuity that add to the stressful environment in which nursing is practised (Cox, Griffiths & Cox, 2004). There is an urgent need to explore the scope of the problem and to extend our

knowledge on how to manage it. The factors that constitute nurses' working environment are important determinants of their work experience as well as of outcomes of the services they provide.

The present study examines key questions associated with the influence of hospital working environmental features on nurse job satisfaction, perception of burnout and nurse-rated quality of patient care. It was undertaken by investigating the working life of Icelandic hospital nurses using a tool specifically designed to measure the extent to which a hospital possesses the attributes necessary to a successful working environment for nurses. This is referred to in the literature as a "magnet" hospital trait (Aiken, 2002; McClure, Poulin, Sovie, & Wandelt, 2002). Magnet hospitals are those, which have better than average levels of nurse and patient outcomes, and are characterised by a supportive working environment (McClure et al., 2002).

A questionnaire survey was conducted measuring the characteristics of nurses' working environment, nurses' job satisfaction and burnout, and nurse-assessed quality of patient care. The questionnaire was adapted from previous international research on the topic (Aiken et al., 2001). Findings were compared to those from similar studies in other countries and further examined via a series of focus groups with a sub-sample of nurses who participated in the survey.

It is important to establish evidence of positive attributes in the health care working environment and to understand how and why these are successful. Applying both quantitative and qualitative research methods to a study can lead to a more complete understanding, and can elicit data that would not be revealed by either method on its own. Qualitative methods in health research enable openness to reality from different perspectives and the capture of complex social factors in an

everyday context (Nutbeam, 1999). The qualitative data in the present study are examined for similarities and differences to the quantitative findings and provide a valuable insight into the aspects of Icelandic hospital nurses' working life.

The overall research question of the study is as follows: "Are supportive working environment factors for nurses in an Icelandic hospital (LSH) positively related to their job satisfaction, absence of burnout and assessed quality of patient care?" Before introducing the structure of the thesis, some characteristics of the Icelandic population and culture will be presented.

Icelandic society and health care

Iceland is a Nordic country with an area of 103,000 km^2 and is the most sparsely populated country in Europe, with 290,570 inhabitants in 2003. The population is expected to grow to over 350,000 in 2040 (Statistics Iceland, 2003). Figure 1 (page 18) presents some Icelandic key population indices. Iceland has a parliamentary democracy, but historically was ruled by Norwegian and Danish monarchies until 1944 when full independency was attained, a republic was established and the first president elected. The capital city, Reykjavik, is the world's most northerly capital. Because of the warm Gulf Stream, the population enjoys a warmer climate than its latitude would indicate.

Key figures	
Population (2003)	290,570
Size of the country (km^2)	103,000
Population density (inhabitants / km^2, 2003)	2.8
Gross domestic product (USD, 2003)	36,519
Economic growth (%, 2003)	4.3
Labour force participation (%, 2003)	82.9
Labour force participants, women (%, 2003)	76.8
Labour force participants, men (%, 2003)	83.5
Health care expenditure (% of GDP, 2000)	7.7
Life expectancy (women, years, 2001)	81.3
Life expectancy (men, years, 2001)	76.5
Number of nurses (total number 2003)	3,200

Figure 1. Icelandic population (Source: Statistics Iceland, 2003)

The Icelandic population is homogeneous with one language, Icelandic, a common history and a well-preserved cultural tradition. The nation has lived in isolation for more than 11 centuries and enjoyed an unspoilt nature. Family origins can often be traced back many centuries because of reliable historical documents. Literacy is universal, university enrolment is around 60%, and women form the majority of students in Icelandic universities (Statistics Iceland, 2003). Iceland is a welfare state rich in social capital, according to recent surveys, as measured by indicators on trust and family support (Halman, Abela, Anheier, & Harding, 2001). Labour participation is high, economic growth is positive, and the main export categories are marine products and energy-intensive products such as aluminium (Statistics Iceland, 2003). Quality of life and happiness are above average for industrialised countries, and Icelanders enjoy a high level of health as measured by life expectancy, number of disability-free years and self-reported health (Halldórsson, 2003; Veenhoven, Ehrhardt, SieDhianHo, & DeVries, 1993).

However, the use of anti-depressant drugs is significantly higher than in other Nordic countries (Ministry of Health and Social Services, 2004). As in many industrialised nations the Icelandic population is ageing and will therefore require increasing health care services. It is estimated that citizens over the age of 60 will increase in number by 56% over the next 20 years (Statistics Iceland, 2003).

The Minister of Health and Social Security is responsible for the administration of health care in Iceland and the service is primarily financed by central government. Hospitalisation is free of charge. The total number of nurses working in health care services in 2000 was 2,237 (127 inhabitants per active nurse; Statistics Iceland, 2005). In recent years, steps have been taken to reduce the overall cost of the hospital system (Halldórsson, 2003). Despite a recognition that Iceland's health care system performs well, there is a growing public concern about the quality of the care provided ("24-40 sjúklingar", 2005). However, outcome measures for the health care system are limited and formal quality reviews of Iceland's health care service providers have not been performed regularly. The population tends to be a demanding user of health care, expecting the best care available, and complaints related to health care services have increased (Landlæknisembættið, 2004). Over the past few years the trend is towards lengthening waiting lists for health care services (Landlæknisembættið, 2004).

The setting for the study, the Landspitali University Hospital (LSH), is the largest hospital in Iceland and the only in the area of the capital city, with approximately 4,800 employees. The average daily number of in-patients in 2003 was 939 (LSH, 2003). At the time that data were being collected for the present study, the candidate had worked at the hospital for five years. Among her previous roles she had been a senior manager working in quality management and head of

employee health at the office of human resource management. During the period of the study the candidate worked as a part-time staff nurse in the elderly care division of the hospital. This background meant that the candidate had a detailed inside knowledge of the hospital structure and had professional relationships with many of the hospital staff. Moreover, the candidate had, prior to the present study, conducted a qualitative study among unskilled staff at the hospital that focussed on their job-related well-being (Gunnarsdottir & Bjornsdottir, 2003). This experience, which gave her a considerable familiarity with the workings of the study hospital, was considered strength in the context of the present study. This inside knowledge helped the candidate to gain an in-depth and textured understanding of the complexity of the research topic, facilitated access to contextual information, and enabled effective contact with study subjects who were consequently willing to participate despite their hectic daily schedules. The insights available to the candidate proved helpful both during the preparation of the study, throughout the data collection period, and during the data analysis. However, the candidate was aware of ethical challenges that arose as a result of her role within the study hospital and strove to maintain her position as a neutral researcher throughout the study process. This was done by planning and documenting every step of the study process according to methodological principles and guidance from advisors, who acted as a reference point in facilitating the candidate to adopt a critical distance from the study environment both for the quantitative and qualitative components of the study. Challenges that arose, for example with regard to potential preconceptions by the candidate about the study problem, were systematically reflected on by means of a reflective log-book that was then used throughout the study process in discussions

with advisors as well as with a trained research assistant. These were helpful devices in maintaining objectivity and ensuring that findings were derived from the data.

Structure of the thesis

Chapter one draws on the most relevant literature on nurses' working life and considers in particular how the factors in nurses' working environment are related to nurse job outcomes, i.e. job satisfaction, burnout, and quality of patient care.

Chapter two sets out the conceptual framework of the study and states the research question and study objectives. It introduces the two methods used, the study design and, specifically, the quantitative and qualitative methods employed to address the research question and study objectives. The chapter ends with a consideration of the ethical aspects of the study.

Chapter three is divided into three main parts, which contain findings from the analysis of the two data sets. In the first part, the survey findings are presented as they correspond to the study objectives and the core research question. The relative scores of the survey measures in comparison to international findings are likewise presented. In the second part, the survey findings are followed by the qualitative findings. The last part describes how the qualitative findings combine with the survey findings.

In chapter four, the findings from the two types of data are discussed with regard to previous research, and in relation to the context and conceptual framework of the study. This is followed by a reflection on the methodology of the whole study process, in particular from the point of view of its strengths and limitations.

Chapter five presents the main conclusions and the study's major contribution to knowledge. Implications for nursing leadership practice are suggested, together with ideas for future research and the way forward for hospital nurse management.

Chapter 1 Literature review

1.1 Introduction

This chapter examines relevant literature about hospital nurses' working life, in particular working environmental factors and their relationship to the quality of working life and quality of patient care. For the purpose of the present study, the quality of nurses' working life is the product of an inter-relationship between a supportive and healthy nurses' working environment and nurses' general well-being at work, e.g. as shown by job satisfaction and absence of burnout. Definitions for other operational concepts are provided in the corresponding sections.

Hospital nursing is a multi-faceted profession actively providing care twenty-four hours a day, seven days a week in a very complex environment. The care that nurses provide has a direct and significant impact on patient outcomes, and on the patient's family. The body of knowledge concerning the quality of the nurses' working environment has grown over the past 20 years and efforts have been made to develop evidence-based models that can be applied in practice and research. Two models of healthy working environment for nurses and patients are used to frame the present review: first, the traits of magnet hospitals as characterised by the link between supportive administration, good collaboration and nurse autonomy, on one hand, and positive nurse and patient outcomes, on the other (Aiken, 2002; Kramer & Schmalenberg, 2002) was involved; second, a recent Canadian model about healthy working environments for nurses (Registered Nurses Association Ontario Canada, 2004).

The traits of magnet hospitals were first derived from studies in the 1980s on hospitals successfully involved in recruiting and retaining nurses (McClure et al., 2002) and more recently patient outcomes (Aiken, 2002; Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Aiken, Lake, Sochalski, & Sloane, 1997; Laschinger et al., 2002). Magnet hospitals are those whose structure fosters high levels of nurse autonomy, nurse status within the organisation, control over nursing practice, and good relationships between nurses and doctors. Furthermore, among important administrative behaviours of nurse leaders at these hospitals are visibility and staff support. Recent research has supported positive outcomes for staff and patients and suggests that these hospitals may have better than average patient care outcomes (Aiken, 2002). Further descriptions of magnet hospitals and related research will be provided in a separate section (pp. 72-86).

The second model is derived from the work of scholars in occupational health promotion and nurses' working life research. This defines a healthy working environment for nurses at three levels, individual; organisational; and external. A healthy workplace is a product of the inter-dependence between determinants at these three levels. The individual level corresponds to determinants within the job itself, e.g. requirements, knowledge and skills. Determinants at the organisational level relate to the context and structure of organisation, relationships and scope of practice. The third level is external and corresponds to policy context, laws, regulation and societal trends (Registered Nurses Association Ontario Canada, 2004).

The remainder of this chapter is structured according to these two models, starting with a section on nurse job outcomes, i.e. job satisfaction and burnout. This is followed by a discussion of the quality of patient care; these being two aspects of the outcomes considered in the present study. The third part of the literature review

is concerned with nurses' working environment and is followed by a presentation on magnet hospitals and recent related studies.

The aim of this chapter is to describe factors relating to hospital nurses' working life to present what the current literature tells us about influential aspects of hospital nurses' working environment, and to assess how these are related to desirable outcomes for both nurses and patients. This area of research is rich and the list of variables is long, some of them conceptually closely related.

The general approach here is to describe and critique the most relevant observational studies. The main focus is on work published between 1999 and 2004, but older publications are also included where relevant. The majority of these studies come from the UK, USA, Canada, Australia and Nordic countries. Research studies were identified mainly from a search of health and social science databases, mainly of Pub Med. Websites of health care organisations, universities and research institutes were also used. Based on the research question and the available literature, the key variables for the literature review are as follows: job satisfaction, burnout, quality of patient care, leadership, management, work relationships, work demands, and levels of staffing. Empirical studies, quantitative and qualitative, in the context of hospital nursing and designed to test the impact of nurses' working environment on nurse and patient outcomes, are at the focus for the present review.

1.2 Nurse job outcomes

The following section considers the relevant literature on hospital nurse job satisfaction and burnout, these being key outcome measures for the present study. Job satisfaction is important for improving nurse retention (Irvine & Evans, 1995; Shields & Ward, 2001) and the evidence suggests that there is a direct relationship

between burnout and job satisfaction (Le Blanc, de Jonge, de Rijk, & Schaufeli, 2001; Kalliath & Morris, 2002; Sarmiento, Laschinger, & Iwasiw, 2004). Nurse job satisfaction and burnout are important nurse job outcomes, and in turn are strong determinants of patients' overall satisfaction (Aiken et al., 2002; Arnetz, 1999; Baumann et al., 2001).

Despite the large number of published studies, the determinants of job satisfaction are still not perfectly understood (Judge, Thorson, Bono, & Patton, 2001). In particular, a better understanding of the changing nature of nurses' job satisfaction still needs to be developed (Tovey & Adams, 1999). The challenge remains to improve our understanding of this in the context of constant changes in health care. Other aspects of nurses' experience at work are important and a growing body of research on stress and occupational health indicates several hazards and sources of job strain in nurses' working environment (Cox et al., 2004). However, the focus in this thesis is on job satisfaction and burnout, and the remainder of this chapter is organised around these two phenomena as they relate to the hospital nurses' working environment and quality of patient care. The study also explores the question of necessary knowledge in order to create a safe and successful structure for health care.

1.2.1 Nurse job satisfaction

Job satisfaction is defined as a pleasurable or positive emotional state resulting from the perception of one's job or job experience as beneficial (Locke, 1976). This thesis approaches the variable by applying three theories of human behaviour, (1) Herzberg's motivation-hygiene theory (Herzberg, Mausner, & Snyderman, 1959), (2) Maslow's theory of human motivation (Maslow, 1943), and (3) theory on intrinsic task motivation (Thomas & Velthouse, 1990).

Herzberg´s studies showed that employees are motivated to do work that they perceive to be significant and that there are two classes of factors that influence motivation, intrinsic and extrinsic. Intrinsic factors lead to job satisfaction because of a need for personal growth and self-actualisation, i.e. achievement, recognition, the work itself, responsibility and advancement. Extrinsic factors relate to policies, supervision, salary, interpersonal relations and working conditions, and these do not necessarily provide satisfaction, but can prevent dissatisfaction. According to this theory, job enrichment enables an employee's psychological growth through meaningful tasks, and is a continuous management function (Herzberg, 1987).

Herzberg´s theory is here considered as a valuable contribution to the understanding of nurse job satisfaction, in particular during times of increasing demands in health care, lack of staff and resources, and the resultant risk of limited attention to the individual staff member. Few relevant nursing studies are available on intrinsic motivation but one such study conducted among Dutch hospital nurses showed that intrinsic work motivation was primarily determined by work content, such as skill variety, professional autonomy, social support and opportunities to learn (Janssen, de Jonge, & Bakker, 1999).

Maslow´s theory of human motivation is useful when examining factors that influence nurse job satisfaction. This classic study presented a hierarchy of human needs, which Maslow defined as a prerequisite for an individual's ultimate satisfaction and happiness. Maslow argues that motivation is a cyclical process involving efforts to satisfy unmet needs related to different aspects of human nature, e.g. physiological needs, safety and security, a sense of belonging, self-actualisation and self-esteem (Maslow, 1943). Motivation is a key determinant of the individual health care worker's performance, but is still only one of many variables affecting it.

However, motivation is of great relevance for health care workers and hence their need to feel secure, needed and appreciated (Benson & Dundis, 2003). The theory of intrinsic task motivation is related to these two theories (Herzberg's and Maslow's) and illustrates the key task motivational elements as being associated with a sense of impact, competence, meaningfulness and choice (Thomas & Velthouse, 1990).

Evidence indicates that stress and low job satisfaction are problems for nurses in many countries (Aiken et al., 2001; Saltsa, 2003). Job satisfaction among Swedish nurses is reported as relatively high (Petterson & Arnetz, 1998). Recent study among Icelandic nurses indicates that they are satisfied with their jobs (Biering & Flygenring, 2000), despite a growing nursing shortage (Sigurdardóttir et al., 1999). However, it is suggested that Icelandic nurses experience their jobs as emotionally demanding (Biering & Flygenring, 2000). Limited research is available on the potential determinants of job satisfaction among Icelandic nurses.

1.2.1.1 Determinants of nurse job satisfaction

It is increasingly recognised that organisational attributes are important for nurse job satisfaction. Determinants have been related to various aspects of the nurse's working environment and nurse job characteristics. Two meta-analyses of nurse job satisfaction predictors identified links between job satisfaction and organisational and personal attributes (Blegen 1993; Irvine & Evans 1995). Among identified organisational attributes were organisational commitment, communication with supervisors, professional autonomy, recognition, and routinisation, communication with peers, and fairness. Among personal attributes were years of experience, locus of control, and behavioural intentions. The studies showed that organisational attributes had stronger influences on nurse job satisfaction than had personal attributes (Blegen, 1993; Irvine & Evans 1995).

In the following sections key determinants of nurse job satisfaction in a hospital working environment will be presented, i.e. leadership and management behaviour, workplace empowerment, autonomy, and nurse-doctor working relationships. These will be considered as they relate to previous research and to the focus of the present study. Detailed examination of these factors will be postponed to a section concerning the literature on nurse working environmental factors (section 1.4 page 48).

An international study of 43,000 nurses in the USA, Canada, England, Scotland and Germany showed the importance of the working environment for nurse job satisfaction. Furthermore, it indicates that nurses working in hospitals with weak organisational support for nursing care are twice as likely to report dissatisfaction with their jobs (Aiken et al., 2001). This is in line with findings from studies related to magnet hospitals that have shown a positive relationship between supportive management, professional autonomy, adequate staffing, and good inter-professional relationships, on one hand, and nurse job satisfaction, on the other (Aiken et al., 2002; Kramer & Hafner, 1989; Kramer & Schmalenberg, 1993).

A study with data from a large national survey of UK nurses showed that improved promotion and training opportunities are among the most important determinants of nurse job satisfaction (Shields & Ward, 2001). Among factors related to low levels of nurse job satisfaction are the comparative youth of nurses, high levels of education, relative low pay, least preferred shift pattern, being graded unfairly and unpaid overtime. It is interesting to note that this study shows that dissatisfaction with promotion and training opportunities has a stronger impact on job satisfaction than workload or pay (Shields & Ward, 2001). These findings are also in line with studies related to magnet hospitals indicating the importance of

educational opportunities in fostering nurse job satisfaction (Upenieks, 2002a). However, in the UK study high levels of education was related to low levels of nurse job satisfaction (Shields & Ward, 2001).

A study of the impact of leadership behaviour on nurse job satisfaction among staff, registered nurses and managers in two US samples indicates a highly positive significant correlation between leadership behaviour features and job satisfaction. Due to the small sample size ($n<100$) it is difficult to evaluate the predictive contribution of individual leadership behaviours (McNeese-Smith, 1995). Similarly, the study by Upenieks (2002a) found that certain supportive attributes of nurse leaders might explain the differences in job satisfaction scores, namely visibility and responsiveness. The study used quantitative and qualitative methods to determine whether there was a difference in the level of job satisfaction among nurses working in different hospital settings, i.e. magnet and non-magnet hospitals. The study also examined whether job satisfaction was linked to leadership provided by nurse executives. The qualitative part of the study elaborated on the understanding of nurse job satisfaction, specifically the importance of resources, adequate staffing levels, leadership visibility, recognition, continuing education, support services, clinical ladders and better compensation. The questionnaire survey findings show higher mean scores for job satisfaction among nurses working in magnet hospitals. The study demonstrates that higher job satisfaction is associated with good educational programmes, supportive management, adequate staffing levels, nurse autonomy and high standards of care (Upenieks, 2002a).

Laschinger and her associates have studied the impact of workplace empowerment on job satisfaction among Canadian nurses. These studies showed that workplace empowerment involves interaction of processes, which provide

access to information, support, resources and opportunities to learn and develop, resulting in high levels of psychological empowerment, and strongly influenced nurse job satisfaction (Laschinger, Finegan, & Shamian, 2001). The findings showed that job strain and psychological empowerment could negatively or positively influence the relationship between structural empowerment and job satisfaction. The relationship between job strain and job satisfaction was not significant (Manojlovich & Laschinger, 2002). Similar findings reported from a study of US hospital staff nurses indicate that psychological empowerment is the major predictor of job satisfaction (Larrabee et al., 2003). Psychological empowerment is defined as a dynamic process of personal growth and development (Conger & Kanungo, 1988).

Nurse autonomy has been linked to organisational structure, leadership behaviour and to job satisfaction (Aiken & Sloane, 1997; Kramer & Schmalenberg, 2003b; Rafferty et al., 2001; Upenieks, 2002a). By definition, nurse autonomy means the freedom to act on what one knows (Kramer & Schmalenberg, 1993) and contributes to the well-being of nurses and nurses' performance (Kramer & Schmalenberg, 2003b).

An Australian study shows that nurse autonomy is the most important job component for nurse job satisfaction, followed by professional interaction, task requirement, professional status and organisational policies (Finn, 2001). This study emphasises the possibility of the overlap between the concept of autonomy and other job components, such as professionalism. Studies of hospital staff in different countries have shown similar findings about the relationships between autonomy and nurse job satisfaction (Best & Thurston, 2004; Fung-kam, 1998; Tummers, Landeweerd, & van Merode, 2002). The potential overlap here with other concepts (Finn, 2001) and lack of definitional precision (Kramer & Schmalenberg, 2003b)

make it difficult to draw up a clear picture of the nature of the relationship between nurse autonomy and nurse job satisfaction. A similar methodological problem relates to other variables examined in the present review, and suggests that further studies are needed.

Good collaboration between professionals has been linked to nurse job satisfaction. A recent study of 10,022 staff nurses in 32 English hospitals investigates the importance of inter-disciplinary teamwork for nurse job satisfaction. Questions regarding teamwork included the relationship between doctors and nurses, ward management support, collaboration with other hospital departments, and the quality of medical care. The findings indicate that nurses with higher teamwork scores are significantly more likely to be satisfied with their work. The findings further indicate that nurses' professional autonomy and teamwork are significantly correlated (Rafferty et al., 2001). Another recent UK study emphasises the importance of cohesiveness of the ward nursing staff for nurse job satisfaction. The study suggests that managers facilitate intra- and inter-professional teamwork to improve nurse job satisfaction and solve recruitment and retention problems (Adams, 2000).

An US study targeted nurses, physicians and executives in a large hospital network to view different aspects of inter-professional relationships. The study also investigated how professional interaction affected nurse satisfaction, morale and retention (Rosenstein, 2002). Findings show that all respondents saw a direct link between disruptive physician behaviour and nurse satisfaction and retention. Another US study of 141 hospital nurses shows that team performance effectiveness has a significant positive effect on nurses' work satisfaction (Cox, 2003).

Furthermore, the findings show that intra-group conflict has strong negative effects on nurse job satisfaction (Cox, 2003).

Findings from studies on organisational culture further demonstrate that the strength of organisational culture predicts the level of nurse job satisfaction (Gifford, Zammuto, & Goodman, 2002; Tzeng, Ketefian, & Redman, 2002). Other related concepts of interest here include trust within organisations (Laschinger, Finegan, Shamian, & Casier, 2000; Laschinger & Finegan, 2005) and work commitment (Gould-Williams, 2004). These concepts have been related to job satisfaction and are worth exploring in the context of nursing, but are not the primary focus of the present review. Among other important factors for job satisfaction are the personal characteristics of the nurses themselves. Among these are self-esteem, generalised self-efficacy, locus of control and emotional stability, all of which have been linked to job satisfaction and job performance (Judge & Bono, 2001). Studies in this vein have indicated a correlation between general satisfaction in life and job satisfaction (Judge, Heller, & Mount, 2002). However, despite their importance, they are not a focus of the present study.

Few Icelandic studies of nurse job satisfaction have been published, but three recent surveys bear examination. A survey among nurses in Iceland (n=203) obtained information about their workload and its relationship to their well-being, health and job satisfaction. The results show that 40% reported stress related to high job demands. The most negative attitudes related to a lack of possibilities for promotion and salaries. The overall results indicated that Icelandic nurses are satisfied with their jobs and with their closest co-workers, and feel they get positive support from them (Biering & Flygenring, 2000). Similarly a survey into nurses' general well-being, physical health and working environment was conducted in 2002

(n=394). The study shows that 45% reported "fairly" and "very demanding" jobs, a little less than 50% felt they were exhausted from their work, and 44% reported they were in very good health. However, the majority of respondents reported high levels of job satisfaction (Sveinsdóttir, Gunnarsdóttir, & Friðriksdóttir, 2003). A survey conducted among a sample of all staff groups at Landspitali-University Hospital (LSH) in 2002 shows similar findings, i.e. overall general job satisfaction, in that 90% of respondents reported being "satisfied" or "very satisfied" with their jobs (Landlæknisembættið, 2002).

In summary, the above review of quantitative studies of nurse job satisfaction indicates that among determinants of nurse job satisfaction are supportive management and leadership, autonomous practice, a high standard of practice, psychological empowerment, recognition, and good professional collaboration. These correspond to theories of human motivation and satisfaction of needs (Herzberg, 1987; Maslow, 1943), and of intrinsic motivation (Herzberg, 1987). More attention to these aspects would represent a valuable contribution to current research into the solution of nurse job dissatisfaction (Backman, 2000). Despite a number of studies on nurse job satisfaction, there are still gaps in the literature. A better understanding of the determinants of nurse job satisfaction and definitional precision of concepts is needed. Furthermore, few in-depth analyses have been published about nurse job satisfaction and these can be of great importance, in particular during times of increasing work demands, lack of resources and a changing structure of nursing. However, the number of qualitative studies into nurse job satisfaction is growing and these provide an important contribution to the knowledge gained from quantitative studies. Three of these qualitative studies will now be presented.

An exploratory qualitative study was undertaken with a small sample of nurses working in the National Health Services in the UK to identify factors that influence nurse job satisfaction and nurses' intentions to leave their jobs (Newman & Maylor, 2002). The findings show that among the most important determinants are staff shortages, poor management, patients' and relatives' behaviour, and low morale. The authors present a complex chain of interaction between hospital environment and patient and nurse satisfaction. It is concluded that improvements for staff and patients will need comprehensive and multi-dimensional action to address collectively a whole set of inter-related parts (Newman & Maylor, 2002).

Another qualitative study was conducted among Swedish psychiatric nurses to describe their conception of group supervision and how it influenced their professional competence (Arvidsson, Lofgren, & Fridlund, 2000). Four descriptive categories related to professional competence emerged and one of them was concerned with job satisfaction in relation to group supervision. The third qualitative study was undertaken via focus group interviews with Australian nurses and assistants-in-nursing in long-term care. Factors that contributed to workplace satisfaction and dissatisfaction were examined. The data revealed that job satisfaction was associated with workplace flexibility, patients (residents), working in teams and capacity to provide optimal care. Factors related to dissatisfaction were working with inappropriately skilled staff, the need to perform non-nursing tasks, and an increasing need to be available for overtime work (Moyle, Skinner, Rowe & Gork, 2003).

In light of the present review on nurse job satisfaction, the inter-relationships between the concepts and terms used need further exploration, as does the influence of working environmental factors on nurse job satisfaction. Few qualitative studies

on nurse job satisfaction are available and the application of multiple methods would benefit the understanding of nurse job satisfaction. Icelandic data on nurse job satisfaction are limited; the present study aims to counteract this.

Research on nurse job satisfaction is important for nurses themselves and for the retention of nurses. Nurse job satisfaction is also important for patient outcomes and evidence points to a correlation between nurse job satisfaction and positive patient outcomes (Tzeng et al., 2002; Upenieks, 2002b). Burnout and job satisfaction are inter-related and studies have shown that nurse job satisfaction is a significant predictor of nurse burnout (Kalliath & Morris, 2002; Sarmiento et al., 2004). However, these are not identical constructs and the nature of the relationship is not clearly understood, but both concepts are related to poor working environment (Maslach & Schaufeli, 1993). Next, the concept of burnout will be presented and relevant studies about work place factors related to nurse burnout will be considered.

1.2.2 Nurse burnout

Burnout is understood as emotional exhaustion in response to a demanding environment, evoking negative attitudes towards recipients. The concept is also related to an individual's accomplishments, resulting in a non-productive relationship with work. According to Maslach, burnout is a prolonged response to emotional and interpersonal stressors at the workplace and is a sign of major dysfunction within an organisation (Maslach & Goldberg, 1998).

Burnout is a long recognised occupational hazard for professions concerned with human services, education and health care and is very much a product of the situational context shaped by social, political and economic factors (Maslach & Goldberg, 1998). The concept is closely related to other organisational and health

concepts such as mental health, work demands, stress, psychological strain, control and autonomy (Maslach & Goldberg, 1998). Evidence shows that nurses' burnout is also caused by a failure to derive a sense of meaning through work (Pines, 2000). Personal characteristics and resources are also important determinants of burnout (Cilliers, 2003; Flowers & Maddi, 2004; Greenglass & Burke, 2002) but are outside the scope of the present study.

Key characteristics of burnout are an overwhelming sense of exhaustion, feelings of frustration, anger and cynicism (Leiter & Maslach, 2001). The dimensions of burnout consist of concepts that are closely related to the concept of organisational empowerment (Hatcher & Laschinger, 1996; Laschinger, 1996b). Burnout is also related to the demand, control and support model (Karasek & Theorell, 2000). The concept of burnout is highly relevant when investigating nurses' working life, which is increasingly characterised by high work demands, diminishing resources and increased expectations of productivity and high quality patient care.

Job engagement is the opposite of burnout and is characterised by feeling energetic and effectively involved in work and people (Leiter & Maslach, 2001; Maslach & Goldberg, 1998). A work profile corresponding to job engagement would thus include sustainable workload, feeling of choice and control, recognition, fairness, and meaningful and valued work. Job engagement corresponds to human strengths and optimal function (Maslach et al., 2001). Correspondingly, job engagement has similarities to the core concepts of health promotion, i.e. capability, participation and quality of life (Nutbeam, 1998) and is thus relevant to the quality of nurses' working life.

Maslach has developed a multi-dimensional model of burnout and an instrument to measure its levels with three core dimensions: emotional exhaustion, depersonalisation, and reduced personal accomplishment (Maslach et al., 1996). The Maslach Burnout Inventory (MBI) was developed to assess these components in the context of human services. The inventory is recognised as a leading measurement of burnout and has been extensively piloted and tested (Maslach et al., 1996).

Burnout has been studied widely and emotional exhaustion has been linked with mental ill health (Schaufeli & Buunk, 1996). According to a recent publication by the World Health Organization and the International Labour Organization, mental health problems in working populations have a definite impact on employees' quality of life and the productivity of enterprises (WHO & ILO, 2000). Reducing nurse job strain, emotional exhaustion and burnout should therefore be essential targets of hospital workplace health promotion. These targets can be reached by organisational support and healthy organisational culture leading to improvements for staff, service and patients. Studies on the influence of working environmental factors on nurse burnout will now be reviewed.

1.2.2.1 Workplace factors related to nurse burnout

Studies into the determinants of burnout are increasing. The majority of these are cross-sectional; few are longitudinal. No intervention study into nurse burnout has been identified in this review. Working environmental factors are important for determining nurse burnout. A meta-analysis of a sample of nine studies among psychiatric nurses showed that burnout is negatively associated with job satisfaction, staff support and involvement with the organisation and positively associated with role conflict (Melchior, Bours, & Schmitz, 1997). Relevant studies on the determinants within hospital working environment will be presented next.

A cross sectional study of 109 German hospital and nursing home nurses investigated the relationships between job demand, job resources and nurses' life satisfaction. The Oldenburg Burnout Inventory, i.e. emotional exhaustion and disengagement, examined the experiences of two aspects of burnout. Results showed that job demands have a positive impact on emotional exhaustion and job resources have a negative impact on disengagement. Both burnout components have significant negative relationships with life satisfaction (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000). Two cross-sectional studies, one of 156 Dutch hospital nurses (Janssen et al., 1999) and the other of 260 US hospital nurses (Hillhouse & Adler, 1997) showed that emotional exhaustion is primarily predicted by a lack of social support from colleagues and by work overload.

A longitudinal study of 1,891 nurses from Canadian hospitals revealed similar findings. The study investigated the association between work-related psychological distress, strain, social support, on one hand, and burnout, on the other (Bourbonnais, Comeau, Vezina, & Dion, 1998). After adjusting for potential confounders, the results showed an association between high levels of nurse job strain, psychological distress, lack of social support and emotional exhaustion. However, contrary to expectations, social support at work did not modify the association between job strain and psychological symptoms (Bourbonnais et al., 1998).

Nurse burnout has been investigated in relation to Kanter's theory on organisational empowerment (Kanter, 1979). In a Canadian study, hospital nurses burnout was examined in a cross-sectional survey. The relationship between burnout and hospital staff nurses' perception of power and opportunity was investigated. The findings indicated significant relationships between perceived access to power and opportunities and all three levels of burnout, emotional exhaustion;

depersonalisation; and personal accomplishment (Hatcher & Laschinger, 1996; Laschinger, 1996a). These findings are supported in a recent study of nurse educators based on the same theoretical framework. This study shows that high levels of empowerment are associated with lower levels of nurse burnout and higher levels of nurse job satisfaction (Sarmiento et al., 2004).

Furthermore, studies related to the concept of magnet hospitals have shown the inverse relationship between burnout and supportive working environmental factors such as control over practice (Laschinger, Shamian, & Thomson, 2001; Rafferty et al., 2001; Shamian, Kerr, Laschinger, & Thomson, 2002), organisational support (Aiken et al., 2002; Aiken et al., 2002), professional autonomy (Laschinger, Shamian, & Thomson et al., 2001; Rafferty et al., 2001), and good nurse-doctor relations (Laschinger, Shamian, & Thomson et al., 2001; Rafferty et al., 2001). These have also shown relationships between high workloads and nurse burnout (Aiken et al., 2002; Sochalski, 2001). Further details on these studies are presented in a separate section (1.5 page 72) relating to the traits of magnet hospitals.

A Belgian study examined emotional exhaustion in 625 hospital staff nurses. The study is a cross-sectional survey of the influence of work stressors and unit managers' transactional and transformational leadership on emotional exhaustion. Impact analysis showed that physical and social stressors as well as role ambiguity are significant predictors of emotional exhaustion. Psychological environment and role conflict do not impact on emotional exhaustion. When leadership was investigated, neither transformational leadership nor contingent reward impacted significantly on emotional exhaustion (Stordeur, D'hoore, & Vandenberghe, 2001). Research into the effects of leadership behaviour on nurse burnout appears to be limited and these relationships need further investigation.

Research on nurse burnout is dominated by quantitative methods. Two relevant qualitative studies were identified in the present review. A recent study of Australian nurses described and interpreted their experience of burnout through content analysis. The findings support previous literature about the link between high workload and lack of support for nurse burnout. The findings also revealed the need for support to combat feelings of depression, helplessness and loneliness related to negative stress (Severinsson, 2003). An Iranian study used grounded theory to explore and describe hospital nurses' perceptions of the factors affecting their responses to burnout. This showed that nurses' and patients' personal characteristics influenced nurses' responses to burnout. It also showed that supportive behaviour of head nurses, nursing administrators and co-workers had a palliative effect and altered emotional responses and some aspects of attitudinal responses. Among these, the head nurse's support was the most effective factor. The study concluded that nurse executives are responsible for promoting a working environment that supports and motivates nurses, to develop delivery systems that promote positive adaptation and facilitate quality care (Rafii, Oskouie, & Nikravesh, 2004). These two qualitative studies contribute to the evidence on the role of work demands and social support at work for nurse burnout, and provide a valuable insight into the role of unit managers.

In summary, the present review shows that stress, work demands and lack of resources lead to nurse burnout. Social support at work and support from managers correspondingly produce lower levels of burnout. Two studies showed that support at work did not have an impact on nurse burnout. Despite a growing number of studies on nurse burnout, few qualitative studies are available. Moreover, it appears that cultural differences and lack of comparability of methods may cause some problems in comparison of findings across studies and in the application of measures

across cultures. This is supported by a study comparing nurse burnout levels across countries that proposed the need for further cross-national studies in this area (Schaufeli & Van Dierendonck, 1995). The present study aims to contribute to better understanding of burnout in relation to different cultures and settings.

Burnout is of high relevance for hospital nurse outcomes and thus for research and the administration of health care. Moreover, nurse burnout has been linked to patient outcomes. Research shows that high levels of nurse burnout are linked to negative patient outcomes and poor quality of patient care (Leiter et al., 1998; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). The next section considers relevant aspects of quality of patient care and the influence of the hospital working environment on patient care outcomes.

1.3 Quality of patient care

The quality of patient care and how nurses' working environmental factors influence patient outcomes need special attention while quality problems plague the health care systems in Europe and the US during times of increased health demands. Adverse events in health care in Western countries are increasing. It is estimated that every tenth patient in hospitals in Europe suffers from preventable harm and adverse effects related to health care (WHO, 2002b). The US Institute of Medicine estimated in 1999 that 98,000 hospitalised patients die each year in the US due to health care errors (Institute of Medicine, 1999). In a recent OECD report on quality in health care, the member countries are encouraged to apply diverse measures to contain cost of health care, reduce waste, enhance productivity and increase quality of health care (Docteur, 2004). Consequently, health systems are increasingly focused on clinical quality and safety (Berwick, 1999; Berwick, 2000).

High quality patient care is the ultimate goal of nursing care. Many threats to patient safety arise from aspects of nurses' work life. Among these are organisational culture, work processes, workload, work hours and management of nursing staff (Institute of Medicine, 2002). Adverse events have been linked to nurse shortages (Aiken et al., 2002; Needleman et al., 2002; Sochalski, 2001) and to failure in the organisation of care (Institute of Medicine, 1999).

It is important to examine how health care organisations can design nurses' working environment to create a safer health care system and facilitate the safe delivery of nursing care. This is important in the face of a current nursing shortage, long working hours, more acutely ill patients and shorter hospital stays (Institute of Medicine, 2002). During times of rapid change, it is important to understand better the relationship between working environment, staff attitudes and the quality of patient care. This is valuable to ensure the success of health care services, bearing in mind that quality of care can be achieved only through patient centeredness, respect, continuous healing relationships, continuous improvement and redesign (Berwick, 2004).

Health care quality is three dimensional, covering patient, professional and management quality (Övretveit & Aslaksen, 1999). There are three types of performance data; output, measures of time and financial indicators (Guest, 1997). Outcomes in health care are related to quality indicators such as complaints, number of nurses working in a ward, and health personnel's assessment of quality development (Övretveit & Aslaksen, 1999).

The evaluation of the quality of nursing care is based on outcomes of care. However the attribution of outcomes to differences in quality of care is complex. First, there are many determinants of health outcome, with some relating to the

patient, such as disease process, severity, and co-morbidity, and others relating to the care provided. The situation is complicated further by the variable lag periods between receiving care and the outcome being measured. Finally, there are many challenges involved in choosing and applying appropriate outcome measures. For example, it has repeatedly been shown that patients undergoing cataract surgery actually have worse post-operative scores on a widely used health status measure, the SF-36, because their improved visual acuity allows them to undertake more active pursuits, often unveiling previously unrecognised musculoskeletal problems (Mangione et al, 1994).

Given these diverse difficulties, researchers have frequently sought proxy measures of quality of care, and in particular measures of how care is perceived by those providing it (Aiken, Sloane, & Sochalski, 1998; Guest, 1997; Arnetz, 1999). This is analogous to the use, in household surveys in transitional countries, of a question on self-perceived financial status, that has been found to have considerably greater explanatory power than apparently harder measures such as income (Balabanova & McKee, 2002).

Of course, this raises a crucial question is whether this is a valid means of assessing actual quality of care. Compared with the rigorous testing that, for example, health status measures have been subjected to, it is apparent that self-perceived quality has been somewhat under-researched. The most obvious problem is a lack of a gold standard with which to compare it. For the reasons stated above, patient outcomes are problematic. Nonetheless, drawing on the conventional dimensions of validity, some reassurance can be drawn. The measure does have a degree of face validity. In other words, on the face of it, it seems to be focussing on what is important. It also has content validity, in that when it is used it is frequently

disaggregated into several specific aspects of quality, such as information given to patients, or patient involvement in decision-making, all of which can be related to what is commonly understood as the quality of the care process. However, it is also the case that some elements of "quality" are not included.

Turning to more quantitative assessment, there is also evidence of predictive validity, in that a Swedish study among 1,400 health care employees (nurses and doctors) showed that staff perception of the quality of patient care, in terms of information to patients, accessibility and patients involvement in care processes, predicted the results from independent aggregate data from patients complaints as well as findings from hospital incidents report for the same period (Arnetz, 1999). Similar findings were obtained in a study among 12,400 US nurses in acute care hospitals including nurse assessed quality of patient care as well as questions about patient adverse events, such as medication errors, infections and patient falls with injuries. The study found that nurses who rated their care on the unit as "fair" or "poor" also reported higher frequency of medication errors, infections and patient falls, compared to nurses who rated quality of patient care as "excellent" or "good" (Sochalski, 2001). Unfortunately, it was not possible to identify studies that had assessed concurrent or divergent validity, and this is clearly an area for further research, although it is not possible within the framework of the current thesis because of the inclusion of a single hospital. While recognising these limitations, it is concluded that there is sufficient evidence of validity to justify the use of nurse-rated quality of patient care.

A number of studies of magnet hospitals provide evidence of the relationship between the quality of patient care and nurses' working environmental factors, i.e. adequate staffing, supportive management and autonomy, and patient quality

outcomes (Aiken et al., 2001; Aiken et al., 2002; Rafferty et al., 2001). Research also shows that patients' satisfaction with hospital care is related to workload and unfinished care (Sochalski, 2001) and long work hours (Rogers, Hwang, Scott, Aiken, & Dinges, 2004). Patients' lack of satisfaction has also been related to nurses' emotional exhaustion (Leiter et al., 1998; Tzeng et al., 2002; Vahey et al., 2004).

It is evident from current research that adequate nurse staffing, workload and nurse-to-patient ratios are important for patient quality. These are supported by a recent cross-sectional survey in the US. This indicated that for nurses who reported adequate staffing, good administrative support and good relationships with doctors, the likelihood was significantly higher that patients would report greater satisfaction with their care (Vahey et al., 2004). Similarly, in a large sample of hospitals a study found that those with fewer registered nurses, patients were more likely to suffer complications such as pressure ulcers, higher rates of infections, gastrointestinal bleeding, pneumonia, falls, and errors in medication and transfusion. Furthermore, these patients were more likely to have to stay in hospital longer, and eventually to die from conditions that might have been reversed if treated in time (Needleman et al., 2002).

Among other organisational factors important for the quality of patient care are management and leadership. Övretveit (2004) recently conducted a review of the literature, which shows that there is evidence of the importance of leadership in achieving quality and safety improvement. However, the review also shows that there is little research specifying which types of leadership actions are required to bring out quality and safety improvements. There is an imprecise use of terms for management and leadership in these studies (Övretveit, 2004). Nursing research

points to structural (organisational) empowerment (see section 1.4.2.3) as being related to better quality of patient care (Laschinger, Wong, McMahon, & Kaufmann, 1999). Among the components of structural empowerment is trust, a feature increasingly considered fundamental to patient quality and quality improvement (Berwick, 2003; Green, 2004; Kanter, 2004).

There is a growing awareness in Iceland's health care system that the quality of patient care must be improved. A recent government assessment of the quality of hospital services has indicated good outcomes for the majority of quality indicators measured (Icelandic National Audit Office, 2003; Heilbrigðis- og tryggingamálaráðuneytið & Landlæknisembættið, 2003). Still, limited rigorous hospital data are available on patient care. In particular, LSH hospital data on nursing care patient outcomes and with regard to nurses' working environment are not available. Furthermore, there is a growing need for benchmarking Icelandic health care outcomes during times of rapid change in health care services.

In summary, the literature indicates that nurse staffing, workload, professional autonomy, good inter-professional relationships, supportive leadership and structural empowerment are important factors in health care, which in turn improve the quality of patient care. However, these relationships need further exploration in light of increased demands in health care, changing public expectations and involvement in health care services (West & Staniszewska, 2004). More research is also needed to bring about consistency in the terms and measures used (Övretveit, 2004). Further studies providing descriptive measures, as well as analyses of potential effects on patient outcomes, will strengthen the evidence for successful strategies in hospital quality improvements.

Given the importance of working environment for both nurse and patient outcomes it is important to examine the various aspects of nurses' working environment and further explore how they influence these outcomes. This is the aim of next section in this literature review.

1.4 Nurses' working environment

Two models of healthy nurses' working environment are used to structure the review of the literature. These are the evidence based on the traits of magnet hospitals (Aiken, 2002) and a Canadian model of healthy nurses' working environment (Registered Nurses Association Ontario Canada, 2004). Two dimensions of nurses' working environment will be examined. First, environmental aspects at the individual level are considered, namely nurse professional competence, work demands and staffing as requirements of work, and clinical autonomy. Second, at the organisational level, communication and collaboration between nurses and doctors and hospital administrative behaviour are considered, specifically how administrative behaviour relates to theories on empowerment. The review concludes with a section on magnet hospitals and related studies.

The third dimension of nurses' working environment, the nurses' external working environment, refers in this study to the context of Icelandic nursing. This aspect is integrated as information on Icelandic society in the opening section of this thesis (page 17) and on the Icelandic nursing workforce in chapter two (page 98).

1.4.1 Individual nurses' working environment

Nurses' working environment at the individual level relates to nurse competence; the content of the job and corresponding work demands and work-load (Registered

Nurses Association Ontario Canada, 2004). The relationship between work demands and control over practice is important both for the quality of nurses' working life and nurse productivity. Staffing is particularly important in light of increasing demands on health care and growing nurse shortages. Before reviewing these, the nature of nursing practice will be discussed briefly as this underpins the understanding of nurses' working environment and its influence on nurse and patient outcomes.

1.4.1.1 Nursing as a caring practice - nurse professional competence

The characteristics of a nurse comprise personal attributes and acquired skills and knowledge, which are related to the professional context both within and outside the organisation (Registered Nurses Association Ontario Canada, 2004). Nursing is an important part of patients´ healing and cure and is grounded almost entirely in human relations and caring. Caring is based on personal contact and the understanding of patients' needs. According to Eriksson, the aim of caring is to help the patient attain as good health as possible and the central tenet is respect for human dignity in all circumstances. The aim of the caring process is also to support nursing practice and decision-making of holistic care by integrating the crises of life, harmonising the conditions of existence, and building hope and belief for the future (Karrkkainen & Eriksson, 2004).

Nurses provide care for people in the midst of health and pain, birth and grieving (Benner & Wrubel, 1989). Hospital nurses monitor patients´ status, co-ordinate their care, educate patients and relatives, and provide therapeutic care. Caring is considered to have three discrete meanings, physical acts, protective nurse behaviours, and emotion-laden concern for patients. Caring can be seen as the content of nursing, a context or a process of delivering nursing. For the purposes of

the present thesis caring is understood as a nursing phenomenon and as a process by which nursing is delivered (Barnum, 1998; Watson, 1985).

Other essential parts of nursing are communication and collaboration with other health care disciplines. During times of high pressure and shorter stays of patients in health care organisations time for personal contact and communication can be limited. Hence, the opportunity for professional collaboration as part of the caring processes to benefit patients and relatives may decrease with potential consequences for professional standards of nursing care. There is a need to take into account demands associated with nursing practice which influence the quality of nurses' working life and the quality of patient care.

The international trend in nurse education is towards increasing the proportion of baccalaureate-prepared nurses in relation to the number of nurses with non-academic preparation (Clarke & Connolly, 2004). Recent research indicates that hospitals with higher proportions of nurses educated at the baccalaureate level have better patient outcomes (Aiken, Clarke, Cheung, Sloane, & Silber, 2003). However, more research is needed to draw firm conclusions about the implications of higher levels of nurse education for quality of patient care (Clarke & Connolly, 2004).

1.4.1.2 Demands in health care

Nursing is considered a very demanding job (Cox et al., 2004) and increasingly so in a complex health care environment with change, challenge and uncertainty as the norms (McKee & Healy, 2002). A series of Canadian studies that examines current strategies to address nursing workload issues indicates that higher nurse workload can lead to reduced job satisfaction and absenteeism, and threaten the quality of patient care (Advisory Committee on Health Human Resources, 2002). Nursing

shortage is currently a worldwide problem and is linked to an actual shortage in numbers of nurses, problems in maximising their productivity, and insufficient funds to hire the number of nurses needed to deliver care (Buchan, 2002; OECD, 2005). Nurses are working harder, spending less time with each person, caring for more individuals and doing more tasks in more intense ways, and this leads to work overload (Bauman et al., 2001). Heavy workloads and understaffing characterise unhealthy nursing environments (Aiken et al., 2002; Laschinger & Havens, 1997). Cross-national studies show that nurses report that they have to leave patient care needs unmet because they do not have the necessary time (Aiken et al., 2001).

A recent Dutch study on the organisational aspects of hospital nursing found that nurses' workload increased as care became more complex and less predictable, with higher staff occupancy rate and fewer resources available (Tummers et al., 2002). There is extensive evidence that reductions in hospital capacity, for example as a result of mergers, impact adversely on remaining staff (Valent, 2001; Armstrong-Stassen, Cameron and Horsburgh, 1996), and, especially, on those transferred to other facilities (Armstrong-Stassen, Cameron and Horsburgh, 2001). Adverse effects on staff are exacerbated by poor communication within the organisation and increased workload (Davidson, Folcarelli, Crawfors, Dupart and Clifford, 1997). An in-depth analysis undertaken in the UK on the impact of mergers involving nine hospital trusts linked increased stress and more intense workload to the effects of the merger, outcomes that were associated with weaknesses of senior management (Fulop et al, 2002). A Canadian study of 1363 hospital nurses reported that poor nurse job outcomes were related to weaknesses in the restructuring processes, for example the absence of good communication or perceived fairness in job losses (Burke and Greenglass, 2000). However, the available evidence suggests

that adverse outcomes are not inevitable and, with care, successful relocation of staff is possible and can lead to improved job satisfaction and decreased burnout (Burke, 2002).

Although threats from the physical environmental hazards at work remain, the social and psychological aspects of the working environment now pose new challenges to improvements in occupational health and quality of working life in health care. Prominent among the social determinants of workplace health are (1) exercising control over work, (2) demonstrating ability to use skills, (3) stimulation through work, (4) appropriate decision latitude, (5) interaction with others and (6) support (Marmot & Wilkinson, 2000). Alongside the social factors at work, psychological factors have been found to be significant contributors to health, especially cardiovascular health. This is demonstrated by a leading model in organisational studies, the demand–control–support model (Karasek & Theorell, 2000). Research into demands and control at work has relevance to nurses' working environment and can help us to understand better the effect of hospital workload on staff and patients. Studies of nurses' working environment are increasingly based on this model and related to important concepts of current nurses' working environment, such as autonomy, control and support (Laschinger, Finegan, Shamian, & Almost, 2001). The model is therefore relevant when examining nurses' working life in the context of high demands. Next, a brief introduction on the model is provided.

Karasek applied his model of demand and control to the work situation, focusing on the way in which work is organised (Karasek, 1979). His model shows that alienation corresponds to decision latitude and has two interrelated components: intellectual discretion and authority over decisions. The core of the model is a set of combinations of job demands and job control. This model together with a dimension

about support at work defines four different types of jobs with different effects on well-being: high strain jobs, active jobs, low strain jobs, and passive jobs (Karasek & Theorell, 1990). The demand-control-support model demonstrates that a relatively high degree of autonomy and control, a reasonable level of demand and social support from managers and colleagues appear to have a protective effect and are associated with job satisfaction and well-being (Karasek & Theorell, 2000). According to the model, exposure to an adverse psychosocial environment in terms of high job demands and low control leads to sustained stress reactions with long-term consequences for well-being. This is more likely to be experienced by individuals in lower socio-economic groups, the effects being higher due to adverse working conditions (Siegrist & Marmot, 2004). Thus the model is relevant when examining nurses' work life in a context of high demands.

The demand-control–support model has been tested in different settings, hospitals and other human service organisations. These studies indicate that hospital employees whose jobs are characterised by high demands and low control are at greater risk of poor psychological well-being and ill health than those enjoying lower work demands and higher control at work (Dollard, Winefield, Winefield, & Jonge, 2000; Karasek & Theorell, 2000; Laschinger, Finegan, Shamian, & Almost, 2001).

1.4.1.3 Nurses' work-load and staffing

Evidence from nursing research shows that increased work-load, fewer hours worked per patient, and shorter length of stay are experienced by health care staff as an increase in the demand side and are associated with a decrease in patient care and staff outcomes (Aiken et al., 2002; Sovie & Jawad, 2001). According to a recent review of the literature, fatigue is a major concern for health professionals working long hours or rotating shifts (Australian Resource Centre for Hospital Innovations,

2003). The same review shows factors contributing to adverse events are high workload and an inappropriate staffing mix. Despite increasing research into the area of work demands and nurse staffing there are still gaps in the literature (Bauman et al., 2001).

Research shows that less nursing time provided to patients is associated with poor patient outcomes (Institute of Medicine, 2004; Needleman et al., 2002). Three recent reviews of the literature find that adequate nurse staffing is inversely related to in-patient mortality rates, lengths of stay for patients, patient complications and negative nurse job outcomes (Hewitt, Lankshear, Maynard, Sheldon, & Smith, 2003; Rafferty, West, & Lankshear, 2004; Stanton & Rutherford, 2004). A study examining research into health care work-force numbers shows that higher nurse- or doctor-to-patient ratios are associated with a reduction in mortality, successful rescue events, lower frequency of infections, fewer re-admissions and complications (Hewitt et al., 2003). This study has also found that higher nurse staffing levels and training improve the outcome of care in hospitals and other settings. Furthermore, there is a possible threshold effect which means that at certain staffing levels no further benefit would accrue from additional staffing (Hewitt et al., 2003).

In relation to magnet hospitals, studies have found that inadequate staffing is related to low nurse-rated quality of patient care, nurse job dissatisfaction and emotional exhaustion. Nurse-patient ratios correlated with increased patient re-admission rates (Aiken et al., 2002) and the number of patients assigned to nurses was associated with their ratings of quality of care, but the relationship with unfinished nursing at the end of a shift is even stronger (Sochalski, 2001). In Sochalski's study it was concluded that the consequences of high workload play a prominent role in terms of the relationship between staffing and quality of care.

There is evidence for a link between nurse staffing and nurse and patient outcomes. However, there are still gaps in the literature, e.g. better instruments are needed to measure the inter-relationship between organisational factors and outcome measures (McGillis-Hall, 2005). Moreover, previous literature indicates the need for clearer definitions of concepts and variables when analysing the impact of staffing on nurse and patient outcomes (Heinz, 2004). This study aims to examine the potential impact of staffing adequacy on nurses' working life and quality of patient care.

According to current literature efforts to create a better working environment for nurses and their patients will include better staffing decisions to facilitate a safe working environment, adequate supplies, and adequate workload. Control and support at work play an important role for health care workers in buffering increasingly high demands. Hence, professional autonomy and the social aspects of the health care working environment are of equal importance and will be presented in the following sections.

1.4.1.4 Nurse autonomy

Autonomy plays an important role in the well-being and job performance of health care professionals (Aiken et al., 2002; Aiken et al., 2002; Arnetz, 1999; Kramer & Schmalenberg, 2003b). It is closely related to self-esteem and the earning of respect, a basic need for all people where context plays an important role (Marmot, 2003; Sennett, 2003). According to nursing research, autonomy is considered highly important for job satisfaction and performance, but there are still gaps in this literature (Kramer & Schmalenberg, 2003b; Tranmer, 2005). Consequently, it is important to examine the potential impact of nurse autonomy for hospital nurse and patient outcomes.

A review of the nursing literature demonstrates the ambiguity in understanding autonomy (Ballou, 1998), and the concept is defined inconsistently (Marjoribanks & Lewis, 2003). Worker autonomy has been defined as the freedom to act on an individual's own knowledge and experience (Kramer & Schmalenberg, 1993). Nurse autonomy is also understood as a belief in the centrality of the "client" when making responsible discretionary decisions with accountability as the primary consequence of professional autonomy (Wade, 1999). A formal analysis of the concept reveals the following inherent themes: self-governance, decision-making, competence, critical reflection, freedom and self-control (Ballou, 1998).

Nurse autonomy, control over resources, nurse-doctor teamwork, decision-making, and emotional exhaustion have been associated with nurse assessed quality of care and nurse satisfaction (Rafferty et al., 2001). A review of the findings from magnet hospital studies published from 1983 to 1996 shows a positive and significant relationship between autonomy and job satisfaction, but the authors conclude that more research is necessary to identify further relationships between autonomy and outcomes (Scott, Sochalski, & Aiken, 1999). This need has been confirmed in more recent publications (Kramer & Schmalenberg, 2003b; Tranmer, 2005). A review of the literature indicates that whereas the Nursing Work Index-Revised (NWI-R) measure (primarily used in magnet studies) is a good tool for measuring organisational attributes (see section 1.5.1), its use in measuring professional nurse autonomy is limited (Tranmer, 2005).

In a study of staff nurses from 14 US magnet hospitals, using quantitative and qualitative methods, a new five-category ranked autonomy scale was developed (Kramer & Schmalenberg, 2003b). The nurses related their understanding of autonomy to clinical practice with competence and freedom as prerequisites for

autonomy. The authors conclude that nurse managers must provide nurses with opportunities, trust, reward and empowerment for them to function autonomously. The degree of autonomy is strongly correlated with job satisfaction and quality of care as measured by the new scale (Kramer & Schmalenberg, 2003b). The relation between worker autonomy and empowerment at work is a popular notion, but the interplay between the two is not yet well understood (Kennerly, 2000; Marjoribanks & Lewis, 2003).

1.4.1.5 The characteristics of an empowered nurse

Empowerment can be understood at the individual level as well as the organisational and community levels (Kuokkanen & Leino-Kilpi, 2000; Nutbeam, 1998). Psychological empowerment, as a dynamic process of personal growth and development, has been investigated in nursing studies (e.g. Conger & Kanungo, 1988). One study investigates empowerment from the standpoint of a nurse's personal qualities and performance by using qualitative methods with nurses at a university hospital in Finland. The study is based on Kanter's theory of organisational empowerment (Kanter, 1979). The findings show that empowerment is a process dependent on personal values as well as factors in the working environment. Moral principle, personal integrity, expertise, future orientation and sociability characterise an empowered nurse, and these are related to high self-esteem and successful professional performance (Kuokkanen & Leino-Kilpi, 2001). According to the findings from Finland, the characteristics of an empowered nurse make a link to the components of nurse autonomy (Ballou, 1998), i.e. self-governance, decision-making, competence, critical reflection, freedom and self-

control. Further studies on the relationship between these concepts would strengthen the evidence on nursing working environments and job outcomes.

Limited data are available on nurses' working environment in Iceland's health care system. However, a survey shows that hospital staff nurses experience an increasing workload, which is related to physical exhaustion (Biering & Flygenring, 2000). In another study using qualitative methods, clinical unit managers at Landspitali University Hospital (LSH) perceived high work demands and responsibility and stated that they experienced a lack of support from their superiors and a lack of clarity regarding the vision of the services and strategic plans (Herbertsdóttir, 2002). These two studies serve as an important contribution to the background of this thesis.

In summary, the literature shows that an individual nurse's working environment is important for both nurse and patient outcomes. Evidence shows that increasing workloads and staff shortages have negative effects on nurse and patient outcomes. Control over work and support at work appear to have a positive influence, but these relationships need further exploration. Research findings point to the importance of nurse autonomy for staff and patient outcomes. However, the literature indicates a lack of clarity in definition and an inconsistent use of measures and therefore stresses the need for further research, in particular with regard to nurse autonomy.

1.4.2 Organisational nurse working environment

The Registered Nurses Association in Canada defines nurses' working environment at the organisational level as the physical and psychosocial context of the nursing job (Registered Nurse Association Ontario Canada, 2004). A healthy physical working

environment is of great importance to health care workers and should provide employees with optimal conditions to carry out the tasks for which they have been trained. The focus of this thesis is on the psychosocial aspects of nurses' working environment at the organisational level. For the purpose of this review, professional relationships with colleagues and co-workers, and with doctors in particular, will be outlined. It is also important to consider nurses' relationships with superiors with respect to the behaviour of managers and leaders, and nurse's participation in organisational affairs.

1.4.2.1 Professional relationships

Collaboration and shared information are fundamental components of the working environment. As Firth-Cozens has pointed out, there has been an increasing emphasis on multi-disciplinary teams to address the complexities of delivering quality health care (Firth-Cozens, 1998). In light of the development of the nursing profession, blending diverse values, abilities and perceived authority makes teamwork a challenging as well as a valuable task (Rice, 2000). Improvements in communications and safety within an organisation are directly related to maintaining a supportive culture, job satisfaction, well-being at work, safe practice and the quality of care (Firth-Cozens, 2001).

The focus here is on the characteristics of the interpersonal behaviours that facilitate effective interaction and decision-making, as well as on team behaviour. The inter-professional collaboration between nurses and doctors will be examined and followed by consideration of the important aspects of social support at work.

A team is a group of people brought together to work towards a common goal where interdependency of team members, communication, collaboration, and the

specific roles of team members all affect a team's effectiveness (Firth-Cozens, 2001). The importance of these issues in health care is highlighted by a recent review by the US Institute of Medicine on the safety of the health care working environment. The review emphasises that health care professionals need better training to promote and support interdisciplinary collaboration and structured teamwork (Institute of Medicine, 2004). Teams need leaders to pull them together, to provide them with a common purpose and to develop their skills, expectations and patterns of learning (Firth-Cozens & Mowbray, 2001). Övretveit (1996) points out the importance of defining different types of teams in health care for practice and research. He presents five domains to multi-disciplinary teams as a result of research and developmental work: degree of integration, extent of collective responsibility, membership, client pathway and management. One of these domains or all can be used to describe a team (Övretveit, 1996).

According to a publication by the US Institute of Medicine, teamwork is associated with better patient care and staff outcomes, but poor communication has been shown to contribute to errors (Institute of Medicine, 2004). At the core of professional relationships in hospital care is the collaboration between nurses and doctors, and research points to this collaboration as a predictor of patient outcomes. One study shows that increased collaboration, communication and conflict resolution between nurses and doctors in hospital medical units reduces patient falls and urinary tract infections (Sovie & Jawad, 2001). These are in line with findings from studies related to magnet hospitals (Aiken et al., 2001; Rafferty et al., 2001) and will be presented in a separate section (1.5.1 page 78). A review of the literature draws out three basic assumptions as necessary for effective teamwork and benefiting the quality of patient care (Rice, 2000). Among these are shared understanding of roles,

norms and values, team's goals, independent and co-operative function of the team. shared decision-making and the combined efforts of the team (Rice, 2000).

A large US study of nurse-doctor relationships targets nurses, doctors and executives in a large hospital network in order to view different aspects of the relationship (Rosenstein, 2002). The nurse-doctor relationship is also examined to see how it affects nurse job satisfaction, morale and retention. Respondents saw a direct link between disruptive physician behaviour and nurse job satisfaction and retention. Furthermore, it suggests strategies for improvements, including greater opportunities for collaboration and programmes to improve working relationships (Rosenstein, 2002).

According to the literature, inter-professional collaboration in health care is an important feature of the working environment, and a complex and multi-faceted one. Collaboration between nurses and doctors is at the core of professional relationships in health care. Stein first presented the notion of the doctor-nurse "game" in the 1960s as a stereotypical pattern of communication in which nurses learned to *appear* to passively accept the doctor's dominance in knowledge and skills (Stein, Watts, & Howell, 1990). However, according to Stein's notion the nurses acted with initiative and offered professional advice (Stein et al., 1990). A review of the literature investigated this notion and found that these patterns were less common in current clinical practice and communication was more straightforward and open (Sweet & Norman, 1995). However, a qualitative study in UK hospitals showed that, despite some recognition of blurring professional boundaries, nurses were reluctant to challenge doctors' authority (Snelgrove & Hughes, 2000). This UK study also showed that nurses approached doctors by using the notion of patient advocacy to justify their questioning of doctors' decisions (Snelgrove & Hughes, 2000).

Despite a vast number of papers available on the nurse-doctor relationship, there remains a gap in this literature in terms of empirical research (Doran, 2005; Sweet & Norman, 1995). Furthermore, there is a need for clear definitions of terms and corresponding measures in the context of changing health care and increased workload (Rice, 2000; Övretveit, 1996).

The effects of social cohesion and social support on health and happiness have been studied widely showing that social connectedness matters to our lives in the most profound way (House, 1987) and in health care the support of colleagues and superiors has a potential impact on staff and patient outcomes. The effect of support at work on staff outcomes has been demonstrated in the previous section on the model about demand-control-support (Karasek & Theorell, 2000). Social connectedness is related to social capital, which is defined as representing the degree of social cohesion in a community (Putnam, 2000). Social capital refers to the processes, which connect people through networks, norms and social trust, which in turn facilitate co-ordination and co-operation for mutual benefit (Putnam, 2000). In light of this, social capital can play an important role in communities and organisations where collaboration, shared information and networking are encouraged. Social capital is relevant to organisations and is a resource, which reflects the character of social relations within organisations such as the hospital setting. This has been pointed out in a publication from the OECD (2001). The report demonstrates that social capital can facilitate successful collective action and create bonds of loyalty and commitment between employers and employees (OECD, 2001). Research among US organisations has shown that when an organisation is strong in social capital, resilience and trust exist between the organisation and the employees, and also among employees (Leana & Van Buren, 2000). Furthermore,

research on organisational change and downsizing shows that promoting stability and sociability are among the methods that can build and maintain social capital in organisations while short-term arrangements, performance-based pay for individuals and downsizing may be associated with loss in social capital (Leana & Van Buren, 2000).

Studies show that social support at work is important for nurses' well-being (Laschinger, Finegan, Shamian, & Piotr, 2001) and that social capital is related to their mental health and work effectiveness through empowerment (Laschinger & Havens, 1997). Empowerment is considered as a means of social support through management and leadership behaviour that fosters nurses' perception of autonomy, confidence and meaningfulness of their work (Laschinger, Finegan, Shamian, & Piotr, 2001). A review of the literature shows that social support from a supervisor and co-workers positively influence affect, coping and well-being and are further related to job satisfaction, organisational commitment, and the prevention of burnout, absenteeism and intention to leave. The same review indicates a gap in the literature regarding the effects of social support from managers and colleagues on nurse and patient outcomes (Shirey, 2004).

Trust is an important element of social capital. Evidence points to the importance of trust in health care and currently the requirement to raise trust has emerged (Berwick, 2003; Kanter, 2004). A review into the research on trust in health care indicated that trust is essential between staff and patients and that trust between staff and management is a crucial ingredient of quality (Calnan & Rove, 2004). Organisational trust relates to the confidence in the words and actions of other people and has a beneficial impact on group cohesion, job satisfaction, organisational effectiveness and safety (Kanter, 2004). A Canadian study of hospital

nurses supports these findings and further relates trust to organisational empowerment and commitment (Laschinger & Finegan, 2005). Trust in the context of reporting errors in health care is important and in the belief that incidents will be dealt with sensitively and fairly with better outcomes for the patient (Firth-Cozens, 2004). Kanter points out that in order to build the trust and commitment necessary to organisational success, it is important to create listening posts, open lines of communication, articulate shared goals, build coalitions and acknowledge others (Kanter, 2000). Leaders and managers at all levels are main drivers for organisational trust demonstrating ability to influence others, express concern and values (Firth-Cozens, 2004). Trust is a complex phenomenon and difficult to measure, however, it appears that it is of great relevance in health care for staff and patient outcomes alike. Evidence points to the need for more research in this area to explore how changes in health care affect trust in relations both from the point of view of patients and clinicians (Calnan & Rove, 2004).

1.4.2.2 Administrative behaviour

Improvements in health care are increasingly related to management and leadership (Huselid, 1995). Findings from a survey of over 200.000 UK NHS (National Health Service) workers indicates that support from supervisors is among the factors that have the biggest impact on staff attitudes and safety at work (Health Commission, 2004). Successful organisations in health care have a leadership style, which is based on values, builds trust, good collaboration and motivation and ultimately leads to success (Pendleton & King, 2002). According to Kanter's theory of organisational empowerment health leaders must create open channels of communication and information and take actions to empower and enable others to take action toward a shared vision (Stein & Kanter, 1993). It is important to consider

different aspects of health care administration when exploring the relationship between nurses' working environment and nurse and patient outcomes. It is to management and leadership behaviour that the review will now turn.

1.4.2.2.1 Management and leadership

The difference between management and leadership is one in which management controls people by pushing them in the right direction whereas leadership motivates them by satisfying basic human needs (Kotter, 1999). The purpose of systems and structure, according to Kotter, is to help people complete routine jobs successfully. Achieving a grand vision, on the other hand, requires an exceptional burst of energy. Motivation and inspiration energise people, not by pushing them in the right direction as a control mechanism, but by satisfying the human need for achievement, enhancing a sense of belonging, recognition, self-esteem, a feeling of control over one's life and the ability to live up to one's ideals (Kotter, 1999). For the purpose of this thesis management and leadership behaviour in health care are understood as interrelated features of administrative behaviour.

Leadership results from a working relationship between the leader and other group members in which behaviour and situations are important (Northouse, 2001). According to Bass (1998), transformational leadership processes inspire a shared vision and enable others to act. Transformational leaders motivate others to do more than they originally intended and thought possible. Furthermore, Bass explains that transformational leadership is extensional to transactional leadership that pursues a cost-benefit, economic exchange to meet subordinates' current material and psychological needs in return for contracted services rendered by the subordinate. Research based on these ideas shows that transformational leaders achieve superior

results by employing one or more of the four components: idealised influence, inspiration, intellectual stimulation, and individualised consideration (Bass, 1998).

Studies of transformational leadership have shown that stress is better handled when leaders are able to transform personal concern into efforts to achieve group goals and provide innovative solutions, whereas transactional leaders, who depend on rules to maintain and control the system, are unlikely to help followers cope with stressful situations (Bass, 1998). Nursing research supports the above evidence and shows that transformational leadership is beneficial for staff and patients (Bowles & Bowles, 2000; Glegg, 2001; Larrabee et al., 2003). Further research is needed in this area (De Geest, Claessens, Longerich, & Schubert, 2003).

Front-line nurse managers play an important role in hospital management, in particular for nurse job satisfaction and retention (Andrews and Dziegielewski, 2005). A review of the literature on the role of clinical nurse managers shows that, despite their responsibility and pivotal role in health care, their role is not clearly defined (Oroviogoicoechea, 1996). These findings are supported by another review of the literature suggesting that to successfully meet current nurse shortages, future consideration should be given to the working environment of front-line nurse managers (Andrews and Dziegielewski, 2005).

Research into nursing management and leadership in Iceland is limited. A survey of all staff at LSH hospital shows a general dissatisfaction with senior management, in particular with the flow of information and shared decision-making (Heilbrigðis- og tryggingamálaráðuneytið [Ministry of Health and Social Services] & Landlæknisembættið [Directorate of Health], 2003). Among the available and relevant nursing studies is a qualitative study of the experience of unit managers at LSH (n=7). The findings from this study show that unit managers experience high

responsibility during times of high demands and changes within the health care system. Moreover, managers express lack of support from their superiors and an unclear vision and strategy related to the services (Herbertsdóttir, 2002).

Nurse leaders' empowering behaviour influences employees' perception of formal and informal power within the organisational structures, which are related to staff empowerment, job satisfaction and performance (Morrison, Jones, & Fuller, 1997). Nursing research utilising the theory of organisational empowerment has shown a correlation between these processes and job satisfaction, reduced levels of burnout, increased productivity and organisational commitment (McNeese-Smith, 1995). Hence, the concept of organisational empowerment is relevant for the present study as an important aspect of nurses' working environment.

1.4.2.3 Organisational empowerment

Empowerment has been applied to studies of nurses' working life (e.g. Kuokkanen, 2003; Laschinger, 1996a; Morrison et al., 1997). Empowerment is a central concept in contemporary health promotion and is looked upon as both a means and an end in health promotion practice (Wallerstein, 1992). The definition of empowerment is wide ranging and it may be a social, cultural, psychological or political concept, through which individuals and social groups are able to express their needs, present their concerns, devise strategies for involvement in decision-making, and achieve political and cultural action to meet those needs (Nutbeam, 1998). Nursing studies indicate that empowerment refers either to psychological empowerment, focusing largely on the individual's self-efficacy, or to organisational empowerment, shared power in the organisational structure and decision processes (Kuokkanen & Leino-Kilpi, 2000).

Conger and Kanungo (1988) have drawn on the cognitive psychology literature to suggest that empowerment means "to enable to act" and refers to an intrinsic belief in personal efficacy. It is suggested that any managerial strategy that strengthens personal efficacy and belief of employees in their own capability will make them feel more powerful (Conger & Kanungo, 1988). Empowerment is also considered an intrinsic motivation manifested in four cognitions reflecting an individual's orientation to his or her work role: meaning, competence, self-determination and impact (Thomas & Velthouse, 1990).

Nursing research based on Kanter´s theory of organisational empowerment (Kanter, 1979) shows that empowering nurses' working environment provides access to information, resources and support, and opportunities to learn and develop, and, enables employees to accomplish their work (Kuokkanen, 2003; Laschinger, 1996b; Laschinger Finegan & Shamian, 2001). Kanter´s model proposes that the basic element of empowerment is the ability to take action with positive benefits for the individual and the organisation. The model proposes that a person's job provides formal position and power in the organisation (Kanter, 1993). Nursing research based on Kanter´s theory has strengthened the evidence base of influential factors within nurses' working environment.

1.4.2.3.1 Nursing research on organisational empowerment

Nursing research on organisational empowerment relates to organisational factors such as leadership behaviour, commitment and trust. Laschinger and Havens (1997) studied Kanter´s model of a randomly selected sample of Canadian hospital nurses in a cross-sectional questionnaire survey with a focus on occupational mental health. The findings support Kanter´s view on the relationship between organisational factors and work effectiveness, and show that staff nurses' perception of access to

work empowerment structures is strongly linked to occupational mental health and work effectiveness (Laschinger & Havens, 1997). In another study, Laschinger and her associates build on Kanter's theory to test a model linking specific leader–empowerment behaviours to staff nurse perception of workplace empowerment, occupational stress and work effectiveness. The study was conducted in a recently merged Canadian acute care hospital. Five aspects of empowering leader behaviour are examined: meaningful work, participation in decision-making, confidence in employees, facilitating goal accomplishment, and autonomy from bureaucracy. Results show that leader empowering behaviour influences employees' perceptions of formal and informal power and empowerment structures. The study also shows that better access to empowerment structures predict lower levels of nurse job tension and increased work effectiveness (Laschinger et al., 1999). These two studies show that organisational empowerment and leader-empowerment behaviours are related to nurses' well-being at work and their work effectiveness.

A Canadian study of 600 hospital nurses shows a relationship between perception of power and opportunities for engagement with high trust and trust in management, and these ultimately influenced job satisfaction and work commitment (Laschinger, Finegan & Shamian, 2001). Similarly, a study of 92 hospital nurses found that empowering leader behaviour could improve nurse organisational commitment and overall work effectiveness (Wilson & Laschinger, 1994). Related Canadian studies have found that the perception of power and opportunity is negatively related to the characteristics of burnout (Hatcher & Laschinger, 1996) and promotes job satisfaction (Manojlovich & Laschinger, 2002). These results are consistent with Kanter's theory and show that organisational empowerment is also related to organisational commitment and trust in management.

Successful nurse leadership has been linked to the features of organisational empowerment. Upenieks (2002b) bases her study of Kanter's theory and undertook a qualitative study to investigate successful leadership behaviour. Through interviews with 16 hospital nurse leaders, her findings supported Kanter's theory. They showed that effective leadership is linked to access to opportunity, resources, and information in the workplace. The study also showed that successful teamwork, a passion for nursing and being able to articulate it to other nurses was linked with effective hospital nurse leadership (Upenieks, 2002b).

The importance of empowerment structures, according to Kanter's theory, has been supported by studies of nurses in different countries. A comparative study investigated organisational empowerment in hospital nurses in Norway and the USA (Ellefsen & Hamilton, 2000). The findings show that formal power adds more to overall empowerment among US nurses than among the Norwegian. While the same was true for informal power among Norwegian nurses, demographics such as age and education were important variables and the study showed that relatively low empowerment scores indicate an opportunity to increase empowerment in both samples (Ellefsen & Hamilton, 2000).

Kanter's theory has been explored in a series of studies of Finnish nurses (Kuokkanen & Leino-Kilpi, 2000; Kuokkanen & Leino-Kilpi, 2001; Kuokkanen, Leino-Kilpi, & Katajisto, 2002). One of these used qualitative methods with nurses at a university hospital in Finland and showed that empowerment is a process dependent on personal values as well as factors in the nurses' working environment (Kuokkanen & Leino-Kilpi, 2001). This was followed up by a study of nurses working in different health care settings using a questionnaire based on findings from previous work. This study explored the characteristics of empowered nurses, i.e.

moral principles, personal integrity, expertise, future-orientatedness and sociability (Kuokkanen et al., 2002). The results showed that Finnish nurses had a positive image of their own empowerment and empowerment was positively correlated with nurse job satisfaction, further education and organisational commitment. The need for further development of these concepts and a tool for the enhancement of professional competence, education and personnel management were suggested (Kuokkanen et al., 2002).

The third component of these Finnish studies is a study, which combined qualitative and quantitative findings to examine factors having an impact on a nurse's empowerment and to develop a model representing nurse empowerment (Kuokkanen, 2003). The proposed model of nurse empowerment consists firstly of factors concerning the qualities and performance of an empowered nurse and, secondly, factors which promote and impede empowerment. The model demonstrates a significant correlation between work empowerment factors and qualities and performances of an empowered nurse. In conclusion, the author discusses interesting similarities between these empowering factors and factors presented in the Nursing Work Index that has been applied to studies related to magnet hospitals (Aiken & Patrician, 2000). The Nursing Work Index is presented in a subsequent section in this thesis (section 1.5.1 page 78).

Kanter's model has been supported in nursing studies and there is strong evidence of the positive influence of organisational empowerment on nurse outcomes and performance. Research based on Kanter's theory gives a reason to link the characteristics of an empowered nurse to the concept of autonomy as defined by Ballou (inherent themes are self-governance, decision-making, competence, critical reflection, freedom and self-control; Ballou, 1998). Third, as will be considered in

the following section on magnet hospitals, both work empowerment and autonomy are among the traits of magnet hospitals. Hence, it is important to examine the link between Kanter's model and the Nursing Work Index that was designed to measure magnet hospital attributes (Aiken & Patrician, 2000; Kramer & Hafner, 1989). On balance, the evidence shows that there is a reciprocal relationship between empowering hospital structures, nurse autonomy and the characteristics of an empowered nurse. Furthermore, research shows that these factors are related to organisational commitment, trust in management, nurse job satisfaction and work effectiveness.

In summary, the literature shows that social connectedness at work is important for nurse outcomes and it is also related to positive patient outcomes. In particular, the nurse-doctor relationship is important in this respect but further research is needed to strengthen the evidence and better understand successful practice. The literature also shows that supportive management and leadership behaviour are important for nurse and patient outcomes but again, more research is needed. These features are among the traits of successful hospitals known in the literature as magnet hospitals (Aiken, 2002). Next this literature review turns to the model on magnet hospitals as successful organisations for staff and patients.

1.5 Traits of magnet hospitals

Magnet hospitals are among prominent and widely studied health care organisations designed to improve outcomes for staff and patients. The term was originally applied to a group of US hospitals that were able successfully to recruit and retain professional nurses during a national nursing shortage in the early 1980s (McClure et al., 2002). The original study was conducted in 1982 to investigate characteristics of

hospitals that facilitated professional nursing practice (McClure et al., 2002). These were followed up in 1986 and 1989 by Kramer and colleagues, and their findings supported the previous findings that magnet hospitals embodied a set of organisational attributes enabling them to recruit and retain nurses (Kramer & Schmalenberg, 2002a). In the 1990s Aiken and her team started to study these hospitals to identify the quality of patient care as well as determinants of nurse outcomes. When compared with matched control hospitals, magnet hospitals showed lower mortality rates and higher patient satisfaction. The studies also showed that nurses in magnet hospitals were less burned out and derived greater job satisfaction than counter-partners in non-magnet hospitals (Aiken, 2002).

Magnet hospitals are institutions with better than average measures of nurses' working life and patient outcomes. "Magnet"designation was conceived when the American Academy of Nursing (AAN) conducted a study to identify which hospitals attracted and retained nurses, and which organisational features were shared by these successful hospitals (McClure et al., 2002). In the 1990s, the American Nurses Association via the American Nursing Credentialing Centre established a formal programme to acknowledge excellence in nursing services. This was The Magnet Nurses Services Recognition Program, which was first granted in 1994 based on a voluntary process of external nurse peer review (Urden & Monarch, 2002).

Magnet hospitals are conceptualised as those whose structure fosters high levels of nurse autonomy, control and better relations with physicians. Among effective traits of magnet hospitals nurse leaders are visibility and staff support (McClure et al., 2002). Figure 2 (page 76 summarises the key characteristics of magnet hospitals. A review of magnet hospital research published between 1983 and 1991 supports previous findings on the characteristics of magnet hospitals. The

review summarises the attributes of the professional practice of staff nurses in magnet hospitals, including therapeutic nurse-patient relationships, nurse autonomy and control, and the presence of collaborative nurse-physician relationships at the level of the patient unit (Scott et al., 1999). Autonomy and staff involvement in decision-making were reported among the most significant variables in explaining job satisfaction and productivity in magnet hospitals and there were significant differences between magnet and non-magnet hospitals with regard to nurses' ratings of autonomy, control and relationship with physicians. Magnet hospitals showed lower mortality rates and higher patient satisfaction when compared with matched control hospitals. In conclusion, the review showed that the development and testing of models that measure the direct and indirect effects of autonomy, collaboration and control over practice on patient outcomes need further examination (Scott et al., 1999).

The characteristics and outcomes of magnet hospitals have been examined in comparison to other US hospitals (Buchan, 1999). This study showed that, despite significant reorganisation and external reconfiguration, the magnet hospitals differ from other US hospitals in that the magnet leaders were main drivers of merger or alliance and planned to transfer the magnet ideas to the other institutions in the merger. The characteristics that continued to be present in all the original magnet hospitals are flexible hour provision and decentralised organisational structures. Among other traits of the magnet hospitals are participative management style, shared governance, an emphasis on professional autonomy, a nurse executive board level, and a clinical career structure for nurses linked to a clinical ladder (Buchan, 1999).

The appropriateness of using the term "magnet" with regard to UK hospitals was examined and findings showed that all the characteristics highlighted as core to traits of magnet hospitals were applicable (Buchan, 1999). However, the author states that the research base for magnet hospitals remains limited mainly due to different methodologies across studies. This is partly due to the fact that the sample population of hospitals has changed since magnet hospitals were first identified in the early 1980s, and there have also been changes in the health care and labour markets (Buchan, 1999). A study examined the impact on nurse and patient outcomes of preparing for and achieving magnet hospital status in a UK hospital setting (Buchan, Ball & Rafferty, 2003). The study used interviews with a cross-section of managers and staff, and two surveys of staff before and after achieving the magnet hospital status. Findings show that the accreditation process positively influenced nurse and patient outcomes (Buchan et al., 2003).

Studies based on Kanter's theory have pointed out the link to studies associated with the traits of magnet hospitals. These describe the link between health care empowering structures, according to Kanter's model, and supportive structures for staff and patients, according to the traits of magnet hospitals (Kuokkanen, 2003; Laschinger, Almost & Tuer-Hodes, 2003). Kuokkanen (2003) suggests that there is a link between the characteristics of empowered nurses and the content of the NWI-R instrument (an instrument primarily used in magnet studies, see next section). Furthermore, Laschinger and associates have demonstrated that there is a link between the traits of magnet hospitals and the components of organisational empowerment (Laschinger et al., 2003; Tigert & Laschinger, 2004).

As will be presented in the following section, there appears to be inconsistent usage of concepts and measures in studies related to the traits of magnet hospitals

(Aiken & Patrician, 2000; Estabrooks et al., 2002; Kramer & Schmalenberg, 2003b; Kramer & Schmalenberg, 2003c). Clear descriptions of the concepts and corresponding measures would benefit the estimation of the correlation between these two models, the traits of magnet hospitals and of Kanter's theory.

Administration	Professional practice
Management style: • Participative • Listens to staff • Staff kept well informed • Open communication channels • Director of nursing visible • Nursing has a voice at top level **Leadership style:** • Knowledgeable resources to staff • Supportive • Treats subordinates with respect • Courage to take risks • Meaningful philosophy of patient care **Organisational structure:** • Directors of nursing at executive level • Decentralized department structure • Nursing involvement in committees **Staffing:** • Adequate staffing levels • Favourable nurse-patient ratios • Many baccalaureate–prepared nurses **Personnel policies:** • Competitive salaries and benefits • Flexible working schedules • Shift rotation minimized • Promotion opportunities	**Quality of patient care:** • High-quality nursing care • Family members of patients are members of the caring team • Continuity of patient care **Professional practice:** • Professional models of care • Nurses responsible for care of a group of patients • Nurses accountable for own practice • Adequate amounts of time with patients • Freedom and ability to set standards of care and monitor practice • Innovation and creativity in patient care programmes • Availability of specialist advice • Peer support • High value placed on education and teaching • Nursing enjoys high status **Professional developments:** • Orientation programmes for new staff • In-service and continuing education • Support for formal education • Career development • Management development • Research part of development focus

Figure 2. Characteristics of magnet hospitals (Source: McClure et al. (2002), pp. 8-18)

1.5.1 Studies based on NWI-R

The following section summarises studies based on the Nursing Work Index (NWI) that are relevant for the present study. Summarised information about selected studies in this area between the years 1994 and 2004 is provided in appendix 1 (page 296).

The NWI was developed from findings derived from early research on magnet hospitals in 1983. The 65 items of the instrument reflected organisational traits reported by nurses working at magnet hospitals as characteristics of their professional working environment. The instrument was intended to measure values related to job satisfaction and ability to provide quality patient care (Kramer & Hafner, 1989). In the late 1990s Aiken and colleagues sought to identify differences in organisational attributes between units and hospitals. Measuring individual traits was not the focus and the instrument was redesigned, now called the revised version, the Nursing Work Index-Revised (NWI-R) including 55 of the 65 original NWI items. Three sub-scales were derived from the NWI-R and first used to investigate mortality rates for magnet hospitals compared with controls and its reliability and validity tested. The three sub-scales; - autonomy, nurse-doctor relationships and control over practice - were conceptually derived, but the construction of the sub-scales was not based on empirical data (Aiken & Patrician, 2000). These sub-scales have since has been used widely, and a third sub-scale on organisational support for nursing been added (Aiken et al., 2002). It appears that if empirical methods had been used for the original construction of the NWI-R sub-scales, it would have been beneficial for the widespread use of these scales across hospital settings and countries.

There is a vast amount of research on magnet hospitals and the NWI-R. The focus in this review is on studies between 1994 and 2004 aiming at hospital nurses' working environment, nurse job outcomes and quality of patient care.

The first study to be presented here is by Aiken and colleagues, published in 1994, on the quality of patient care in magnet hospitals. The objective was to identify patient mortality rates within magnet hospitals and compare to controls using hospital data on patient outcomes. The results showed that nurses working in magnet hospitals reported higher scores for all NWI-R sub-scales. The 39 magnet hospitals studied presented lower mortality rates among Medicare patients than did patients in the 195 control hospitals after controlling for other possible influences on patient mortality (Aiken, Smith, & Lake, 1994).

The 1994 findings were supported in a study published in 1997 showing higher patient satisfaction and lower incidence of mortality for patients in scattered units in magnet hospitals. Scores of all NWI-R sub-scales were higher, and levels for needle "sticks" and burnout were lower in magnet hospitals than in matching control hospitals (Aiken & Sloane, 1997). Subsequently, a cross-national study was conducted including staffing as an additional dimension. This examined the effects of nurse staffing and organisational support on nurse and patient outcomes in an international sample of hospitals (Aiken et al., 2002). In this study 10,319 nurses working in 303 hospitals across five jurisdictions were recruited. The study measured nurse staffing, job satisfaction, burnout, and assessment of patient care together with measurement by four NWI-R sub-scales (autonomy, control, nurse-doctor relations and organisational support). The findings showed that adequate nurse staffing and administrative support have a significant effect on nurse job satisfaction, burnout and nurse assessment of quality of patient care.

Correspondingly, a model of the relationships between hospital organisation, nursing organisation and patient outcomes is presented (Aiken et al., 2002). Based on their findings, the authors emphasise the importance of organisational support for nursing care and conclude that it is a potentially modifiable and undervalued determinant of these outcomes. This conceptual model is described in figure 3.

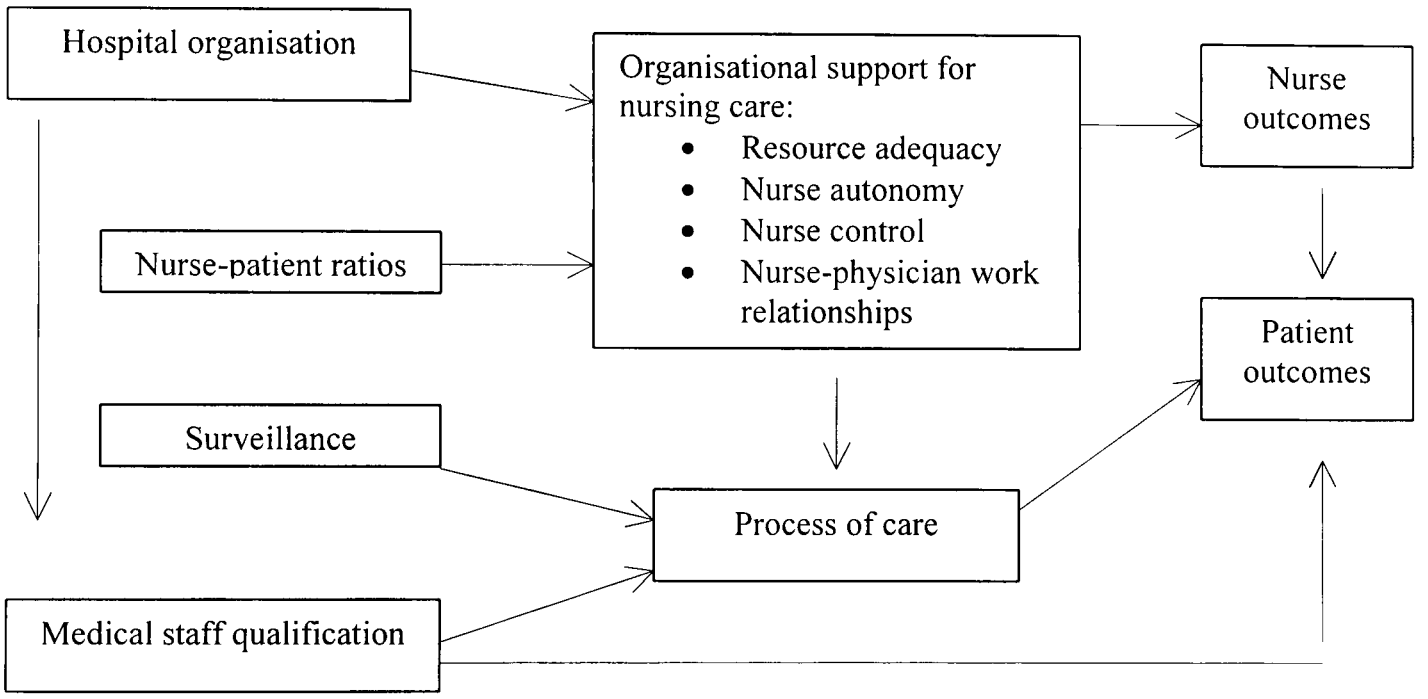

Figure 3. Conceptual model on magnet hospitals; hospital organisation, nursing organisation and patient outcomes (Source: Aiken, Clarke and Sloane, 2002, page 188)

Aiken and associates further examined the link between hospital attributes and patient and nurse outcomes in a cross-sectional study focusing on staffing, mortality and nurse outcomes (Aiken et al., 2002). They analysed survey data on work attitudes and staffing from 10,184 US staff nurses. These findings were linked to discharge data on 23,2342 patients and administrative data from 168 hospitals to explore risks for negative patient and nurse outcomes. For patients, the findings show that an increase in one patient per nurse enhanced the likelihood of the patient

dying within 30 days from admission by 7%, and of failure to rescue by 7%. For nurses, an increase in one patient per nurse enhanced the likelihood of burnout by 23% and of being dissatisfied with the job by 15% (Aiken et al., 2002).

Rafferty and associates conducted a survey among 10,022 UK nurses in 32 hospitals to examine the relationship between nurses' working environment and nurse and patient outcomes (Rafferty et al., 2001). Working environmental factors were measured by NWI-R sub-scales previously developed (Aiken & Patrician, 2000), but for nurse autonomy a new revised autonomy scale was used. The results show that nurses who reported higher levels of teamwork were significantly more likely to be satisfied with their jobs. In this study professional teamwork and autonomy were significantly correlated (Rafferty et al., 2001).

Researchers in Canada have examined the model of the traits of magnet hospitals. This research has investigated the relationships between nurses' working environmental factors - autonomy, control over practice environment and good nurse-doctor collaboration - and outcome measures - organisational trust, burnout, job satisfaction and nurse-assessed patient care quality (Laschinger, Shamian, & Thomson, 2001). The study adds trust as an important dimension to this area of research. Measures were the same as used in previous studies by Aiken et al. (1997 and 2000) in addition to measures of trust. The results support the proposition that features of the working environment such as autonomy, control over the practice environment and collaboration with physicians have an impact on staff nurses' trust in management. This ultimately influences nurses' job satisfaction and their assessment of patient care quality. These findings are consistent with previous research on magnet hospitals. They also highlighted the importance of creating environments that empower nurses to accomplish their work and generate positive

feelings about their work, and its effect on patient and nurse outcomes (Laschinger, Shamian, & Thomson, 2001).

Laschinger and colleagues further studied the traits of magnet hospitals to test a theoretical model of the link between nurses' perception of workplace empowerment, magnet hospital characteristics and job satisfaction by secondary analysis of data from three independent studies. The theoretical background to this study comprises the magnet hospital model, and Kanter's theory on structural empowerment. The findings of all three studies supported the link between magnet hospital characteristics and the combination of access to empowering work conditions and the significant prediction of nurse job satisfaction (Laschinger et al., 2003).

As noted above (page 71) this study by Laschinger and her colleagues (2003) would have been stronger if a conceptual comparison of measures had been provided. It is not clear from Laschinger study that individual dimension of the magnet model (autonomy, control, collaboration) and corresponding dimensions in Kanter's theory (opportunity, information, support, resources, formal power, informal power, global empowerment, satisfaction) actually represent correlated phenomenon. This means that it is not evident from this study that the contents of the compared measures are conceptually correlated. It is also noteworthy that in the study the fourth NWI-R sub-scale on organisational support used in Aiken's studies since 2002 (Aiken et al., 2002) is not used to test the link between these two models, despite the fact that Kanter's theory primarily focuses on organisational empowerment (Kanter, 1993).

The NWI-R measure is widely used in international settings. However, the usefulness of some of its sub-scales has been questioned (e.g. Kramer & Schmalenberg 2003a, 2003b, 2004; Tranmer, 2005). Kramer and Schmalenberg

conducted a series of studies between 1985 and 2001 to refine the original set of magnet characteristics, among them the items within the NWI (Kramer & Schmalenberg, 2002; 2004). Staff nurses in 14 magnet hospitals identified eight attributes associated with the original concept of magnetism. A further 289 magnet hospital staff nurses participated in a qualitative study to generate items to measure the eight essentials of magnetism (EOM). The psychometric properties of the EOM were established and tested via a study of 3,602 staff nurses in 16 magnet and 10 non-magnet hospitals. The EOM-instrument aims to measure dimensions and conditions such as working with clinically competent nurses, nurse autonomy, supportive nurse manager, control over nursing practice and educational support. Content validity, representativeness and criterion-related validity indicated that the EOM scales are valid measures of a "magnetic" working environment. The overall findings point to the obsolescence of the NWI-R for use among US hospital nurses (Kramer & Schmalenberg, 2002; Kramer & Schmalenberg, 2004). Furthermore, these studies point to a conceptual inconsistency between the NWI-R sub-scales and the available literature on the concepts that these sub-scales are supposed to measure (Kramer & Schmalenberg, 2003a; 2003b).

Studies based on NWI-R and related to magnet hospital are increasing. These studies have reported support for the relationships between nurse autonomy, control over practice, good relations between nurses and doctors, and organisational support and patient and nurse outcomes. Measures and methods applied in this area differ. Measures of patient outcomes include nurse-assessed quality of patient care, mortality rates and failure to rescue. Measures of aspects of nurses' working environment are a series of scales, some inconsistent across studies in terms of items within individual sub-scales. Nurse outcomes are measured by job satisfaction,

burnout and intention to leave. For burnout the same measurement is used, i.e. three dimensions of the MBI (Maslach et al., 1996). For job satisfaction single-item measures are used and for a few studies scales on overall job satisfaction are used.

The leading measure of nurses' working environment in this area of research is the NWI-R. The use of sub-scales according to Aiken and Patrician (2000) is most frequent. However, there is some inconsistent use of sub-scales across studies and some authors have created their own scales (Estabrooks et al., 2002; Rafferty et al., 2001). Nevertheless, studies related to magnet hospitals provide evidence of the links between supportive working environment factors and positive patient and nurse outcomes based on descriptive studies. Evidence of causal relationships is more limited in this area of research. Results from studies comparing the magnet model to Kanter's (1979) organisational empowerment model give rise to a possible link between these two models (Laschinger et al., 2003; Tigert & Laschinger, 2004).

Despite the growing research on magnet hospitals and the NWI (-R), there are still important gaps in the literature. In particular, while there have been many statistical studies looking at the quantitative relationship between nursing environments and outcomes (Buchan, 1999), apart from the studies by Kramer and Schmalenberg (2002; 2003a; 2003b; 2003c), few studies use either qualitative research or mixed methods to examine the magnet hospital concept. It is likely that the nature of the relationship between a phenomenon as multi-faceted as the nursing work environment and patient outcomes will be extremely complex, for example because of the potentially tortuous causal pathways that might be involved or the difficulty in defining the exposure (the working environment). In such circumstances it is necessary to develop an understanding of the meaning of the variables being studied and the pathways by which they might operate. This will

offer an opportunity to understand what elements within the magnet hospital concept are the most important for producing improved nurse and patient outcomes. It is also important to gain an understanding of these phenomena in differing contexts, as it is plausible that they will be contextually bound, an issue that will be discussed later in relation to generalisability. To date, much of the relevant research is derived from studies conducted in North America. Research from Iceland expands the range of evidence and the settings that can be drawn on. Quantitative studies are often poorly suited to capture contextual differences (Bowling, 1999) while qualitative methods offer scope to explore the complex nature of a topic such as that being studied in this thesis, capturing social and contextual factors (Green & Thorogood, 2004). However, both methods capture different elements of the totality of the phenomenon being studied and the strengths and limitations of the two methodologies are complementary (Green & Thorogood, 2004; Sandelowski, 2000), helping to unpack the complexity of influential factors within the nurse work environment. Barbour (1999) suggests that mixed methods can generate a greater whole than the sum of the parts. However, it is important to note that, in the present study, the qualitative was secondary to the quantitative component. A sequential approach was adopted, in which the quantitative component was the dominant element. The qualitative study was designed to draw out further insights from the quantitative study, providing an astringent quality to the analysis. The operating assumption in this case was that the combination of both approaches would yield a more robust and rounded organisational perspective on the factors and processes associated with key features of the working environment. For these reasons, it is important to seek to close the gap in the literature concerning the magnet hospital concept so as to provide in-depth, nuanced knowledge about the factors influencing nurse and patient outcomes.

Hence, a study that uses mixed methods and is set in a context outside North America is unique and has the potential to extend knowledge about the applicability of the magnet hospital concept, facilitating a better understanding of possible differences in national cultures and the inter-relationships of factors within the nursing work environment. Consequently, the complementary use of quantitative and qualitative methods can provide valuable information that will shed light on the wider applicability of the magnet hospital concept.

There is inconsistent content (items) in individual NWI-R sub-scales across studies that make comparison difficult. There is conceptual inconsistency between items in NWI-R sub-scales and available literature on the relevant concept, in particular for nurse autonomy (Kramer & Schmalenberg, 2003a; 2003b; Tranmer, 2005). The reported link between the NWI-R sub-scales and the characteristics of organisational empowerment (Laschinger et al., 2003) would benefit from further exploration, in particular the conceptual correlation between compared measures. Finally, further development and testing are needed of models that measure the direct and indirect effects of autonomy, collaboration, control over practice and organisational support on nurse and patient outcomes (McClure & Hinshaw, 2002; Scott et al., 1999). In particular, there are few studies that use mixed methods and further research across cultures and countries is necessary to study the extent to which characteristics of magnet hospitals contribute to the success of hospitals in international settings (McClure & Hinshaw, 2002). The present study aims to contribute to the relevant body of knowledge.

1.6 Summary and conclusion

This review of the relevant literature shows that different aspects of hospital nurses' working environment play important roles in determining the relevant outcomes for the present study, i.e. nurse and patient outcomes. Among the most important factors are work demands and staffing along with nurse autonomy, and relationships with colleagues and superiors.

For nurse job outcomes the review highlights the key determinants of nurse job satisfaction and burnout. Nurse job satisfaction is related to autonomous practice, supportive management and leadership, recognition and professional collaboration together with intrinsic motivation. Despite the increasing number of studies, the determinants of nurse job satisfaction are still not perfectly understood. It is not clear how nurse job satisfaction is linked to working environmental factors, nor are the inter-relationships between concepts used clear. In this respect clear and consistent definition of terms across studies has been problematic, making comparison of studies difficult. Better understanding is needed on what works in the reality of hospital nurses, seen from different perspectives.

In relation to nurse burnout, the review shows that stress, work demands and lack of resources are linked to nurse burnout. Social support at work and support from managers produce lower levels of burnout. However, one study (Stordeur, et al., 2001) showed that transformational leadership behaviour did not influence nurse burnout. Moreover, another study showed that social support at work did not impact the experience of nurse burnout (Bourbonnais et al, 1998). Research in different cultures and health care settings is needed to understand the cultural differences related to nurse burnout. Given that burnout is a complicated phenomenon, it is well suited for qualitative methods. Further research on nurse experiences in this respect

would illuminate the phenomenon. To date, no published studies using standardised measures are available about nurse burnout in the Icelandic context. Research on nurse job satisfaction is also limited in Iceland. To date, no study including international comparison of nurse job outcomes has been conducted in Iceland.

The literature indicates that adequate nurse staffing, professional autonomy, good inter-professional relationships and supportive leadership are important factors in the improvement of the quality of patient care. Again, the relationships between these need further exploration. This is particularly important in the context of increasing health care demands and patient expectation. Research into the quality of patient care appears to suffer from an inconsistency in the definition of terms and corresponding measures. Research on quality of patient care in Iceland is limited, as is research on the impact of hospital working environment on nurse-rated quality of care.

According to the literature the hospital working environment plays an important role for nurse and patient outcomes. Increasing workloads and staff shortages negatively influence nurse and patient outcomes. The effect on different outcome measures in this relation still needs further exploration. Controls over work and nurse autonomy are also important. With regard to autonomy, due to a lack of clarity in definitions and inconsistent use of measures there is a need for further research.

Social connectedness is an important aspect of the working environment, in particular, the nurse-doctor relationship. However, further research on nurse-doctor collaboration is needed to understand better how to develop successful practice. Research shows that supportive management and leadership behaviour are important

factors, but again this needs further exploration, in particular the effect of manager support on nurse and patient outcomes.

The review indicates that strong evidence exists of the positive influence of organisational empowerment on nurse outcomes and performance. An interesting link between the concept and nurse autonomy can be derived from findings in studies based on the concept. Despite the increasing research based on the NWI-R in relation to magnet hospitals, there are still gaps in the literature. These are related to methodological issues, such as use of measures and structure of sub-scales. There is conceptual inconsistency between items in NWI-R sub-scales and inconsistent use of concepts, specifically for nurse autonomy. Recent research indicates that there is a link between the traits of magnet hospitals, the NWI-R sub-scales and the characteristics of organisational empowerment, but due to lack of conceptual clarification in relation to the measurements used further research is needed (Kramer & Schmalenberg, 2003b; Tranmer, 2005). To date, no study of the magnet hospital concept has been conducted in Iceland.

Finally, the present review of the literature shows that for the concepts under investigation more in-depth knowledge of nurses' working environment in relation to nurse and patient outcomes is an important contribution to current literature. More research across countries, cultures and health care settings would help strengthen the evidence of successful health care organisations in the context of increasing health care demands and patient expectation. Eventually this would benefit the quality of patient care, and the recruitment and retention of hospital nurses. To date, limited research is available in Iceland about the link between hospital working environmental factors, nurse job outcomes and patient outcomes.

In conclusion, there is a need to examine further the relationships between hospital working environmental factors and nurse and patient outcomes. There is a need for further research on the determinants of nurse job satisfaction and multiple methods in this area of research would strengthen the evidence base. Data on nurses' job satisfaction in Iceland would benefit the development of knowledge of nurse job satisfaction. In particular, there are gaps in the literature on the influence of working relations, support at work and administrative behaviour. In the context of increasing health care demands and the critical shortage of nurses, a study on the working lives of Icelandic hospital nurses in a unique culture and setting, has the potential to increase knowledge of this area. It is crucial that the methodology used will enable comparison with findings from similar studies in other countries. The present review shows that a qualitative, in-depth understanding of the determinants of nurse and patient outcomes is needed to strengthen the evidence in this area of research. Hence, a study using mixed method is appropriate to help to close some of the gaps in the literature.

Chapter 2 Methodology

2.1 Introduction

This chapter includes a description of the methods used to address the study objectives and to answer the research question about the relationship between nurses' working environment and nurse and patient outcomes at Landspitali University Hospital Reykjavik (LSH). Given the complexity of nurses' working life in the context of contemporary hospital services it was decided to use two methods to investigate the research problem. First, to survey the total number of nurses working in direct clinical care at LSH, second, to interview a sub-sample of the survey participants in a series of focus groups to follow up further some of the survey findings.

This chapter has four main components. The first is a presentation of the conceptual framework of the study, the research questions, study objectives and aims. The second covers the study design, population and setting. The third considers the survey methods: the procedures used for adapting, pre-testing and pilot-testing the questionnaire, the contents of the questionnaire, some response rate considerations, details of the data collection procedure, participants of the questionnaire survey, and the approach used to analyse the survey data. The fourth part examines methodological considerations for the focus groups interviews, specifically preparation, participants and interview procedure, analysis plan, and issues concerning the reliability and validity of the qualitative data. The chapter concludes with some ethical considerations with regard to the present study process.

2.2 Conceptual framework, research question and objectives

The conceptual framework was inspired by the model of magnet hospital as successful traits for the management of hospital nursing. Magnet hospitals are characterised by supportive administrative behaviour, nurse autonomy, control over nursing practice, staff involvement in decision-making, therapeutic nurse-patient relationships, professional nursing practice and collaborative nurse-physician relationships (McClure et al., 2002; Scott et al., 1999). Studies of magnet hospitals have shown that there are positive relationships between these characteristics and better outcomes, both for nurses (job satisfaction and lower burnout levels) and for patients (Aiken et al., 2002).

Correspondingly, supportive hospital nurses' working environmental factors are examined here as independent variables: management and leadership, professional collaboration, resources and staffing, and the underlying philosophy of the nursing practice. Nurse and patient outcomes are the dependent variables for the present study. These are measured as nurse job satisfaction and feelings of burnout, and nurse-rated quality of patient care. According to the model of magnet hospitals, it is expected that these relationships are inter-related. The relationships under investigation are graphically presented in figure 4 (page 92. This demonstrates the proposed positive relationships between nurses' working environment and nurse job outcomes (job satisfaction and burnout), and the quality of patient care (nurse-reported quality of patient care).

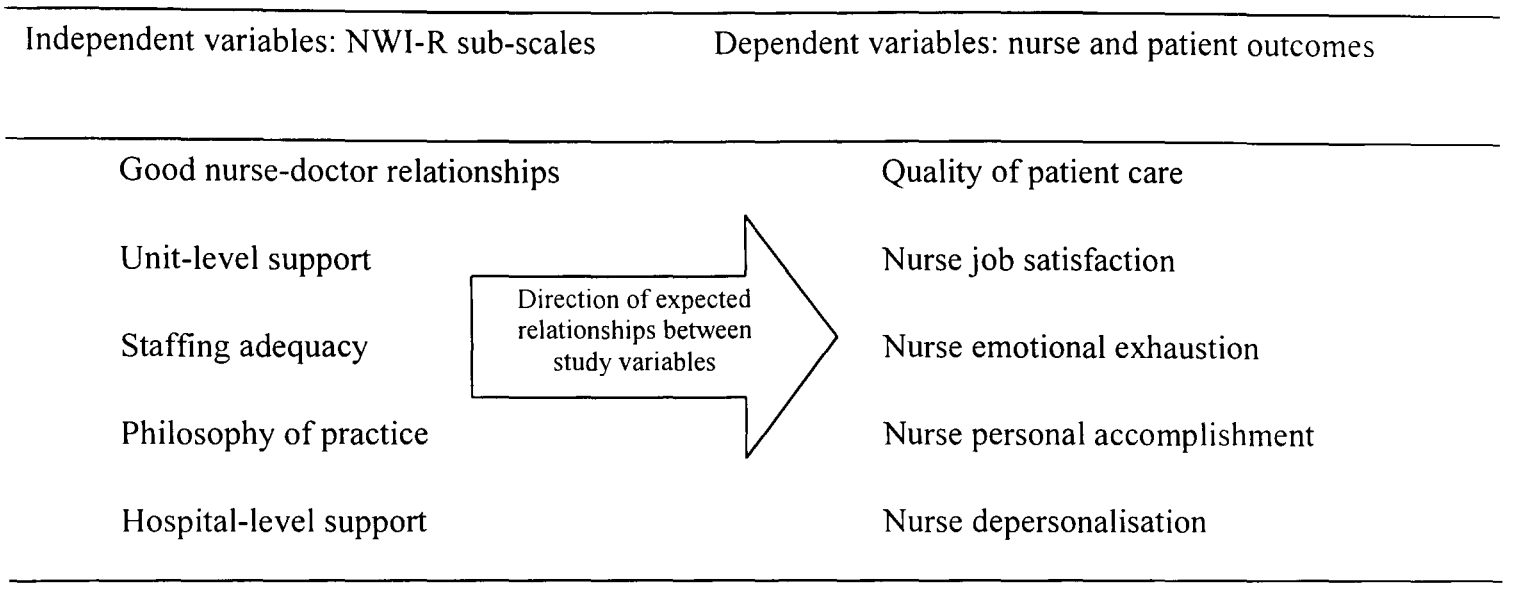

Figure 4. Proposed relationships between variables under investigation

Based on the literature and the conceptual framework, the research question was: "Are supportive working environment factors for nurses in an Icelandic hospital (LSH) positively related to their job satisfaction, absence of burnout and assessed quality of patient care?" The objectives were as follows:

1. To describe the reported nurses' working environment at LSH
2. To examine nurse job outcomes at LSH
3. To explore the nurse-assessed quality of patient care at LSH
4. To analyse the relationships between perceptions of the nurses' working environment and nurse job outcomes and nurse-rated quality of care

Given the complexity of the study problem and to increase reliability and validity of the study quantitative along with qualitative methods were chosen to address the research question. The central aim of the study is to gain a better insight into the relationships between nurses' working environment characteristics and nurse and patient outcomes by surveying a large sample of Icelandic university hospital nurses and by conducting interviews with a sub-sample of the survey participants.

The primary reason for choosing the "traits of magnet hospitals" as a background to the conceptual framework and the methodology of the study was to enable benchmarking towards a prominent and widely studied model of successful health care organisation. Due to the small number of hospitals in Iceland, the possible function of a labelled health care organisation as a magnet hospital to recruit nurses is less important.

2.3 Study design

The present study uses a cross-sectional descriptive design to identify perceptions of working environments, job outcomes and assessments of quality of care among nurses and midwives working in clinical roles (N=930) at Landspitali University Hospital (LSH) in Reykjavik in 2002. The overall research question was: "Are supportive working environment factors for nurses in an Icelandic hospital (LSH) positively related to their job satisfaction, absence of burnout and assessed quality of patient care?"

For the purposes of this study, supportive nurses' working environment factors are good inter-professional relationships, supportive managerial and leadership behaviour, adequate resources and underlying philosophy of practice. To address the research question, both quantitative and qualitative methods were applied. First, a survey questionnaire was adapted from the UK version of a questionnaire used in the International Hospital Outcomes Study (IHOS), a 1998-1999 study of 43,000 nurses in over 700 hospitals in five countries (Aiken et al., 2001; Clarke, 2004). The IHOS battery (which includes the Nursing Work Index-Revised) was selected to facilitate cross-national comparisons.

The second part of the research consisted of a qualitative study involving focus group interviews with a sub-sample of the survey to contribute further data to address the study objectives and the research question. Findings from these two methods were compared and combined to expand the understanding of the problem, to answer the study objectives and the research question. Figure 5 illustrates the overall design of the study.

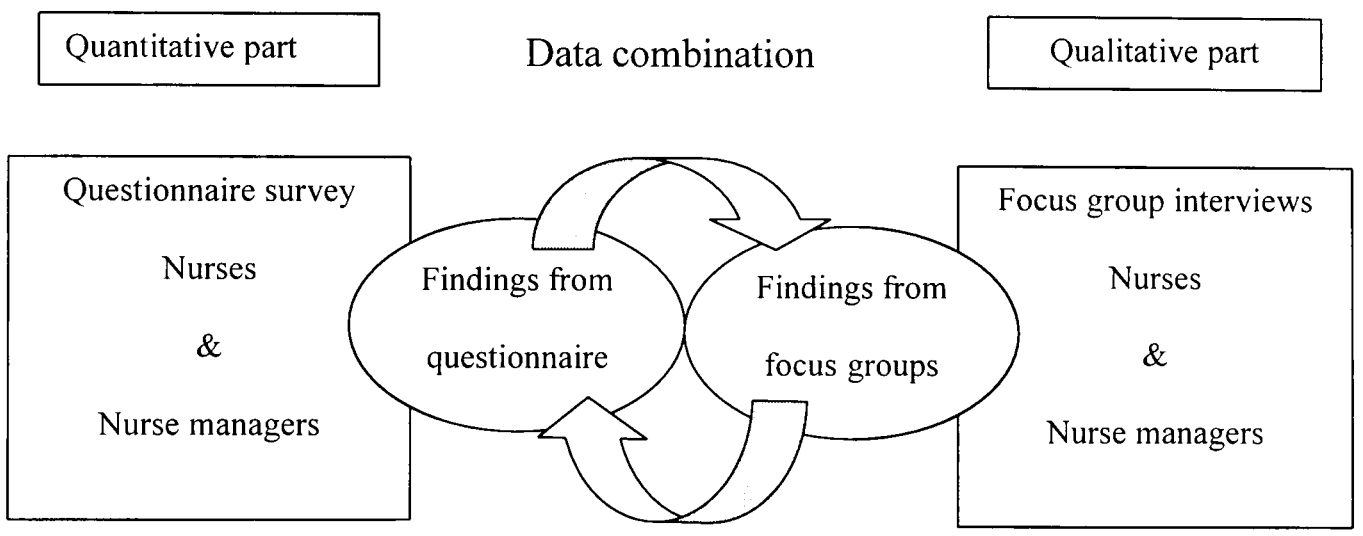

Figure 5. Study design

2.3.1 Combination of methods

Mixed-method techniques may be used to expand and deepen the scope of studies. Using a combination of methods, multiple paradigms are reflected in the techniques used and blending qualitative and quantitative data can enrich the research. The same target phenomenon is explicitly framed by two or more worldviews (Sandelowski, 2000). Quantitative studies may fail to capture the full context of the situation and thus suffer from superficiality, whereas the strengths of qualitative studies are flexibility and potential to capture complexity. Qualitative methods are well suited to exploration, hypothesis-generation, and the development of lines for

future inquiry. However, they can also be used to illustrate the meaning of constructs and relationships, to clarify important results, and to illuminate and give interpretative guidance by adding a perspective that quantitative results alone cannot provide (Polit & Hungler, 1999). The strengths and limitations of these two methodologies may be complementary and the limitations of a single approach might be avoided and two methods used to generate somewhat different information to help to unpack the meaning of a phenomenon for the study subjects (Green & Thorogood, 2004; Sandelowski, 2000).

In the present study, the qualitative part was secondary to the quantitative part. Qualitative data were used as a supplementary source of information for investigating the concepts under study. This was also done to illuminate, explain and validate quantitative results by drawing forth more detailed responses from a sub-set of the individuals studied (Bogdan & Biklen, 1998). Sandelowski describes three purposes in combining methods: triangulation, complementarily and development (Sandelowski, 2000). The purpose of combining methods here was to obtain a complementarily and development of results. Findings of the quantitative and qualitative analysis were combined during the interpretative phase to expand the scope and improve the analytic power of the study (Sandelowski, 2000).

2.3.2 Population and setting

The target population was all nurses working in direct patient care at Landspitali University Hospital (LSH) in Reykjavík. This state-run facility is Iceland's largest hospital. After a facilities merger in 2000, LSH became the only hospital in the capital area (where 50% of Icelanders live). Participants were located in five different LSH buildings and campuses in the Reykjavik area. In 2002,

approximately 4,800 employees worked at the hospital in positions amounting to almost 3,800 full-time equivalents, 930 of whom employees were nurses working in various clinical settings (LSH, 2003). LSH's clinical services are administratively organised into directorates, which are comprised of one or more units or clinics (sometimes on different campuses), and are each overseen by both a nursing and a medical director. These directorates are surgery, internal medicine 1, internal medicine 2 (consisting primarily of oncology and palliative services), intensive care, accident and emergency care, obstetrics and gynaecology, paediatrics, psychiatry and, geriatrics (care of the elderly). Each directorate has several clinical units in totalling one hundred for the entire hospital. Each of these has a nurse unit manager responsible for nursing care, and a head medical doctor responsible for medical care. The average number of in-patients in 2003 was 939; total patients days 295,106 and average length of stay 5.2 days for somatic departments. The average length of stay has decreased significantly in the last few years and productivity has increased due to organisational changes (LSH, 2003).

LSH was chosen as the sole site for this study for several reasons. There is only one other large hospital, Fjórðungssjúkrahúsið Akureyri (FSA), in the country, which was chosen as the pilot site for present study and is located. Others are only community hospitals, which generally handle low-risk and long-term patients. Because few nurses work in theses individual hospitals, any attempt to characterise their working environments would have been quite difficult. Whereas community nurses represent a large proportion of the nursing workforce in Iceland, the questionnaire tool used was designed for hospital settings and therefore was not suited to surveying this group.

Among LSH nursing staff, a number of further exclusion criteria were applied. Managers and nurses working in positions that did not involve contact with patients were specifically excluded. Midwives in Iceland are also nurses by profession (midwifery involves two years of speciality education following basic training). Because of this, and because they provide direct patient care and are under the supervision of the same managers in the obstetrics and gynaecology directorate, they were included as subjects. Hence forward, the term "nurse" will refer to both nurses and midwives.

2.3.2.1 Icelandic nursing workforce

In 2002, there were around 3,200 nurses in Iceland, of these, 70% had a BSc degree, 5% a master's degree and 0.5% a doctoral degree (personal communication, Icelandic Nurse Association, 10 November 2002). Self-regulation of nursing practice that ensures nurses' accountability for their own practice was initiated in 1978 through the Health Services Act of 1978, now the Health Services act no 97 of 1990 (Alþingi, 2005). A nursing diploma school was run from 1931, but since 1986 all nursing education in Iceland has been at the university level. Advanced training in nursing has been sought in other countries, usually in the USA. The first nursing association was established in 1919, an association for university-educated nurses was founded in 1977, and in 1994 the two associations merged (Félag íslenskra hjúkrunarfræðinga, 2005). Nursing philosophy and specialised practice have gained increased recognition and have been in constant development (Guðmundsdóttir, Delaney, Thoroddsen, & Karlsson, 2004).

2.3.3 Overview of study procedures

Overall, this study involved five main components: translation and pre-testing of the survey instrument by means of a modified Delphi method, pilot testing of the survey, conducting the questionnaire survey, focus groups interviews, and combination of findings. The translation and pre-test phase took approximately eight months, followed by a pilot study in a comparable setting a month prior to the main survey. Data collection for the questionnaire survey took approximately three months, and eight months later the focus groups interviews were carried out over a period of three months. The research procedure and time schedule are listed in figure 6.

Procedure	**Time**
Preparation of questionnaire instrument	
Initial translation	January–July 2002
Collaboration with panel of experts	
Back-translation of instrument	August 2002
Pilot study of survey instrument	
Presentation of pilot study at site	June 2002
Recruitment of participants in survey	July–August 2002
Data collection by questionnaire	
Recruitment of participants for focus group	
Data collection in focus groups	
Analysis of pilot study findings	
Questionnaire survey	
Presentation of study in local media	July–August 2002
Ethical approval for pilot and main survey	
Presentation of survey at site	
Survey data collection	September–December 2002
Follow-up of response	
Analysing questionnaire data	December 2002–August 2003
Focus group interviews	
Presentation of focus groups at site	August 2003
Ethical approval for focus group study	
Recruitment of participants	September-November 2003
Data collection in focus groups	
Analysing focus group data	September 2003-April 2004
Results and interpretation	
Presentation of preliminary findings of study	August 2003-June 2004
Combination of findings	May–September 2004

Figure 6. Overall procedure of research: preparation of instrument, pilot study, questionnaire survey, focus groups, presentation and combination of findings

2.4 First part of the study – surveying nurses at LSH

The quantitative portion of this study employs a cross-sectional survey design. Surveys obtain information from populations regarding the prevalence, distribution and inter-relationships of variables. Cross-sectional surveys, or surveys conducted at a single time-point, are appropriate for describing phenomena and the relationships between phenomena (Bowling, 1998). The purpose of the survey in the present study is to measure LSH's nurses attitudes to their work life as precisely as possible. There are three phases in the survey portion: translation and validation of the questionnaire, pilot testing of the survey (both the questionnaire and the design), and the actual data collection at LSH.

The main advantage of a cross-sectional design is that it is relatively economical in relation to time and money. Surveys rely on self-reports and thus depend on the respondents to be willing to answer accurately. Some limitations of cross-sectional studies are restrictions in making inferences about trends and changes over time, and drawing conclusions about cause and effect. Some disadvantages of questionnaires are response rate, accuracy and the completeness of answers, reading difficulties and misunderstanding (Bowling, 1998). To maximise success in this respect, efforts were made to rigorously translate and adapt the survey questionnaire, design it in a clear and attractive manner, and administer confidentiality (Edwards, et al, 2002; Polit & Beck, 2003). The translating and pre-testing of the instrument will be presented in separate sections (2.4.1 and 2.4.2 pp 102-106).

A questionnaire survey was conducted to obtain information on the prevalence, distribution and inter-relationships between variables within the target population. This was done by means of self-report from survey participants to measure attitudes, knowledge and behaviour as accurately as possible (Bowling, 1998; Polit & Hungler,

1999). Among advantages of surveys is that they are carried out in natural settings, with random or probability sampling allowing statistical inferences to be made in relation to a broader population of interest. In the present study sampling was not conducted as the target population was approached as a whole. Among the limitations of self-administered questionnaires are that they include a pre-coded choice that may be worded and ordered insufficiently or respondents may have to choose answers that do not fully represent their views. The method can therefore be subject to error in relation to the collection of information regarding attitude and behaviour (Bowling, 1998). Other limitations of self-reports are related to invalidity and reliability. Responders frequently try to present themselves in the best light that may conflict with the truth and cause bias (Polit & Hungler, 1999). In the present study efforts were made to minimise these limitations by conducting a pre-test and pilot study on the instrument and validating the data collection method.

The aim of the present questionnaire survey is twofold. First, to describe the working environment and nurse job outcomes in a hospital setting and their own assessment of the quality of the service provided. Second, to explore social conditions in a hospital in light of a conceptional framework derived from studies related to magnet hospitals (Aiken, 2002). This was accomplished by assessing the influence of organisational factors that can be manipulated by hospital management and staff initiative. Descriptive surveys cannot provide robust evidence about relationships between variables, but with sophisticated statistical techniques this limitation can be minimised (Moser & Kalton, 1971).

2.4.1 The translating and pre-testing of the instrument

The survey involves a battery of questions and scales that are very similar to those used in the UK and the US International Hospital Outcomes Study (IHOS) (Aiken et al., 2002; Clarke, 2004). Figure 7 (page 105 documents the translation and the pre-testing of the questionnaire used for this study. The major phases are initial translation of the questionnaire, followed by consultations with a panel of experts regarding content and validity of the instrument, and back-translation and refinement.

Before deciding on the data collection method, a researcher must evaluate whether the chosen approach is likely to capture accurately the concepts under study (Polit & Hungler, 1999). Validity is the degree to which an instrument measures what it is supposed to measure. Face validity has to do with whether the instrument is measuring the appropriate construct; the questions appear to be relevant, reasonable, unambiguous and clear. Content validity refers to how representative the questions are of the universe of all questions that might be asked on the topic under investigation (Bowling, 1998; Polit & Hungler, 1999). After exploring the literature, the research candidate examined thoroughly the questions and compared them with the core concepts and theories underpinning the study. Three questions on perceived general physical and mental well-being were created and added as background variables. These are a modification of questions of a Nordic questionnaire widely used in occupational surveys (Vinnueftirlit ríkisins, 2001).

The International Hospital Outcomes Study questionnaire was originally developed to examine the impacts of hospital restructuring on patients and nurses in a number of countries in the 1990s (Aiken et al., 2001; Buchan, 1999; Clarke, 2004). The IHOS questionnaire was found to have good coverage of the core concepts

underpinning the present study (Karasek & Theorell, 2000; Laschinger, 1996b) and hence was selected as the basis (construct validity, step I). The IHOS battery of items and scales was used to survey more than 43,000 nurses in the US, Canada, Germany and the UK (Aiken et al., 2001; Aiken et al., 2002).

It was decided to use the version of the IHOS questionnaire employed by the UK research teams in the IHOS (Rafferty et al., 2001). Researchers in the UK and the US granted their permission to adapt the IHOS questionnaire. The candidate first translated the UK version (step III). Subsequently, input was sought regarding the contents of the questionnaire from a panel of Icelandic experts in the field of human resource management, occupational health, and English- and Icelandic-speaking nurses (step IV and V). The panel was interviewed and asked for their comments on the Icelandic questionnaire. Before the interviews, the group participants examined both the English and Icelandic versions and highlighted portions they found to be unclear or inaccurately translated. During the interviews, individual questions were discussed and examined for their appropriateness regarding language and cultural matters (Hilton & Skrutkowski, 2002; White & Elander, 1992). Another linguistic specialist (also a registered nurse) examined and verified the validity of the questionnaire in terms of language and culture (step VI).

A modified Delphi technique was used to integrate the opinions of these experts. Delphi approaches typically involve seeking out judgements from a group of people questioned individually, and then repeatedly circulate the summary of all experts' judgments to the entire panel until consensus is reached (Polit & Hungler, 1999). Here, the purpose is to evaluate the phrasing of questions and their relevance, as well as the overall quality of the adaptation. Each expert was interviewed face-to-face and then subsequently contacted via e-mail.

At the conclusion of these first five stages, it was clear that the questionnaire was relevant and well tailored to the aims of the study. It was also decided to exclude some of the sections of the UK version because they were not relevant for LSH nurses. Other modifications made related to the construction and phrasing of questions in terms of language, culture and organisation of Icelandic hospitals.

The final preparatory step involved examining whether the instrument appeared to be measuring the appropriate constructs and was easily understood by selected individuals from the target group of respondents (in this case, three nurses and one midwife; step VII, face validity). This group of respondents provided comments on minor changes in the phrasing of questions and instructions, as well as the layout of the questionnaire.

After the validation stage, the next step was to refine the translation of the instruments. Use of language and cultural context are major concerns when translating instruments. Iceland's population is homogeneous, one language (Icelandic) is spoken, and it has a common history and cultural traditions. In their paper on translation and testing questionnaires for equivalence, Hilton and Skrutkowski (2002) emphasise that the development of culturally-equivalent translated instrument requires familiarity with the basic problems of linguistic adaptation, cultural constructs and psychometric changes inherent in the translation process. To ensure validity and reliability, clear guidelines are needed and the authors refer to the committee approach where two or more bilingual people work on the translation. Translating an instrument from one language to another involves more than a simple translation process and multi-stage procedures are recommended (Hilton & Skrutkowski, 2002).

According to the above guidelines, a professional translator translated the Icelandic questionnaire back into English (step VIII). The original English questionnaire was then compared with the back-translation. Back-translation is a preferred method and involves the first translator independently producing a translated version and a second translator then translating the version in the target language back into the original language. Variation may include interpretations of items that may be culture specific. By back translating the instrument, major threats to validity and reliability can be prevented (Chang, Chau, & Holroyd, 1999; Hilton & Skrutkowski, 2002; White & Elander, 1992). This process revealed a number of translation mistakes in the instrument. Critical issues of phrasing and the choice of Icelandic concepts were discussed one last time with the panel of experts (the same as steps IV and V), yielding a version of the questionnaire, which was ready to pilot (step IX).

Steps:	Procedures (participants involved)	Questions asked	Outcomes
I	Initial translation of the UK version of the questionnaire (candidate)	Appropriate language and terms for nurses at LSH →	First version in Icelandic
II	Choice of questions on well-being	Simple and validated →	Icelandic version with questions on well-being
III	Literature	Theoretical correspondence →	Construct validity
IV	Representativeness of questions in relation to study setting (panel of experts; human resource management, nurses, occupational health)	How representative are the questions for Icelandic context? → Are the questions appropriate and relevant for culture and language?	Content validity
V	Panel of experts (two nurses and one midwife)	Does the questionnaire look as if it is measuring the appropriate construct? →	Face validity
VI	Linguistic specialist (nurse)	Are there any unclear and in-correct translations? →	Content validity
VII	Verbal protocol (nurse and midwife)	Are there any unclear questions and instructions? →	Face validity
VIII	Back-translation into English (professional translator)	Are there any unclear or incorrect translations? →	Content validity
IX	Refinement of translation (panel of experts, the same as step IV)	Are there any unclear or incorrect translations? →	Reliability and validity
X	Pilot test (survey and focus group participants at pilot hospital)	Clear/appropriate questions / directions? Problems in data collection process? →	Reliability and validity
XI	Final refinement (professional translator)	Acceptable changes in terms of language? →	Reliability and validity

Figure 7. Adaptation, pre-testing and pilot-testing of the questionnaire (IHOS)

2.4.2 Pilot-testing of the instrument

After obtaining permissions from the hospital administration (appendices 2a and 2b pp. 300-301), a pilot test of the validated questionnaire was carried out at FSA hospital in Akureyri (a small town in North Iceland, 700 km from Reykjavik) in

August 2002 (step X, figure 7). FSA is the second largest hospital in Iceland and has a similar structure and organisation to the LSH.

After the study had been presented to the management of the two involved hospitals (LSH and FSA), Iceland's major morning newspaper featured an article about the study. The next step was to present the pilot study to unit managers and staff nurses at the pilot hospital. The candidate contacted all the ward managers via e-mail and provided them with information about the study and kindly asked them to forward this information to their staff members.

The pilot study was developed much as the main study to refine the methodology and all the various features of the main enquiry. The purpose of the pilot study is to evaluate the data-collection method, the efficiency of its layout, the clarity of its definitions, the adequacy of individual questions, completion time required, and the efficiency of the instructions and presentation of the study's purpose etc. The pilot survey sample had a comparable structure to the main survey, and the probable numbers of refusals and non-contacts were roughly estimated from the pilot survey (Moser & Kalton, 1971). However, since the pilot study was timed to take place during holiday season, the number of extra refusals and non-contacts this would produce was taken into account.

The questionnaire was sent to a random sample of 50 nurses, 25 of who returned it. Participants were asked to write comments if they had difficulties understanding or answering some of the questions. An invitation was attached, asking the respondents to participate in a follow-up focus group, to be moderated by the candidate, to discuss further the questionnaire. A professional assistant was hired to take notes and record the conversations (Krueger, 1998). All the participants in the focus group gave their permission for the focus group meeting to be taped and all

data were handled confidentially. The interview guide for the focus group was derived from the findings of the pilot survey and included questions regarding the design and structure of the instrument, the phrasing of questions, the relevance of alternatives, and the instructions and information that were provided. The participants were asked specifically to discuss the questionnaire to clarify expressions and language.

Findings from the focus groups and suggestions written on the questionnaire related to changing the phrasing of certain questions, instructions on how to respond to particular sets of questions, and the inclusion of additional alternative responses (e.g. "0" and "not relevant" boxes to enable nurses and midwifes in different settings to choose relevant answers). Other valuable information was gathered from the focus group findings. An alternative response for the question about education was added. A question regarding marital status was deleted because the focus group participants felt it could create problems with confidentiality. Focus group participants also suggested clarifications of the study in the cover letter to emphasise the importance of relevance and focus to the purpose of the study and potential benefits for the participants. All suggestions were considered and the majority were integrated into the final questionnaire. This modified questionnaire was then discussed with the panel of experts and minor changes incorporated. The back-translator compared the refined version with the translation she had examined earlier and accepted the changes (step XI figure 7 page 105. No statistical analyses were performed on the pilot questionnaire data.

2.4.3 The instrument

The final eight-page questionnaire consisted of seven sections (A to G), dealing with demographic and job characteristics, nurses' working environment, job satisfaction, burnout and quality of patient care (see appendix 3 page 303 [English version] and appendices 4a-4d pp. 317-330 [Icelandic version]). The measures are described below.

2.4.3.1 Work history – Part A

Questions on work history were adapted from the IHOS questionnaire to be relevant for LSH nurses. This included 10 questions on job title, speciality, experience and working hours. Some changes were made to the response options to ensure that nurses with unusual attributes (the very old, very young, etc.) would not inadvertently identify themselves, a confidentiality concern due to the relatively small and homogeneous groups of nurses in directorates/clinical areas. Appendix 5 (page 331) lists the variables related to work history and how they were coded.

2.4.3.2 Nursing Work Index Revised (NWI-R) – Part B

The Nursing Work Index (NWI) was constructed by Kramer and Schmalenberg in 1984 from their findings in the first magnet hospital study (Kramer and Schmalenberg, 2002b). Their research examined the attributes of institutions with excellent recruitment and retention records, which were found to have particularly favourable working climates for nurses in 1983. The investigators state that the index has been useful to measure staff nurse job satisfaction and productivity patient care in magnet and non-magnet hospitals (Kramer & Schmalenberg, 2004). A number of modifications based on research by Aiken and associates have led to the revised version of the NWI used in the present study (the NWI-R; Aiken & Patrician,

2000). The IHOS research team in the UK did a number of further adaptations to make this US tool more relevant for European hospital nurses (Rafferty et al., 2001).

The NWI-R is intended to measure organisational features, rather than job satisfaction (Aiken et al., 2002). When completing the NWI-R, nurses indicate their level of agreement with various statements in relation to the working environment in their current jobs using a four–point Likert scale ranging from "strongly agree" to "strongly disagree". In the present study codings for the NWI-R questions were 1= strongly disagree; 2= somewhat disagree; 3= somewhat agree; 4= strongly agree.

Aiken created conceptually and derived sub-scales to measure organisational attributes characterising supportive nurses' working environment. These sub-scales are autonomy, control over the working environment, working relationships with physicians, and a summary measure of organisational support (Aiken & Patrician, 2000). These scales have further been refined to reflect staffing adequacy and administrative support. Reliability and validity were established in previous studies (Aiken & Patrician, 2000). Other teams in the IHOS consortium have derived sub-scales from the NWI-R that differ from Aiken and these also vary across studies (Aiken & Patrician, 2000; Estabrooks et al., 2002; Rafferty et al., 2001). Given these differences and the possible complications created by linguistic and cultural adaptations of the tool, the factor structure of the NWI-R in the current data set was analysed. Factor analysis suggested that, in the present sample, the items were clustered in five factors, specifically nurse-doctor work relationships, unit level support, staffing, philosophy of practice, and hospital level support. Further details regarding the factor analysis are presented in appendix 6 (page 332). Table 4 (page 146) presents the NWI-R sub-scales used, along with the number of items in each, their Cronbach's alpha (reliability co-efficients) and their theoretical ranges.

2.4.3.3 Burnout-Maslach Burnout Inventory (MBI) – Part C

The Maslach Burnout Inventory (MBI) was initially published in 1981 and originally designed for professionals in the human services field (MBI-HSS; Maslach et al., 1996). Burnout is understood as emotional exhaustion in response to a demanding environment, evoking negative attitudes towards recipients and one's accomplishment in the job and resulting in a non-productive attitude towards work. Burnout is conceptualised as a continuous variable, ranging from low to high intensity of experienced prolonged response to emotional and inter-personal stressors at job (Maslach & Goldberg, 1998). The MBI reflects a conceptualisation of burnout in terms of three phenomena (emotional exhaustion, depersonalisation, and lack of personal accomplishment), its factor structure has been repeatedly confirmed in empirical work, and the tool is widely recognised as the leading measure (Maslach et al., 1996).

The MBI asks respondents to indicate the frequency with which they experience various feelings on a seven-point scale. The item ratings are summed to create sub-scale scores. High scores for emotional exhaustion and depersonalisation sub-scales and low scores on personal accomplishment represent burnout. Overall, a high degree of consistency with each sub-scale has been found via longitudinal studies (Maslach et al., 1996). Validity for these scales has been established in previous studies (Schaufeli & Van Dierendonck, 1995). Reported reliability for the sub-scales are: 0.90 for emotional exhaustion, 0.79 for depersonalisation and 0.71 for personal accomplishment (Maslach et al., 1996, p. 12). Appendix 7 (page 337) lists the MBI sub-scales used, together with number of items in each and their Cronbach's alpha (reliability co-efficients).

2.4.3.4 Job satisfaction – Part D

This part of the instrument includes two questions on job satisfaction with four response options each. The first asks about the level of satisfaction with the current job and the second asks about satisfaction with being a nurse, independently of one's present job. Research has indicated that single items are useful in measuring job satisfaction as a global construct (Patrician, 2004; Wanous & Hudy, 2001; Wanous, Reichers, & Hudy, 1997). However, Rose (2001) points to the possibility that using single-item measures of overall job satisfaction appears to operate on the work itself, rather than other aspects, such as material factors at work. Appendix 8 (page 338) lists the job satisfaction variables and their coding.

2.4.3.5 Quality of care – Part D

Two questions deal with nurses' perceptions of the quality of nursing care provided in their clinical areas: one enquires about perceptions of the quality of the nursing care provided on the ward/unit in general; a second asks more specifically for an assessment of the quality of the nursing care provided on the previous shift. A further question asks respondents to indicate any change they perceive in the quality of service provided by the hospital the previous year. Additionally, a number of questions (not analysed here) deal with the levels of confidence that nurses express with regard to their patients' welfare following discharge from hospital. Appendix 9 lists the quality of patient care variables and their coding.

2.4.3.6 Well-being, sick leave and occupational risk – Part E

In this section three questions were added on perceived physical and mental well-being (appendix 4c page 329). These are widely used in Scandinavian studies (Vinnueftirlit ríkisins [Administration of Occupational Health and Safety], 2001).).

These measures were used as control variables in the subsequent data analysis (see table 19 page 161). Nurses were also asked about the number of needle stick injuries (occupational exposures to used sharps) incurred on the job and the number of sick leave days they had taken in the recent past. Data on sick leave and needle sticks will be used in later analysis and were not analysed as part of this thesis.

2.4.3.7 Measure of work load – Part F

This section includes a series of questions on workload in terms of detailed information on number of patients, co-workers and type of tasks undertaken. Data from this section will be used in later analysis and were not part of the present thesis.

2.4.3.8 Nurse demographics – Part G

This part of the questionnaire included a number of questions on nurse demographics and educational background. Questions on education did not include a question about BSc preparation for two reasons: over 70% of Icelandic nurses have BSc preparation anyway and detailed information on basic educational background was not considered a major focus of the study. However, two questions on education were included, on post-basic education and Master preparation. Questions on demographical information dealt with age and whether participants lived with children or other relatives (see appendix 10 page 340).

2.4.4 Response rate considerations

Non-response in surveys is a potential source of bias. The greater the number of the non-responses, the greater the potential bias and the impact of non-response depends on the extent to which the population mean of the non-response stratum differs from that of the response stratum. Among determinants for response rate are the length of

the questionnaires (lengthy instruments have a lower response rate), and the perceived threat of the topic can lower the response rate (Edwards et al., 2002). With a well-designed survey it is usually possible to keep non-response down to an acceptable level (Dillman, 2000; Bowling, 1998; Moser & Kalton, 1971). In most surveys, a response rate of 75% and above is considered good (Bowling, 1998). The reported response rate for international nurses' work-force studies is around 50% (Aiken et al., 2002; Estabrooks et al., 2002, Buchan et al, 2003). Reported experience on university-based studies conducted recently in Icelandic hospital settings shows low response rates (40–50%) (Guðmundsdóttir et al., 2004).

A systematic review to identify strategies for increasing response of postal questionnaires shows that response rates of postal surveys vary widely, depending on the sponsorship and study topic, its salience and the length of the questionnaire (Edwards et al., 2002). The review also shows that questionnaires from universities are more likely to be returned, but those containing items of a sensitive nature are less likely to be returned. Response is more likely when questionnaires and letters are personalised, brown envelopes and stamped, return envelopes are used, contact is with participants prior to sending out the questionnaires, and follow up contact is ensured (Edwards et al., 2002). Questionnaire layout is another element that can increase response rate, and clear and professionally printed questionnaires are more likely to be successful since they are easier to read and understand (Bowling, 1998).

A number of techniques to maximise response rates were used in the development of questions and in the layout and design of the questionnaire booklet. When translating and testing individual questions, professional but simple and straightforward expression was the ultimate goal. In order to have the questionnaires presented as attractively and in as user-friendly a format as possible, a professional

designer was hired. Two colours were used and the logo of the relevant university was placed on the front page. The return envelopes were brown and simple guidelines for the return using the internal postal service were provided. Confidentiality was stressed both on the front and last pages of the instrument. General rules about the cover letter, instructions relating to each question and how and when to return the questionnaire were followed. The candidate delivered the questionnaires to subjects' work addresses. This was in line with recommendations contained in one of the main sub-scales of the instrument, the Maslach Burnout Inventory, to prevent influence from other people and to enhance response rate (Maslach et al., 1996). This method also facilitates presentation of the study, increased personal contact, and encouraged discussion between the candidate and the subjects of the study.

2.4.5 Data collection

Before beginning data collection, the study was introduced both in the hospital newsletter and at meetings with the chief nurse and nursing directors of the various directorates. These presentations were followed up by announcements at directorate-wide meetings of ward managers. Directors and managers were provided with written materials on the purpose of the study and information on the procedure. Participation at these meetings was also intended to facilitate diffusion of information about the study to nurses and midwives working at the units so as to encourage their participation in the survey. The candidate then stayed contact and sent further information about the study to the units via e-mail and letters to unit managers. Upon approval from the relevant ethics committees (see appendices 11 and 12 pp. 341-342), the human resources department provided a list of names of nurses who met the study criteria.

Participants completed the questionnaire over the period 4 September 2002 to 10 December 2002. The candidate brought the questionnaires to the participants' workplaces together with return envelopes and a cover letter (appendix 4d page 330) explaining the aim of the study, a brief explanation of the study and an assurance of anonymity and confidentiality. When visiting the workplaces, the candidate used this opportunity to make contact with the unit managers and staff nurses on duty. Completed questionnaires were sent to the candidate via hospital internal mail services to an address at the hospital-mailing centre where staff kindly helped the candidate to keep eye on the returned envelopes and collect them in a closed box labelled "the study". The return of completed questionnaire constituted subjects' consent to participate.

In an attempt to maximise return, two reminder letters were sent to all the subjects in the census. The first was sent 23 October 2002 to all sample subjects, followed by an e-mail to ward managers with further information about where to get additional questionnaires, if needed. A few managers responded and questionnaires were sent to the work addresses of the relevant nurses. Before the first reminder letter the response rate was 68% (n=637). The second reminder consisted of postcards sent to all the subjects on 14 November 2002 followed by e-mails to all ward managers, a letter and some additional questionnaires for those who had lost their originals. Before the second reminder the response rate was 71% (n=674). By the end of the eight-week data collection period 10 December, the number of completed questionnaires was 695, i.e. 75% response rate. Thank you notes were sent to participants via e-mails to ward managers at the end of the data collection period.

2.4.6 Participants

All nurses at Landspitali - University Hospital, Reykjavik (LSH) were included in the study. In this survey portion, the entire population of nurses working in clinical settings at LSH in the autumn of 2002 was approached to participate in the study (see section 2.3.2). Sampling was deemed unnecessary because the entire population of interest was invited to participate. Participants were located in different hospital buildings and campuses and three other sites in the Reykjavík area.

Efforts to maximise response rates were taken into consideration (see section 2.4.4). All nurses working in clinical settings at LSH were sent an anonymous questionnaire. In addition to this criterion and the fact that they had direct patient contact, a further inclusion criterion was that participants needed to be working more than 16 hours a week (40% of a full-time equivalent position) at LSH as of 25 August 2002, according to hospital records. This level was decided upon as a minimum number of working hours that would enable participants to clearly and reliably gauge their working environments for the purposes of this study. Nurses on maternity leave, prolonged sick leave or study leave were excluded for similar reasons, despite the potential "healthy worker effect" (Knutsson & Akerstedt, 1992).

Despite recruiting the entire population of nurses working at LSH, there remains a risk that some sub-group analysis would be limited by the small size of the accessible population. The nature and extent of these limitations were more evident once the final response was known and early analysis of the distribution of results was completed.

2.4.7 Data preparation and quality control

The questionnaires were forwarded directly to a data inputting company. The lists were scanned directly by means of a widely used computer program ("Eyes and Hands Software") and according to the program's protocol for quality control of the process to minimise the risk of adverse effects on the accuracy of the data set. After the scanning process, the data were put directly to a file and returned to the candidate for analysis. The questionnaires and the data file had no codes or numbers.

2.4.8 Analysis plan

Statistical analysis in the data was performed using SPSS statistical software 11.0 for Windows. A number of preparatory steps preceded the main analysis. The statistical significance (p) level for the analyses was alpha=0.05. The sample size in many of these analyses exceeded 600 data points and thus it should be borne in mind that significance levels for even small differences and associations in samples this large can be quite high. It should also be noted that a great number of statistical tests were performed across various analyses. Although the critical significance levels were not adjusted for the multiple comparisons conducted, all the p-values for analyses interpreted as supportive of the central thesis of the study were highly significant.

A Cronbach's alpha (internal consistency co-efficient) of at least 0.7 was required for a sub-scale to be considered sufficiently reliable for use in this analysis (Tabachnick & Fidell, 2001). The definitions of small, medium and large correlation coefficients were set at 0.1-0.3; 0.3-0.5 and >0.5 (Burns & Grove, 2001).

Data were missing for less than 5% of subjects for the great majority of the variables. As a result, in bivariate and multivariate analyses conducted in SPSS for Windows, cases were dropped on an analysis-by-analysis basis to retain the highest

possible number of cases in each (Kinnair & Gray, 2001). For two background variables of "years of experience in nursing" missing data were 16.5% and 28.6% (appendix 11 page 341) and as a result one of them was dropped in the analysis (with higher missing data). For one of the 52 NWI-R items (question nr. 23), the missing data were 16.4% (see appendix 12 page 342) and as a result this item was dropped from the analysis. In total, 22 items of the NWI-R were excluded due to missing data on cases and items in the final factor analysis (see appendix 6 page 332).

2.4.8.1 Preparatory Work

As noted above, a factor analysis of the NWI-R items in the present study was performed. Details of the procedures used are outlined in appendix 6 (page 332) and the results are presented in chapter three on study results (see table 4 page 146). A factor analysis of the items in the Maslach Burnout Inventory was also performed and it confirmed the three-factor structure described by the authors of the tool (see appendix 7).

Internal consistency reliability co-efficients (Cronbach's alphas) were computed for each of the sub-scales of the Nursing Work Index-Revised and the Maslach Burnout Inventory. The scales were then constructed in the data set, the categorical variables were recoded (see appendix 6 and appendix 7) to facilitate their use in the correlation and regression analyses (study objective four), and a set of dummy variables was constructed to represent the directorates where the nurses were employed.

2.4.8.2 Analyses for study objectives one to three

Study objectives one to three were directed at describing the working environments reported by nurses, their job outcomes, and the ratings that nurses gave to the quality

of patient care at LSH. For continuous variables, means and standard deviations are reported. For categorical variables, frequencies in terms of percentages were listed.

2.4.8.3 Analyses for study objective four

To address study objective four on the positive relationships of the five supportive nurses' working environment measures on job outcomes and nurse-rated quality of patient care, multivariate logistic regression was used to investigate the predictors of the categorical dependent variables (the likelihood of nurses reporting high job satisfaction (very satisfied) and high quality of care (excellent)). Multivariate linear regression was used to analyse the relationship of working environment to the continuous variables (the three MBI sub-scales measuring the dimension of burnout) (Agresti & Finlay, 1997; Kirkwood, 1988). Figure 4 (page 92 documents the relationships under investigation. Multilevel modelling was not an appropriate method for the present study. The structure of the dataset involved nurses clustered within 9 different directorates in a single hospital at a single point in time. It was not possible because of confidentiality concerns to track the specific patient care units on which the nurses worked. Given the existence of only 9 directorates in the study hospital, the available data would not provide sufficient variance to obtain robust parameter estimates in a multilevel model (Tabachnich and Fidell, 2001).

Some preliminary work preceded the regression analyses. First, the correlations between the dependent variables were examined to ensure that the measures were statistically independent of each other to merit examining their predictive power separately. Secondly, the inter-correlations of the predictor variables (the indicators of the various dimensions of nurses' working environments) were examined, again to ensure that the predictors were independent of each other and that they could be entered into models together without problems of multi-

collinearity. Thirdly, the demographic characteristics of nurses were examined in relation to the five outcome variables to verify which ones were important to use as control variables in the regression analyses. The inter-correlations of the nurse demographic characteristics were then examined to rule out multi-collinearity problems when entering them together in blocks. A cut-point of 0.5 was used to determine if pairs of variables were too highly intercorrelated to be entered together (Tabachnick & Fidell, 2001). Analyses were performed to ascertain whether the ratings of working environments, nurses' job outcomes, and the ratings of the quality of patient care varied significantly across nurse specialities (hospital directorates). These were analysed using one-way ANOVA (analysis of variance between groups) by speciality, followed by *post-hoc* comparisons. Description of the methods used and the corresponding findings are provided in appendix 13 (page 344). In the regression analyses the directorates (nurse specialties) are important control variables. To be usable in multiple regression, the hospital directorates variable, a nominal variable, was converted into a series of binary dummy variables.

The main regression analyses were performed in two phases with three steps each for each of the five dependent variables (figures 8 and 9 pp. 121-122). In the first phase (figure 8) each nurse's score on each of the nurses' working environment measures was tested alone as a predictor of the outcome (model 1). The same working environment variable was then entered in the equation (model 2) together with a series of 10 control variables for nurse personal and job demographics (see table 15 page 156). This was done to determine whether or not any observed associations were altered by taking nurses' personal characteristics and work-related experiences into account. The third step (model 3) included all of the variables of

model 2 as well as a series of nine dummy variables to control for the nine nurse specialities or directorates (see table 15).

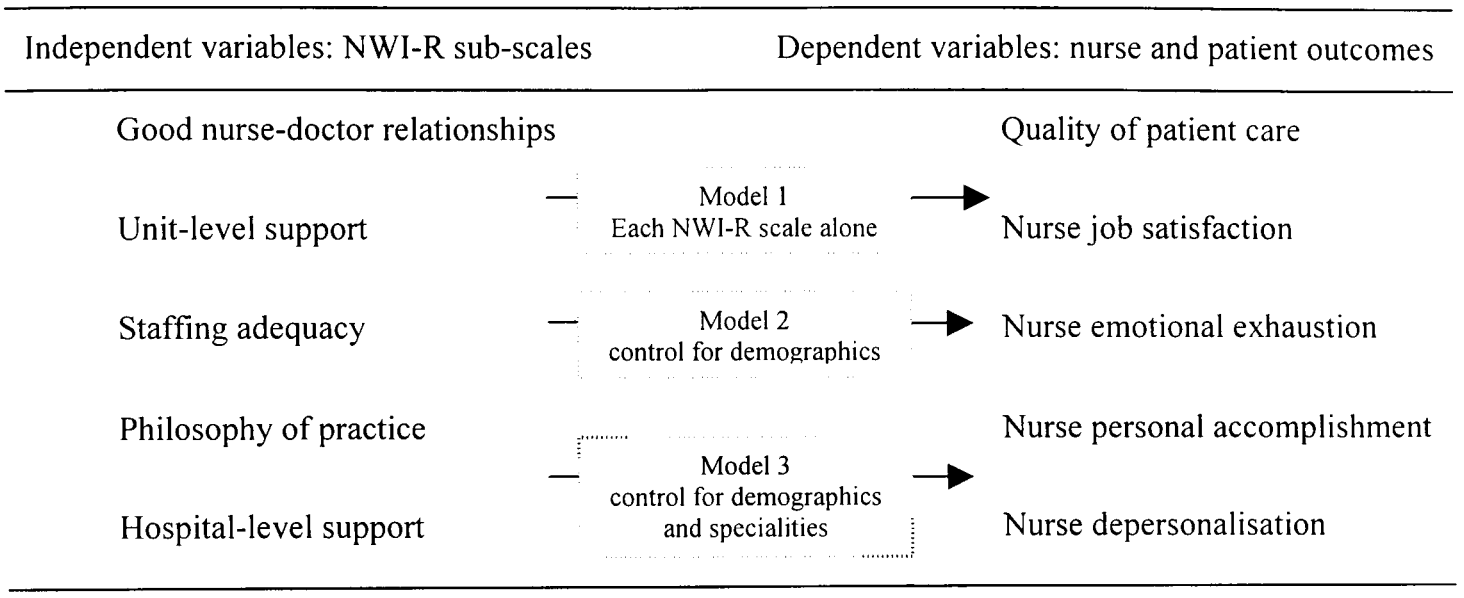

Figure 8. Regression analysis for each individual independent variable (NWI-R) entered separately (first phase)

As a second phase (figure 9 page 122) in addressing study objective four using regression modelling, a similar approach was used, except that as predictors were put in simultaneously to determine their predictive power after the others had been controlled for. All the environment measures and a series of 10 control variables for nurse personal and job demographics were tested. Finally, all of the environment measures, the 10 nurse characteristics variables and the nine control variables for nurse specialities measures were tested.

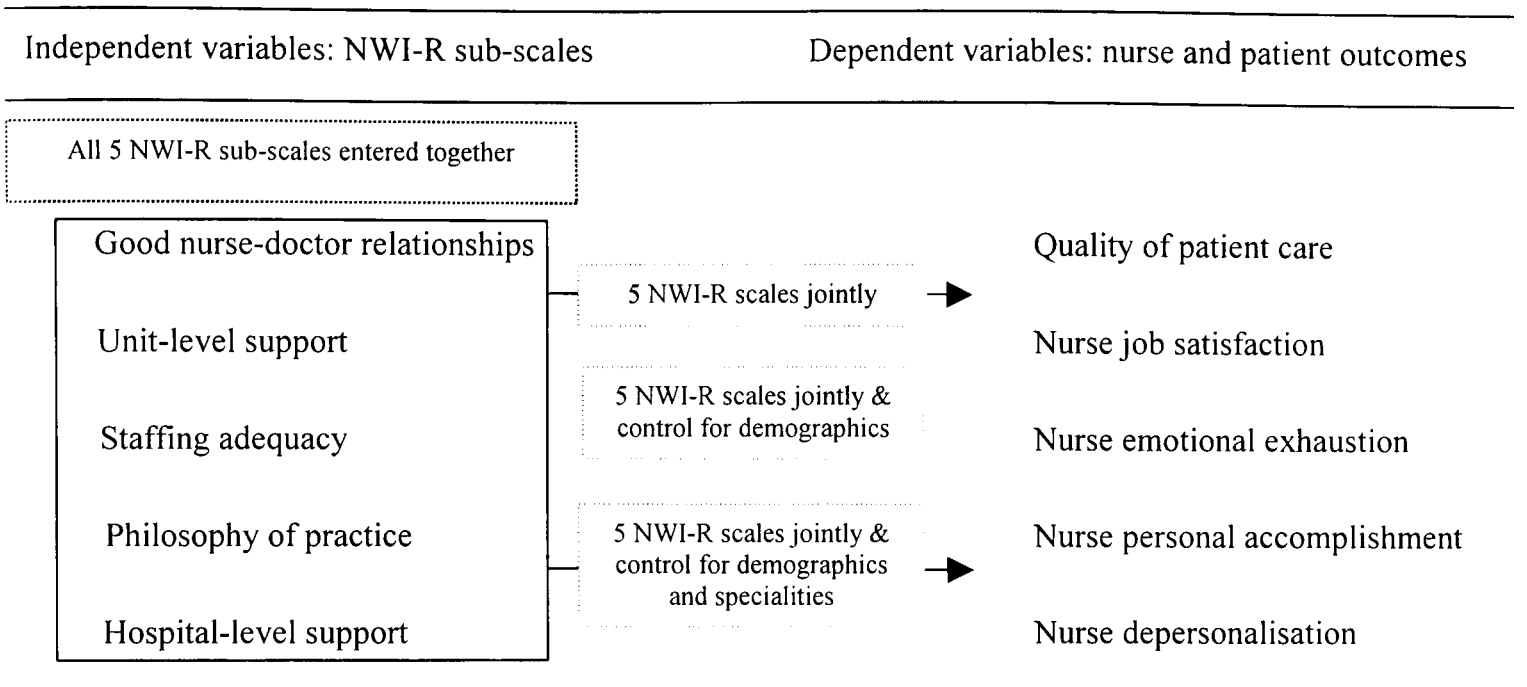

Figure 9. Regression analysis for the independent variables (NWI-R) entered jointly into the equation (second phase)

This two-stage procedure was repeated five times. In the multivariate logistic regressions (for modelling job satisfaction and quality of care), the significance levels were based on the likelihood ratio statistics (Kirkwood, 1988). Odds ratios and 95% confidence intervals (CI) were employed to portray the effects and magnitude of the association between the variables. Odds ratios express the increase (or decrease) in likelihood of a particular subject having a given outcome as a function of a one-point increase in a variable. In the case of the multivariate linear regressions, the co-efficients computed for the working environment variables indicate the increase or decrease in the various burnout scale scores associated with a one-point increase in the various working environment measures.

In the second phase of the analyses for each dependent variable, where the working environment variables were entered jointly, the overall predictive power of the models was of interest. In the case of the continuous outcomes where multiple linear regressions were reported, adjusted R-squares are listed. The adjusted R-

square provides a more conservative estimate of the proportion or percentage of variance that is explained in the dependent variable by the independent variables that take the number of independent variables in the model into account and adjust it accordingly. Omnibus F-tests for overall goodness of fit of the linear regression models are also presented. In the case of the logistic regression models, where the working environment variables were entered together, changes in the chi-square goodness of fit statistic with the addition of each block of variables are reported.

2.4.9 Power considerations

With a sample size ranging between 516 and 559 for the analyses presented in the previous section, and given the sampling strategy which was designed to recruit as many individuals from the target population as possible, having sufficient statistical power to find practically or clinically significant results was not of concern. With larger sample sizes, statistical significance levels must be interpreted with caution.

2.5 The link between the two methods used in the study

The purpose of the present survey is to measure LSH nurses' attitudes to their working life as precisely as possible. For this purpose, a widely used instrument was employed to enable international comparison of survey findings. The survey built on the experience of related studies with the potentials of improvement. The number of survey participants was maximised to enable multiple statistical analysis of the survey data. However, quantitative studies may fail to capture the full context of the situation (Bowling, 1999), whereas qualitative methods enable openness to the situation and the capture of complex social and contextual factors (Green and Thorogood, 2004). Given the complex nature of contemporary health care (McKee

& Healy, 2002) and thus the study problem, it was decided to add a qualitative component to the study. This was done to understand better the meaning of cultural, social and contextual factors within LSH's nurse working environment for nurse and patient outcomes and to further explore some of the survey findings among a sub-sample of the survey. Next, this thesis turns to the qualitative methods used for this purpose.

2.6 Second part of the study – focus group interviews

2.6.1 Introduction

It was decided to add a qualitative component to the study to elaborate on the survey findings and to expand and deepen the scope of the study (Sandelowski, 2000). The qualitative study was secondary to the questionnaire survey and consisted of qualitative interviews in focus groups with a sub-sample of the participants in the main survey. Combining the two methodologies added new perspectives to the subject and enabled a better understanding of the research question, i.e. the relationships between hospital nurses' working environment, nurse job outcomes, nurse-assessed quality of care and, in particular, the unexpected findings of the survey. The purpose of the focus group is to provide deeper insight into some methodological aspects of the survey, i.e. the cultural and linguistical components.

The structure of the interviews was planned in accordance with the research question, the survey findings and the context of the study with the potential to extend the quantitative findings and to indicate possible links between the two. The following sections detail the design of the focus group study, and the procedure and planning of the qualitative data analysis. The remainder of this section concerns the

focus group interviews as a qualitative method, the planning and participants of the focus groups, the procedure and data collection, and issues relating to the analysis of qualitative data.

2.6.2 Focus groups

Focus groups are a qualitative research method in which several people discuss a specific topic related to their needs or interests in guided group discussions to generate a richer understanding of participants' experience and beliefs (Krueger, 1998; Morgan, 1998b). Pioneer work on focus groups was carried out in the 1940s by social sciences in academic and applied settings. In the 1970s they were primarily used for marketing purposes and more recently the method has been used across a number of fields (Morgan, 1998a).

The practice of qualitative research demonstrates considerable variety. Most qualitative researchers look for the "truth" by gaining an understanding of the actions, beliefs and values of others from within the participant's frame of reference, and social and historical construct (Gribich, 1999). Qualitative research is descriptive and the data collected most often takes the form of words, where nothing is taken for granted and every detail is considered. The results of the research are written up using quotations from the discussion. The researcher systematically analyses the data by organising it and breaking it into manageable units, which then are synthesised by creating patterns and themes. While creating the themes and patterns, the researchers strive to capture accurately the perspectives of the participants, and the meaning of their lives, experiences and social relations (Bogdan & Biklen, 1998; Kvale, 1996). Qualitative research may be used as an umbrella term to refer to several research strategies where the data collected are termed "soft", i.e.

rich in their descriptions of people, places and conversations. Research questions are formulated to investigate topics in all their complexity to understand behaviour from the subject's own framework of reference. The most widely known qualitative research studies employ the techniques of participant observation and in-depth interview (Bogdan & Biklen, 1998).

Focus groups are formal and controlled, and seek a broad range of ideas from the selected participants (Green & Thorogood, 2004). In focus groups, the researcher leads the discussion in a facilitative way and encourages the participants to share their opinions (Burrows, 1998). The discussion is tape-recorded and notes taken by an assistant. The transcribed data, together with the notes, are used to analyse the data and create categories and themes. Participants in focus groups usually number from 4 to 12, and findings from different groups are compared (Burrows & Kendall, 1997; Krueger, 1998). Among the advantages of focus group interviews are that the researcher has direct access to the interaction between participants, resembling interactions in every-day life. This enables the researcher to observe how people speak and to determine who are passive and who are dominating. Group discussions can also be less threatening for participants than individual interviews and thus more suitable for addressing sensitive issues or critical aspects. Group dynamics advance the possibilities to bring forward different views and to illuminate participants' understanding of the phenomena under investigation (Green & Thorogood, 2004). Focus groups are not appropriate when the researcher is expected to be proactive about the possible problems discussed during the interviews. The method is also not appropriate when the participants do not feel comfortable with each other or with the topic investigated (Morgan, 1998b).

It is important to consider some of the limitations of focus groups. In-group discussion, pre-existing viewpoints are not only collected, but such settings can also be a process whereby views are produced (Green & Thorogood, 2004). The dominance of particular group members can influence the discussion (Green & Thorogood, 2004). For the present study, attempts were made to minimise these disadvantages by thorough preparation e.g. the presentation of aims, theoretical sample, topic guide and seating arrangements. In addition, the aim of good co-ordination between the researcher and the assistant is to minimise these disadvantages and ensure effective administration of the interviews based on guidelines for best practice. Separate groups for staff nurses and nurse managers also served to minimise possible dominance of individual participants.

In the present study, the aim of the qualitative section is to explore the concepts under investigation from the participants' point of view. The interview guide and selection of participants were based on the overall research question and the findings of the questionnaire survey. Icelandic nurses responded in a particular way when compared to findings from related studies in other countries. It was therefore decided to speak with a sub-sample of the survey participants about their experiences of their working environment in relation to their quality of life at work and to their experiences of the quality of patient care.

2.6.3 Planning and participants of focus groups

The planning and structure of the focus groups have two main components: creating a topic guide and recruiting participants (Krueger, 1998) The candidate used the opportunity while analysing the quantitative data to present and discuss preliminary findings with nurses participating in the survey and others with insight into the study

topic and working at the research site. From these discussions with e.g. staff nurses, doctors, senior managers, experts in human resource management and quality improvement, the candidate gained a better insight into the survey findings and a better understanding of the overall research question.

A topic guide (appendix 14 page 348) was developed from the survey findings and after communication with the above-mentioned professionals. It was then piloted with two staff nurses and one nurse manager. The topic guide was used as a semi-structured interview schedule for discussions in the groups (Green & Thorogood, 2004). As data collection developed, new questions emerged and the topic guide was re-evaluated according to the method of grounded theory (Strauss, 1987).

Recruitment for focus groups can be complicated and time consuming (Krueger, 1998; Morgan, 1998b). For the present study, the first step was to present the concept and aim of the focus groups for senior nurse management at the hospital and then to unit managers. The focus groups were then presented for staff nurses at the unit level via e-mails to unit managers. These communications were followed up by telephone calls with contact persons at the wards. Recruitment for the group sessions was planned so that participants from similar nurse specialities were together to create a relaxed atmosphere based on shared experience, mutual interests and similar background knowledge. Notwithstanding this, the emphasis was on different views and dynamic group interaction (Green & Thorogood, 2004). The sampling for the focus group interviews was theoretical, i.e. new groups were organised until theoretical saturation was reached (Strauss, 1998). Participation was voluntary and ethical issues (such as confidentiality) were taken into account. In the focus groups, six to eight participants with similar backgrounds discussed the

research topics in session that could last between one and two hours. The number of group sessions can range from three to six (Krueger, 1998). For the present study, four focus groups were held, with four to nine nurses in each and the discussions in each group lasted for approximately one and half hours.

2.6.4 Procedure and data collection

The candidate moderated the focus groups according to the topic guide. The candidate is trained in facilitating group discussion and used this to create a merger between the interests of the researcher and the participants. The interviews were conducted as informal conversation and the candidate made sure that all the themes were covered. An open conversational approach was encouraged and relevant topics that emerged were followed. Every session started by informal discussion and the final minutes were used to summarise the comments and add further comments from participants. The main topics brought up in the focus group interviews were perception of the working environment, well-being and job satisfaction, relationships with nurses, doctors and other co-workers, and the quality of care provided. Participants were given ample opportunity to raise their own issues and the interviews included extensive probing by the researcher in order to clarify emerging issues.

The general approach of grounded theory was used. Data for grounded theory can come from various sources including interviews, observations, documents, newspapers and anything else that can shed a light on the questions under study. Data collection is standardised and questions are used for interviews until proven to be irrelevant (Strauss & Corbin, 1990). In the focus groups for the present study, all discussions were tape-recorded. A trained assistant took notes and these were

discussed with the candidate at the end of each session and served as data for further analysis (Morgan, 1998b). Data were transcribed by the candidate and analysed according to grounded theory.

In addition to the information collected in the focus groups the candidate was able increase her understanding of the study topic by other means. First, by working as a part-time staff nurse at the hospital during the study period. This enabled the candidate to observe the nurses' working environment and to discuss informally the concepts under investigation with staff and managers. This information was not systematically documented due to ethical consideration, but the candidate kept a log of reflections and thoughts. Second, the candidate visited hospital wards regularly during the study period. This gave access to further information on nurses' working environment and provided opportunities for discussion with staff members. Third, during the study period the candidate gave a number of presentations on preliminary survey findings and preliminary focus group findings at local hospital meetings. At these, the candidate encouraged feedback from the audience. Discussions at these meetings, and feedback from the participants, provided an important opportunity for reflection and were important when analysing the qualitative data. It was considered that the insider status of the candidate was important with regard to sensitivity and local knowledge (Green & Thorogood, 2004) and to gain the trust and commitment of participants to share their perceptions openly and honestly (Burrows, 1998).

2.6.5 Analysis of qualitative data

Grounded theory as a style of qualitative analysis was used to approach the interviews and observational data were used to generate themes and concepts. In grounded theory, data collection and analysis of data are inter-related processes and

early analysis is used to direct the next interview. All potentially relevant issues must be incorporated into the next set of interviews (Strauss, 1987). Data collected from the four focus groups were simultaneously analysed, coded and continually compared with categories and dimensions that emerged from previous data (Strauss, 1987). Inductive analysis, comparative, thematic and categorical analyses were used to generate patterns that described the experience of nurses of the concepts under investigation and a constant comparison of emerging categories and themes in the data was carried out throughout the study by means of open and axial codings (Strauss & Corbin, 1990). The open coding led to indicators that were categorised into themes and dimensions reflecting the basic understanding of the nurses' and midwives' experience of their working environment, well-being at work and quality of care. Indicators were compared and grouped to emerging categories until theoretical saturation was reached (Strauss & Corbin, 1990).

A number of general principles apply to most qualitative research and serve as guidelines to add to the credibility of the analysis. One of the features of rigorous qualitative analysis is transparency, e.g. clear description of the method used (Green & Thorogood, 2004). In the present study, the analysing process is presented in detail and refers to how the transcribed text was analysed via open inductive coding and constant comparison, and how themes emerged, followed by relevant quotations.

2.6.6 Reliability, validity and generalisability of qualitative data

There are number of methods that are used to ensure rigor in qualitative research. The most important, as with quantitative research, is the provision of sufficient information to ensure transparency and to enable the reader to follow the thinking and decision making, so demonstrating why and how decisions are made-in effect

providing an audit trail for other researchers to follow. In the present study a clear description of the method of grounded theory helps to enhance the credibility the analysis, so enhancing the confidence of the reader in its truth, values, applicability, consistency and neutrality (Burrows & Kendell, 1997; Green & Thorogood, 2004). The methods of grounded theory emphasize systematic data collection and analysis to ensure that the findings arise from the data and not from other sources (Strauss & Corbin 1990). Once the methods are sufficiently described, the second task facing the reader is to judge their appropriateness. According to Morse (1998), this involves assessment of adequacy and appropriateness of the data, confirmation of the existence of an audit trail, and a system to enable checking to take place. In the present study the overall approach was that of grounded theory, with data collection and analysis consistent with the sampling methods employed in the previous survey. The trail of decision-making and procedures used for sampling were documented. Neutrality was particularly important in the present study as the candidate was familiar with the study setting and some of the study participants, led the in focus groups and thus involved in the discussion (Burrows & Kendall, 1997). Collaboration with a trained assistant was important, during data collection and analysis, and so were comments obtained during member checks when analysing the data.

Reliability is more problematic with qualitative studies as it may be impossible to duplicate findings. For example, focus group decisions are often contingent on circumstances so that they may be impossible to repeat even if the participants are the same (Burrows & Kendall, 1997). Thus, rather than the conventional statistical approaches used with quantitative studies, the reliability of a qualitative study is judged on the basis of the clarity of presentation, why and how decisions were made,

as well as the use of explicit guidelines that add to the credibility of the analysis so increasing faith in its truth value, applicability, consistency and neutrality (Burrows & Kendall, 1997; Green & Thorogood, 2004). Consistency is analogous to the reliability of the study. Neutrality refers to a freedom from bias and is particularly important in focus groups as the researcher is involved in the discussion, and hence the production of data (Burrows & Kendall, 1997).

The key criterion in determining the reliability and validity of a qualitative study is thus whether the researcher provides sufficient information to ensure transparency and that will enable the reader to follow the thinking and decision-making (Burrows & Kendall, 1997; Green & Thorogood, 2004). In the present study, the trail of decision-making and procedures used for sampling, data collection and analysing data were documented and have been presented to provide insight into the candidate's approach and how this was embedded in the concepts presented above.

Given that researchers have questioned the adequacy of the trinity of validity, reliability and generalisability in qualitative research, with Janesick (1998), for example, claiming that the traditional thinking about generalisability falls short when investigating meaning and interpretation of individual cases, Lincoln and Guba (1985) have introduced new terms when discussing truth-values of qualitative finding, these include trustworthiness, credibility, dependability and confirmability. In the present study attempts were made to ensure trustworthiness by first demonstrating credibility through reflection with the assistant after the focus group sessions and through member checks, both formal (see section 2.6.3) and in relation to presentations of preliminary findings to the study participants (see section 2.6.4). Second, trustworthiness was aimed at by means of dependability by demonstrating

by careful description of sampling, data collection and analysis and through systematic reflection. For the purpose of reflection, the candidate maintained a log-book on the research process and engaged in reflection and about the process of data collection and its analysis, as well as evolving categories and theory (see section 2.6.4). Furthermore, for the present study, dependability was achieved through reflection with the assistant helping with the focus groups as well as with peers and advisors (see section 2.6.3). Third, trustworthiness was ensured by striving to ensure that the findings were derived from the data. In this regard neutrality was a central issue; the candidate was aware of the importance of neutrality throughout the whole study process. Furthermore, attempts were made to remain alert to the possibility that the findings might not fit into preestablished views existing in the study setting while striving to understand informants' points of views. For this purpose the systematic process of reflection proved useful, as did discussion of the preliminary analysis with focus group participants (see section 3.3.4).

A caveat is required. Despite the promotion of Lincoln and Cuba's concept of trustworthiness within diverse research areas (Emden and Sandelowski, 1998, p. 208) the concept and the relevance of the criteria used to define it have been questioned. It is claimed that that the concept uses positivistic criteria while at the same time it is supposed to challenge the positivistic approach in research (Sparks, 2001). Detailed analysis of these issues is beyond the scope of the thesis given that the qualitative component of the study is secondary to the quantitative component.

Another reason that qualitative studies may be impossible to duplicate is the play of changing contextual factors. As noted above, focus group decisions are often impossible to replicate even if the participants remain the same as they begin any new process from a new starting point, having been influenced by the first event

(Burrows & Kendall, 1997). In the present study generalisability is understood such that every situation in qualitative research is unique and related to the context of the study (Kvale, 1996). However, thorough research, adequate description and the provision of contextual information increase the trustworthiness of the findings. For this purpose information about Icelandic society as well as about the Icelandic health care system is provided in the introduction chapter to this thesis (pp. 17-19). Furthermore, for the same purpose, information about the Icelandic nurse workforce and about the study hospital is provided in an earlier section of this chapter (see sections 2.3.2 and 2.3.2.1) as is information about the study participants (see sections 2.4.6, 2.6.3, 3.2.1 and 3.3.3). The accompaniment of the study findings with contextual information forms the basis for generalisation, enabling readers to judge whether the context in which they are operating is sufficiently similar to allow transferability (Green & Thorogood, 2004). The qualitative findings reported are thus important for Icelandic nursing but, providing caution is exercised, they have also the potential to help to better understand the fundamental research problem and thus to be relevant in similar situations elsewhere. It is, however, necessary, using the contextual information provided in this thesis, for other researchers to assess their own context and assess the extent to which these findings can be generalised to other settings.

Despite the potential limitations to the generalisability of the qualitative findings and their contextual specificity, they can however be of value (Green & Thorogood, 2004). The use of grounded theory (with theoretical saturation) offers the scope for findings either to be a source for generation of theory (Green & Thorogood, 2004) or, as in the present study, to contribute to the refinement of an existing theory (i.e. the magnet hospital concept). Thus the generalisation of the

qualitative findings is theoretical in nature and concepts and theory derived from the data can be theoretically useful in other populations and settings.

2.7 Candidate's role in the study hospital

As described earlier in this chapter (section 2.6.4) and in the introduction to the thesis, the candidate had worked at the study hospital prior to the study and worked as a part-time staff nurse during the study period. The insider knowledge of the candidate was extensive and contributed to the quality of the research process and in particular during the data collection period as described in section 2.6.4. However, this position was also a challenge in terms of potential bias. The candidate was aware of the importance of ensuring that findings were derived from data and not from other sources or were biased by her prior knowledge about the study hospital. Reflection with peers, advisors and recording reflections in a logbook helped to prevent this. Moreover, it was important to reflect on these issues with advisors who were located outside the study hospital and had experiences with in health care systems in three different cultures (i.e. UK, US and Australia). The role of the candidate within the hospital raised the possibility that subjects might be unwilling to disclose sensitive information to a third party. To address this possibility, throughout the study confidentiality was emphasised, both in written material as well as in verbal communication with study participants. After reflection, it was assessed that a high level of trust was established between the candidate and the study participants (see section 3.3.2 and 3.3.3).

2.8 Ethical considerations

Before piloting the questionnaire, approval from The National Bioethics Committee in Iceland was obtained (appendices 15a and 15b pp. 349-351). The study was also approved by the hospital management of LSH (main study, see appendices 16a and 16b pp. 352-353) and of FSA (pilot study, see appendices 2a and 2b pp. 288-289). The study was also reported to the Icelandic Data Protection Commission (appendices 17a and 17b pp. 355-356). Before conducting the main survey, the study was approved by the Research Ethical Committee of London School of Hygiene & Tropical Medicine (appendix 18 page 357). Participation in the study was entirely voluntary. The questionnaires were anonymous and confidential, with no ID numbers or codes. Participants were provided with information about the purpose of the study, the approval of ethical committees, the person responsible for the study, the name and address of the candidate and assured that data would be kept confidential. Prior to the survey, permission was obtained for the use of the two core instruments of the questionnaire (NWI-R and MBI see appendices 24 and 25 pp. 365-366).

Prior to the focus groups interviews, additional approval was obtained from The National Bioethics Committee in Iceland (appendix 19 page 358). Participation in the focus groups was voluntary and all participants signed an informed consent form (appendices 20a and 20b pp. 359-360).

Results of the survey and focus group findings are presented in next chapter. First, findings from the survey, then findings from the focus group interviews and then the relationships between the findings from the two data sets.

Chapter 3 Findings

3.1 Introduction

This chapter considers the findings of the quantitative and qualitative sections of the study. The aim of the present study is to investigate the relationships between nurses' perceptions of their working environment and nurse and patient outcomes by using quantitative and qualitative methods in an Icelandic university hospital (LSH). First, a cross-sectional survey of nurses and midwives working in direct nursing care at LSH was carried out using a questionnaire adapted from one used in a previous international comparative study. Second, a series of focus group interviews was conducted with a sub-group of the survey sample to gain an in-depth understanding of the survey findings and to examine the potential cultural and linguistic sensitivity of survey measures.

The research question is: "Are supportive working environment factors for nurses in an Icelandic hospital (LSH) positively related to their job satisfaction, absence of burnout and assessed quality of patient care?" The objectives of the study are as follows:

1. To describe the reported nurses' working environment at LSH
2. To examine nurse job outcomes at LSH
3. To explore the nurse-assessed quality of patient care at LSH
4. To analyse the relationship between perceptions of the nurses' working environment and nurse job outcomes and nurse-rated quality of care

The remainder of this chapter is structured around the survey and focus group findings and how they relate to the research question and study objectives. Findings from the survey are presented and then findings from the focus group interviews. A section follows these on how the qualitative findings relate to and expand the quantitative survey findings.

3.2 Survey findings

The survey findings are presented in six sections. The first describes the demographic and job characteristics of study participants. Subsequent sections correspond to the study objectives specified above. The final section briefly summarises the major findings of the survey study.

For the first three study objectives, descriptive findings are presented. In a number of instances, some psychometric data are also discussed. Analyses related to the fourth objective explore the correlations between the independent and dependent variables and conclude with regression analyses that examine the association of the working environment variables with the job outcomes and quality of care ratings before and after controlling for background variables. In the following, text and tables for individual survey questions are identified by a capital letter corresponding to the instrument section and a the number of the question [capital letter number]. See copies of the survey instrument in appendix 3 (page 303; English version) and appendix 4 (page 317; Icelandic version).

3.2.1 Demographic and job characteristics

The study cohort consisted of 695 nurses and midwives working in direct nursing care at LSH hospital in September 2002. As seen in table 1 the majority of the participants are over 41 years of age (65.1%). One third of the participants have a post-basic education in a nursing speciality such as surgical nursing or midwifery and 5.5% have Master's degrees. One out of five are unit managers, nurse specialists or project managers. The participants work in nine different clinical hospital directorates and slightly fewer than 100 participants work in each of the larger directorates, i.e. surgical, medical, women, intensive care and operating rooms.

Table 1. Demographic characteristics of study participants

Variable	Number	(%)
Age (years) [G1]		
20-30	92	(13.6)
31-40	183	(27.1)
41-50	251	(37.1)
51-60	122	(18.0)
>60	28	(4.1)
Education [G2]		
Post-basic	232	(33.4)
Master's prepared	38	(5.5)
Self-rated general health [E1]		
Very good	302	(44.2)
Good	311	(45.5)
Neither good/poor	62	(9.1)
Poor	9	(1.3)
Very poor	0	(0.0)
Mental discomfort [E2]		
None	177	(26.1)
Little	383	(56.6)
Some	92	(13.6)
Moderate	24	(3.5)
Much	1	(0.1)
Living with relatives [G3]	37	(5.3)
Living with children [G4]	399	(57.4)

The majority of study participants have considerable experience in nursing and have been working at the hospital for more than six years (76.1%) and nearly half had worked at the hospital for more than 16 years (44.8%). However, there was a fair amount of missing data for these two questions that may have resulted from a perception that participants would be identified via their responses. Missing values for the questions on work experience were 16.5% for years worked [A4a] and 28.6% for years worked at the hospital [A4b] (see appendix 11 page 341).

The majority of respondents worked full-time or almost full-time and only 19.0% working less than 70% of the full-time position. The most common shift period is eight hours, but almost half of participants report working more than their regular hours at least once a week. At the hospital the most common length of shift is eight hours (early, late and nightshifts), but on some units the shifts are 12 hours in duration (early and late shifts). Around one-third (35.3%) of respondents work two different types of shift and a similar number (35.1%) work three types of shifts. The work history for the study participants is displayed in detail in table 2 (page 142). The majority of respondents reported on good or very good general health (89,7%). However, 17,2% reports on some, moderate or much mental discomfort.

Table 2. Job characteristics of study participants

Variable	Number	(%)
Job title [A3]		
Nurse/midwife	536	(78.1)
Manager/specialist	150	(21.9)
Directorate / Speciality [A2]		
Surgical	99	(14.6)
Medical I	92	(13.5)
Medical II	39	(5.7)
Children	55	(8.1)
Women	92	(13.5)
Psychiatric	56	(8.2)
Accidents/Emergency	82	(12.1)
Intensive/Operation rooms	97	(14.3)
Elderly	52	(7.6)
Other	16	(2.4)
Years worked as nurse/midwife [A4a]		
0-5	128	(22.1)
6-15	176	(30.3)
> 16	276	(47.6)
Years worked at the hospital [A4b]		
0-5	119	(24.0)
6-15	155	(31.3)
> 16	222	(44.8)
Current job percentage [A1]		
90-100%	287	(41.8)
70-89%	269	(39.2)
50-69%	117	(17.1)
<49%	9	(1.9)
Hours worked shift/day [A5]		
<8	16	(2.3)
8	525	(76.5)
>8	145	(21.1)
Work more than contracted hours [A6]		
Daily	27	(3.9)
Few times a week	218	(31.6)
Once a week	141	(20.4)
<Once a week	268	(38.8)
Never	36	(5.2)
Type of shift		
Early > 50% [A7]	405	(59.9)
Night > 33% [A8]	103	(15.5)
Two types [A9]	226	(35.3)
Three types [A10]	226	(35.1)
On call [A11]	274	(39.8)

3.2.2 Study objective one

What is the nurse-reported quality of working environment at LSH?

3.2.2.1 Individual items

Participants responded to the Nursing Work Index-Revised (NWI-R) by indicating whether they agreed or disagreed that a particular item accurately reflected their current job. Answers were marked on a four-point Likert scale anchored by 1, "strongly disagree" to 4, "strongly agree". The findings are presented in two parts. First, descriptive findings on selected items of the NWI-R are presented. This approach is also used for comparative purposes and items are selected to allow comparison with previously published international findings of similar studies (Aiken et al., 2002). Findings from this comparison will be discussed in chapter four. Results for all 52 items of the NWI-R are presented in appendix 12 (page 342).

Table 3 describes the percentage of respondents who agree with selected items of the NWI-R presented as three categories. The first category concerns collaboration and shows that the majority of nurses at LSH agree on the quality of doctors' care, nurses' competence and that the two professionals have good work relationships. The second category is concerned with staffing and indicates that around half of the respondents agree that staff levels are sufficient and 63.6% agree that support services are adequate. The third category relates to management and opportunities to participate in decision-making indicating that slightly less than half of respondents agree that senior management listen and respond to staff concerns, and around two-thirds agree that nurses participate in developing work schedules. A slight majority of nurses at LSH agree that nurses have opportunities for advancement and only a minority agree that salaries are adequate.

Table 3. Comparison with international data[1] for selected items of NWI-R

Category of question	Agreement[2] (%)					
	LSH	USA	Canada	England	Scotland	Germany
1. Nurse-doctor relationships						
Physicians give high-quality care [B25]	82.1	80.8	78.2	69.2	73.2	78.3
Nurses are clinically competent	97.2	85.7	86.4	85.4	89.2	94.6
Physicians and nurses have good working relationships [B2]	91.4	83.4	80.1	86.2	85.7	82.7
2. Staffing						
Enough registered nurses to provide high-quality care [B12]	50.1	34.4	35.2	29.0	38.1	36.5
Enough staff to get work done [B12]	53.2	33.4	37.4	28.4	36.3	37.7
Adequate support services [B1]	63.6	43.1	42.5	41.1	41.1	52.9
3. Management and opportunities						
Senior management listens and responds to employees' concerns [B33]	48.3	29.1	34.9	40.9	38.5	44.5
Nurses have the opportunity to participate in internal governance [B35]	55.1	40.6	39.7	35.8	32.8	22.7
Nurses' contributions to patient care are publicly acknowledged [B40]	61.5	39.3	37.0	40.1	43.9	48.5
Nurses participate in developing their own schedules [B47]	65.2	60.5	32.4	50.1	37.9	69.4
Nurses have opportunities for advancement [B8]	54.3	32.2	20.9	43.0	23.7	61.0
Salaries are adequate [B5]	23.6	57.0	69.0	19.9	25.9	40.5

[1] Source: (Aiken. Clarke et al. 2001) [2] Those reporting strongly agree and agree

Findings are generally positive for Icelandic nurses when compared with the international data. This is the case on all items except for salary, where only English nurses score lower than Icelandic, and in terms of opportunities for advancement German findings were more positive than for LSH nurses. Nurse-doctor working relationships receive the highest scores among LSH nurses, as did staffing and management and opportunities. The distribution of scores of the five NWI-R sub-scales identified in the present data is presented next.

3.2.2.2 Scales

As described in the previous chapter factor analysis with principal axis factoring was performed on the NWI-R data (see detailed description of method in appendix 6 page

332). This was undertaken to elaborate and underpin further analyses in relation to research question number four relating to the link between study variables. Factor analyses yielded five scales whose thematic clustering are conceptually acceptable. Table 4 presents the sub-scales, their items factor loadings (according to the pattern matrix) and the reliability of the scales. For the five NWI-R sub-scales, alpha reliability was adequate (alpha= 0.67–0.81). The five NWI-R sub-scales for the present study are nurse-doctor relationships (four items, alpha=0.77), unit level support (eight items, alpha=0.82), staffing (four items, alpha=0.79), philosophy of nursing practice (5 five items, alpha=0.67), and hospital level support (nine items, alpha=0.81).

Table 4. Factor analysis[1] of the NWI-R items

Factors and loadings for items on primary factor (according to pattern matrix)	Factor loadings				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. Nurse–doctor working relationships (five items)					
Collaboration nurses and doctors [B36]	-0.81				
Doctors and nurses have good working relationships [B2]	-0.71				
A lot of nurses and doctors team work [B24]	-0.60				
Doctors give high quality of care [B25]	-0.47				
2. Unit level support (eight items)					
Ward management supportive of nurses [B4]		-0.76			
Ward manager good manager and leader [B13]		-0.73			
Ward manager backs up nurses in decision-making [B32]		-0.65			
Praise and recognition for a good job [B18]		-0.52			
Active staff development/educational programme [B7]		-0.42			
Good induction programme [B3]		-0.36			
Support for innovative ideas about patient care [B10]		-0.33			
Flexible shift patterns available [B15]		-0.32			
3. Staffing (four items)					
Enough registered nurses to provide quality patient care [B12]			0.87		
Enough staff to get work done [B16]			0.74		
Adequate support service allow me to spend time with my patients [B1]	0.54				
Enough time and opportunity to discuss problems with other nurses [B11]	0.52				
4. Philosophy of practice (five items)					
Written nursing plans for all patients [B44]		0.65			
Use of nursing diagnosis [B51]		0.51			
Nursing care is based on a nursing rather than medical model [B38]		0.46			
A clear philosophy of nursing throughout the patient care environment [B28]		0.45			
Opportunity to work on a highly specialised patient care ward [B43]		0.32			
5. Hospital level support (nine items)					
Senior managers consult with staff on daily problems and proceed [B41]				0.67	
Senior management listens and responds to employee concerns [B33]				0.65	
Staff nurses involved in the internal governance of the hospital [B35]				0.58	
Staff nurses have the opportunity to serve on trust committees [B39]				0.57	
A director of nursing is highly visible and accessible to staff [B14]				0.51	
Nursing staff are supported in pursuing degrees in nursing [B27]				0.46	
Active quality assurance audit programme [B34]				0.42	
Nurses participate to control costs [B29]				0.36	
Nurses participates in selecting new equipment [B31]				0.35	

[1] Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalisation. Cases included 31 of 52 NWI-R items

Nurses' perceptions reported from the five NWI-R sub-scales were calculated and presented in table 5, with mean and standard deviation (SD). Items in staffing and nurse–doctor relationships are similar to these in the first two categories demonstrated in table 4 (page 146). Mean scores for the five NWI-R sub-scales suggest that the elements given the highest ratings by nurses were nurse-doctor working relationships, followed by philosophy of practice, unit level support and staffing, with hospital support elements receiving the lowest scores.

Table 5. Mean scores on five NWI-R sub-scales[1]

NWI-R factor	Mean (SD)
Nurse-doctor working relationships (n=661)	3.0 (0.5)
Unit level support (n=657)	2.9 (0.5)
Staffing adequacy (n=662)	2.6 (0.7)
Philosophy of practice (n=649)	2.9 (0.5)
Hospital support (n=651)	2.3 (0.5)

[1] Range of scores: 1-4

3.2.3 Study objective two

What are the job outcomes of nurses at LSH?

As presented in the methods chapter two aspects of nurse job outcome are measured: job satisfaction and feelings of burnout. Findings from these two aspects are presented in the following sections, starting with nurse job satisfaction.

3.2.3.1 Job satisfaction

Job satisfaction was measured using two single items: satisfaction with present job and satisfaction with being a nurse. Findings from these two questions are presented in table 6 (page 148). A little over one third of the subjects are very satisfied with

their present job and less than one tenth are very dissatisfied. When asked about their satisfaction in being a nurse, the pattern is somewhat different: two thirds reported being very satisfied. However, when those reporting being "very satisfied" and "moderately satisfied" are taken together, the findings are similar for both questions (82.1% and 86.1%). These findings indicate that nurses and midwives at LSH are more satisfied with being a nurse than with their present jobs. However, the correlation between these two questions is quite strong (Pearson correlation= 0.66, $p<0.001$).

Table 6. Satisfaction with present job and with being a nurse

Job satisfaction	Present job [D1]		Being a nurse [D2]	
	Number (%)		Number (%)	
Very satisfied	236	(34.4)	422	(61.2)
Moderately satisfied	328	(47.7)	172	(24.9)
A little dissatisfied	79	(11.5)	32	(4.6)
Very dissatisfied	44	(6.4)	64	(9.3)

As seen in table 7, Icelandic nurses report the high satisfaction with their present job when compared with nurses in the US, Canada, England, Scotland, and Germany. The profile of Icelandic nurses most closely corresponds to that of German nurses.

Table 7. Job satisfaction: LSH compared with other countries[1]

Job satisfaction	Agreement[2] (%)					
	LSH	USA	Canada	England	Scotland	Germany
Present job [D1]	82.1	59.0	67.1	63.9	62.3	82.6

[1] Source: (Aiken, Clarke et al. 2001) [2] Those reporting strongly agree and agree

3.2.3.2 Burnout

The second aspect of nurse job outcomes to be measured are feelings of burnout. Participants were interrogated by an Icelandic version of the Maslach Burnout Inventory (MBI). The instrument consists of items that measure three components of burnout: emotional exhaustion (nine items), depersonalisation (five items) and personal accomplishment (eight items; see appendix 7 page 337) (Maslach et al., 1996). The questions were scored on a seven-point scale (0= never; 6= always). Percentages for all items of the MBI are presented in appendix 21 (page 344). In preparation for further analysis, MBI data were factor analysed and findings confirmed the three MBI sub-scales previously published (Maslach et al., 1996). Nurses' and midwives' perceptions of burnout are presented in table 8 using mean and standard deviations for the three burnout components.

Table 8. Burnout: Means (SD) for three sub-scales

MBI factor	Mean (SD)	Range
Emotional exhaustion (n=693)	13.7 (7.8)	0-54
Depersonalisation (n=692)	3.5 (3.8)	0-30
Personal accomplishment (n=693)	40.0 (6.4)	0-64

As seen in table 9 (page 150), Icelandic nurses show more favourable scores (indicative of lower burnout) on all three MBI sub-scales, as compared with nurses in the US, England, Scotland, Germany and Canada. The findings for the German nurses most closely resemble those of Icelandic nurses'.

Table 9. Means (SD) for MBI factors at LSH compared with other countries[1]

MBI factor	LSH	USA	Canada	Scotland	England	Germany
Emotional exhaustion	13.7 (7.8)	24.5 (12.1)	22.5 (11.3)	20.6 (10.9)	22.8 (11.1)	16.7 (9.3)
Depersonalisation	3.5 (3.8)	6.9 (6.1)	6.1 (5.6)	6.3 (5.5)	7.2 (6.1)	5.1 (4.7)
Personal accomplishment	40.0 (6.4)	37.4 (7.3)	37.3 (7.2)	36.1 (7.4)	35.8 (7.2)	37.6 (7.5)

[1] Source: Centre for Health Outcomes and Policy Research University of Pennsylvania School of Nursing. Unpublished data; Sean Clarke.

3.2.4 Study objective three

What are the levels of nurse-assessed quality of care at LSH?

To measure nurse-assessed quality of patient care, three questions were asked. First, nurses´ assessment of the quality of the care on their unit, second, the quality of care on the last shift they worked and third, nurses´ assessment of the quality of care at the hospital during the previous year. The questions for unit and shift quality were recorded on a four-point Likert scale anchored from "excellent" to "poor" and the hospital quality on a three-point Likert scale anchored from "improved" to "deteriorated". LSH nurses' perceptions of first two questions are presented in table 10 (page 151).

Table 10. Nurse reported quality of patient care

Quality of care	On unit [D6]		Last shift [F10]	
	Number	(%)	Number	(%)
Excellent	181	(26.4)	137	(21.3)
Good	471	(68.7)	459	(71.5)
Fair	33	(4.8)	46	(7.2)
Poor	1	(0.1)	0	(0.0)

Slightly over one-quarter of participants assessed the quality of care at their unit as excellent and approximately one-fifth assessed the quality of care on last shift as excellent. As seen in appendix 22 (page 363) the majority of nurses and midwives at LSH reported that quality of care in the hospital had deteriorated (41.9%) or remained the same over the previous year (41.3%).

Table 11 demonstrates that Icelandic nurses show less favourable scores for nurse-assessed quality of patient care when compared with nurses in the US, England, Scotland, Germany and Canada. Findings for English nurses most closely resemble those of Icelandic nurses.

Table 11. Nurse-reported quality of patient care at LSH compared with other countries[1]

Patient care	LSH	USA	Canada	England	Scotland	Germany
Excellent quality at unit [D6]	26.4%	35.7%	35.6%%	29.3%	35.2%	11.7%
Deteriorated during previous year at hospital [D7]	41.9%	44.8%	44.6%	27.6%	21.5%	17.2%

[1] Source: (Aiken, Clarke et al, 2001).

3.2.5 Study objective four

What is the relationship between perceptions of the nurses' working environment and nurse job outcomes and nurse-rated quality of care?

The central aim of this study is to investigate whether working environment factors positively influence nurses' job outcomes and their assessments of the quality of patient care. Nurses' perceptions of their working environment (as measured using sub-scales from the NWI-R) were analysed in multivariate regression models as possible predictors of job satisfaction, burnout, and nurses' ratings of quality of care in their units. The relationships under investigation are presented in figure 4 (page 92).

Before proceeding with a series of logistic regression models predicting nurses' likelihood of being very satisfied with their jobs and of reporting excellent quality of care in their units, as well as a series of linear regression models predicting burnout scores, a number of preliminary steps were undertaken. First, the relationships of the dependent or outcome variables with each other were examined to establish that they were largely independent of one another (table 12) and that it was worthwhile to examine the predictors of each independently.

Table 12. Bivariate (Pearson) intercorrelations between major dependent variables (outcomes)[1]

Outcome measure	1	2	3	4	5
1. Job satisfaction	--	-0.25**	-0.06	0.16**	-0.18**
2. Emotional exhaustion		--	0.43**	-0.27**	0.18**
3. Depersonalisation			--	-0.28**	0.17**
4. Personal accomplishment				--	-0.20**
5. Quality of patient care at unit					--

[1] All variables analysed as continuous variables (job satisfaction and quality of care in their four-level form) * $p<0.05$ ** $p<0.01$

Secondly, the intercorrelations between the major independent variables, the measures of various elements of the nurses' working environments, were calculated. As seen in table 13, the correlation between unit-level support and hospital-level support scores were strongest (at 0.54), but none of the other correlations reached the 0.50 level, suggesting the existence of multicollinearity problems (Belsley, Kuh, & Welsch, 1980). The majority of correlations fell within the 0.3 to 0.4 range.

Table 13. Bivariate (Pearson) correlations between major NWI-R scales

NWI-R scales	1	2	3	4	5
1. Nurse and doctor relationships	--	0.40**	0.31**	0.34**	0.34**
2. Unit level support		--	0.40**	0.36**	0.54**
3. Staffing adequacy			--	0.28**	0.29**
4. Philosophy of nursing practice				--	0.37**
5. Hospital level support					--

*p<0,05 ** p<0,001

Third, the bivariate relationships of the background or control variables in relation to the dependent variables were examined to verify their suitability for use in the models and the intercorrelations of the background variables with each other were also tested (see table 14 page 154). The tables of correlations that follow include not only co-efficients indicating the relationships between continuous variables and other continuous variables, but in some instances, the relationships of a dichotomous variable to a continuous one, of two dichotomous variables to each other, and in some instances there could be a debate as to whether age and experience in this data set are continuous or categorical variables. Therefore, some of the correlation co-efficients in this table (14) are Pearson product-moment correlation co-efficients, some a phi co-efficients, and some of the co-efficients bear

other technical names. The magnitudes of the co-efficients are not strictly comparable, but indicate general patterns of associations. The major demographics variables in the study were each examined as predictors of job outcomes and nurse-rated quality of care. The results are shown in table 14.

Table 14. Bivariate correlations (Pearson) between nurse characteristics and outcome variables

Nurse characteristics	Job satisfaction	Emotional exhaustion	Deperson-alisation	Personal accomplish-ment	High quality of care on unit
Age	-0.01	-0.08	-0.23**	0.01	-0.01
Children at home	-0.02	0.02	0.05	0.03	0.02
Relatives at home	0.10**	-0.03	0.03	0.06	-0.02
General health fair/poor vs. good	-0.08*	0.24**	0.05	-0.11**	-0.02
Post-basic education	0.04	-0.02	-0.12**	0.11**	0.11**
Master's education	-0.04	0.03	0.02	0.08*	-0.02
Nurse/midwife vs. manager	-0.02	-0.05	0.06	-0.10*	-0.08
% full-time	0.11**	0.06	-0.01	0.11**	0.04
Work experience	-0.04	0.02	-0.17**	0.02	0.04
Working hours	0.00	0.11**	0.04	-0.02	0.07
Early shifts > 50%	0.00	0.04	-0.14**	0.06	0.02
Night shifts > 33%	0.01	-0.03	0.11**	-0.01	-0.01
Two types of shift	-0.03	-0.03	0.00	0.02	-0.09
Three types of shift	0.05	-0.01	-0.06	0.01	-0.03
On call duty	0.07	0.00	-0.02	0.03	0.05

* $p<0.05$ ** $p<0.01$

As seen in table 14, job satisfaction was positively related to having relatives at home, exhibiting good or excellent health, and a higher proportion of a full-time position being worked. Emotional exhaustion is linked to fair or poor health and to a greater number of work hours. Depersonalisation is inversely related to age, having post-basic nursing education, having longer experience in nursing and to working a higher proportion of day shifts. It is also related to a higher proportion of night shifts. Personal accomplishment is negatively associated with fair/poor health and

being a staff nurse or midwife. It is positively associated with post-basic and Master's education, and with working a higher proportion of position full-time equivalent work. There is only one demographic/job characteristic associated with nurse-assessed quality of care. Nurses with post-basic educations gave higher rating to quality of care on their units.

Variation between nurse specialities was investigated by analysing (one-way ANOVA) the working environment assessments, job outcomes, and quality of care between the 9 clinical directorates at the LSH. In summary, all of the scales measuring working environment perceptions significantly differed across directorates, as did depersonalisation levels and perceptions of the quality of care. Findings of these analyses are provided in appendix 13. Nurse specialities are control variables (dummies) in the consequent regression analyses.

Lastly, because the background variables were entered as a block in further regression analysis, the intercorrelations of the control variables (demographics and work history) were examined to rule out multicollinearity problems. As seen in appendix 23 only one of the intercorrelations between the control variables surpasses the level of 0.50 as established by Belsley et al. (1980) as a criterion for multicollinearity: the correlation between age and experience of nursing =0.79 and therefore, only one of these variables (age) was used in the block of control variables. The rest of the correlations are generally intuitive, especially those relating to age, being a manager, and work hours or shift pattern.

On the basis of the screening, a number of the background variables did not appear to be significantly associated with any of the outcomes, and as noted above, age and experience were too highly intercorrelated to be used together. The final list

of control variables are age, relatives at home, self-rated health, education (two variables), staff nurse (versus management), % full-time equivalent job, working hours, having a high proportion of early shifts, and having a high proportion of night shifts (see table 15).

Table 15. Control variables (demographics and work related) and their coding

Variable description	Coding	Type of variable	N
Nurse demographics and work-related measures:			
Age (years) [(G1)]	1=20-30; 2=31-40; 3=41-50; 4=51-50; 5>60	categorical	676
Further educ post-basic	1=post-basic; 0=not post-basic	dichotomous	695
Further educ MSc, MA	1=MSc, MA; 0=not MSc, MA		695
Relatives living with you	1=Yes; 0=No	dichotomous	659
Self-rated health	1=Good health; 0=Not good health	dichotomous	684
Full-time/part-time work (%)	4=90-100; 3=70-89; 2=50-69; 1<50	categorical	686
Title	1=nurse/midwife; 0=manager, clinical specialist, project manager (working in direct patient care)	dichotomous	686
Work hours	1<8; 2=8; 3>8	categorical	686
Early shifts	1=Yes; 2=No	dichotomous	676
Night shifts	1=Yes; 2=No	dichotomous	663
Nurse speciality:			
Directorate	1=surgical; 2=medical I (+rehab); 3=medical II; 4=children; 5=women; 6=psychiatric; 7=accident, emergency; 8=intensive; 9=elderly; 10=other	dummy	680

3.2.5.1 Regression modelling

As discussed in chapter two (section 2.4.8.3), the regression modelling strategies used to address study objective four involved two sets of regression models for each outcome. The first set where each working environment variable was tested

individually as a predictor of the nurse job outcomes (four variables) and patient outcomes (one variable) before and after controls for nurse characteristics and the nurse's clinical speciality. The second set of regression models where the effects of all of working environment variables were tested jointly, before and after control for demographic characteristics and speciality (see table 15 page 156).

For nurse job satisfaction (tables 16 and 17 page 159) and quality of patient care (tables 24 and 25 page 166) odds ratios were computed from logistic regression models predicting the likelihood of a nurse responding very satisfied with his/her job, or the likelihood of a nurse responding to the question regarding nurse-rated excellent quality of care, first with each NWI-R sub-scale alone, then adjusting for characteristics background and then also for directorate/specialities background variables.

For nurse burnout (tables 18-23 pp. 161-164) B-co-efficients were calculated from linear regression models predicting the effects of each of the working environment factors on three burnout measures scores (i.e. emotional exhaustion, depersonalisation and personal accomplishment) entered into the models first alone, then with controls for nurse demographic and work characteristics, then with nurse demographic and work characteristics as well as directorate/specialities background variables.

3.2.5.2 Nurses' working environment and nurse job satisfaction

To address the study objective on the relationships between nurses' working environment measures and nurse job satisfaction, logistic regression analyses were conducted between the five NWI-R sub-scales and job satisfaction variable as a

dichotomous measure on satisfaction with present job. This four-point variable ([D1]) was recoded into two levels (i.e. "very satisfied" in one level and "moderately satisfied", "a little dissatisfied" and "very dissatisfied" in a second level; see appendix 8). See coding of variables for impact analysis in appendix 8. This was done as a necessary preparation for the logistic regression that is an appropriate analysis for categories (Tabachnick & Fidell, 2001). The regression was run in two steps with three steps each, as described in section 2.4.8.3.

It can be seen from table 16 (page 159) that all five NWI-R sub-scales are positively significant when tested individually (bivariate) against the job satisfaction measure, both before and after controlling for nurse demographics and nurse specialities. A one-point increase on the unit level support scale is associated with almost seven times the likelihood of a nurse reporting being job satisfied, but higher levels of all of the five working environment measures are significantly related to higher job satisfaction individually. As seen in table 17 (page 159), unit level support and staffing are significant predictors of job satisfaction when NWI-R factors add jointly into the equation before controlling for background variables. This relationship continues when the NWI-R measures are added jointly into the equation together with control for nurse demographics and nurse speciality.

Table 16. Odds ratios (OR) with 95% confidence intervals estimating the effects of nurses' working environment factors on job satisfaction

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Nurse-doctor relationships	2.27	(1.56-3.30)***	2.21	(1.50-3.28)***	2.40	(1.59-3.62)***
Unit level support	5.74	(3.68-8.98)***	5.91	(3.72-9.41)***	6.70	(4.10-10.91)***
Staffing	2.41	(1.79-3.25)***	2.37	(1.75-3.22)***	2.23	(1.63-3.05)***
Philosophy of practice	2.00	(1.40-2.80)***	1.93	(1.35-2.77)***	2.21	(1.47-3.32)***
Hospital level support	2.70	(1.85-3.94)***	2.88	(1.92-4.31)***	2.95	(1.93-4.52)***

[1] N: range: 537-548. Significance: *p<0.05 **p<0.01 ***p<0.001.

Table 17. Odds ratios (OR) with 95% confidence intervals estimating the joint effects of nurses' working environment factors on job satisfaction[1]

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Nurse-doctor relationships	1.02	(0.65-1.60)	0.90	(0.61-1.55)	1.08	(0.67-1.76)
Unit level support	4.03	(2.34-6.93)***	4.11	(2.33-7.30)***	4.82	(2.63-8.84)***
Staffing	1.62	(1.16-2.27)**	1.59	(1.12-2.24)**	1.47	(1.02-2.10)*
Philosophy of practice	1.07	(0.72-1.62)	1.06	(0.70-1.63)	0.947	(0.58-1.55)
Hospital level support	1.22	(0.77-1.95)	1.30	(0.80-2.13)	1.33	(0.79-2.24)
(df)=Chi square	(5)=80.64. p<0.001		(15)=96.70. p<0.001		(23)=113.25. p<0.001	

[1] N: 519. Significance: *p<0.05 **p<0.01 ***p<0.001

As can be seen in table 17 (page 159) increased levels of nurses' perceptions of unit level support and adequate staffing are associated with the increased odds of nurse job satisfaction, independent of nurse demographics and work-related experiences. Two of the working environment characteristics, unit level support and staffing, are predictive of job satisfaction when examined individually. These relationships continue to be significant independent predictors of nurse job

satisfaction in fully controlled models. Thus, the analyses of job satisfaction show that perceived supportive management of unit managers and staffing are the strongest significant predictors of job satisfaction even after controlling for a multitude of nurse characteristics and a number of other hospital nurses' work characteristics for nurse job satisfaction.

3.2.5.3 Nurses' working environment and nurse burnout

To address the study objective of the relationship between nurses´ perception of their working environments and their burnout levels, linear regression analyses were conducted using the three measures on nurse burnout (MBI): emotional exhaustion, personal accomplishment and depersonalisation as continuous dependent variables. Once again, the regressions analyses were run in two phases with three steps as described in section 2.4.8.3, for one nurse burnout measure at a time. The findings for these measures are presented in three separate sections.

3.2.5.3.1 Emotional exhaustion

It can be seen from table 18 that all five NWI-R sub-scales predict positively and significantly nurse emotional exhaustion when tested individually (bivariate) against the emotional exhaustion measure. However, upon entering all five working environment variables at once, as seen in table 19 (page 161), only one of the five NWI-R measures, i.e. staffing, significantly predicted nurses' emotional exhaustion when added jointly into the equation. Decreased levels of nurses' perceptions of staffing are associated with increased odds of nurse self-rated emotional exhaustion, independent of nurse demographics and work-related experiences.

Table 18. Regression analysis with standard error predicting emotional exhaustion scores on the basis of individual nurses' working environment factors[1]

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SE)	B	(SE)	B	(SE)
Nurse-doctor relationships	-2.18	(0.63)***	-2.25	(0.62)***	-2.38	(0.63)***
Unit level support	-3.48	(0.64)***	-3.72	(0.62)***	-3.81	(0.64)***
Staffing	-4.03	(0.47)***	-3.95	(0.45) ***	-3.95	(0.47)***
Philosophy of practice	-2.03	(0.60)**	-2.27	(0.65)***	-2.79	(0.65)***
Hospital level support	-2.33	(0.64)***	-2.78	(0.64)***	2.81	(0.66)***

[1] N: range: 540-549. Significance: *p<0.05 **p<0.01 ***p<0.001

Table 19. Regression analysis with standard error predicting emotional exhaustion on the basis of joint effects of all nurses' working environment factors[1]

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SE)	B	(SE)	B	(SE)
Nurse-doctor relationships	-0.08	(0.66)	-0.03	(0.65)	-0.20	(0.66)
Unit level support	-1.39	(0.78)	-1.51	(0.77)*	-1.32	(0.80)
Staffing	-3.68	(0.51)***	-3.51	(0.50)***	-3.45	(0.51)***
Philosophy of practice	-0.37	(0.63)	-0.67	(0.62)	-0.83	(0.70)
Hospital level support	-0.15	(0.72)	-0.45	(0.72)	-0.54	(0.74)
F-statistic (df) and p	(5.526)=17.62. p<0.001		(15.516)=10.30. p<0.001		(23.508)=7.06.p<0.001	
Adjusted model R-squared	0.135		0.208		0.208	

[1] N: range: 531. Significance: *p<0.05 **p<0.01 ***p<0.001

While all of the working environment variables predict emotional exhaustion above and beyond nurse personal characteristics and their specialties, one of the five, staffing, is the strongest predictor overall. Thus, the present study shows that nurses'

perceptions of staffing appear more important than other aspects of their hospital working environments in predicting emotional exhaustion.

3.2.5.3.2 Depersonalisation

It can be seen from table 20 (page 162) that higher scores for all of the five NWI-R sub-scales predict negatively lower nurse depersonalisation scores. In addition, as seen in table 21 (page 163) higher scores for philosophy of nursing do predict lower nurse depersonalisation after controlling for nurse demographic characteristics when the NWI-R measures are added jointly into the equation. However, this relationship does not continue to be significant after controlling for nurse speciality. Accordingly, the overall research question relating to that hospital working environment perceptions predict depersonalisation is not supported.

Table 20. Regression analysis with standard error predicting depersonalisation on the basis of individual nurses' working environment factors

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SE)	B	(SE)	B	(SE)
Nurse-doctor relationships	-0.94	(0.31)**	-0.733	(1.53)**	-0.78	(0.31)**
Unit level support	-0.29	(0.33)	-0.35	(0.32)	-0.66	(0.32)**
Staffing	-0.57	(0.25)**	-0.56	(0.24)**	-0.48	(0.24)**
Philosophy of practice	-1.08	(0.30)***	-1.14	(0.29)***	-0.73	(0.32)**
Hospital level support	-0.84	(0.32)**	-0.56	(0.32)	-0.69	(0.33)**

[1] N: range: 548-558. Significance: *p<0.05 **p<0.01 ***p<0.001

Table 21. Regression analysis with standard error predicting depersonalisation on the basis of joint effects of all nurses' working environment factors

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SE)	B	(SE)	B	(SE)
Nurse-doctor relationships	-0.61	(0.35)	-0.36	(0.35)	-0.48	(0.35)
Unit level support	0.73	(0.42)	0.44	(0.41)	-0.05	(0.42)
Staffing	-0.49	(0.27)	-0.50	(0.27)	-0.38	(0.27)
Philosophy of practice	-0.77	(0.34)**	-0.94	(0.33)**	-0.26	(0.37)
Hospital level support	-0.56	(0.39)	-0.16	(0.39)	-0.29	(0.39)
F-statistic (df) and p	(5.525)=4.39. p=0.001		(15.515)=5.00. p<0.001		(23.507)=4.72. p<0.001	
Adjusted model R-squared	0.031		0.102		0.139	

[1] N: 530. Significance: *p<0.05 **p<0.01 ***p<0.001

3.2.5.3.3 Personal accomplishment

It can be seen from table 22 that higher scores for all five of the NWI-R sub-scales predict positively and significantly nurse personal accomplishment when tested individually (bivariate) against the personal accomplishment measure and when controlled for nurse personal and job demographics and nurse speciality. As seen in table 23 (page 164), with the exception of unit level support, these relationships do not continue to be significant when the five NWI-R measures are added jointly into the equation and when controlled for background variables.

Table 22. Regression analysis with standard error predicting personal accomplishment scores on the basis of individual nurses' working environment factors

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SEM)	B	(SEM)	B	(SEM)
Nurse-doctor relationships	1.84	(0.50)***	1.52	(0.50)**	1.68	(0.51)**
Unit level support	2.32	(0.51)***	2.92	(0.52)***	2.29	(0.53)***
Staffing	0.90	(0.40)*	0.84	(0.39)*	0.91	(0.40)*
Philosophy of practice	1.10	(0.49)*	1.14	(0.48)*	1.71	(0.53)**
Hospital level support	2.10	(0.52)***	1.76	(0.53)**	1.78	(0.55)**

[1] N: range: 548-549. Significance: *p<0.05 **p<0.01 ***p<0.001

Table 23. Regression analysis with standard error predicting personal accomplishment scores on the basis of joint effects of all nurses' working environment factors

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	B	(SE)	B	(SE)	B	(SE)
Nurse-doctor relationships	0.93	(0.57)	0.58	(0.57)	0.67	(0.59)
Unit level support	1.64	(0.68)*	1.79	(0.68)**	1.49	(0.71)*
Staffing	-0.05	(0.44)	-0.06	(0.44)	0.01	(0.45)
Philosophy of practice	-0.05	(0.55)	0.21	(0.54)	0.64	(0.62)
Hospital level support	0.95	(0.62)	0.60	(0.64)	0.60	(0.65)
F-statistic (df) and p	(5.525)=5.46		(15.515)=4.10		(23.507)=3.02	
Adjusted model R-squared	0.040		0.080		0.080	

[1] N: 530. Significance: *p<0.05 **p<0.01 ***p<0.001

As can be seen from tables 22 and 23, all of the five working environment variables predict personal accomplishment when considered individually, but only unit level support is a predictor when all five environment characteristics are entered simultaneously. Accordingly, the present study shows that unit level support appears

to be the strongest of the hospital working environment measures in predicting nurses' personal accomplishment.

3.2.5.4 Nurses' working environment and quality of care

Logistic regression modelling was conducted to analyse the relationship between nurses´ perceptions of their working environments and their ratings of the excellent quality of patient care. This four-point variable (D6) was recoded into two levels ("excellent" in one level and "good", "fair" and "poor" in a second level, see appendix 9). See coding of variables for impact analysis in appendix 9. This was done as a necessary preparation for the logistic regression that is an appropriate analysis for categories (Tabachnick & Fidell, 2001). The regression was run in two steps with three steps each, as described in section 2.4.8.3.

It can been seen from table 24 (page 166) that all five NWI-R sub-scales predict positively and significantly nurse-assessed quality of patient care when tested individually (bivariate) against the quality of patient care measure before and after controlling for background variables. As seen in table 25 (page 166), philosophy of practice, unit level support and staffing are the three working environment factors to significantly predict nurse-assessed quality of patient care when NWI-R measures are added jointly into the equation. These relationships continue to be significant when controlled for nurse demographics. However, nurse-doctor relationships and unit level support are the working environment factors that significantly predict nurse-assessed quality of patient care when controlled for nurse speciality.

Table 24. Odds ratios (OR) with 95% confidence intervals estimating the effects of nurses' working environment factors on nurse-assessed quality of patient care[1]

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Nurse-doctor relationships	3.59	(2.31-5.56)***	3.60	(2.29-5.66)***	3.57	(2.23-5.71)***
Unit level support	3.12	(2.01-4.85)***	3.48	(2.18-5.54)***	4.29	(2.59-7.10)***
Staffing	2.10	1.53-2.88)***	2.27	(1.63-3.16)***	2.16	(1.53-3.04)***
Philosophy of practice	3.28	(2.17-4.95)***	3.31	(2.17-5.05)***	2.93	(1.84-4.68)***
Hospital level support	2.03	(1.36-3.02)**	2.03	(1.33-3.10)**	2.23	(1.41-3.51)**

[1] N: range: 534-545. Significance: *p<0.05 **p<0.01 ***p<0.001

Table 25. Odds ratios (OR) with 95% confidence intervals estimating the joint effects of nurses' working environment factors on nurse-assessed quality of patient care[1]

NWI-R sub-scale	Not adjusted		Adjusted for nurse demographic and job characteristics		Adjusted for nurse characteristics and directorate	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Nurse-doctor relationships	2.02	(1.23-3.33)**	1.91	(1.15-3.19)*	1.94	(1.14-3.32)*
Unit level support	1.46	(.83-2.57)	1.56	(.86-2.83)	1.91	(1.00-3.62)*
Staffing	1.46	(1.02-2.08)*	1.55	(1.07-2.25)*	1.47	(1.00-2.16)
Philosophy of practice	2.08	(1.31-3.32)**	2.08	(1.29-3.36)**	1.59	(2.75-.92)
Hospital level support	1.00	(.61-1.64)	.97	(.57-1.64)	1.09	(1.63-1.89)
(df)=Chi square	(5)=59.34 p<0.001		(10)=74.88 p<0.001		(15)=97.88 p<0.001	

[1] N: range: 516. Significance: *p<0.05 **p<0.01 ***p<0.001

It can be seen from table 25 that nurse-doctor relationships and unit level support significantly predict nurse-assessed quality of patient care when controlled for all background variables. Thus the present study shows that regarding the association between nurses' perceptions of their working environments with their

assessments of excellent quality of patient care that good nurse-doctor work relationships and unit level support are the working environment factors most strongly associated with nurse-rated quality of care.

3.2.5.5 Summary of survey findings

All the nurses' working environment aspects and nurse job outcomes measured were more favourable for nurses at LSH compared with nurses in other countries. Nurse-assessed quality of patient care was less favourable for LSH's nurses in comparison with nurses in other countries. Further exploration of these aspects will be interesting. All nurses' working environment factors significantly predict nurse and patient outcomes. However, when these factors are added jointly into the equation these relationships do not all continue to be significant after controlling for background variables.

Figure 10 summarises the significant prediction (and their co-efficients) of working environment factors at LSH for nurse and patient outcomes. Unit level support and staffing are the strongest predictors of job satisfaction and staffing was the strongest predictor for emotional exhaustion. Unit level support does significantly predict personal accomplishment after control for background variables. None of the five NWI-R factors significantly predict the third aspect of burnout, i.e. depersonalisation. Good nurse-doctor relationships and unit level support are the strongest predictors of nurse-assessed quality of patient care. Taken together, unit level support significantly predicts three of the five outcome variables measured. This NWI-R sub-scale includes eight items corresponding to supportive behaviour of unit (frontline) managers, active development and induction programmes, support for new ideas and flexible shift patterns (see table 4 page 146).

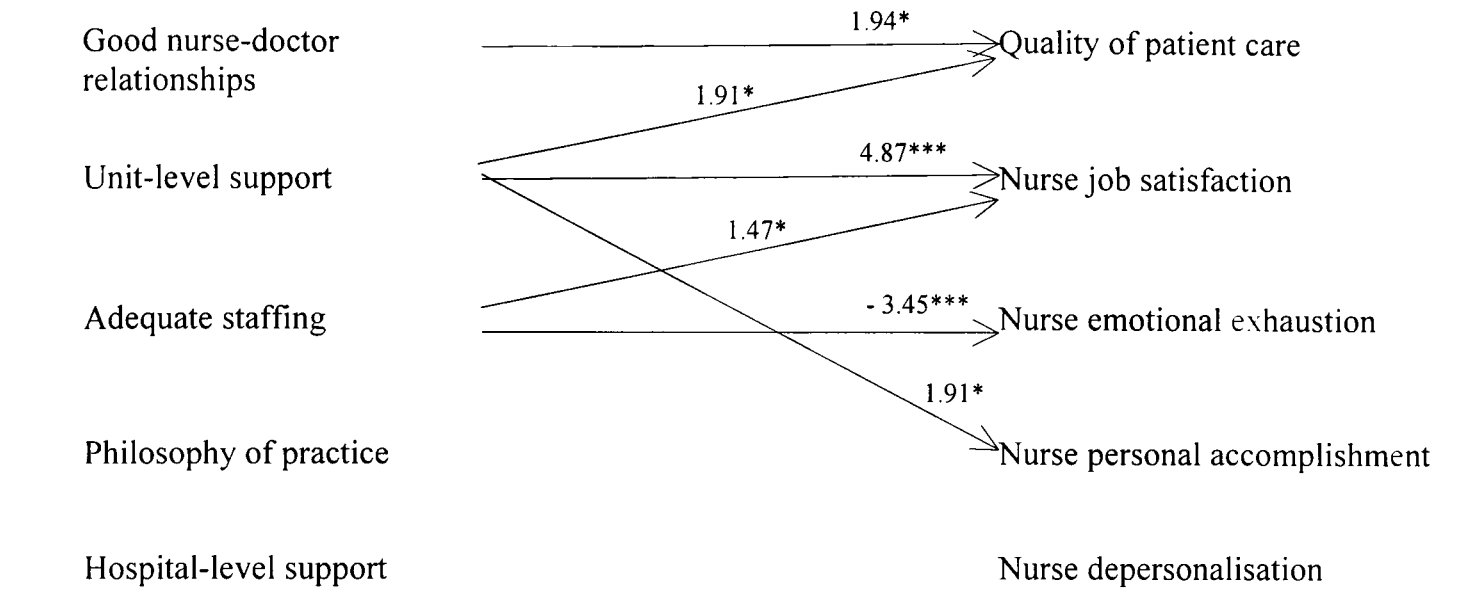

Figure 10. Significant relationships, and their co-efficients, between nurses' working environment factors and nurse and patient outcomes

*p<0.05 **p<0.01 ***p<0.001

The overall research question regarding the positive association between nurses' perceptions of supportive working environment factors yielded positive findings for three nurses' working environmental factors measured as predicting nurse and patient outcomes. Two working environmental aspects, i.e. philosophy of nursing and nurse support at the hospital level, do not predict nurse or patient outcomes. Further insight into nurses' working life at LSH will help to understand better the relationships between working environmental factors and nurse and patient outcomes. A qualitative in-depth knowledge of nurse working life at LSH will also help to understand better the favourable survey findings of their job satisfaction and burnout levels compared with findings in the compared countries.

Correspondingly, it was decided to conduct a series of focus group interviews with a sub-sample of the survey participants to understand better the experiences of nurses at LSH about their working environment, job satisfaction and well-being at

work as well as their views on the quality of patient care. Next, findings from this second part of the present study will be presented.

3.3 Focus groups findings

The second component of the empirical part of the present study includes qualitative findings from a series of focus groups with nurses at Landspitali University Hospital Reykjavik (LSH). The present study investigated the relationship between perceived supportive nurses' working environment and nurse job outcomes and assessed quality of care. This was done, firstly, via a cross-sectional questionnaire survey of 695 clinical nurses (response rate=75%) at LSH in the autumn of 2002. Secondly, it was decided to conduct a series of focus groups interviews with a sub-sample of the survey participants in the autumn 2003. The purpose of the focus groups is to extend further knowledge and to gain contextual understanding of the working life of nurses at LSH in relation to the research topic. The focus groups were helpful in validating the usefulness of the international research instrument employed in the present study. The focus groups made it possible to investigate the usefulness of the instrument in the context of Icelandic nursing from the point of view of a different language, culture and health care system.

The survey findings show that job satisfaction for nurses at LSH is above the highest scores for nurses in the five comparison countries. Similarly, the proportion of nurses demonstrating characteristics of burnout is small for all three burnout sub-scales: emotional exhaustion, depersonalisation and personal accomplishment. Nurse-reported scores for quality of care are lower than in the comparison countries. These findings were unexpected. The regression analysis of survey data indicates the

importance of supportive nurses' working environment for nurse and patient outcomes. Unit level support is the strongest working environmental predictor for nurse job satisfaction, personal accomplishment and nurse-rated patient quality. Adequate numbers of staff is a predictor for nurse job satisfaction and emotional exhaustion. Good nurse-doctor work relationships predict nurse-rated quality of patient care.

The high job satisfaction and the absence of characteristics of nurse burnout were unexpected in the context of increasing health care demands and nursing shortages as an increasing problem in the country and at the hospital (Sigurðardóttir et al., 1999). The findings of lower scores for excellent quality of patient care, assessed by LSH nurses compared to international findings, are also surprising in light of findings from recent surveys on the quality of patient care in Icelandic hospitals (Icelandic National Audit Office, 2003; Heilbrigðis-og tryggingamálaráðuneytið & Landlæknismebættið, 2003). However, staff at LSH expressed their concerns about patient safety due to increased work demands and a lack of resources (Baldursdóttir, 2004). Some questions arise about how to understand the unexpected findings on nurse and patient outcomes and underline the need for contextual knowledge of the working life of nurses at LSH. Subsequently, it was decided to conduct a series of focus group interviews to gain in-depth knowledge in relation to the research question: "Are supportive working environment factors for nurses in an Icelandic hospital (LSH) positively related to their job satisfaction, absence of burnout and assessed quality of patient care?"

3.3.1 Focus group as a method

Focus group interviews were chosen as a method to facilitate group dialogue to capture the views of nurses from different perspectives and specialities. The focus groups were secondary to the questionnaire survey to extend knowledge in relation to the research question and to explore some of its findings in an interactive conversation among a sub-sample of the survey sample. Combinations of qualitative and quantitative methods have been used in a similar complementary fashion and lead to a better understanding of the experience of work life (Gould-Williams, 2004; Upenieks, 2002b). A combination of methods is recommended to link interpretively qualitative and quantitative data sets to add new perspectives to the phenomenon under investigation (Foss & Ellefsen, 2002; Sandelowski, 2000).

Focus groups allowed the research candidate to understand how groups of people with similar backgrounds and experiences, via group dynamics, develop a shared understanding of the phenomena under investigation, i.e. nurses' working environment, nurse job outcomes and quality of care, and the link between them. The method allowed the identification of areas where there was a consensus and areas where there was disagreement, and provided possibilities for instant verification of data by comparison with a variety of viewpoints (Green & Thorogood, 2004; Gribich, 1999; Krueger, 1998; Morgan, 1998a).

As the focus groups were a secondary method, practical issues were also taken into account. Focus groups were chosen rather than individual interviews to hear the views of many nurses. The process of sharing and comparing generated the data, and provided better understanding and contributed to the knowledge in relation to the research question. The possible disadvantages of focus groups, as presented in

chapter two, were taken into consideration when planning and conducting the focus groups.

3.3.2 Preparation

In preparing for the focus group interviews, the research candidate was given the opportunity to present the purpose and practical issues of this part of the study in a meeting with the hospital's chief nurse and the nursing directors of the nine clinical directorates. The feedback from this meeting was very positive and supportive. The candidate was then invited to make the same presentation to unit managers at their joint meetings at the directorate level. The purpose of the focus group interviews was further presented at meetings with unit managers representing the more over 90 clinical units at the hospital. The unit nurse managers were also supportive of the study. From the feedback gained, the candidate better understood how and when to present the focus groups for staff at the unit level, how and when to recruit nurses to participate and whom to contact for the subsequent planning. Following ethical approval for this part of the study (see appendix 19), a purposive sampling of volunteer staff nurses and unit managers was carried out via advertisements and e-mails to unit managers.

3.3.3 Participants and structure

Those selected for the focus group interviews were volunteers who were able to spend time exploring these issues. Participants comprised 17 staff nurses and four unit managers from all the clinical nurse specialities (directorates). Unfortunately, at the last minute the nurses from the accident and emergency area were unable to attend the session. Inclusion criteria for the focus group interviews are that the

nurses had participated in the survey part of the research and had not experienced major changes in relation to their work since the survey was completed. The sample was purposive and aimed at maximising the opportunity of producing enough data to address the research question and to understand better some of the survey findings. The systematic purposive strategy aimed to invite nurses from all clinical specialities (the same as in the survey) with different perspectives from the research topic (Green & Thorogood, 2004).

The recruitment of volunteer nurses was left up to contact persons at the units. Personal communication with contacts via e-mail and phone call helped to make the recruitment of volunteers more efficient. It was decided to invite unit managers to join a separate group to ensure that the issue of work-related power would not influence discussions and to enable managers to discuss managerial issues separately. The collection and analysis of data continued simultaneously and new focus groups were organised until additional analysis no longer contributed to answering the research question, i.e. when theoretical saturation was reached (Strauss, 1987).

Due to high work demands at the clinical units, shift-work and sickness, the recruitment for the focus groups was challenging and at times problematic. Seven to nine nurses volunteered for each focus group and on average one third of them withdrew at the last minute. This dropout was expected (Krueger, 1998). The nurses that did participate were very positive and willing to engage in discussion. Using only volunteers may have created a risk of a systematic difference between those who came and those who withdrew at last minute. In this study the latter group had all previously expressed their interest in participating, called prior to the focus groups to say that they could not attend and that they were very sorry to miss the

opportunity. Three groups with staff nurses were organised and one group with ward managers.

To facilitate communication, the three focus groups of staff nurses were organised according to specialities and similarities in terms of their working environment. The first group comprised nurses working in the elderly care units. The second group was composed of nurses from units providing more acute patient care, i.e. medical and surgical. In the third group were nurses and midwives from the children's hospital, the women's clinic, and the rehabilitation and psychiatric units. The eight participants in the first focus group additionally had previous experience in several other specialities and four of them had at one time been unit managers. Data from the first focus group proved to be rich and were further expanded, contrasted and supported in the following three groups. After the three groups with the staff nurses, unit managers were invited to participate in the fourth group. This approach enabled the unit managers, firstly, to discuss the concepts under investigation from their point of view, independently of the views of their staff nurses. Secondly, the unit managers were encouraged to express their views on possible improvements and interventions from a managerial point of view. Theoretical saturation was reached after the fourth group. To preserve their anonymity, limited details of participants are provided. This is important because the nurses were all recruited from the same hospital and due to the size of the Icelandic population. See table 26 (page 180) on participants' demographics.

The four focus group sessions were held on the hospital campus, outside the main buildings. The sessions were held during working hours, refreshments were offered and each session lasted for 60–90 minutes. The interviews were informal and relaxed. The participants were all active in the discussions, a few of them more

than others, but efforts were made to balance the discussion. The participants were informed about the study and they all signed an informed consent (appendices 20a and 20b) and filled in a document on age, education and years of experience. All discussions were audiotaped and transcribed by the candidate. An experienced assistant was present, wrote up notes from the discussions and helped with practical issues.

All the focus group sessions started in the same way, according to a topic guide (see appendix 14) as an overall frame for the questions raised. Informants were given the opportunity to raise other issues as long as they were within the scope of the study. The questions sought to explore how focus group participants experienced the concepts under investigation. The main topics brought up as a framework for inquiry were perceptions of working environment, feelings of well-being and job satisfaction, collaboration between professionals, and the quality of nursing care. Examples are: "What is the meaning of job satisfaction for you as a nurse?" and "In your mind, what is related to quality nursing care?" Participants were given ample opportunity to raise their own issues (Kvale, 1996). In many cases, the focus group discussions included extensive probing in order to clarify emerging issues. The research candidate facilitated the discussions and reflected on the content of the interviews with the assistant after the sessions and during the analysis of data. For the purpose of better understanding the survey findings and because of issues related to language in particular, focus group participants were asked about their views on the phrase used for "excellent nursing care" (*framúrskarandi hjúkrun*) in the survey. The results for the four groups are presented simultaneously in sections 3.3.8.1 to 3.3.8.6.

3.3.4 Data analysis

The main characteristic practices of grounded theory were used to analyse the data. A cyclic process was applied, i.e. collecting data, analysing it by constantly comparing indicators and emerging concepts within the data, and then using these to guide further sampling until a point of saturation was reached (Strauss & Corbin, 1990). In this study, the nurses' accounts of their working environment, well-being at work, job satisfaction and quality of nursing care were used to explore the relationships between social structures within the hospital and the subjective experiences of nurses. The data comprised transcribed interviews, notes and memos about the data analyses, as well as notes taken at formal and informal meetings with nurses at the hospital during the study process (Bogdan & Biklen, 1998).

The initial stage of the analysis was intensive coding; open coding to open up the data for all potential analyses. This was valuable since the candidate worked as a part time staff nurse at the hospital during the study and thus important to keep analytical distance and bring fresh ideas to the analysis. The open coding provided a list of concepts to be categorised and then these were moved to a more analytical level and then related to generalisable concepts. In this study, the next step was the axial coding where the data were put together again and examined for relationships between categories. The last step was to look for emerging core categories and their intra-relations (Green & Thorogood, 2004; Strauss, 1987). To compare, contrast, arrange and rearrange the extracts from the data, codes and emerging categories, three layers of papers fixed on a wall were used, i.e. large white paper sheets, smaller coloured paper sheets and coloured notes (Green & Thorogood, 2004). Throughout the analysis, the content of the focus groups and the emerging categories were

discussed with the focus group assistant, staff nurses, experts in the field and the supervisors of the study. Notes from hospital meetings with staff and management contributed to the analysis of the focus group data.

After constant comparison of concepts derived from the four focus group data three categories and corresponding sub-categories emerged. These were integrated to form a model of the impact of the nurses' working environment on nurse job outcomes and quality of patient care and how these can be understood and changed. The three categories are: (1) work worth doing, (2) professional collaboration, and (3) increasing working demands. The three categories all serve to describe the perception of nurses at LSH of their working environment, nurse job outcomes and quality of care in the context of their everyday life and in relation to the overall research question. The three categories increased the understanding of the main survey findings and thus showed the advantages of multiple methods of data collection (Sandelowski, 2000).

Upon completion of the primary analysis, results were presented and discussed at a meeting with three of the focus group participants, two staff nurses and one unit manager, all from different focus groups. These discussions ("member check") were helpful to address better the research question and to understand the findings of the survey. This also helped to refine the model of the relationship between nurses' working environment, and nurse and patient outcomes. The focus group findings have taken this discussion into consideration.

The candidate was a part-time staff nurse in two different elderly care-units at the hospital (LSH) between August 2001 and January 2004. She had previously worked at the hospital as a senior manager in quality management and in employee

health and safety. The opportunity was used to present preliminary findings of the questionnaire survey and from the focus groups at hospital staff meetings, seminars and workshops and at meetings with senior management. Notes and relevant comments from the above meetings and discussions were documented and used during the analysing process. A logbook was kept throughout the research process, which proved to be helpful in enhancing the understanding of the phenomena under investigation.

3.3.5 Findings

The findings will be organised around the three categories that emerged from the data. These are presented alongside corresponding sub-categories and how these associate with the overall research question and survey findings. First the context of the study will be presented briefly and as well as demographic data on the focus group participants.

3.3.6 The context of the study

The focus group interviews took place between September and November 2003, three years after the merger of two of Reykjavik's largest hospitals into Landspitali University Hospital (LSH). Major organisational changes had occurred in the previous years. Among these were cuts in the number of staff at all levels. Another aspect was some relocation of clinical units, both physically and structurally in terms of the organisation of the hospital care. There were also changes in hospital management towards a flat structure with fewer middle layers, resulting in re-definition of the responsibilities and roles of managers at each level. Following the merger, the public dialogue in the media and inside the hospital centred on various

effects of downsizing such as a reduction in staff numbers, increased workload and consequent discomfort and potential risks for patients, relatives and staff. In particular, staff in acute care settings expressed their worries in terms of adverse events in relation to increased workload, shorter length of stay for patients and shortages in staff (Baldursdóttir, 2004). The present study therefore took place in a context of change and increasing work demands, inevitably influencing the experiences of the participants. However, the consequences of the merger were not a focus of the study although, as noted earlier, it is plausible that they could have impacted on the findings of the study but it is impossible to ascertain whether this is the case, given the absence of a comparator hospital in Iceland.

3.3.7 Demographic data

Table 26 illustrates demographics information on the 21 female focus group participants, staff nurses and unit managers. The majority of the participants hold bachelor degrees and worked full-time. Participants represented eight of the nine clinical directorates. The specialities of the nurse managers will not be included in order to preserve their anonymity. Where relevant, the participants are referred to by job title (e.g. staff nurse or unit manager) or speciality (e.g. midwife or geriatric nurse); otherwise they are referred to as "nurses". To maintain anonymity, such potentially identifying information is provided with caution.

Table 26. Demographics of focus group participants

Participants	Specialities	Experience Years-Range	Professional and educational background	Working hours
Staff nurses: 17	Elderly Medical I	3–30 years	RNs: 21	Full-time: 15
Unit managers: 4	Medical II		BS degrees: 14	Part-time: 6
	Surgical		MSs degrees: 2	
Total number: 21	Intensive care			
	Children		Other education: 8	
	Women			
	Psychiatric			

3.3.8 Categories

Analysis of the focus group data enabled the candidate to devise three categories and a range of sub-categories, which explained nurses' responses to their working life, their job attitudes, and the quality of patient care. Table 27 summarises these categories: work worth doing, professional relationships and increasing working demands. The categories are all related and support and expand each other. They are useful to increase the insight into the working experiences of nurses at LSH in relation to the research question and their responses in the questionnaire survey. From table 27 it can been seen that the nurses experience their work as valuable and their status and inter-professional working relations as helping them to meet increasing demands at the hospital. These categories and sub categories are presented in following sections.

Table 27. Categories and sub-categories related to the working experiences of nurses at LSH of their satisfaction with work and the quality of patient care

Categories	Sub-categories
Work worth doing	Choosing the right profession Valuable human relations
Professional relationships	Teams and networking Independence and co-ordination Nurse-doctor communication
Increasing working demands	Lack of resources and hospital support Safety and professional expectations Quality of nursing care

3.3.8.1 First category - Work worth doing

For the nurses participating in the focus groups the meaning of their work was very important for their working life experiences. The initial choice of becoming a nurse was fundamental for their general satisfaction with working as nurses. Working with vulnerable patients in need of nursing care, and human relations in general, were revealed as very important for nurses´ satisfaction with their work. The focus group participants expressed that they valued the relationships they had with patients and their relatives. These were valuable and added to the meaningfulness of their work. Rewards in terms of positive feedback from staff, relatives and patients, advancement and salaries enriched their experience of being a nurse and increased their satisfaction with work. The unique characteristics of nursing - having the possibility to meet patient's needs in difficult life situations - made nursing worth doing and thus important for their satisfaction at work.

This first category helps to address better the research question by illuminating the importance of work itself for nurses' quality of working life. This category indicates that the content of work itself is an important part of nurses' working

environment. The sub-categories to work worth doing provide valuable insight into the positive survey findings of the relatively high job satisfaction of nurses at LSH hospital. The properties and dimensions of this phenomenon about the meaning of work merged into the category of "work worth doing" and two sub-categories of choosing the right profession and the value of human relations (see table 27 page 181).

3.3.8.1.1 Choosing the right profession

The first aspect to the first category is concerned with nurses' initial decision to go into nursing. Focus group informants agreed that the rationale for their initial decision was fundamental to their satisfaction with work. The nurses talked about this in relation to having made the right choice about becoming a nurse. Being true to that decision and enjoying the possibilities of nursing practice were of more importance for their satisfaction at work than the demands and frustrations that frequently characterised their work and could put their job satisfaction at risk. Two of the nurses, both with over 30 years' experience in nursing, and now working in elderly care units, discussed how this influenced their views of their work throughout their careers. The geriatric nurses expressed this as follows:

Nurse 1:

This must be something called job satisfaction, because you have chosen this job and you find it enjoyable.

Nurse 2:

You must be satisfied since your job is what you wanted to work with, even though some days are terrible.

The other nurses in this focus group agreed on the importance of the initial choice, but argued that many factors influenced their job satisfaction, such as relations with staff and their possibilities of working independently. Nurses in the medical and surgical directorates confirmed this in their discussions. They talked about their initial decision 20 or 30 years earlier and felt they still had the same views in respect to that decision. They did not regret their decision, even though their jobs could be tough and they had to deal with high demands at work and external circumstances that made their jobs more difficult. Their choice and the possibilities they experienced as nurses were of more importance than whether they at times felt bad at work. They talked about the importance of being satisfied, being a nurse and being ready for the job that awaited them. Three nurses from the second group stressed the importance of being absolutely sure that the choice they had made was the right one for them. Their expressions were as follows.

Nurse 1:

I never regret going into nursing. It offers an enormous broadness and gives you endless opportunities, but you do not always feel good at work. (Surgical nurse)

Nurse 2:

You need to really make up your mind. Are you ready for this? (Medical nurse).

Nurse 3:

As you were saying [name], *that you have, somehow, answered this for yourself; is this the right choice?* (Medical nurse)

The nurses make interesting points about how important their initial choice was for their future satisfaction with their work and they expressed a high degree of commitment to their profession. It is also interesting that when the nurses expressed their commitment, none of the responses included comments about the hospital or their commitment towards the health care system in general. A dialogue followed discussions about the right choice on the importance of human relations for their experience at work. The findings on human relations emerged into the next sub category presented below.

3.3.8.1.2 Valuable human relations

The second aspect to the first category of "work worth doing" is about the value of human relations at work. When nurses talked about their initial decision to go into nursing and about being satisfied as a nurse, they turned to talking about the meaning of the nursing profession and of human relations in general, and how important this was for their job satisfaction. Despite the negative parts of the work, such as low salary and a poor working environment, the nurses enjoyed their work because they felt it was enriching and had the potential to help them to develop personally. The medical and surgical nurses discussed this together and one of them responded with a smile when she was asked why she still enjoyed work, despite the high demands in her daily work. She said:

> *This is so enriching, and so maturing. There is a satisfaction in it.* (Surgical nurse)

The focus group participants looked at job satisfaction from the point of view of relationships with patients and their relatives. The nurses felt that working with patients and relatives was challenging and acknowledged that the feedback and

gratification they received added to the value of their profession. Even when things were difficult and patients and relatives were unhappy, nurses felt satisfied when they succeeded in resolving problems and thereby improving the care provided. They felt happy when they did not give up on challenging tasks and persevered until they had solved the problem, and felt that people were satisfied with the care provided. The midwives and the psychiatric nurses for example, discussed this. One of the midwives emphasised how these factors influenced her job satisfaction, e.g. when she experienced constructive personal relations at work, when problems were solved and she received positive feedback from patients and relatives. She found these experiences very motivating, as she noted:

> *I would say it is* (job satisfaction) *the whole picture, because you get like a vitamin shot, everything works, and everybody is happy. You often get this feeling, and you are willing to do whatever it takes.* (Midwife).

A geriatric nurse talked in a similar way about how she enjoyed challenging communication with relatives and patients and how satisfied she felt when she was able to meet successfully these challenges and take care of things so that patients and relatives left the ward happy about the service provided. Encounters such as these were very positive for her experience of working life.

> *I also enjoy it when you have really been criticised* (by relatives). *When everything is impossible and unsatisfactory, and you try to strive to get them back on your side. ... Not to discharge them unhappy.* (Geriatric nurse)

Despite very demanding situations and limited resources the meaning of being a nurse and the valuable relationships with patients helped nurses to enjoy their work. Those working only day shifts complained of low salaries. Those who were

mothers with young children stated they would not be able to provide for their children alone, as their salary did not even cover the cost of day-care for two or three children. Some of the medical and surgical nurses said that they had even considered leaving nursing. Despite these negative aspects, they still loved to go to work and, ironically, spoke of their job as their "most interesting hobby", not least because of the positive relationships with patients and human relations in general. One who had considered leaving nursing said:

> *I've always been very happy in this job. What diminishes the satisfaction is the salary. It is a very negative factor. You are sometimes thinking about quitting, only because of the salary, but sometimes I feel like this is my main hobby.* (Medical nurse).

A nurse who had left nursing mainly because of the low salary, poor working environment and the limited resources at her unit followed this comment. However, she came back to the hospital after working for a year in a private company, in personal services, at a considerably higher salary and in a more comfortable working environment. She said she had missed the relationship with patients and relatives, and needed to feel that her work was worth doing, this being fundamental to her job satisfaction:

> *I just felt I was simply not doing things interesting enough in the company; there was too little work with human relations. I felt I was not useful enough. ... And I decided to go back to nursing but not to let these things irritate me as they had before.* (Medical nurse)

The points that this nurse is making are that higher salary on its own is not enough for nurse job satisfaction and that she was ready to sacrifice a comfortable

and respectable job to go back to nursing, knowing what would await her there. The experience of this nurse was perceived as unique in the focus group and it is valuable to better understand the situation of nurses at LSH and the core of their job satisfaction.

3.3.8.2 Summary and interpretation of the first category

Findings that fell within the first category about the importance of work itself are in concordance with the survey findings; the scores for satisfaction with being a nurse being higher than scores for satisfaction with the present job. This points to an interesting difference between these two aspects of job satisfaction and potential greater importance of the meaning of work itself than the daily experiences at work.

These findings can be interpreted from the point of view of the concept of intrinsic satisfaction according to Herzberg´s "Two factor theory on motivation" (Herzberg et al., 1959). This identifies motivating factors that are drivers such as achievement, recognition, responsibility, personal growth and advancement. Other factors at work that do not motivate but are also important are pay, working conditions, supervision, policy and inter-personal relationships. The link between this theory and the views expressed in the focus groups is based on the expressed importance of the content of nursing, its meaning, responsibility, possibilities for personal development and growth, and the important relationships with staff, patients and relatives. Furthermore, the nurses in the focus groups perceived the meaning of nursing and the job itself as more important than the context of their jobs (e.g. salaries and poor working environment) for their job satisfaction and this corresponds to the role of extrinsic factors as not motivational according to Herzberg´s theory (Herzberg, 1987).

This first category and its sub-categories built further upon what was learned from the survey findings on the link between supportive nurses' working environment and positive nurse job outcomes. These additional findings provide insight into both the importance of work itself and into other valuable aspects of the nurses' working environment, such as achievement, recognition, responsibility, personal growth and advancement, all corresponding to items that clustered to the NWI-R sub-scale labelled "unit level support" (see table 4 page 146 on factor analysis) which significantly predict job satisfaction.

When these findings are taken together (the survey findings on the prediction of unit level support for job satisfaction and the focus group findings on intrinsic satisfaction) the crucial role of nurse managers for nurse job satisfaction is highlighted. According to these findings, the management behaviour of nurse managers, in particular, appears to have the potential positively to influence intrinsic nurse job satisfaction.

This category emphasises the meaning of human relations in nursing; that they are at the core of nursing care and fundamental to nurses´ satisfaction with their work. The survey instrument does not address human relations with patients and relatives particularly, apart from questions in part C (Maslach Burnout Inventory), which measures depersonalisation (see appendix 7).

3.3.8.3 Second category - Professional relationships

The second category that emerged from the focus group findings is professional relationships. When discussing their job satisfaction, the focus group participants further identified the importance of inter-professional relationships, independence and professionalism, and said that these were fundamental in meeting the high

demands of nursing work. Participants in the focus groups, both staff nurses and managers, expressed positive views on collaboration and trust in general within the hospital. Good working relationships were important for their perceived quality of working life and their assessment of the quality of patient care. Hence, their views on professional relationships provided an important contribution to addressing the research question and a vehicle through which to illuminate further the survey findings.

Consultation with other nurses and networking across units were important for the management of patient care. Some of the nurses, particularly the managers, felt that the network had failed during recent hospital re-organisation with a subsequent deterioration in communication, quality of patient care and the work experiences of those involved. These changes made the participants feel insecure and uncomfortable. They felt they were not as respected professionally as they had been before, and were excluded from information about the organisation of care and work processes in relation to the changes.

When asked about their nursing practice with respect to perceived independence, the nurses all agreed that they were independent at work and self-governing in their nursing practice. Their perceived independence was important for the quality of care they provided and some of the nurses talked about this as an opportunity to develop their professional practice. Independence at work was also very important for their quality of working life. When prompted about their collaboration, with e.g. doctors, the majority of focus group participants thought their working relationships with doctors was satisfactory. However, they were not always content with the organisation of the doctors' work and this influenced their own working life and the quality of the care they felt able to deliver.

Nurses from all directorates stated that they handled their collaboration with doctors by using strategic communication and coping mechanisms. The nurses experienced the collaboration with doctors as challenging and at times frustrating, with signs similar to the characteristics that have been referred to as the "doctor-nurse game" in the literature (Stein et al., 1990). Part of the nurses´ strategy was to act as if the doctors had made all the decisions, despite the fact that many of the ideas originally came from the nurses. Nurses felt they had to play this charade to ensure the quality of patient care, but emphasised that this was at times irritating, and one of them were concerned about the influence of this for their own collective well-being at work.

In addition to the first focus group category "work worth doing", this second category (professional relationships) provides important information. According to the survey findings, a supportive nurses' working environment, in particular as fostered by unit managers, was important for the quality of nurses' working life. The first focus group category provided findings on the meaning of work and extended the survey findings in this regard. The second focus group category further supported the relationship between inter-professional relationships and the quality of patient care as indicated by the regression analysis of the survey findings. The properties and dimensions of these views merged into the category of professional relationships and the three sub categories of teams and networking; independence and coordination and nurse–doctor communication (see table 27 page 181).

3.3.8.3.1 Teams and networking

The first sub-category within the professional relationships category is concerned with teams and networking. The nurses in the focus groups spoke about how

important collaboration with co-workers was for their quality of working life and for the quality of care. Focus group participants had positive views on working in strong and ambitious teams with competent colleagues. These teams were important for their job satisfaction and the multi-disciplinary collaboration enriched working relations and trust, and had a positive influence on the nurses´ ability to provide good nursing care. Nurses and managers, both with longer and shorter experience in nursing, talked about this and felt more confident with their practice and their own satisfaction with work when they had the possibility to discuss with colleagues and to collaborate with them. It was both challenging and enjoyable to work with others, to share knowledge with them, enjoy their expertise, *"and to see it work"* as a surgical nurse said. Staff nurses and managers discussed this in all focus groups, and comments from these discussions reflected the value placed on teamwork and networking:

Nurse 1:

When it comes to well-being at work, a key issue is that you can consult your colleagues. (Geriatric nurse)

Nurse 2:

You feel a member of a group. I enjoy this form of communication a lot and enjoy very much the dynamic of the team, especially if the communication is open. ... This multi-disciplinary challenge, to be respected and to respect others and their special knowledge, and the co-ordination of all these groups are also part of the job satisfaction. (Intensive care nurse)

Nurse 3:

Everybody can contribute to these issues, come with different points of view and in this the nurse also plays a very important role. And this is important for your job satisfaction, to see things from a broad perspective. (Surgical nurse).

Collaborative efforts, e.g. in quality projects, enriched the value of teamwork and the nurses linked this to their job satisfaction. Parity of status and mutual respect in communication was experienced as professionalism and fundamental to the quality of the care. One of the midwives, who had worked at the hospital for over 20 years and had been active in multi-disciplinary quality projects, valued professional communication and felt that it was beneficial for her working relationships and satisfaction with work:

Almost all staff are involved (in quality circles) ... *and after we started on working on this we had much more mutual respect, and we are only speaking about things in a professional manner and we are also, in this way accomplishing something good for ourselves.* (Midwife)

Networking and co-ordinating across units and directorates were cited as yet another dimension of collaboration, and experienced as valuable for nurses and had the potential to improve the quality of patient care. The focus group participants, particularly the unit managers, said that they strove to co-ordinate care by working with nurses in other units. By networking in this way they were often able to prevent unnecessary strain for staff and patients. Good co-ordination via the collaborative efforts of staff nurses and unit managers made the patient care more efficient and safer. One of the managers explained that she used her *"espionage net"* to e.g. plan a safe step-down process of a surgical patient by collaborating with other unit managers. In so doing she felt they could make the process smoother and safer for

the patient and prevent unnecessary conflicts between units in the post-operative phase. She emphasised how efficient this collaboration could be and how it made her job more enjoyable. Other unit managers in the focus group had had similar experiences.

The unit managers in the focus groups expressed how important it was to share knowledge and experience with other managers. Good access to information and joint meetings of managers could help to improve collaboration across units and directorates within the hospital. The nurse managers talked about how joint meetings of unit managers across directorates would be positive for patient care. Meetings with representatives from all facets in the patient's journey through the hospital could be used to share information and ask questions about the processes in relation to complicated patient care. The unit managers considered such meetings to be very important and a necessary addition to phone calls. Nurse managers in surgical care and intensive care, in particular, took this view and one of them spoke about her colleague's situation in this respect:

> *A flow of many surgical operations* (patients) *goes through her unit. It is necessary to invite the managers to meet together, give a presentation and simply ask: how do you do this? This is something that would be easy to organise.* (Nurse manager)

This nurse manager suggested an interesting idea about joint and informative meetings of managers and proposed a method of reflective communication to enhance collaboration and care. Nurses in other focus groups talked in a similar way about the importance of smooth collaboration. A nurse working in children's care expanded on this view and expressed the importance of a good environment, in a

broad sense, for professional patient care and professional collaboration. She maintained:

> *You want to work professionally with this patient, but you also want the environment to be suitable for the patient, that the collaboration works out, and that the service runs without constant obstacles and hassle.* (Nurse in children care)

During the recent merger of the two hospitals some of the focus group participants were relocated and their former network of contacts was no longer of great use. They felt isolated and did not have the necessary information about patient care and practical matters for nursing practice. They felt uncomfortable when they found out that some of the routines and practices they had been used to for years, and considered professional and evidence-based, were not common practice in their new location. When they faced conflicting views about the ways to provide care they experienced disagreement in their communication with new colleagues. This had a negative impact on their well-being at work and their perceived quality of care. A surgical nurse emphasised the importance of co-ordinated procedures in relation to patient operations based on shared standards and effective networking across the units involved. The participants in her focus group agreed with her on how sensitive networking among nurses was to organisational changes and thus these changes could negatively affect the quality of patient care and their well-being at work. The experience of being dislocated from their collegial network was a negative experience and made the nurse feel disrespected and uncomfortable. As she explained:

Yes, the network collapsed. We came as specialists and well-known faces from one building over to another, and there we were looked at as complete nobodies. All of a sudden, you are at times, just like a fool. (Surgical nurse)

The nurses repeatedly expressed how supportive inter-professional relationships could be when they faced difficulties at work. An example came from a nurse experienced in elderly care:

If something happens and you are considering what to do, then it is so good to walk to your colleague and ask. ... Therefore, it is the support here and now that matters.

Collaborative and supportive relations are important for staff and patients. However, independent nursing practice was also considered to be important by the nurses in the focus groups and was also linked to their satisfaction with work and opportunities to provide good patient care.

It is valuable to note that throughout the focus group interviews none of the comments from staff nurses about their work lives and quality of care included any comments on their unit managers except to express their understanding on how busy their managers were and how the pressure on them had increased. When prompted about whether they had any influence on their job satisfaction and their potential to provide quality of care, the nurses agreed that their support was important. They then discussed other issues. Some of the staff nurses talked about their previous personal experiences as managers. They expressed a sense of sympathy towards the increasingly difficult role of unit managers at the hospital in relation to organisational changes, documentation and staffing. These views correspond to the

changes that followed the merger of the two hospitals and are presented in a previous section in this chapter (see section 3.3.6).

3.3.8.3.2 Independence and co-ordination

The role of independent practice and co-ordination of patient care merged into the second sub-category to "professional relationships". The nurses in the focus groups expressed positive views on their independent nursing practice and trust in their relations with their co-workers, in particular, with doctors. They felt that the doctors respected their work and did not try to interfere with the nursing practice. Nurses from all directorates felt that the doctors trusted them and said that they had the opportunity to make independent decisions on nursing care, once the doctor had made the medical decisions. Nurses felt their collaboration was very important, they enjoyed working with doctors and followed their medical orders, despite, at times, negative sides of this collaboration. This was the case for nurses in different settings. A nurse who had previously worked in acute settings and at the time of the focus groups was working in a non-acute care reinforced this view. Two nurses emphasised the importance of collaboration:

Nurse 1:

They (the doctors) *trust us in what we are doing. That's why we do not discuss the nursing care because they know we are doing it quite well ... If a patient has been attended by his doctor and then comes to me, I take care of him from a to z. I feel our work is very independent ... Nobody would believe how independent we really are* (smiled). (Medical nurse)

Nurse 2:

Yes, I say the same. I'm satisfied with the independence, but you certainly seek advice from your colleagues. (Surgical nurse)

A nurse working in the elderly care participating in another focus group expressed a slightly different view of doctors' attitudes. However, this view was neither considered important nor problematic:

But of course, if there were critical matters and uncertainty, they would see themselves as our superiors, they would seek to retain what they think is theirs. But this is not a problem in my unit.

Nurses made it clear that they perceived their professional status as independent and that they enjoyed this status. At the same time, they talked about the value of working with other disciplines. Nurses from all directorates said that one of their most important roles was to observe and co-ordinate care, both at the unit level and across units. Nurses emphasised their presence at the units for 24 hours while doctors and other disciplines came to the unit for a shorter time. Some participants felt that they were responsible for controlling the whole care, including controlling the medical part of the care and the care of the environment, even though the organisation of cleaning services was no longer a part of the nurse unit management responsibility. This feeling of responsibility for the whole care of patients influenced their assessment of the quality of care and will be discussed further in a separate section (3.3.8.5.3). The nurses also talked about how demanding it was to be responsible for the overall care, but they still considered checking and co-ordinating care as part of their work. Two medical nurses, both with experience in acute settings, reflected on their experiences:

Nurse 1:

I was always checking the doctors. I felt I was such a baby-sitter. I was fed up with this ... To check they had given orders, and checking they took care of the patient.

Nurse 2:

Isn't this the "glue". We are this centre, we are always with the patient, and we are controlling in all directions.

These nurses felt they were responsible for co-ordinating the care of patients, even though it made them tired and their views may resemble the roles of mothers and housewives. The second nurse spoke about the constant controlling in an ironic way and the nurses in her focus group agreed with her. However, nurses considered collaboration with their colleagues was of great importance for staff and patients. Nevertheless, there were times when they felt that collaboration with doctors, and the nature of the communication in particular, could be improved.

3.3.8.3.3 Nurse–doctor communication

The third sub-category of professional relationships' reflects nurses' views on their communication with doctors. Despite the general perception of good collaboration, the nurses explained the difficult sides to this interaction. Improvements in the nurse-doctor collaboration would, from the nurse's point of view, also benefit their working life and the care of patients. A surgical nurse with some 15 years in nursing explained some of the tensions involved:

If there is something that needs improving it's collaboration with doctors. Doctors and nurses work together on nursing the patient, and it takes a lot of time to chase them (doctors). *And it should be self-evident that the nurse*

participates in an interview when the patient is diagnosed. The nurse is to take care of the patient afterwards ... Isn't that the goal of both partners, that the patient feels as well as possible?

A nurse in children's care expanded on this. She valued the collaboration with doctors, but took up the point about the role of co-ordination. She often had to remind the doctors what they were expected to do and added that patients and relatives often had to wait for lengthy periods for doctors to make clinical decisions. As with the surgical nurse she often had to chase the doctors:

What is the most annoying here for me is, maybe, that you are always chasing some doctors. (Nurse in children care)

Nurses felt that doctors trusted them and did not comment on the nursing part of the care. This was by some participants interpreted as a sign of confidence in nursing care. By others it was, however, perceived as a sign of ignorance. Their apparent contradiction is illustrated in the dialogue extracted from the second focus group:

Nurse 1:

They do not consider what we are doing ... They certainly do not have a clue about half of what we are doing. (Surgical nurse)

Nurse 2:

We would not like it if they interfered with our care, e.g. how we helped the patient out of bed. (Medical nurse)

Nurse 3:

Wouldn't we riposte and defend what we are doing because we mean our practice is good? But things would be clearer if the collaboration was better. (Surgical nurse)

Nurses were then prompted to discuss whether they trusted the doctors. It was apparent in the groups that this was not a commonplace among nurses, but the focus group participants agreed and said the nurses did not always trust the doctors with regard to e.g. their organisation of work. An example comes from a surgical nurse:

No, I feel we often have questions marks and even say to them (doctors): *"Are you sure you should do this?"*

The point is not that nurses did not trust doctors' medical knowledge, but rather they were sceptical as to how they organised their work and that they needed feedback from the nurses who were better acquainted with the bigger picture. The focus group participants thought collaboration would be better if the communication was more open, e.g. about the nursing part of the care. They agreed that doctors did not comment on the nursing side of the care and said that, if they did, nurses would probably become defensive. From nurses' point of view this could be considered evidence of double standard.

The expressed view that nurses would not appreciate doctors´ comments on nursing care raises some question about trust – or lack of it - in the working relationships between nurses and doctors at LSH. Nurses continued that they were happy with collaboration in general, but they also mentioned a particular strategy, which they used to ensure the quality of patient care and fulfil professional standards from their point of view. This strategy in question is known in the literature as the "doctor-nurse game" (Stein et al., 1990). Its key feature is to present a nursing idea

in such a way that it looks as if it originated from a doctor. In this nurses felt they did not appear to influence a doctor's decision. Some nurses felt that this strategy threatened nurses' confidence in doctors and as well in their own professionalism and satisfaction with work. They said that the strategy was a way to cope with doctors' attitudes and the organisation of their work, but agreed that it was not healthy for professional collaboration. Again, nurses said they would prefer more open communication. Nurses in different specialities discussed this point and they took it badly when doctors did not welcome their ideas. In response, they decided to use this strategy to circumnavigate matters instead of being open in their communication with doctors. This kind of conversation is evident from the third focus group:

Nurse 1:

I find it boring when you come with your ideas or your views and they are not even listened to. It is like this sometimes, it is so boring when you need to take an indirect approach. (Nurse in children's care)

Nurse 2:

You know perfectly that this is how you need to do it, but why can't you just say: "I would like to do it this way?" (Nurse in children's care).

Nurses claimed they were used to managing issues when communicating with doctors and this strategy was designed to achieve what they thought was best for the patient. They did not enjoy having to be so sceptical and having to develop this strategy. They preferred communication with doctors to be more open.

3.3.8.4 Summary and interpretation of the second category

The points the focus group participants made were that good collaboration was valuable both for staff and patient care. This supports the findings on the significant prediction of good nurse-doctor working relationships for nurse-assessed quality of patient care. The focus group findings provide additional insight into the survey findings and about the nature of the nurse-doctor relationships.

Despite some positive views, both in survey and focus group data, the latter point to the need for some improvement in this area. The nurses in the focus groups pointed out how more structured networking and more open and clear-cut communication between nurses and doctors could be of benefit to all concerned. These findings are important in addressing the research question in relation to professional collaboration and its importance for nurse and patient outcomes.

The focus group findings indicate the value of good collaboration also between nurses within and across units, and emphasise the importance of improving these communication channels, in particular for the benefit of patient care.

3.3.8.5 Third category - Increasing working demands

The third category concerns increasing demands at work. Nurses from all specialities expressed their views on increasing demands at work and these were associated with constrictions and reorganisation at the hospital. In this respect, nurses mentioned cost-containment, staff shortages, increased pressure on unit mangers, lack of information about hospital policy, poor working environment and limited time for patient care. The general experience of participants was that they were expected to do more with less, but they still explained their motivation to strive to do their very best, despite limited resources and the demanding context of change.

Their driving force was to fulfil their professional nursing standards, meet the needs of patients and relatives, ensure safety, and fight for a good working environment and quality of patient care.

As described in an earlier section (3.3.8.1), the meaning of work and the perception of doing a job worth doing was fundamental to job satisfaction, according to the views of focus group participants. Similarly important was their collaboration with co-workers and the opportunities to enjoy valuable human relations with patients and relatives. Despite their satisfaction about working as nurses, both in the questionnaire survey and in the interviews, focus group participants pointed out how their daily work was increasingly marked by demands, which had reached higher levels than they had experienced earlier in their nursing career.

Findings that fell into the third category further illuminate the meaning of different aspects of nurses' working environment for nurse job outcomes and the quality of patient care. This category provides a new dimension to the research question and emphasises the different meaning of intrinsic and extrinsic factors associated with the working environment. These findings demonstrate that, despite increasing demands (i.e. extrinsic factors), nurses felt satisfied with work and they related this to the meaning of their work, (i.e. intrinsic factors). The following section describes nurses' experiences of limited time and resources and their will to provide quality-nursing care, despite the negative aspects of their working environment. These findings are consistent with the survey findings on staffing as a significant predictor of nurse job satisfaction and emotional exhaustion.

3.3.8.5.1 Lack of resources and support from senior management

Focus group participants from all specialities spoke of increasing working demands and lack of time for patient care. Nurses from all directorates except from elderly and childcare experienced poor working environment. Nurses explained their previous experience of busy days, but their current experience went beyond this and they talked about how they felt they were reaching the limits of their capabilities. Nurses believed that time and resources were fundamental to providing quality patient care and worried about their inability to give the professional care they would like to. Participants pointed out that time to meet patients' needs in a creative way was vital and how good relationships with patients and relatives had a strong impact on their well-being at work and job satisfaction.

This was particularly the case for nurses in acute settings, such as midwifery and surgical care. These nurses felt they had to increase their tempo to be able to meet the high demands. Despite their best efforts, they felt they were unable to provide quality care and found they were almost doing more than they were actually able to. A surgical nurse with over 15 years of experience at the hospital shared these concerns with her colleagues in the focus group. She explained how she had to hurry at work due to lack of staff and the high demands. She felt that she was unable to sit down and talk to the patient and provide the quality nursing care she wanted to. Two midwives expressed similar views:

Nurse 1:

To provide truly good and holistic nursing care, you would need more time, not constantly be running, as you so often experience at work ... This is what is

missing, this time to be able to care for the patient and speak to him (her). (Surgical nurse)

Nurse 2:

You need to run between places, take partly care of this and partly care of that ... You cannot do it all. You do not reach the professional goals you would like to. (Midwife)

Nurse 3:

Yes, I experience this very much, because in reality you are doing "more" than you are able to do. ... I'm not the only one. The demands are so high that you are trying to accomplish "more" than you are able to. (Midwife)

When discussing lack of time for patient care, focus group participants also brought up concerns about their own well-being and poor working environment. A psychiatric nurse said:

I allow myself to be annoyed about my circumstances. At present this irritates me considerably and I am really worried about this.

Despite their misgivings about the inadequate working environment they liked their jobs and were ready to fight for better facilities to make it possible to achieve higher professional nursing standards. A psychiatric nurse who had worked at the hospital for over 20 years and a midwife with similar length of experience in nursing each said that, at times did not feel well at work, but still emphasised their motivation and responsibility:

Nurse 1:

I like the job, but I may not feel well enough because, e.g. I enter a tiny ward, you cannot even hang up your clothes. I've liked the job from the beginning, but the facilities are dead boring and this annoys me. (Psychiatric nurse).

Nurse 2:

You are willing to fight for a working environment that enables you to work such that you achieve professional standards. (Midwife)

Focus group participants from different specialities expressed their views on the lack of hospital policies in relation to standards of care, organisation of work, flow of information, control and implementation of changes. Unit managers described how this made their managerial work difficult. They also pointed out how limited the support was that they got from senior management, limited communication between senior management and staff which led to a lack of information, control and support. Managers said that this was particularly difficult during periods of major changes. They understood the high workload of senior managers and their difficulties to do more than they already did:

Nurse 1:

You are endlessly putting out fires and trying to keep the people calm. This takes enormous effort and energy but you never hear "job well done", "take a day off and rest because you have worked like a dog", never ... They do not have the capacity because they are overwhelmed with their own workload; they are not able to back us up. (Nurse manager)

Nurse 2:

I think even though there has been a cut in management there is still too much distance between them (senior managers) *and those working here on the floor.* (Nurse manager)

Unit managers in the focus groups shared their concerns about the distance between senior management and the staff. Increased emphasis on formal, written or e-mail communication instead of personal was among factors that made their jobs even more demanding. One of the managers said:

I feel that all the work processes have become incredibly long-winded. You need to write, you need to send e-mails and you need to write a request for this and that. ...This all has become so complicated, that you do not bother to do it.

However, managers explained that they were willing to make the best of the current situation and saw it as an aim not to complain too much. They agreed about lack of resources and lack of power in particular. They felt independent and sufficiently motivated, but what they missed was power that corresponded to their increasing demands and responsibilities:

Nurse 1:

You know you are doing your best. I said to myself, yes, I will not complain, there are no problems. I will just do it ... But you need to feel that you have the power to do things ... But this is so heavy, because they (senior managers) *are so far away.* (Nurse manager)

Nurse 2:

I mean, you have the independence and the initiative to do this and the ideas, but you do not get the freedom. What you need are resources. (Nurse manager).

Nurse 3:

I only want the power with the responsibility; this is the only thing I miss. (Nurse manager)

Focus group participants felt their working environments as increasingly demanding. Both staff nurses and managers experienced increasing responsibility and work demands on nurse managers. Another concern was the perceived lack of support from senior management, i.e. the nurse directors for the directorates and the chief nurse. In particular the nurses disliked the increased use of written communication making the gap between staff and senior management even greater. Moreover, nurses were willing to do their best in these circumstances, did not want to complain too much and expressed high expectations for the good of staff and patients. The high professional expectations expressed in the focus groups are presented in the next section that follows.

3.3.8.5.2 Safety and professional expectations

During the focus group interviews, high professional expectations were expressed repeatedly by nurses in different specialities, and by those with different length of work experience. Their comments reflected their interest in providing quality nursing care. Despite a poor working environment and high demands, almost beyond their capacity, some focus group participants expressed a desire to work with what they had. Nurses said that they were aware that they did not manage to act in

accordance with their professional knowledge. A medical nurse, with less than five years in nursing, and two experienced midwives commented as follows:

Nurse 1:

Even though you would like to change many things and that happens, maybe slowly, then you try to be positive and work from what you have. (Medical nurse)

Nurse 2:

It does not mean that you do not do your very best in the circumstances ... But maybe you know that professionally the goal would have been different. (Midwife).

Nurse 3:

What we did today might be considered as good enough, but I know that we could have done even better. (Midwife)

The nurses argued that because of the limited resources they tried to maximize their capacity but too often they were obligated to perform beyond their own capacity. This had negative effects for staff and patients. Some of the participants expressed physical exhaustion and even back injuries and said that this did put the safety of the patients at risk.

People are dealing with such huge things that you sometimes are not able to handle it ... Something you simply cannot cope with it... you get annoyed. (Medical nurse).

Focus group participants said that such situations could be challenging if they happened once in a while, but this was becoming more of a daily routine, especially

in acute care. Nurses worried about their own well-being and patient safety, and said that the risk had increased because of higher demands and more limited resources at the units. Two midwives responded to this discussion:

Nurse 1:

Yes, I experience it very much (physical exhaustion), *just because you are in fact doing more than you really can handle.* (Midwife)

Nurse 2:

You know there is a woman in labour and you think, what if something happens now? If there's bradycardia, what will I do? And you are at another woman's bed. You can imagine what runs through one's head. (Midwife)

Focus group participants spoke about how their working environment strained their ability to provide quality care. The physical working environment, time available and their collaboration were important to ensure a professional standard of care. Participants felt that a depressed working environment was actually dangerous for patients' safety. Nurses working in acute care made particular mention of this, as did nurses in other specialities. Nurses working in elderly care were concerned about the risk of falls. They said that during nursing shortages this was more apparent and made them worry about patient safety. Feeling secure at work similarly had a positive influence. Nurses in elderly, psychiatric and childcare said how important feelings of safety were for staff and patients:

Nurse 1:

Sometimes you have unskilled people and then you worry about the safety of patients. You become automatically stressed. (Nurse in elderly care)

Nurse 2:

When I am secure about what I am doing then I know that what I am doing is right, and that the people I am working with feel good, then I feel good. (Psychiatric nurse)

Nurse 3:

... To create a situation where the parents feel they are secure and in safe hands and feel as good as possible according to the circumstances. (Nurse in childcare)

Nurses worried about the increasing demands, lack of resources and lack of time to provide good patient care. Feeling secure and being able to provide safe and good care for patients was also important for their own well-being. Discussions on safety and professional standards were related to those about quality of nursing and this will be presented in the next section.

3.3.8.5.3 Quality of nursing care

Focus group participants experienced a high quality of nursing care and related this to various aspects of their working environment. In this regard, time and resources were of great importance and good professional collaboration did positively influence the quality of patient care.

Focus groups participants were prompted about their understanding of the concept of excellent nursing care. This was done especially to enhance the understanding of the unexpected survey finding regarding the low levels of assessed excellent nursing care compared to other studies. In order to better understand this the nurses were asked to express their views on the concept of excellent nursing and

how they understood the Icelandic word for this (*framúrskarandi*) used in the questionnaire survey. Participants all agreed that it was very difficult to find an appropriate Icelandic translation of "excellent nursing care" and said that they would not have chosen the Icelandic word that was used (*framúrskarandi*) that in their opinion is too inflated and ambitious, and reflected an extraordinary standard that they thought was seldom achievable. The following sequence presents the discussions in the focus groups about excellent nursing are:

Nurse 1:

Do we ever say that we do some thing that is "excellent"? You would be very surprised the word is too grandiose. (Geriatric nurse)

Nurse 2:

(Would I use the word?). *Not with good conscience, no.* (Surgical nurse)

Nurse 3:

It is sometimes excellent. Yes, I think so. But we could do better. (Medical nurse)

Nurse 4:

It (nursing) *is very good. It could be better. It is not that something is lacking in yourself, but it in the environment, the time and the staffing and all that. I find that these things are not improving. Constant running, and patients that really need your time.* (Surgical nurse)

Nurse 5:

It certainly depends on your own attitude how you manage to handle your own circumstances. (Medical nurse)

Nurse 6:

Excellent nursing is when you manage to be creative, when the nurse is a step ahead and observes a patient's needs before they are expressed. (Geriatric nurse)

According to the focus group participants, the quality of nursing is related to various factors in the nurses' working environment. They understood what was meant by "excellent nursing" and recognised that its Icelandic translation in the survey questionnaire could reflect something extraordinary in nursing, that could actually happen, if not every day. So the word used in the questionnaire survey did not reflect the highest standard of nursing care that could be reasonably attainable, according to the views of focus group participants.

3.3.8.6 Summary and interpretation of the third category

Findings in this third and final category further support and contribute to the importance of staffing and work demands for nurse and patient outcomes. Increasing working demands and ever more limited resources made nurses worry about safety at the hospital, both for staff and patients. Nurses strove to do their very best and, even despite these circumstances, they felt satisfied at work. These findings support previously presented reports from the survey and also the focus groups findings presented in the first two categories. Taken together, they illuminate the importance of the two dimensions of nurses' working environment, i.e. intrinsic and extrinsic working environmental factors. In the view of these nurses, these dimensions were important for the mutual good of staff and patients. Nurses still felt motivated and satisfied with their work, despite the drawbacks. However, it was emphasised that demands and adequate staffing were of great importance for their well-being at work

and their job satisfaction. The focus group findings represent an important contribution to the survey findings in this regard.

The points the nurses were making in relation to the Icelandic word for "excellent nursing" (*framúrskarandi*) add depth to the understanding of the survey results of nurses' assessment of "excellent nursing" at LSH. These views may reflect how culture interacts with language. These findings identify a weakness in the translation of the original survey instrument and point to how concepts do not always translate easily from one culture to another. However, the focus group findings show that quality of nursing care is influenced by many factors at work and the most important of these are resources, professional collaboration, and relationships with patients and relatives.

3.3.9 Summary of the focus group findings

The focus groups provide important data on nurses' perception of their working environment, well-being at work, job satisfaction and their views on the quality of patient care. These findings emphasise the importance of the meaning of nursing, valuable relations at work and independent practice for job satisfaction. The findings also show that nurses worry about the increased demands at work and the lack of staff, and saw this as a potential risk for their own and their patients' well-being and safety. Nurses strive to keep up with professional standards, but feel that they are to an increased extend pushing themselves beyond the limits of their sustainable working capacity.

Supportive collaboration was important for their well-being and satisfaction at work and for the quality of patient care. The nurses did not talk much about the role of unit managers, however they expressed their understanding of the increased

responsibility and demands on nurse managers. Both staff nurses and nurse managers did talk about the distance between staff and senior management and saw the increasing emphasis on written and electronical communication as a barrier to the general communication and collaboration at the hospital. Nurse managers said they did not have the freedom and power they felt matched their increased responsibility. Good professional collaboration was important for nurse and patient outcomes but a need for improved communication between nurses and doctors was emphasised.

In general, the focus group findings supported and refined the texture and understanding of the survey findings. Significantly, the qualitative findings provided an insight into the contextual aspects of the survey findings. They also increased the understanding of the importance of nurses' working environment and how it influenced nurse and patient outcomes, and thus helped to address the main research question of the study.

The qualitative findings illuminate the meaning of work itself, the content of work and human relations. For nurses at LSH, nursing is a job worth doing and gives them unique opportunities for valuable human relations with people who needed their care, supportive relations with professionals, and opportunities for them to develop and learn. These were fundamental to their job satisfaction. The focus group findings are in line with Herzberg's theory of intrinsic motivation factors at work, e.g. achievement, client relations and recognition (Herzberg et al., 1959; Herzberg, 1987).

The focus group participants thought that human relations have a multi-dimensional meaning for job outcomes and felt that they are valuable for enhancing the quality of patient care. Positive relations with doctors and strong networking

with nurse colleagues are in this respect among the most important influences. The focus group findings provide information on the increasing demands at the hospital. These are perceived as stressful by the nurses and made them worry about their own safety as well as that of their patients. Despite increasing demands and the hectic nature of their workdays, nurses express their satisfaction with work. They find their work challenging and enjoy the possibilities it gives them. From these findings it is estimated that the meaning of work and the positive benefits from human relations (intrinsic factors), have a stronger impact on nurse job outcomes than an increasingly demanding working environment (extrinsic factors) (Herzberg et al., 1959; Herzberg, 1987).

3.4 Combination of survey and focus group findings

The content and dimensions of the categories that emerged from the qualitative data expanded the main survey findings on nurse and patient outcomes. The focus group findings provided better insight into some of the nurses' observations about their working environment and the relationships indicated by the regression analysis of survey data.

According to the survey findings the high levels of job satisfaction of nurses at LSH were extended by the focus group findings as participants expressed the worth of their job and the valuable relationships with patients and relatives. Low levels of burnout as indicated by the survey findings are also elaborated upon by the participants with regard to how they managed to cope with increasing demands, and how they strove to realise possibilities. Although they felt they sometimes reached their limits in terms of capability, they still enjoyed their work. Their initial choice

of going into nursing and the reality that they were doing the job they had initially chosen and valued highly, influenced their reaction to high work demands and helped them to respond constructively. The meaning of work and human relations are fundamental to well-being at work and job satisfaction.

The focus groups findings give reason to address a link to the seminal work of Herzberg and his theory of motivating factors (Herzberg et al., 1959). In this respect intrinsic factors are attached to the work itself, the recognition, relations and responsibilities, which may explain the high nurse job satisfaction found in the survey.

The high levels of professional collaboration as reported in the survey are confirmed and nuanced by the focus group findings. However, some fractures in the content of nurse-doctor relationships are indicated. Low levels of hospital support are reported in the survey are supported by the focus group findings as they showed that nurses did worry about the communication gulf between staff and senior management.

The levels of staffing as reported in the survey are favourable for LSH nurses compared with nurses in other countries. However, the findings of the focus groups indicate a lack of staff and increased speed in workflow, lack of time to meet patients' needs with subsequent difficulties in fulfilling professional nursing standards and providing high quality care. The focus group findings therefore appear to contradict the survey findings.

The levels of nurse rated quality of patient care as reported in the survey are less favourable for LSH nurses than levels reported by nurses in comparison countries. Increased working demands experienced by the focus group participants,

a sense of responsibility for co-ordination and high levels of expectation may help to understand this better. The focus groups findings provide new insight into the use of the word for "excellent nursing" in Icelandic (*framúrskarnandi hjúkrun*), that participants felt it to be too grandiose a term and thus not a suitable choice to reflect the best standard of nursing care that they were able to provide.

With regard to the importance of working environmental factors for nurse and patient outcomes, the focus group findings support the regression analysis of the survey data for the majority of the investigated factors. This is the case for the importance of supportive working relationships and independent practice for job satisfaction and the quality of patient care. The same finding emerged for demands and staffing for their emotional well-being at work and job satisfaction. The significant link between good nurse-doctor relationships and nurse-assessed quality of patient care are supported by the focus group findings as they indicate the importance of good professional collaboration. However, some problems within the nurse-doctors working relationship are identified.

The significant prediction of unit level support for nurse and patient outcomes was not strongly indicated by the focus group findings. However, items within this NWI-R scale (unit level support) do reflect important aspects of independent nurse practice and supportive work relationships, both factors that were emphasised as important for nurse job satisfaction and nurse ability to provide quality patient care in the focus groups.

The lack of a significant relationship between survey measures of senior nurse management and nurse and patient outcomes is confirmed in the focus groups by the expression of a gap between senior management and staff at LSH. By contrast,

findings from the regression analysis on the NWI-R sub-scale on the underlying philosophy of nursing practice; the focus group findings indicate the importance of professional practice for patient outcomes.

The focus group findings were useful first, to add depth to the understanding of the overall research question of the present study about the positive relationships between supportive nurses' working environment, and better nurse job outcomes and quality of patient care. Second, the qualitative findings illuminate the intrinsic determinants of nurse job outcomes and the importance of good inter-professional relationships for the quality of patient care. Third, the focus group findings shed light on the understanding of the concept of excellent nursing (*framúrskarandi hjúkrun*) as too grandiose and as not reflecting the highest standard of nursing care reasonably attainable in the context of the present study.

Next, this thesis turns to discuss the study findings and to review the strengths and limitation of the study.

Chapter 4 Discussion

4.1 Introduction

The main purpose of this thesis is to explore the importance of nurses' working environment for nurse and patient outcomes. To this end a large sample of Icelandic university hospital nurses was surveyed. This was followed up by interviews with a sub-sample of survey participants to expand the survey findings and to improve the quality of the study. The research question and the four study objectives were addressed by using data from quantitative and qualitative methods.

In this study, the most important predictors of better nurse and patient outcomes are managerial supportive behaviour at the unit level, adequate numbers of staff, and good nurse and doctor working relationships. Unexpectedly, support from senior managers was not felt to be an important element of nurses' working environment. In this study, a sub-scale measure on the use of a philosophy of nursing practice was found not to be a significant predictor of better nurse and patient outcomes. The survey findings are supported or expanded by findings from the focus groups. Much was learned from the qualitative findings on the meaning of the work itself for nurse job satisfaction, i.e. intrinsic motivation. The study findings largely confirm the conceptual framework of the study and thus the expected relationships between study variables (see figure 4 page 92). Finally, the findings of the characteristics of the study hospital (LSH) correspond to some of the traits of magnet hospitals (Aiken, 2002).

In this chapter the key tasks are, firstly, to draw upon the findings in relation to the four research objectives and the central research question. These will be considered in combination with results from earlier research and in the context of the present study. Secondly, to review the strengths and limitations of the study in relation to its design, sample and methods.

4.2 Findings with regard to earlier studies

The review of the literature shows that there are gaps in our knowledge of the influence of working relationships, support at work and administrative behaviour on nurse and patient outcomes (see pp. 81-89). For many of the reviewed variables (e.g. autonomy), due to a lack of clarity in the definition and an inconsistent use of measures, there is a need for further research. The general approach in this chapter is to discuss the survey findings and then to consider how they combine with the focus group findings.

4.2.1 The quality of nurses' working environment

The observed characteristics of a supportive nurses' working environment in the present study (see table 3 page 144) correspond to important traits of magnet hospitals (McClure et al., 2002), and thus to the characteristics of organisational empowerment (Laschinger et al., 2003). Throughout the discussion regular reference will be made to the Nursing Work Index-Revised (NWI-R), which is the main instrument of the present study. It was originally derived from the early research on magnet hospitals (Kramer & Hafner, 1989), but a more recent version was used in the present study (Aiken & Patrician, 2000). Descriptive findings for the five

working environment aspects (NWI-R sub-scales) measured will be discussed together with some methodological issues with regard to the sub-scales.

4.2.1.1 Nurse-doctor working relationships

The high level of scores for this sub-scale indicates the existence of good working relationships between nurses and doctors in general. The importance of supportive and respectful collaboration between nurses and doctors for staff and patients was strongly expressed in the focus groups. These findings are in concordance with previous literature on team performance and how team behaviours contribute to both safe and unsafe practices (Institute of Medicine, 2004; Rice, 2000; Rosenstein, 2002; Sovie & Jawad, 2001).

However, the qualitative findings indicate some problematic aspects of the nurse-doctor working relationships (see section 3.3.8.3.3). An important element in this pointed to the existence of the "doctor-nurse game" at LSH (Stein et al., 1990), which allows the nurses to keep their working relationships with doctors smooth, despite some negative consequences for their strategy. These findings indicate a need for improved and more open communications between the professions. A similar need has been pointed out in previous research (Rosenstein, 2002; Snelgrove & Hughes, 2000; Sovie & Jawad, 2001).

The items of this NWI-R sub-scale have similarities with the sub-scale that is most widely used in related studies (Aiken & Patrician, 2000). However, the items do not provide detailed data about the content of nurse-doctor working relationships. Nursing academics have published their concerns about the usefulness of these items and the need to develop further these measures (Budge, Carryer, & Wood, 2003; Kramer & Schmalenberg, 2003c). This is congruent with findings from previous

studies that have indicated the need to develop sophisticated and manageable measures of multi-dimensional team performance (Institute of Medicine, 2004; Sweet & Norman, 1995; Willis & Parish, 1997; Övretveit, 1996). The present qualitative findings may help to develop these measures.

4.2.1.2 Managerial support at the unit level

In this study managerial behaviour at the unit level was generally perceived as supportive. The aspects measured were, for example, praise and recognition for a job well done, flexible shift patterns, and opportunities for professional development (see tables 4 and 5 pp. 146-147). This may reflect the importance of front line (unit level) nurse managers at the study hospital. However, the focus group participants did not emphasise the roles of front line managers. Rather, nurses in the focus groups referred to the concerns they had about the significant responsibility and increasing work demands of their superiors and the lack of support from senior management (see section 3.3.8.5.1).

One interpretation of the limited impact of the unit managers in the focus groups may be that their role is so well established and embedded at LSH that it is taken for granted. The views on the increasing responsibility of the unit managers are supported by a recent qualitative study among nurse managers at LSH, indicating the complexity of their roles and their increasing work demands and responsibility (Herbertsdóttir, 2002). However, the contradictory findings remain, i.e. the high survey scores for support from management at the unit level and the focus group findings that assign less importance to the role of unit managers, and consequently their impact on nurse and patient outcomes.

The study findings suggest a link between LSH´s working environment at the unit level and the traits of magnet hospitals. This means an association with organisational support (McClure et al., 2002; Upenieks, 2002a) and important aspects of organisational empowerment structures (Laschinger, Finegan, Shamian et al., 2001; Laschinger et al., 2003).

The lesson learned from this is that there is a need to explore further the function of management and nurse opportunities at the unit level. In addition, increased knowledge is needed of the working life of front line nurse managers in relation to nurse and patient outcomes. In particular, during times of rapid change and increased managerial demands in health care.

4.2.1.3 Philosophy of nursing practice

Using the principles of nursing philosophy appears to be a central facet of nursing practice at LSH. This relates, for example, to the use of nursing diagnosis and nursing care being based on a nursing model (see survey findings in tables 4 and 5 pp. 146-147). This was reinforced by the focus group findings on professional expectations (see section 3.3.8.5.2). A possible explanation of this may be the high educational level of Icelandic nurses and their enhanced levels of autonomous practice (Magnúsdóttir, 2003).

However, the usefulness of these items to measure the characteristics of a successful nurses' working environment has been questioned. Recently published evidence re-evaluating the NWI-R inventory suggests that the questions in this sub-scale are now outdated. It is suggested that these questions represent features that are now common practice, compared with 20 years ago when the NWI was created (Kramer & Schmalenberg, 2004). Consequently, this needs further exploration.

4.2.1.4 Staffing adequacy

The present study provides contradictory findings on whether study participants perceived the numbers of staff as being adequate. The survey observations on staffing adequacy are favourable for LSH compared with other countries (see table 5 page 147). However, the focus group participants expressed their concerns about phigh workload and the numbers of staff being insufficient (see section 3.3.8.5.1 page 204).

One interpretation of this might be that staffing at LSH has still not reached the threshold levels common in the five compared countries. Alternatively, it might be that the items in this NWI-R sub-scale do not address the aspects of the working environment that nurses at LSH perceived as important indicators of staffing. According to recent publications, the re-evaluation of these items is an important feature of current research into the measurement of "magnetism" (Kramer & Schmalenberg, 2004).

On balance, the increased job demands and insufficient numbers of staff as expressed in the focus groups may provide a warning about the working environment at LSH. This is significant, especially in light of the great importance of adequate staffing for a successful and healthy working environment (Rafferty et al., 2004) and the position of staffing as an important feature of magnet hospitals (Aiken, 2002). This aspect of nurse working environment at LSH needs further investigation.

4.2.1.5 Support at the hospital level

The findings indicate limited support from senior nurse management. This was reflected by low mean scores on this working environment sub-scale (see tables 4 and 5 pp. 146-147) and reinforced by the focus group findings, in particular by the

expressed views on a gap between senior management and staff (see section 3.3.8.5.1). This finding is supported by results from a recent staff survey at LSH indicating dissatisfaction with the level of staff influence on decision-making at the hospital (Landlæknisembættið [Directorate of Health], 2002).

However, the international comparison for selected items of senior management is favourable for LSH´s nurses (see table 3 page 144). Among possible explanations for this might be that the lack of support in this regard at LSH has still not reached the levels common in the five compared countries. Nevertheless, the nurses' perception of limited support from senior management at LSH remains. This may point to yet another weakness in the organisation and is at odds with the proposed link between LSH working environment and the traits of magnet hospitals (McClure et al., 2002). These findings may therefore point to a need for improvement in the senior managerial and leadership behaviour at LSH. Transformational leadership may provide an important strategic direction and series of interventions with which to move forward (Bass, 1998; De Geest et al., 2003). However, the question remains about the impact of the items within this NWI-R sub-scale for nurse and patient outcomes.

4.2.2 Summary discussion of findings on working environment

Comparison with international findings on nurse working environment indicates a favourable status at LSH and thus some signs of supportive nurses' working environment. However, the favourable international comparison was not entirely supported by the views of the nurses in this study. In particular, some signs of weakness are evident with regard to staffing adequacy and support from senior nurse

managers. Furthermore, contradictory findings were evident regarding nurse-doctor working relationships.

The general perception of a supportive nurses' working environment at LSH may reflect supportive societal norms and high levels of social capital within Icelandic society (Halman et al, 2001). In light of the favourable levels of social capital in Iceland, there are reasons to suppose that people at work, and thus nurses at LSH, enjoy high trust in relations, mutual support and share common goals (Putnam, 2000) in a richer and more productive way than do nurses in other countries with lower levels of social capital (Pendleton & King, 2002).

Despite the widely recognised NWI-R sub-scale of nurse autonomy, it was not possible to generate this sub-scale from present NWI-R data. None of the five sub-scales in the present study corresponded conceptually to nurse autonomy (Ballou, 1998). This observation is supported by one previously published factor solution to NWI-R data (Lake, 2002). This finding supports recent findings about the need to further investigate the usefulness of the NWI-R to measure nurse autonomy (Kramer & Schmalenberg, 2003b; Tanmer, 2005).

4.2.3 How do nurses at LSH feel at work?

The nurses in this study report high job satisfaction and do not demonstrate the characteristics of burnout. They seem satisfied with their present job and with being a nurse (see table 6 page 148) and they appear not to suffer from emotional exhaustion, depersonalisation or a lack of personal accomplishment (see table 9 page 150). The survey results are supported by the focus group findings. In particular, the qualitative findings provide meaning and intrinsic motivation as important factors for

nurses' well-being at work at LSH (see sections 3.3.8.1.1 and 3.3.8.1.2). In the next sections these findings will be reflected upon.

4.2.3.1 Nurse job satisfaction at LSH

The incidence of high job satisfaction is supported and extended by the focus group findings on nursing being a job worth doing and about the meaning of nursing and human relations. Job satisfaction is reinforced by the initial choice of going into nursing and commitment to the profession. This corresponds to the observed difference between the survey scores for satisfaction with being a nurse and the scores for satisfaction with being in their present job (see table 6 page 148). This may mean that being a nurse is of greater importance for satisfaction at work than are the extrinsic aspects of their current job. The value of human relations in nursing as expressed in the focus group findings relates to the meaning of caring as the content of nursing (Barnum, 1998, Watson, 1985). Human relations and caring may be interpreted as important aspects of nursing at LSH and hence nurse job satisfaction. This points to a need for nurses to be able to experience the essence of nursing by spending sufficient time with their patients and thereby enjoy relationships that can be empowering for both sides (Kuokkanen & Leino-Kilpi, 2001).

Despite the focus groups findings on overwhelming levels of working demands, concerns about inadequate staffing levels (see section 3.3.8.5.1) and low salaries (see the international comparison, table 3 page 144), nurses at LSH are satisfied with their jobs and report how much they enjoy working as nurses. This high level of nurse job satisfaction is supported by previous local nurse surveys (Biering & Flygenring, 2000; Sveinsdóttir et al., 2003) and among staff at LSH (Landlæknisembættið, 2002). However, the expressed worries about the reduced

ability of nurses to achieve professional standards due to increasing demands may be a warning of pressure within the system.

Alternative explanations of the high job satisfaction with regard to previous research may be nurse autonomy (Rafferty et al., 2001; Finn, 2001), supportive nurse leadership (McNeese-Smith, 1995; Upenieks, 2002b), and opportunities at work (Shields & Ward, 2001; Upenieks, 2002a). These explanations gain from the autonomous nursing practice of Icelandic nurses and by the positive experiences of the working environment at the unit level.

Taken together, the findings on nurse job satisfaction point to the characteristics of intrinsic job satisfaction: meaningfulness and competence (Thomas & Velthouse, 1990), and valuable relationships with patients and opportunities at work (Herzberg, 1987). This is congruent with the findings of previous studies on the relationships between intrinsic motivation and job satisfaction (Janssen et al., 1999; Thomas & Velthouse, 1990).

4.2.3.2 Work engagement among nurses at LSH

The findings indicate that the nurses in this study do not suffer from burnout. Rather they demonstrate the characteristics of engagement at work, for example, feelings of control, choice and meaningful work (Maslach et al., 2001). This was unexpected, as these nurses had recently been part of a merger of two large hospitals, with a consequent increased workload and major organisational change. These findings are confirmed by the focus group findings on the meaning of nursing and on nursing as a work worth doing (see section 3.3.8.1) and about their job satisfaction despite the increasing demands at work (see section 3.3.8.5.1). However, the nurses are

concerned about the impact of increased demands, both for their own health and for the safety of their patients.

High job satisfaction and the absence of the characteristics of burnout in the present study are in line with current knowledge about the relationships between these two aspects of nurse job outcomes (Kalliath & Morris, 2002; Le Blanc et al., 2001). Research has indicated the potential influence of high job satisfaction as a protective route to reduce burnout (Kalliath & Morris, 2002).

The findings on burnout in this study may be accounted for by the positive report on working environmental factors at LSH. According to the present findings and the wider literature, possible preventive factors at LSH may be social support from colleagues (Janssen et al., 1999), support from superiors (Laschinger, 1996a; Sarmiento et al., 2004), access to job resources (Demerouti et al., 2000), and constructive and meaningful relationships with patients and relatives (Pines, 2000). However, the less favourable and somewhat contradictory findings on adequate numbers of staff, nurse-doctor work relations and hospital level support may have some negative influence here.

Alternatively, these findings on nurse burnout at LSH may well be related to stronger feelings of control. Control over one's job is important for well-being at work and the capacity to cope, to realise possibilities and to react to problems in a constructive way (Karasek & Theorell, 1990). Feelings of control may be considered as positive for Icelandic nurses compared to nurses in other countries, given their autonomous professional status and competence (Magnúsdóttir, 2003). This interpretation gains further support in the focus group findings about their professional independence (see section 3.3.8.3.2). This can be related to the

literature on personal hardiness and coping mechanisms as preventive of burnout (Flowers & Maddi, 2004).

Caution is needed when comparing levels of burnout between countries. For example, leading academics warn against comparison across the US and European due to fundamental differences in context and culture (Schaufeli & Van Dierendonck, 1995). Whether these were confounding factors in the present study cannot be ascertained here, but it is necessary to mention them. As far as the research candidate is aware, this is the first study to compare nurse burnout levels in relation to the International Hospital Outcomes Study (IHOS) (Aiken et al., 2001).

4.2.4 Summary discussion on nurse job outcomes

The presence of high job satisfaction and the absence of burnout were extended by the focus group findings. High nurse job satisfaction is supported by findings from previous surveys of Icelandic nurses and of staff at LSH. Favourable nurse job outcomes correspond to the traits of magnet hospitals (McClure et al., 2002).

In this study, the observed satisfaction and engagement at work might be related to favourable societal norms and social support in the workplace. Organisational commitment can be influential in this context, given the limited opportunities of LSH nurses to work at other similar hospitals. The general may also account for the positive nurse job outcomes at LSH happiness and well-being of Icelanders (Halman et al., 2001). This finds reinforcement in the literature on the relationship between general happiness in life and job satisfaction (Judge et al., 2002). However, there are gaps in our knowledge as to what relates to the general high levels of happiness and job satisfaction in Iceland. Few studies are available, such as on the influence of culture and contextual factors. Recent data on the use of

anti-depressant drugs being significantly higher in Iceland than in other Nordic countries (Heilbrigðis-og tryggingamálaráðuneytið [Ministry of Health and Social Services], 2004) raise some questions in this respect.

4.2.5 Nurse-reported quality of patient care

When asked for their views on patient care, the nurses in this study reported unexpectedly low levels of excellent quality (see international comparison in table 11 page 151). This was not supported by the focus group findings, but the qualitative findings suggest some potential explanations (see section 3.3.8.5.3). The relatively low levels of nurse-rated excellent quality of patient care are not supported by recent surveys at the study hospital undertaken by the Ministry of Health and Social Services and the Directorate of Health (Heilbrigðis- og tryggingamálaráðuneytið & Landlæknisembættið, 2003) and the Icelandic National Audit Office (2003). However, a recent staff survey by the Directorate of Health at LSH indicates a general concern about the deterioration of the quality of patient care at LSH (Landlæknisembættið, 2002). Despite an attempt by the candidate, it was not possible to use relevant patient outcome measures of patient care at LSH (e.g. patient falls and medication errors) to validate the present study findings. This was mainly due to a lack of consistent methods of documenting patient outcomes across the nine directories at LSH.

The focus group findings provide insight into the potential differences between countries with regard to culture and language. It is a commonly held view that European nurses are more hesitant to state that their nursing care is excellent than their counterparts working in US hospitals. For the purposes of the present study, attempts were made to overcome this by applying rigorous methods in translating

and back-translating the instrument and pilot testing of survey questions and questionnaire directions. However, it appears that the translation and adaptation approach in the present study was not sufficient to overcome these linguistic problems.

Another possible explanation of the lower scores for patient quality might be that Icelandic nurses had higher expectations than nurses in the comparison countries. This view gains support from the high scores for the underlying philosophy of nursing practice and in the focus group findings on professional expectations (see section 3.3.8.5.2). The higher expectations of Icelandic nurses may also derive from the general high standard of health care in the country (Halldórsson, 2003), the strong educational status of nurses and high levels of autonomous nurse practice (Magnúsdóttir, 2003). Paradoxically, this may lead to a more critical approach when assessing the quality of patient care at LSH, especially during times of increasing health care demands and cost-containment.

Whatever their causes might be these confounding factors cannot be resolved here. The more controversial results of the study suggest that, for nurses at LSH, assessed excellent quality of patient care levels are lower than those of their counterparts in other countries. However, these are not confirmed by the focus group findings or by a recent local audit and a patient survey.

4.2.6 Relationships between study variables

It is now important to turn to the relationships between study variables. Survey data indicate a significant relationship between three of the working environmental factors measured and nurse and patient outcomes (see significant relationships

between survey variables and their co-efficients in figure 10 page 168). These findings are reinforced by the findings of the focus group interviews.

In this study the most important predictors of nurse job satisfaction and protection against nurse burnout are support from managerial behaviour at the unit level and nurses' perceptions of that there are adequate numbers of staff.

The findings suggest that support at the unit level, for example, through praise for a job well done, flexible shift pattern and opportunities for advancement is important in developing nurse job satisfaction and prevents nurse burnout. The findings also suggest that adequate staffing, other staff and support services, and enough time to communicate with patients and other nurses, are also important elements at LSH in developing nurse job satisfaction, a protection against burnout and in developing the ability of nurses to do a good job.

In this study the most important predictors of nurse-rated quality of patient care are support from managers at the unit level and good working relationships between nurses and doctors.

The findings indicate that support at the unit level is important in improving the quality of patient care. In addition, the findings suggest that good nurse and doctor working relationships, for example, collaboration and teamwork between nurses and doctors, and that doctors give high quality of care, are important to sustain the quality of patient care.

Unexpectedly, philosophy of nursing practice, for example the use of nursing diagnosis, up-to-date care plans and nursing models, is not a significant predictor of nurse and patient outcomes in this study. Another unpredicted finding is that support from senior nurse managers, such as their listening to staff concerns, being visible,

and nurses' opportunities to participate in committees and hospital affairs, is not a significant predictor of nurse and patient outcomes. Yet another unexpected finding is that nurse-rated quality of patient care is not predicted by nurses' perceptions of staffing adequacy. Finally, an unforeseen finding in this study is that good nurse-doctor working relationship is not a significant predictor of nurse outcomes as opposed to patient outcomes.

Figure 11 (page 236) shows the overall pattern of significant relationships between the survey measures. The left-hand column gives the three significant working environment predictors of nurse and patient outcomes, i.e. unit level support, adequate staffing and good nurse-doctor working relationships. The right-hand column lists the nurse and patient outcomes. The arrows indicate significant relationships between study variables. The overall pattern of relationships is somewhat different from the expected relationships for the present study as illustrated in figure 4 (page 92). These relationships differ in particular with regard to the role of philosophy of nursing practice and senior nurse management for both groups of outcomes; about the role of staffing adequacy for patient outcomes, and good nurse-doctor working relationships for nurse job outcomes. The findings on these relationships will now be discussed in combination with previous literature. Their links to the focus group findings will be considered within the conceptual and contextual frame of the present study.

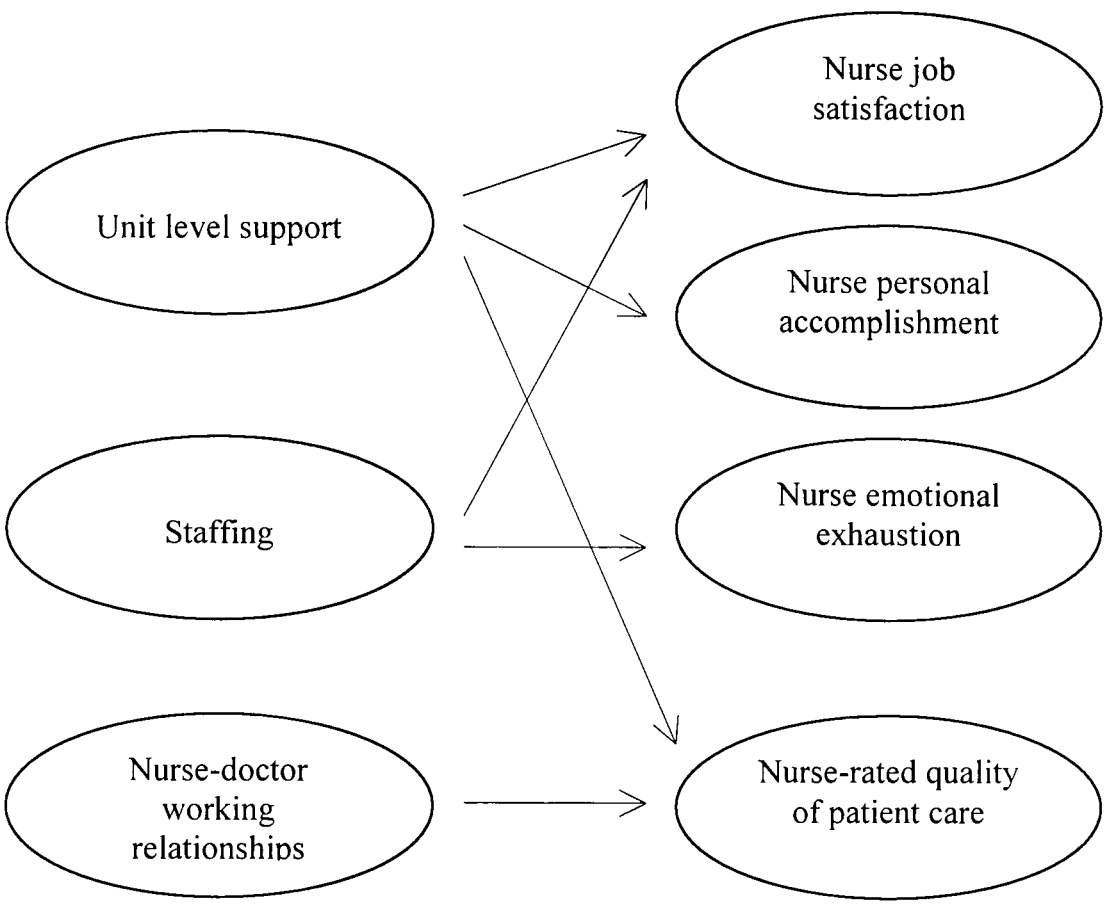

Figure 11: Overall pattern of significant relationships between survey measures. Arrows indicate the direction of predictions by NWI-R sub-scales

4.2.6.1 Frontline management is important for job satisfaction and personal accomplishment

Among the expected findings of the present study is that frontline (unit level) nurse management significantly predicts better nurse and patient outcomes. In this study, the most important predictor of nurse job satisfaction and nurse personal accomplishment is the managerial support they experience at the unit level (see table 17 page 159). The focus group findings confirm the importance of supportive collaboration, human relations and independent nurse practice for job satisfaction and the ability to provide good nursing care. It is evident that the items in the scale

of personal accomplishment (see appendix 7) correspond to nurses' ability to provide good nursing care and hence this burnout sub-scale can be considered a reflection of the potential to provide good nursing care.

The relationship between this sub-scale and nurse job satisfaction is supported by previous studies on the relationship between nurse job satisfaction and supportive managerial and leadership behaviour (McNeese-Smith, 2003). In particular, this has been shown in studies related to the magnet concept (Aiken et al., 2001; Aiken, Clarke & Sloane, 2002; Rafferty et al., 2001; Upenieks, 2002b) and in relation to nurse empowerment (Laschinger, Finegan & Shamian, 2001; Laschinger et al., 2002; Manojlovich & Laschinger, 2002; McNeese-Smith, 1997; McNeese-Smith, 1999). These findings are congruent with a recent large UK survey of NHS staff indicating that managers have the biggest impact on staff attitudes (Health Commission, 2004). The link between nurse job satisfaction and induction and development programmes (see scale items in table 4 page 146) is also supported by previous studies (Shields & Ward, 2001; Upenieks, 2002a).

The literature on nurse burnout supports the significant predictive relationships of managerial support for nurse personal accomplishment (Hatcher & Laschinger, 1996). Other available publications on nurse burnout are limited to the MBI sub-scale on nurse emotional exhaustion (Aiken et al., 2002; Stordeur et al., 2001).

An alternative explanation of the significant prediction of support at the unit level for nurse job satisfaction and personal accomplishment relates to nurse autonomy. The items in the sub-scale of unit level support correspond to elements that promote and facilitate nurse autonomy, i.e. self-governance, freedom, self-control, decision-making and competence (Ballou, 1998). This is reinforced by the

focus group findings on the significance of independent nursing practice for nurse job satisfaction and nurses' ability to provide high quality patient care. This proposed link in the present findings is supported by the previous literature which shows that nurse autonomy is a strong determinant of nurse job satisfaction (Aiken, 2002; Best & Thurston, 2004; Finn, 2001; Fung-kam, 1998; Rafferty et al., 2001) and nurse burnout (Laschinger, Shamian & Thomson, 2001; Rafferty et al., 2001). Given that competence is one of the themes associated with nurse autonomy (Ballou, 1998), there are good reasons to suppose that the professional and independent professional status of Icelandic nurses (Magnúsdóttir, 2003) may mean that nurses at LSH feel relatively autonomous at work. Consequently, it is suggested that these factors contribute to the proposed link between autonomy and job satisfaction for nurses at LSH.

With regard to the items on this NWI-R sub-scale, yet another explanation could be that managerial support at the unit level corresponds to elements of intrinsic job satisfaction, i.e. achievement, recognition, work itself, client relationships, responsibility, advancement and growth (Herzberg et al., 1959). Consequently, the high level of nurse job satisfaction at LSH may be linked to the promotion of intrinsic motivation via managerial supportive behaviour and nurse opportunities at the unit level.

Taken together, the supportive behaviour of unit nurse managers and the opportunities they facilitate in their wards appear to have much in common with transformational leadership. Transformational leaders motivate others and enable them to act by meeting their needs through their influence, inspiration, intellectual stimulation, and individualised consideration (Bass, 1998). Thus from the present survey findings, it appears that the transformational leadership style of unit managers

helps nurses to feel empowered and experience meaning from their work, as well as to develop a sense of competence and impact. This is supported by previous literature on the relationship between supportive leadership behaviour, nurse empowerment and nurse job satisfaction (Kuokkanen & Leino-Kilpi, 2001; Kuokkanen, 2003; Laschinger et al., 1999; McNeese-Smith, 1997; McNeese-Smith, 1999).

4.2.6.2 Staffing adequacy and its importance for nurse job outcomes

In this study adequate staffing is an important predictor of better nurse job outcomes. This means that nurses' perceptions of adequate numbers of nurses, staff and support service, and time to communicate with patient and other nurses, are a significant predictor of their satisfaction at work (see table 17 page 159). This is also a significant predictor of the absence of emotional exhaustion (see table 19 page 161). The significant positive correlation between greater number of work hours and emotional exhaustion also supports this link (see table 14 page 154). This means, for example, that perceived adequate numbers of staff protect nurses from feeling drained and frustrated with work.

Despite the evidence generated in previous studies of the role of adequate nurse staffing for the quality of patient care (e.g. Aiken et al., 2002; Hewitt et al., 2003; Needleman et al., 2002), the present study did not find any significant relationship between these measures. There may be a number of reasons to account for this, one is the relevance of the items measured. Whether there are other confounders cannot be resolved here. However, the focus group findings, in particular the category concerned with increased work demands (see section 3.3.8.5) provides insight into the meaning of these factors. The qualitative findings show the influence of

increasing work demands on the nurses' well-being and satisfaction at work. Furthermore, the focus group findings reveal the participants' worries about the impact of increased demands on their ability to provide good and safe patient care in the context of increasingly inadequate numbers of staff and cost-containments.

The significant prediction of adequate staffing for better nurse job outcomes is supported by previous literature, both for job satisfaction (Aiken, Clarke, Sloane & Sochalski et al., 2002; Aiken et al., 2002) and emotional exhaustion (Aiken, Clarke & Sloane & Sochalski et al., 2002; Aiken et al., 2002; Sochalski, 2001). Given that measures on nurse-staffing levels correspond to measures on nurse workload, previous literature on work demands also supports the findings of this study on the relationships between adequate staffing and nurse job satisfaction, and protection against emotional exhaustion (Dollard et al., 2000; Karasek & Theorell, 2000; Laschinger, Finegan, Shamian et al., 2001).

Another interpretation might be the role of social relations at work. Staffs shortages limit the possibilities for nurses to interact with colleagues, exchange their knowledge, and enjoy support. Correspondingly, nurses at LSH who experience inadequate staffing may not be able to enjoy the positive effects of supportive social relations at work. Supportive social relations at work are, according to previous studies, important in preventing emotional exhaustion and mental ill-health (Hillhouse & Adler, 1997; Jamal & Baba, 2000; Rafferty et al., 2001) as well as promoting satisfaction at work (Rafferty et al., 2001). This analysis is supported by the focus group findings, in particular the category that relates to professional relationships (see section 3.3.8.3).

A further explanation of the importance of adequate staffing for nurse job outcomes is that shortcomings in staff may lead to increasing demands for individual staff with a correspondingly limited time for human relations with patients. Thus, the nurses may not have the opportunity to enjoy what the focus group findings suggest might have been fundamental to their satisfaction at work. This means that lack of staff members and time for patient care limits nurses' opportunities to enhance intrinsic motivation.

Taken together, adequate staffing, resources and demands as well as supportive relations at work are important for nurses at LSH in promoting their satisfaction and in protecting them from emotional exhaustion. This, along with supportive unit management and opportunities, is important for nurse job satisfaction and personal accomplishment. These findings were extended by the focus group findings and supported by previous studies. Intrinsic motivation may serve to explain the positive job outcomes for nurses at LSH. Unexpectedly, nurse assessment of staffing adequacy was not a significant predictor of nurse-rated quality of patient care, but this was not supported by the focus group findings.

4.2.6.3 Nurse-doctor collaboration and unit level support

In this study, the most important predictors of better nurse-reported patient outcomes are good nurse-doctor relationships and support at the unit level (see table 25 page 166). Focus group findings further support the benefits of these relationships and show that structured and supportive inter-and intra-professional relationships have the potential to enhance nurses' ability to provide good quality care (see section 3.3.8.3).

Despite the evidence generated in previous studies of the relationship between good nurse-doctor working relationships and better nurse job outcomes (Aiken et al., 2001; Cox, 2003; Rafferty et al., 2001; Rosenstein, 2002), the present study did not find any significant controlled relationship between these measures. Some negative and controversial sides to nurse-doctor working relationships, which were expressed in the focus group findings (see section 3.3.8.3.3), may be influential here and need further research.

The focus group participants emphasised the meaning of structured work relationships with doctors for the good of patients. Increased pressure on staff and frustrating work relations has the opposite effect on nurses' ability to provide good quality care according to the qualitative findings. This is supported by previous literature on better patient outcomes as related to teamwork (Firth-Cozens, 2001; Rice, 2000; Sovie & Jawad, 2001) and good nurse-doctor working relationships in particular (Aiken et al., 2001; Rafferty et al., 2001). As presented above, nurse personal accomplishment is significantly predicted by the managerial support at the unit level (see table 23 page 164).

These findings mean that supportive managerial and leadership behaviour and nurse opportunities at the unit level are important aspects of nurses' working environment for the quality of patient care. This is in line with previous literature on the positive impact of leadership behaviour on better patient outcomes, with regard to transformational and transactional leadership (Firth-Cozens & Mowbray, 2001; Övretveit, 2004) as well as supportive and empowering management (Aiken et al., 2001; Aiken & Sloane, 1997; Laschinger et al., 1999). These findings are congruent with a recent large survey of UK NHS staff showing that mangers have the biggest impact on the quality of patient care (Health Commission, 2004).

Among aspects measured as managerial and leadership support at the unit level are opportunities for professional development and support for new ideas about patient care (see table 4 page 146). The predictive relationship between unit level support and better nurse-rated quality of patient care may point to the importance of nurses' professional competence for better patient outcomes at LSH. This interpretation is supported by the significant correlation between higher levels of education and better nurse-rated quality of care and personal accomplishment (see table 14 page 154). Previous research has shown a link between higher educational levels of nurses and better patient outcomes (Aiken et al., 2003).

The focus group findings highlight the importance of good collaboration between nurses for better patient outcomes. This means that collaboration and trust in working relationships as well as co-ordinated care support the nurses in providing good care. This builds upon previous studies of trust as an important part of a supportive working environment with positive effects on patient outcomes (Kanter, 2004) and on trust as fundamental for quality improvements in health care (Berwick, 2003; Calnan & Rove, 2004). Another, more speculative, interpretation, relates to the positive effects of social capital within LSH, a potential indicator of a healthy working environment (Leana & Van Buren, 2000).

4.2.6.4 The role of philosophy of nursing and senior management

Surprisingly, the survey findings do not show a significant relationship between the measures on philosophy of nursing practice and managerial support at the hospital level, and better nurse and patient outcomes. However, the focus group findings indicate a high degree of professional nursing practice for the quality of patient care (see section 3.3.8.5.2). One explanation is that the survey questions might not reflect

what the nurses experienced as important elements of professional nursing practice. However, the focus group findings remain a valuable message for health care leaders to ensure professional hospital nursing practice for quality patient care.

The focus group findings draw attention to the limited importance of hospital level support at LSH and the participants expressed their concerns about the distance between staff and senior management at the hospital. There may be a number of reasons for this. One is related to the merger three years prior to the study. As noted previously, earlier studies elsewhere have highlighted the crucial importance of high quality from senior management during such mergers if the adverse consequences for staff are to be minimised (Fulop et al, 2002). A further exploration of this topic is, however, beyond the scope of this thesis, primarily because of the absence of another hospital in Iceland that could be used as a comparator and of any data from before the merger. The findings of these two NWI-R sub-scales appear to contradict the previously proposed link between the characteristics of the working environment at LSH, the traits of magnet hospitals and the characteristics of organisational empowerment.

Further exploration of these aspects of the working environment would contribute to current knowledge of the importance of professional nursing practice and the role of senior nurse management for a successful organisation of hospital nursing. These have significant implications for organisational change strategies, at a time of mergers and large hospital organisations and the corresponding distance between groups of staff members they seem to have created.

4.2.7 The central research question – Overall relationships

The findings of the present study show that nurses at LSH assess their working environment and job outcomes in general more favourably than nurses in comparison countries. Despite increasing demands at work, the participants report job satisfaction and an absence of burnout. The findings indicate that adequate staffing and supportive management at the unit level are important for better nurse and patient outcomes. Good working relationships between nurses and doctors are important for better patient outcomes in this study. These findings, combined with the context of the study, show that autonomous practice and intrinsic motivation are important determinants of the quality of nurses' working life and contribute to the quality of patient care.

Once an understanding of the different aspects of the nurses' working environment has been established, it is important to consider the overall relationships between study variables with regard to the quantitative and qualitative findings and the conceptual frame of the study. This will be summarised in an integrated model together with an attempt to identify key determinants of nurse and patient outcomes in the context of the present study.

This study indicates the importance of external nurses' working environment as it was presented previously in this thesis (see page 48). In the present study, this relates, for example, to the professional context of Icelandic nurses, which is characterised by high educational level and autonomous nursing practice. This means that autonomous nursing practice influences the work experiences of the nurses in the present study. In addition, it is reasonable to suggest that supportive norms in Icelandic society, for example, social capital and support for family values, further contribute to the positive work experiences of the nurses. The high

educational levels of Icelandic nurses, and hence their professional competence, may also contribute to their positive experiences at work.

The importance of adequate numbers of staff in this study is important for better nurse outcomes and for the ability of nurses to provide good patient care. This means that, when there are sufficient nurses and other staff, as well as adequate support services nurses were able to spend time with their patients and thus able to provide good nursing care. Adequate staffing levels make a significant contribution to nurse job satisfaction and protect nurses from feeling drained and frustrated with work. Finally, the findings indicate that enough time for nurses to communicate with their colleagues on patient problems is an important contribution to better nurse and patient outcomes.

In this study, support from front line managers, and opportunities within the unit, are important predictors of nurse job satisfaction, nurse personal accomplishment and better nurse-rated patient care. This indicates that meeting nurses' needs for support, praise and recognition for a job well done or innovative ideas are important in developing their job satisfaction and their ability to perform well. In addition, the findings indicate that meeting nurses' needs for good induction, professional development and flexible shift patterns are also important elements in developing their job satisfaction and competence to provide good patient care.

The findings indicate that good work relationships between nurses and doctors are an important predictor of quality patient care. This means that when the nurses in this study enjoyed good collaboration and working relationships with doctors, the care they provided was more likely to be of better quality. The study also shows that

when nurses considered that doctors gave high quality care, it was more likely that they would rate more highly nursing care.

Finally, this study suggests that intrinsic job motivation is important in developing nurse job satisfaction, protecting them from burnout and supporting their ability to give good care to their patients. In this study, intrinsic motivation is shown to contribute substantially to the positive experiences of the nurses' working environment, their positive job attitudes and their ability to provide good patient care. This means that when nurses enjoy the intrinsic values of nursing and their needs for achievement, recognition, responsibility and advancement are met; they are more likely to be satisfied with their work. This study indicates that intrinsic motivation is important for preventing feelings of being drained and frustrated with work. Finally, the study suggests that intrinsic nurse motivation is an important contribution to enhance nurse ability to provide good patient care.

Figure 12 (page 249) summarises the findings of the study in a model of the key determinants of nurse and patient outcomes within the hospital working environment at LSH and the professional context of Icelandic nursing. The model demonstrates how nurse and patient outcomes (on the right) are influenced by the inter-relationships between nurses' professional context, nurses' working environmental factors and intrinsic nurse motivation. In this model, intrinsic job motivation positively influences nurse and patient outcomes via three aspects of hospital nurse working environment: adequate staffing, managerial support at the unit level and good nurse-doctor working relationships. Autonomous nursing practice and professional competence play important role in this new model. For the purpose of this model professional competence is understood as corresponding to professional practice and nurse educational background. The nurse professional

context, working environmental factors and intrinsic motivation are inter-related. The effects of better nurse outcomes on the patient outcome measure have not been explored in the present work.

Based on the findings of the present study, it is relevant to consider perceptions of the nurses' working environment important for the quality of nurses' working life and the quality of patient care. The overall patterns in figure 12 present the aspects of nurses' working environment explored in this study, which are of relevance to the outcomes. The integrated model further expands the conceptual model of the present study (see figure 4 page 92). However, contrary to expectations the new model does not indicate the influence of support from senior management for nurse and patient outcomes. In addition, the integrated model presents a new influential factor for better nurse and patient outcomes, namely intrinsic job motivation. The new model is also consistent with a recent Canadian model of a healthy working environment for nurses built on the interdependence of determinants at three levels: individual, organisational and external (Registered Nurses Association Ontario Canada, 2004) (see section 1.4).

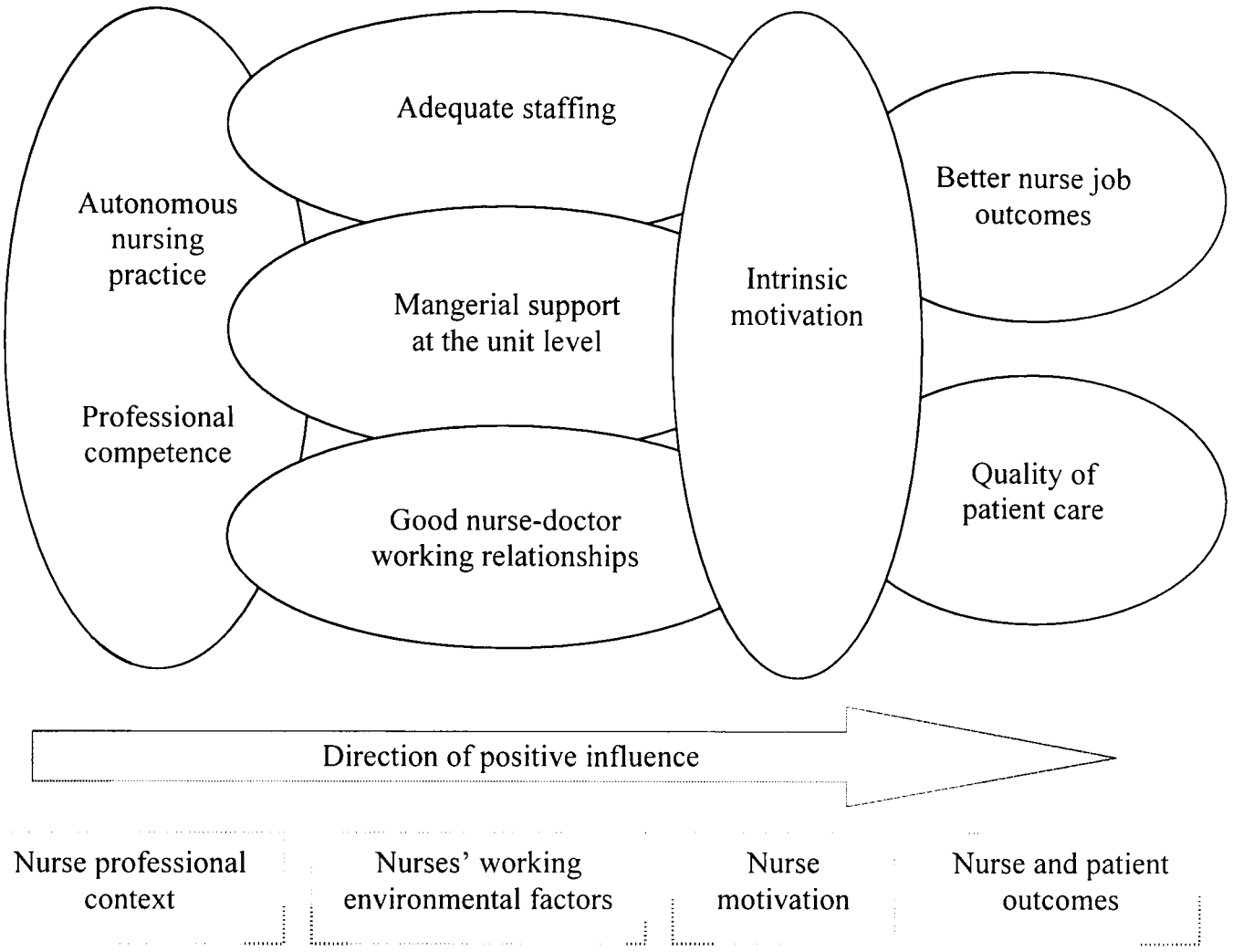

Figure 12. A model derived from the study of key determinants of nurses' quality of working life and the quality of patient care and their interrelationships

Findings of previous research indicate that positive experiences in the hospital working environment may constitute a resource for the quality of nurses' working life and the quality of patient care. Adding to these, the present study indicates which aspects of the hospital nurses' working environment seem most significant in the previously observed relationships.

Having reflected on the meaning of the key findings of the study and how they relate to previous research, the next section considers the quality of the whole study process. This will be done by discussing the strengths and the limitations of the study and by considering what was learned from the study process.

4.3 Methodological strengths and limitations

A major strength of the study is that it is based upon the experiences from similar studies in the UK and the USA with regard to adaptation and pre-testing of the survey instrument, recruiting for the survey and analyses of the survey data. Survey and focus group data were carefully analysed and used to address the research question. The main limitations of the study are the use of cross-sectional data and the use of nurses' report for both the independent measures (working environment) and also the outcomes (nurse and patient). The remainder of this chapter reflects upon the methodological issues of the whole study process. First it considers the study design.

4.3.1 Study design

The cross-sectional design of the study means that caution needs to be exercised when drawing conclusions on the cause-and-effect relationship between variables. The study design enables an analysis of relationships between variables, but it was not possible to investigate trends and change over time (Bowling, 1998). The survey results may partly be influenced by common method variance; survey questionnaires were used to measure both nurses' working environmental factors, and nurse and patient outcomes, both being based upon one source of information, the participants.

The results of this study should be interpreted with circumspection given the single hospital setting and the timing of the study. There is only one big hospital in Iceland and therefore it was not possible to make national comparison. The timing of the study with regard to major merger of two hospitals may have influenced the study findings. It was not possible to control for possible confounders in this regard. The 12-month interval between the first and the second part of the study may have

introduced some bias. In order to minimise this, it was decided to limit the participation in the focus groups only to those who had not experienced major changes in their working environment since the time of the survey.

The use of two complementary methods to investigate the research problems enabled a comparison of the strengths and limitations of each method (Burns & Grove, 2001; Sandelowski, 2000). This also strengthened the study results, thereby contributing to knowledge and theory development (Morse, 1991). The general approach adopted was orientated more strongly towards the quantitative direction, however each method was complete. Samples for both parts were adequate and attempts were made to meet appropriate criteria for rigour (Morse, 1991). The use of two methods made it possible to conceptualise better and express the multi-faceted complexity of nurses' working life and to achieve a complete understanding of the research problem. However, the importance of clear understanding of the philosophy, obligations and norms inherent in each method was respected (Shih, 1998).

4.3.2 Population and setting

One of the strengths of the present study is that the survey sample represents all groups of clinical nurses at the study hospital, in terms of speciality, age, education and status. A review of hospital records indicates that the study cohort was representative for nurses at LSH as a whole (LSH, 2003). The sample was large enough (N=695) for multiple analyses of the data, with relatively little data missing. However, the maximum size of survey sample in relation to the study context limits the potential sub-group analysis. However, data on nurse characteristics were used

as control variables in the regression analysis. The focus group participants represent a sub-sample of the survey sample.

Based on the study design and the data to hand it is not possible to determine the characteristics of non-responders in any meaningful way. Nor is it possible to compare the demographics of the present survey sample with demographics of samples in comparative studies. Despite the risk of "healthy worker effect" (Knutsson & Akerstedt, 1992), it was decided that nurses on maternity and sick leave should be excluded from the sample. This contributed to the efficacy of the collection procedure. However, excluding nurses on sick leave may have introduced a possible source of bias in favour of a "healthy" profile of the study participants.

4.3.3 Survey instrument and focus group topic guide

There are advantages in using a standardised tool since it may allow for international comparison of data. However, the NWI-R instrument, as any other, may be sensitive to culture, language and context in its application within one setting of a small population. The NWI-R instrument has therefore been modified. Recent publications indicate that some of its items are outdated and need re-evaluation as measures of magnetism (Kramer & Schmalenberg, 2003a; 2004), and of nurse autonomy in particular (Kramer & Schmalenberg, 2003b; Tranmer, 2005). Detailed analyses of these views are beyond the scope of the present study, but these issues were briefly considered when findings for relevant NWI-R sub-scales were discussed in previous sections (see section 3.2.2).

The initial analysis of the present NWI-R data indicates some departures from the most widely used sub-scales and it was decided to create new sub-scales by factor analysis. This was a challenging task, which produced five conceptually

robust NWI-R sub-scales with the potential for use in future research. The five sub-scales are similar to those used in one published study of NWI-R sub-scales (Lake, 2002). To the knowledge of the candidate, Lake's scales have not been applied in further research. However, the five NWI-R sub-scales in the present study are conceptually different from the set of NWI-R sub-scales that are most widely used in studies related to magnet hospitals, apart from the scale used to describe nurse-doctor working relationships (Aiken & Patrician, 2000; Estabrooks et al., 2002; Rafferty et al., 2001). Given these differences, the comparison of means for sub-scales across studies proved difficult.

A strong factor solution to the NWI-R data is considered as another strength of the present study. The five sub-scales from the principal axis factoring and rigorous analysis emerged as being a strong solution, conceptually adequate, with four to nine items for each scale and with sufficient reliability for all scales (alpha=0.67–0.82) (see table 4 page 146). The rigorous method of analysis and subsequent exclusion of 22 questions of the 52 NWI-R items may mean that some aspects of the NWI-R instrument were not included in subsequent analysis of the data. However, the final solution should be of higher quality and not susceptible to methodological problems, e.g. due to missing values.

Yet another strength of this study is that it was decided to use a well-established measure of burnout, the MBI sub-scales. However, previous publications on the sensitivity of the MBI instrument with regard to culture and language gave some justification for being cautious when comparing MBI scores between cultures (Schaufeli & Van Dierendonck, 1995). Further research and cross-national comparison of nurse burnout are needed to assess the impact of culture and language.

Despite careful translation and pre-testing of the survey instrument, a misleading use of a concept to assess quality of care appears to have influenced how the study participants responded to the question. This points to a need for even a more thorough translation and pre-testing of instruments in a survey of this kind and is worth exploring further.

A potential limitation of the survey instrument might be that some factors were measured only by a limited number of items (e.g. job satisfaction and patient quality). However, these questions are based on widely used items in related studies. The subsequent qualitative interviews are important in compensating for these possible limitations.

The focus group interviews were semi-structured, based on an interview guide that was slightly modified following the analyses of data and as new insights emerged from the focus groups. However, participants were given ample opportunity to raise their own discussion topics within the scope of the study.

4.3.4 Data collection

The data collection generated a high survey response rate (75%) and successful recruitment for the focus group interviews. Efforts were made to compensate for potential weaknesses, which might be due to inadequate response rate, inaccuracy and incompleteness of answers and a misunderstanding of questions (Bowling, 1998). This was done by carefully translating, pre-testing and piloting the survey instrument and data collection procedures (Edwards et al., 2002; Polit & Hungler, 1999). Among the strategies identified to improve the success of data collection was to facilitate the introduction of the study to the target population and senior managers at LSH. Personal communication and communication via accessible media helped to

create a positive attitude and a sense of joint ownership of the study among staff and managers at the study hospital. The feedback from these reflected high expectations and a corresponding willingness to help to contribute to the study.

Among the strengths of the study process is that data was collected from nurses in all clinical specialities at the study hospital. Participants in the focus group interviews were all volunteers from same groups as in the survey. Efforts were made to ensure balance in the focus group discussion. This was a challenging task, but preparatory discussion between the candidate and the assistant helped to address this, as did the seating arrangements. However, during the interviews it was necessary to be aware of the dominance of some individual participants and open up the floor to others.

Yet another strength of the study methodology is that the candidate took up the role of part-time staff nurse during the preparation of the study and throughout the study process. This helped to understand better nurses' working life at LSH and facilitated communication with hospital staff. This was useful throughout the different steps of the study process such as the pre-testing, data collection and data-analysis phases. Reflection and discussion with supervisors together with documentation of reflections and decisions taken, helped the candidate to become aware of the role of an academic researcher. No personal data on staff were disclosed during this process.

4.3.5 Data analysis

One of the strengths of this study is the careful development of the instrument and analysis of the NWI-R data resulting in empirically and conceptually acceptable sub-scales (see appendix 6 and table 4 page 146). The factor analysis of the NWI-R data

resulted in five sub-scales with relatively high loadings and satisfactory levels of reliability. These resembled empirically based sub-scales from one previously published study (Lake, 2002), but were different from NWI-R sub-scales widely used in related studies (Aiken & Patrician, 2000; Estabrooks et al., 2002; Rafferty et al., 2001). Preparatory work for the regression analysis, and extensive control for nurse job and personal characteristics during the regression analysis, can also be considered as strength of the data analysis in the present study.

The qualitative data was analysed using the methods of grounded theory and attempts were made to apply the principles of the method with rigour. However, it remained a challenge to be aware that the focus group interviews were complementary to the survey and to compare the findings of these two. Given this, it was important throughout the analysis process not to force the qualitative data into categories that would fit the quantitative study (Morse, 1991). The candidate kept a log of the research process, important decision-making, relevant comments and critical considerations of methodology, and shared these regularly with advisors and specialists. This approach helped to enhance methodological rigour and transparency of the qualitative part of the present study (Green & Thorogood, 2004).

No adequate objective measures, such as those on sick leave, were available to represent the specific aspects of the nurses' work. During the study period the candidate searched for objective measures and indicators for patient quality at LSH. However, adequate measures for the present study were not available, e.g. due to limited documentation and inconsistent use of measures across nurse specialities at LSH.

4.3.6 Generalisability

Generalisability relates to the external validity of study findings and the extent to which they can be generalised to some wider population (Moser & Kalton, 1971). The present study was conducted at a single point in time and was based on nurses' self-reports in one Icelandic hospital, the largest one in the country and its only university health care centre. However, for the purpose of the present study, nurses from all clinical settings were recruited. In the survey component, the response rate was high (75%) and participants from the same clinical settings were successfully recruited for the focus group interviews. Despite the fact that the findings of the present study are specific to one Icelandic hospital they are consistent with a large number of studies in other countries from other time periods. The qualitative findings obtained in the present study provide valuable insight into the study topic within the context of Icelandic nursing. These findings along with the contextual information provided in the thesis and the proposed new model derived from the study (see figure 12) are useful theoretically and may contribute to better understanding of the study question and thus the quest to find new solutions to workforce challenges in other environments.

Cross-cultural research in nursing practice can reveal interesting differences across countries. However, it appears from the present study that nursing in other countries could gain insights into the challenges they face that relate to workforce and practice management in nursing from the findings of this Icelandic study that identifies perspectives of nurses in a high-performing health care organisation.

The next chapter will present the key messages of the study and offer some suggestions about a way forward in relation to nurse leadership and future research.

Chapter 5 Conclusion

As has been emphasised throughout this study, there is a considerable body of research on how the various aspects of hospital nurses' working environment influence nurse and patient outcomes. However, there are gaps in this literature. The present study has explored the topic in an Icelandic context. This chapter presents its main conclusions and identifies key lessons learned from the research. A set of proposals is presented with regard to implications for nursing leadership practice, together with some ideas for future research and the way forward for hospital nurse management.

The evidence shows that nurse job satisfaction is related to autonomous practice, supportive management and leadership, recognition and good professional collaboration together with intrinsic motivation. Research shows that stress, working demands and lack of resources are related to nurse burnout, and social support at work and from managers are both associated with lower levels of burnout. The literature also indicates that adequate nurse staffing, professional autonomy, and good inter-professional relationships and supportive leadership are important factors in improving the quality of patient care. Despite the great number of studies, there are still gaps in the literature, as presented in section 1.6. There are also gaps in the literature with regard to the Nursing Work Index-Revised instrument (NWI-R).

The purpose of the present study is to measure as precisely as possible LSH's nurses' attitudes towards their working life and to capture some of the influential social and contextual factors via an in-depth qualitative analysis of the study problem. To this end a widely used instrument was employed, which enabled an international comparison of survey findings. Predictive factors in the nurses'

working environment were identified by multi-variate analysis. These findings were expanded via a series of focus group interviews providing a better insight into contextual factors in LSH's nurses' working environment and their influence on nurse and patient outcomes.

The findings show that adequate staffing is essential for both staff and patients outcomes. This together with sufficient time for direct patient care promotes intrinsic job motivation and nurses' ability to provide good patient care. The study contributes to the body of knowledge of the impact of supportive management for better nurse and patient outcomes, specifically front line management. Autonomous practice and intrinsic job motivation are associated to better nurse outcomes. The study shows that good nurse-doctor working relationships are important for the quality of patient care.

The favourable scores achieved for supportive management, opportunities for professional advancement, good nurse-doctor relationships and staffing measures, as compared with the international data, reveal some interesting links between the working environment at LSH and the traits of magnet hospitals and organisational empowerment. However, counter to expectations, the study does not indicate the importance of senior nurse management for nurse and patient outcomes. The qualitative findings reveal certain weaknesses in the nurse-doctor working relationships. The positive outcomes for nurse job satisfaction are supported by previous Icelandic surveys. The generally high reported levels of happiness of Icelanders might explain these findings, in agreement with the body of literature on the links between general happiness in life and job satisfaction. Nurse-assessed excellent quality of patient care is less favourable. However, these findings are neither congruent with recent local surveys, nor reinforced by the focus group

findings. The observed differences can be partly explained by cultural differences in the use of language.

On balance, the study findings confirm its conceptual framework and reflect some of the traits of magnet hospitals. The study suggests that intrinsic motivation is a meaningful concept for the successful management of hospital nursing. This study observes that Icelandic nurses have the potential to enjoy a high quality of working life and to provide high-quality patient care. The context of Icelandic nursing is supportive and is characterised by independence, high educational level and supportive societal norms. Nurses at LSH report high job satisfaction and low levels of burnout, and value their work. These outcomes are related to supportive relationships with frontline managers, other health care team members and patients and with intrinsic motivation, which are further related to their ability to provide high-quality patient care.

Despite the positive results generated for working environment, job satisfaction and burnout there is some evidence for certain weaknesses in the organisation of nursing at LSH. Firstly, an increasing demand on and shortage in staff with a consequent increase in nurse workload. Secondly, a widening gap between senior management and staff. Thirdly, low levels of nurse-reported excellent quality of care compared with other countries, notwithstanding the cultural and linguistic reasons for the observed difference.

These three groups of potential factors contradict other findings of this study, and the proposed similarities between the LSH's nurses' working environmental characteristics and the traits of magnet hospitals and organisational empowerment are partial rather than complete.

5.1 Implications for leadership practice and future research

The present research has built on the work of similar studies, but there is a growing need for further research to understand the processes involved, to assess outcomes and to illustrate the linkage between them. This is necessary in order to enhance the evidence and guide decision-making in hospital nurse management, to contribute to the growing and ever more sophisticated analysis of problems within nurse working environments, to unpick and understand the complexities of the infrastructure, and draw attention to the existing strengths of hospitals. Similarly, it is vital to emphasise the potential for the hospital nurse management to devise human resource interventions, and demonstrate that these can be delivered in the practice of successful hospital management.

The study findings are specific to Iceland, but they have relevance for the wider, international nursing community. The findings may contribute to the understanding of the changing nature of nurses' working environment and thereby help to resolve recruitment and retention problems. Based on the study findings, a set of proposals and key tasks to improve the management of hospital nursing are presented. Some of these proposals have already been presented to staff and management at LSH, and to the Icelandic health authorities. The feedback has been positive and some projects have been launched as a response to challenges that have been identified in this study.

5.1.1 Adequate staffing

The findings of this study on the importance of adequate staffing levels contributes to the body of evidence on the crucial role of staffing and work demands for nurse job attitudes and nurse retention. It is reasonable to assume that if current trends in cost-

containment and lower staffing levels at LSH continue, they could produce negative effects, not only for patient care, but also for nurses and thus their retention and recruitment. If leaders at LSH can secure adequate levels of staffing they can enable nurses to achieve quality care based on human relationships that inevitably take time and emotional space. This goal is vital both for nurse and patient outcomes. In light of this research and previous studies this is a priority action for health care leadership more widely. The use of multiple methods would be a useful step towards developing sophisticated measures.

5.1.2 Supportive management

It is crucial that senior management at LSH support its unit managers to enable professional and independent nurse practice. Frontline managers should encourage nurses in their perception that nursing is a job worth doing. This will help to foster job satisfaction and nurses' ability to provide good patient care. Previous research has shown that transformational and empowering leadership behaviours are useful in this matter (Bass, 1998), and will help nurses to feel valued, to use their skills for high-quality patient care as well as encouraging them to remain in health care. In line with the present findings and the literature on magnet hospitals and organisational empowerment, there are reasons to suppose that supportive management is of equal importance for hospitals in other countries. More evidence must however be assembled on the role of nurse management, in particular at the unit level (Andrews and Dziegielewski, 2005). The need for more research on the influence of support from nurse managers on nurse and patient outcomes is supported by a recent review of the literature (Shirey, 2004). An intervention study might be useful in this matter.

5.1.3 Intrinsic job motivation

This study indicates that nurses' intrinsic job satisfaction is an important aspect of successful management of hospital nursing, and successful recruitment and retention strategies. Consequently, leaders in health care should balance their cost-containment interventions so that they retain sufficient numbers of nurses who are able to enjoy intrinsic nursing values and to provide care based on human relationships. Such relationships inevitably need time and emotional space to ensure success. According to the present study it is reasonable to recommend that nurse managers and the leadership at LSH acknowledge intrinsic nurse job satisfaction as advantageous in relation to nurse and patient outcomes. This might contribute to the solution to the current problem of nurse recruitment and retention. A further possible approach to investigate this is a qualitative study with the potential to develop a sophisticated measure of intrinsic job satisfaction. Nursing values, age and educational background are important variables for consideration in this regard (see e.g. McNeese-Smith, 2003).

5.1.4 Nurse-doctor working relationships

The current study suggests that there is a need to improve working relationships between nurses and doctors. A potential strategy is to develop further an effective collaboration between nurses and doctors and emphasise mutual respect for the professional responsibilities of each discipline (Institute of Medicine, 2004; Rice, 2000). The content of nurse-doctor working relationship needs further exploration to identify successful communication strategies and models of collaboration between these professions and to facilitate the development and training of professional skills. Qualitative studies using the "participant observation" technique might be

appropriate. Further research is also needed to examine the importance of good nurse-doctor working relationships for nurse job attitudes.

5.1.5 The role of senior management

The gap between staff and senior management may be a sign of some organisational weaknesses at LSH. Given this, the hospital would benefit from enhancement of trust within the organisation (Gunnarsdóttir, 2004). According to the levels of social capital in the country this would be an appropriate and appreciated goal, and consistent with local societal norms (Halman et al., 2001). Increased trust between staff and senior management would help to create effective communicative channels, strengthen professional collaboration and be favourable for staff and patients (Berwick, 2003). Despite the available literature to the contrary, the influence of senior management on nurse and patient outcomes was not indicated in the present findings. Further investigation of these relationships is needed to help health care leaders organise health care services and human resources in the most productive way.

5.1.6 Nurse philosophy and professional practice

Surprisingly, the survey findings do not show significant prediction of measures of philosophy of nursing practice for nurse and patient outcomes. However, the focus group findings show that for nurses it is important to build their care on professional nursing philosophy and standards. There appears to be a limited set of measures and available evidence on how to evaluate this aspect of nursing and how this is related to health care outcomes. A concept analysis in this relation is an important research topic.

5.1.7 Future research related to the NWI-R

In light of the findings presented here and recent literature there is a need to further develop the NWI-R measure. In particular, to investigate further the validity of the NWI-R instrument and its different sub-scales in measuring the different aspects of nurses' working environment, e.g. nurse autonomy, nurse and doctor working relationships, staffing, the underlying philosophy of nursing and the role of senior nurse management.

5.2 Summary of contributions

The findings of the present study show the relationship between nurses' working environment and nurse and patient outcomes, and the importance of intrinsic motivation for these outcomes. This study's major contribution to knowledge is, firstly, to re-emphasise the important role of supportive nurse managerial and leadership behaviour and opportunities at the unit level. Secondly, the findings show the importance of adequate staffing levels for good nurse outcomes, thereby maximising nurses' opportunities to foster intrinsic job satisfaction through their relations with patients. Thirdly, the results re-confirm the importance of structured and mutually respectful nurse-doctor working relationships for patient outcomes. Fourthly, highlighting the importance of the cultural and linguistic adaptation of the IHOS measurement when applying the instrument in a different context. Fifthly, the results largely support a framework that confirms the working environment in a distinct and in many respects unique culture and health care system. Sixthly, careful analysis of the NWI-R data generated five empirically and conceptually acceptable sub-scales, which can be of use in further research. Seventhly, presentation of international comparison of nurse burnout levels helped to contextualise the

Icelandic case. Finally, the findings of this study are noteworthy because the observed relationships between study variables are consistent with the theory and other empirical findings, and that there are fundamental differences between LSH findings and those from other countries.

5.3 The way forward

Potential solutions to the challenges of nurse recruitment and retention are undoubtedly dependent on cultural and organisational aspects as well as nurse education and the status of the profession. The overall aim remains to solve these problems with knowledge that is based on a diverse range of data utilising different methodologies across cultures and systems. Improving nurses' working environment contributes to the well-being of nurses as well as their patients and is among the most important public health interventions.

Despite the crucial role of extrinsic values in hospital nursing, intrinsic nursing values and intrinsic motivation are fundamental to nurses' quality of working life and to the quality of the care they give to their patients. The views of the nurses in the present study provide important messages that can benefit the success of hospital administration and leadership. These views correspond to these of Layard in his recent publications about happiness (Layard, 2005a; 2005b):

> *"If we want a happier society, we should focus most on the experiences which people value for their intrinsic worth and not because other people have them – above all, on relationships in the family, at work and in the community," (Layard, 2005b, p. 24).*

Health authorities and hospital administrators need to make better use of available evidence to meet major challenges in recruiting and retaining high quality staff and providing high-quality patient care. This thesis can be of use in raising health care leaders' awareness of problems and potentials within nurses' working environment and engage them in deciding priorities when investing in healthy nurses' working life with the ultimate goal of health advancement for staff and patients. Communicating the evidence by reporting on the determinants of better nurse and patient outcomes is all the more important in the face of pressure to manage costs and to maintain access to successful health services. The main conclusion of this thesis is that to ensure high-quality patient care, it is essential to support nurses to gain recognition of their work, to expand their range of responsibilities, and to enjoy healing relationships with patients and empowering collaboration with other health care team members and their superiors.

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Appendices

Appendix 1: Summary of recent studies using the Nursing Work Index (NWI and NWI-R)

Authors, year Objectives	Sample Country	Data collection Measures	Key findings	Comments
Aiken, Smith and Lake, 1994 To access possible links between mortality rate and hospital traits	39 original magnet hospitals 195 matched control hospitals USA	NWI-R-Subscales.[1] Medicare files on mortality rates	Magnet hospitals significantly lower mortality rates Magnet hospitals significantly higher NWI-R scales scores for autonomy, control, relations	Evidence of positive mortality rates outcomes for magnet hospitals.
Aiken and Sloane, 1997 To examine relationships between different organisational forms, status of nursing, and patient and nurse outcomes	Nurses in 20 magnet & non-magnet hospitals USA	NWI-R-Subscales.[1]: Autonomy Control over practice Nurse-doctor relationships	Dedicated units and magnet hospitals; greater autonomy; control over practice and nurse-doctor relationships. These attributes enhanced quality of patient care and quality of nurses' working life	Complicated evaluation of how to cluster items of NWI-R into sub-scales Support for magnet model[2]
Aiken and Patrician 2000 To report on ability of NWI-R to measure characteristics of professional nursing practice environment	40 units in 20 hospitals 10 matching; magnet and non-magnet USA	NWI-R-Subscales[1]: Autonomy Control over practice Nurse-doctor relationships Organisational support	NWI-R is a sound instrument for measuring organisational attributes of hospitals Reliability on subscales[1]: Autonomy: 0.75 Control over practice: 0.79 Nurse-doctor relationships: 0.76 Organisational support: 0.84	Sub-scales were conceptually derived from the NWI-R. NWI-R captured organisational attributes characterising nurse practice environment Support for magnet model[2]
Aiken, Clarke, Sloane, Sochalski, Busse, Clarke, H., Giovannetti, Hunt, Rafferty, Shamian, 2001 To obtain information on organisational climate, nurse staffing, nurse and patient outcomes	711 hospitals 5 countries N= 43329 USA, Canada, England, Scotland, Germany	NWI-R (individual items) Patient discharge data Administrative data	High proportion of nurses in all countries report low job satisfaction and high burnout, in most countries higher than for other working groups Quality of care better for hospitals in Europe than North America. Nurse-doctor relationships appear not to be problematic	Individual items of NWI-R: Descriptive data on questions grouped around Competence and relations, Staffing: Workforce management Support for magnet model[2]
Laschinger, Shamian & Thomson, 2001 To test magnet model (Aiken et al., 1997) and the link to organisational trust, job satisfaction and patient quality of care	3,016 staff nurses from 135 hospitals Canada	NWI-R-Subscales[1]: Autonomy Control over practice Nurse-doctor relationships Burnout (emotional exhaustion) Trust Job satisfaction Quality of care	Nurse autonomy, control over practice, nurse-doctor relationships impacted trust in management and burnout, and influenced job satisfaction and quality of care. Reliability on subscales[1]: Autonomy: 0.84 Control over practice: 0.83 Nurse-doctor relation: 0.91	Support and expansion of the magnet model[2]

[1] NWI-R subscales according to Aiken & Patrician (2000), i.e. Autonomy; Control over practice; Nurse-doctor relationships; Organisational support

[2] Magnet model: Supportive nurses' working environment positively related to positive nurse and patient outcomes (see e.g. Aiken et al, 1997)

Authors, year Objectives	Sample Country	Data collection Measures	Key findings	Comments
Aiken, Clarke & Sloane 2002 To examine effects of nurse staffing and organisational support for nurse job satisfaction, burnout and quality of patient care	International sample of 10,.319 nurses in 303 hospitals USA	NWI-R-Subscale: Organisational support[1] Job satisfaction Staffing: Average number of patients assigned to nurses who last worked a day shift.	Organisational support had pronounced effect on nurse job satisfaction and burnout Organisational support and staffing related to nurse assessment of quality of patient care	Findings support magnet model[2]
Lake, 2002 To develop a composite measure of NWI–R including sub-scales representing domains of nursing practice environment	2 samples Data from 1985-1986 2,336 nurses in 16 magnet hospitals 11,636 nurses in non-magnet hospital	New NWI-R -Subscales: 1.Nurse participation in hospital affairs 2.Nursing foundation for quality of care 3.Nurse manager ability, leadership and support of nurses 4.Staffing and resources adequacy 5.Collegial nurse-physician relations	Exploratory factor analysis model extracted five sub-scales that met most stated criteria Confirmatory analysis on another sample supported the five-factor solution. Means on NWI higher for magnet hospital nurses	NWI-R sub-scales different from Aiken and Patrician (2000). No sub-scale highlighted nurse autonomy (did not cluster empirically)
Rafferty, Ball & Aiken, 2001 To explore relationships between teamwork, autonomy and nurse-doctor relationships and patient and nurse outcomes	5006 hospital nurses in 32 hospitals England	NWI-R-Sub-scales: Control over practice[1] Autonomy (new scale) Nurse-doctor relationships (new scale)	Higher scores on nurse-doctor relationships, control and autonomy related to job satisfaction, lower levels of emotional exhaustion and better quality of care. Strong association between teamwork and autonomy	Two new NWI-R sub-scales presented, different from Aiken and Patrician (2000) and Lake (2002). Findings support magnet model[2]
Estabrooks, Tourangeau, Humphrey, Hesketh, Givonnett & Thomson, 2002 To document the psychometric properties of the NWI-R	Hospital nurses N= 6526 Canada	NWI-R-Sub-scales: Autonomy[1] Control over practice Nurse-doctor relationships One-factor solution	NWI-R sub-scales[1] was reliable in the Canadian data. Significant interaction effect between speciality areas.	Single-factor solution to the NWI-R presented as unitary context Support for magnet model[2] Proposed examination of the relevance of NWI-R items
Upenieks, 2002a To examine the differences in job satisfaction between nurses in magnet and non-magnet hospitals	2 samples; magnet & non-magnet Clinical nurses: N= 144 & 161 Nurse leaders: N= 16 USA	NWI-R-Subscales: Autonomy[1] Control over practice[1] Nurse-doctor relationships[1] Self governance (new scale) Organisational structure (new scale) Educational opportunities (new scale)	NWI-R scores higher for magnet than non-magnet hospitals Magnet leaders better support autonomy and staffing	Three new NWI-R sub-scales presented. Items on sub-scales not indicated Support for magnet model[2]

[1] NWI-R subscales according to Aiken & Patrician (2000), i.e. Autonomy; Control over practice; Nurse-doctor relationships; Organisational support

[2] Magnet model: Supportive nurses' working environment positively related to positive nurse and patient outcomes (see e.g. Aiken et al, 1997)

Authors, year **Objectives**	**Sample** **Country**	**Data collection** **Measures**	**Key findings**	**Comments**
Buchan, Ball & Rafferty, 2003 To assess the impact of preparing for and achieving magnet status on patient and nurse outcomes	2 samples One hospital (Rochdale) N= 128 & 109 England	NWI-R-Sub-scales: Autonomy[1] Control over practice Nurse-doctor relationships Job satisfaction Quality of care	53% & 68%; very and moderately job satisfied Means for NWI-R sub-scales increased after preparing for and achieving magnet status. Most measure better for Rochdale nurses than for other NHS hospitals	NWI-R sub-scales same as Aiken & Patrician (2000) (except, one item missing for nurse-doctor relationships). Items on scales indicated Support for magnet model[2]
Laschinger, Almost & Tuer-Hodes, 2003 To test a theoretical model linking nurses' perceptions of workplace empowerment, magnet hospital characteristics and nurse job satisfaction	3 samples (233 + 263 + 55) Canada	CWEQ II (Empowerment) NWI-R-Subscales[1]: Autonomy Control over practice Nurse-doctor relations GJSQ - job satisfaction	Total empowerment scores strongly significantly related to total NWI-R score. Access to resources strongly related to magnet hospital characteristics	Evidence on link between Kanter's structural empowerment (access to resources, support, opportunities) and magnet hospital characteristics NWI-R subscales. Support for magnet model[2]
Budge, Carryer & Wood, 2003 To examine the New Zealand nursing situation and to see whether aspects of working environment are associated with health status	Hospital nurses: N= 225 New Zealand	NWI-R-Sub-scales: Autonomy[1] Control over practice[1] Nurse-doctor relationships SF-36	Means for NWI-R: sub-scales: similar to magnet findings SF-36; significant lower levels than for NZ national sample Correlation between NWI-R sub-scales and SF-36 sub-scales.	NWI-R sub-scales: same items as Aiken & Patrician (2000) except a new scale for nurse-doctor relationsh. Means on scales higher than for magnet hospitals except for relation
Vahey, Aiken, Sloane, Clarke and Vargas, 2004 To examine effect of nurses' working environment on burnout and effects of nurses' working environment and burnout on patients' satisfaction with care	20 hospitals 40 hospital units Nurses N= 820 Patients N=621 USA	NWI-R-Sub-scales: Staffing[1] Administrative support (new scale) Nurse-doctor relationships[1] MBI Intention to leave Structured interviews with patients	Average levels of burnout within average range for health care workers. Patients on units with good nurses' working environment (staffing, administration support, good relations) more likely to be highly satisfied with their nursing care. More than one third of nurses intended to leave	New NWI-R sub-scale presented on administrative support; not same items as for organisational support in Aiken et al, 2002. Co-efficients for scales not presented Impact analysis of nurses' working environment on nurse burnout, intention to leave and patient satisfaction. Control for hospital characteristics Sample from 1991 Support for magnet model[2]

[1] NWI-R subscales according to Aiken & Patrician (2000), i.e. Autonomy; Control over practice; Nurse-doctor relationships; Organisational support

[2] Magnet model: Supportive nurses' working environment positively related to positive nurse and patient outcomes (see e.g. Aiken et al, 1997)

Appendix 2a: Ethics FSA

FJÓRÐUNGSSJÚKRAHÚSIÐ Á AKUREYRI

AFRIT

Akureyri, 13. júlí 2002

Sigrún Gunnarsdóttir, MSc
Aflagrandi 34,
107 Reykjavík
sigrun@landspitali.is

Efni: Svar við umsókn um leyfi til að framkvæma forkönnun á Fjórðungssjúkrahúsinu á Akureyri (FSA) í júlí 2002

Sæl Sigrún!
Staðfestum hér með munnlegt leyfi að þú gerir forkönnun á FSA í júlí 2002, vegna rannsóknarinnar "Starfsumhverfi hjúkrunarfræðinga og ljósmæðra" sem er hluti af alþjóðlegri könnun og verkefni þitt til doktorsprófs við London School of Hygiene & Tropical Medicine og í samvinnu við rannsókna- og heilbrigðisdeild Vinnueftirlits ríkisins. Við höfum kynnt okkur tilgang rannsóknarinnar, rannsóknaraðferð og mælitæki, Magnet Hospital. Við heimilum þér að framkvæma forkönnunina á FSA í júlí að fengnu tilskyldu leyfi Vísindasiðanefndar og tilkynningu til Persónuverndar.

Kveðjur og ósk um gott gengi !

Ólína Torfadóttir,
framkvæmdastjóri hjúkrunar

Þorvaldur Ingvarsson,
framkvæmdastjóri lækninga

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Reikningsnr./Account number 1145-26-3100

Appendix 2b: Ethics FSA – English translation

Fjórðungssjúkrahúsið á Akureyri
FSA hospital Akureyri

Akureyri, 13 July 2002

Sigrún Gunnarsdottir, MSc
Aflagrandi 34
107 Reykjavík
sigrungu@landspitali.is

Regarding: Response to a request to conduct a pilot study at FSA hospital in July 2002

Dear Sigrún

We hereby confirm our approval to you to conduct a pilot study at FSA in July 2002 because of your study "The working environment of nurses and midwives", which is a part of an international study and your PhD research at the London School of Hygiene & Tropical Medicine and in collaboration with the department of research and health at the Institute of Occupational Health in Iceland. We are familiar with the research goal, research method and measure, Magnet hospital. We hereby grant you permission to conduct the pilot study in July, given the approval of the National Bioethics Committee and a report to the Data Protection.

Best wishes and good luck

Ólína Torfadóttir (signature)
Director of Nursing

Þorvaldur Ingvarsson (signature)
Director of Medicine

Appendix 3: IHOS Questionnaire - English version

REGISTERED NURSE SURVEY
of
HOSPITAL CHARACTERISTICS

About this survey

In recent years, nursing researchers in various parts of the world have investigated the relationship between the organisation of hospitals and patient outcomes. The research to date suggests that the nursing input is critical to this relationship. he aim of this project is to understand these issues in greater detail.

Employment Research has been commissioned to conduct a survey of hospital staff nurses to help take forward research on 'magnet hospitals'. The survey forms part of part of a wider international study involving Scotland, England, Canada, Germany and the United States.

Please note that your participation in the survey is voluntary. The questionnaire itself is entirely ANONYMOUS and that all responses will be treated as strictly confidential.

Completing the questionnaire

The questionnaire has several sections and takes about **25-30** minutes to complete. We explain the reasons for each section (and the way each section will be used) on the next page. You might find it helpful to read these notes first. Please circle only one number for each question - or fill in the blank space where this is indicated.

Remember that it is YOUR opinions that matter: answer the questions as you think they apply to your own hospital and your own working situation.

When you have completed the questionnaire, please return it the enclosed pre-paid envelope.

We are very grateful for your help with this research. If you have any questions please contact Jane Ball, at Employment Research on 01273 299 719.

About this questionnaire

The purpose of this questionnaire is to develop a picture of nurses' views and experiences of their working situations and the ways that the organisation of the hospital influences their practices as nurses. A similar questionnaire is being sent to nurses in several countries: your answers will be used to develop a picture of nursing practice in different kinds of hospitals and will be important in providing a better understanding of how different aspects of hospital work affect the care of patients.

There are 7 sections:

Section A : Your Current Job:
this is background information which will allow us to compare people working in different settings, or with different responsibilities.

Section B : Features of your Work :
these are questions about your working environment and the way you feel you fit into it.

Section C : Feelings about your Work:
the way people feel about their job is important. The questions on this page may seem rather personal but they have been adapted from a well-tested method of assessing people's job satisfaction. They will be used as a group (not as individual items) in order to describe the way people feel about their working life.

Section D : Job Characteristics:
these are fairly straightforward questions about the work you do but some of them also ask about your opinions. Remember, we want to know what you think.

Section E : Last Shift:
these questions ask specifically about the last shift you worked, and focus on the number and type of patients in your care and level of staffing.

Section F : Decision making
in this section we ask you to describe the extent to which you feel you are involved in making various decisions at work. Again, there are no right or wrong answers – we want to know about your experiences.

Section G : Background:
people from different backgrounds may have different views. These questions will help us to understand your answers.

Please circle only one number for each question - or fill in the blank space where this is indicated. Remember, your answers will be **anonymous**.

Thank you for your help with this research

A. Details about your Current Job

This first section asks for information about the job you are doing now. Your answers will help us to get a better understanding of your answers to later sections. **Please circle the response that is closest to your own situation - or fill in the blank spaces.**

1. What is your clinical grade (or equivalent)? C D E F G H I
(Please circle one response.)

If you are a G grade or above you need not complete the remainder of this form. Please return it in the envelope provided.

2. Are you currently working full or part-time at this hospital?
   1. Full-time
   2. Part-time

3. What type of employment contract are you on in your main job?
   1. Permanent contract
   2. Bank/Agency
   3. Temporary or Fixed Term (e.g. 3 months)

4. Which directorate do you work in?
   1. Medical
   2. Surgical
   3. Other

5. What type of ward do you work on?
   1. Medical
   2. Surgical
   3. Medical/Surgical
   4. Intensive Care
   5. Coronary Care
   6. Accident & Emergency
   7. Gynaecology
   8. Orthopaedics
   9. Elderly
   10. Renal
   11. Admissions Unit
   12. Other (please specify)

---

6. Which of the following best describes your job title?
   1. Staff Nurse
   2. Enrolled Nurse
   3. Ward Manager/Sister
   4. Clinical Nurse Specialist
   5. Other

7. How many years have you worked :

   a. As a registered nurse? _____ Years _____ months
   b. As a registered nurse at your present hospital? _____ Years _____ months
   c. As a registered nurse on your current ward? _____ Years _____ months
   d. In your current post? _____ Years _____ months

8. Is your immediate supervisor a nurse? 1. Yes 2. No

9. How many hours are you contracted to work each week in your main job? _____ hours per week

10. In the past year, how many hours a week, on average, did you work on wards/units other than your own?

_____ hours per week

11. Which length of shift do you usually work?

1. Eight hour
2. Ten hour
3. Twelve hour
4. Flexi-time
5. Split shifts
6. Other (please specify) _____

12. In the past year, what is the average number of hours per week you have worked:

a. Paid overtime _____ hours per week

b. Unpaid overtime _____ hours per week

13. How often do you work in excess of your contracted hours?

1. Every shift
2. Several times a week
3. Once a week
4. Less than once a week
5. Never

14. Which of the following best describes the mix of shifts you work?

1. Early, Late and Night shifts
2. Early and Late shifts only
3. Twelve Hour Shifts
4. Permanent nights
5. Day Time (Office Hours)
6. Other

B. Features of your work (Nursing Work Index)

On the next two pages, you will find a list of statements that are about characteristics of people's jobs. We will use this list to build up a profile of nurses' experiences of the jobs they do. **Please indicate the extent to which you agree or disagree that each of the following ARE PRESENT IN YOUR CURRENT JOB, by circling a number on each line.**

The following are present in your current job...	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
1. Adequate support services allow me to spend time with my patients.	1	2	3	4
2. Doctors and nurses have good working relationships.	1	2	3	4
3. A good induction programme for newly employed nurses.	1	2	3	4
4. Ward management that is supportive of nurses.	1	2	3	4
5. A satisfactory salary.	1	2	3	4
6. Nursing controls its own practice.	1	2	3	4
7. Active staff development/continuing education programmes available for nurses.	1	2	3	4
8. Career development/clinical ladder opportunity.	1	2	3	4
9. Opportunity for Staff Nurses to participate in policy decisions.	1	2	3	4
10. Support for new and innovative ideas about patient care.	1	2	3	4
11. Enough time and opportunity to discuss patient care problems with other nurses.	1	2	3	4
12. Enough registered nurses on staff to provide quality patient care.	1	2	3	4
13. A Ward Manager/Sister who is a good manager and leader.	1	2	3	4
14. A Director of Nursing who is highly visible and accessible to staff.	1	2	3	4
15. Flexible or modified shift patterns are available.	1	2	3	4
16. Enough staff to get work done.	1	2	3	4
17. Freedom to make important patient care and work decisions.	1	2	3	4
18. Praise and recognition for doing a good job.	1	2	3	4
19. The opportunity for Staff Nurses to consult with Clinical Nurse Specialists or expert nurse clinicians.	1	2	3	4
20. Good working relationships with other hospital departments.	1	2	3	4
21. Not being placed in a position of having to do things that are against my nursing judgement.	1	2	3	4
22. High standards of nursing care are expected by the Trust.	1	2	3	4
23. A Director of Nursing equal in power and authority to other executives on the Trust board.	1	2	3	4
24. A lot of team work between nurses and doctors.	1	2	3	4
25. Doctors give high quality medical care.	1	2	3	4
26. There are opportunities for promotion.	1	2	3	4
27. Nursing staff are supported in pursuing degrees in nursing.	1	2	3	4

These statements are about characteristics of people's jobs. We will use this list to build up a profile of nurses' experiences of the jobs they do. **Please indicate the extent to which you agree that each of the following ARE PRESENT IN YOUR CURRENT JOB, by circling one number on each line.**

The following are present in your current job...	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
28. A clear philosophy of nursing throughout the patient care environment.	1	2	3	4
29. Nurses actively participate in efforts to control costs.	1	2	3	4
30. Working with nurses who are clinically competent.	1	2	3	4
31. The nursing staff participates in selecting new equipment.	1	2	3	4
32. A Ward Manager/Sister who backs up nursing staff in decision making, even if the conflict is with a doctor.	1	2	3	4
33. Senior management that listens and responds to employee concerns.	1	2	3	4
34. An active quality assurance/clinical audit programme	1	2	3	4
35. Staff nurses are involved in the internal governance of the hospital (e.g. practice and policy committees).	1	2	3	4
36. Collaboration between nurses and doctors.	1	2	3	4
37. A preceptor programme for newly qualified RGNs.	1	2	3	4
38. Nursing care is based on a nursing rather than a medical model.	1	2	3	4
39. Staff Nurses have the opportunity to serve on Trust Committees.	1	2	3	4
40. The management of the Trust recognises the contributions of nurses in its reports and other public statements.	1	2	3	4
41. Ward Managers/Sisters consult with staff on daily problems and procedures.	1	2	3	4
42. A physical work environment that is pleasant, attractive and comfortable.	1	2	3	4
43. Opportunity to work on a highly specialised patient care ward.	1	2	3	4
44. Written, up-to-date nursing care plans for all patients.	1	2	3	4
45. Patient care assignments that foster continuity of care (i.e. the same nurse cares for the patient from one day to the next).	1	2	3	4
46. Staff Nurses do not have to provide cover/work on wards that are not their own.	1	2	3	4
47. Staff Nurses actively participate in planning their own off-duty schedules (i.e. what days they work, days off etc.)	1	2	3	4
48. Each ward decides its own policies and procedures.	1	2	3	4
49. Working with experienced nurses who 'know' the hospital system.	1	2	3	4
50. Registered Nurses and Health Care Assistants/Auxiliaries have good working relationships.	1	2	3	4

C. Feelings about your work (Maslach Burnout Inventory*)

This section contains statements that may seem a bit personal but are important as a way of developing a picture of nurses' feelings about their present work. **If you have *never* had one of these feelings, then circle the "0" response - otherwise, indicate *how often* you have felt this way by circling the number (from 1 to 6) that best describes your experience.**

		How Often?						
		Never	A few times a year or less	Once a month	A few times a month	Once a week	A few times a week	Every day
1.	I feel emotionally drained from my work.	0	1	2	3	4	5	6
2.	I feel used up at the end of the workday.	0	1	2	3	4	5	6
3.	I feel fatigued when I get up in the morning and have to face another day on the job.	0	1	2	3	4	5	6
4.	I can easily understand how my patients feel about things.	0	1	2	3	4	5	6
5.	I feel I treat some patients as if they were impersonal objects.	0	1	2	3	4	5	6
6.	Working with people all day is really a strain for me.	0	1	2	3	4	5	6
7.	I deal very effectively with the problems of my patients.	0	1	2	3	4	5	6
8.	I feel burned-out from my work.	0	1	2	3	4	5	6
9.	I feel I'm positively influencing other people's lives.	0	1	2	3	4	5	6
10.	I've become more callous toward people since I took this job.	0	1	2	3	4	5	6
11.	I worry that this job is hardening me emotionally.	0	1	2	3	4	5	6
12.	I feel very energetic.	0	1	2	3	4	5	6
13.	I feel frustrated by my job.	0	1	2	3	4	5	6
14.	I feel I'm working too hard on my job.	0	1	2	3	4	5	6
15.	I don't really care what happens to some patients.	0	1	2	3	4	5	6
16.	Working directly with people puts too much stress on me.	0	1	2	3	4	5	6
17.	I can easily create a relaxed atmosphere with my patients.	0	1	2	3	4	5	6
18.	I accomplish many worthwhile things in this job.	0	1	2	3	4	5	6
19.	I feel exhilarated after working closely with my patients.	0	1	2	3	4	5	6
20.	I feel like I'm at the end of my rope.	0	1	2	3	4	5	6
21.	In my work, I deal with emotional problems very calmly.	0	1	2	3	4	5	6
22.	I feel patients blame me for some of their problems.	0	1	2	3	4	5	6
23.	I leave work feeling satisfied with my nursing experience.	0	1	2	3	4	5	6
24.	I leave work disillusioned and frustrated.	0	1	2	3	4	5	6
25.	I leave work knowing I haven't done a good job.	0	1	2	3	4	5	6

D. Job Characteristics

This section asks about your job as a Staff Nurse and asks for your views about the care on your nursing ward/unit and in your hospital. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. On the whole, how satisfied are you with your present job?
   1. Very dissatisfied
   2. A little dissatisfied
   3. Moderately satisfied
   4. Very satisfied

2. Independent of your present job, how satisfied are you with being a nurse?
   1. Very dissatisfied
   2. A little dissatisfied
   3. Moderately satisfied
   4. Very satisfied

3. Thinking about the next 12 months, how likely do you think it is that you will lose your job or be made redundant?
   1. Very likely
   2. Fairly likely
   3. Not too likely
   4. Not at all likely

4. Do you plan to leave your present nursing position?
   1. Yes, within the next 6 months
   2. Yes, within the next 12 months
   3. No plans within the next year

5. If you were looking for another job, how easy or difficult do you think it would be for you to find an acceptable job in nursing?
   1. Very easy
   2. Fairly easy
   3. Fairly difficult
   4. Very difficult

6. In general, how would you describe the quality of nursing care delivered to patients on your ward/unit?
   1. Excellent
   2. Good
   3. Fair
   4. Poor

7. Over the past year, would you say the quality of patient care in your hospital has:
   1. Improved
   2. Remained the same
   3. Deteriorated

8. How confident are you:

	Very confident	Confident	Somewhat confident	Not at all confident
a. that your patients are able to manage their care when discharged from hospital?	1	2	3	4
b. that your patients are discharged from hospital with adequate family support?	1	2	3	4
c. that your patients are discharged from hospital with adequate community support?	1	2	3	4
d. that you will receive adequate support when you report situations where you are not able to meet professional standards of patient care?	1	2	3	4

9. How has the amount of time you spend on each of the following areas of activity changed in the last 12 months? (please circle one response for a,b,c,d)

	decreased a lot	decreased a little	has not changed	increased a little	increased a lot
a. Management (e.g. doing the off-duty, budgets, covering the ward etc.)	1	2	3	4	5
b. Medical/Extended Role (e.g. venepuncture, ordering x-rays, inserting venflons etc.)	1	2	3	4	5
c. Domestic/Hotel (e.g. delivering and retrieving food trays, cleaning, restocking)	1	2	3	4	5
d. Clerical/Administrative (e.g. answering the phone, doing the bed state, filing etc.)	1	2	3	4	5

10 . Have you ever been stuck with a needle or sharp that had been used on a patient? 1. Yes 2. No

If No, please go to Q.11

If YES:

a. How many times has this happened in your nursing career? _____ times (Enter "0" if none)

b. How many of these incidents happened in the past year? _____ incidents (Enter "0" if none)

c. How many of these incidents occurred in the past month? _____ incidents (Enter "0" if none)

11 a. How many times have you taken sick leave in the last 3 months? _____times

If none, please go to Section E.

b. In total, how many shifts have you taken off sick in the last 3 months?_____Shifts

c. On the **last shift** you were off sick, what was the main reason?

1. Physical illness
2. Mental ill-health
3. Injury (work related)
4. Injury (not work related)
5. Sick child
6. Other family illness/crisis
7. Unable to get the off-duty needed
8. Other (please specify)

E. Last Shift

This section asks you questions about your nursing activities during the **LAST FULL SHIFT** that you worked in your **main job.** As with the other questions, please answer them by filling in the blank spaces of circling the number that most closely matches your response.

1. What was the last shift you worked?

   1. Early
   2. Late
   3. Night
   4. Other (please specify)

   _____

2. On what type of unit did you work on during your last shift?

   1. Medical
   2. Surgical
   3. Medical/Surgical
   4. Intensive Care
   5. Coronary Care
   6. Accident & Emergency
   7. Gynaecology
   8. Orthopaedics
   9. Elderly
   10. Renal
   11. Admissions Unit
   12. Other (please specify)

   _____

3. How many beds does your ward/unit have? ☐ Number of beds

4. How many patients were on your ward/unit during your last shift? (Number of patients on the ward or unit for the majority of the shift) ☐ Number of patients

5. How many of these patients were assigned to you? ☐ No. patients assigned to you

6. Please sort the patients assigned to you (from Question 5 above) into the following categories according to their care needs. [The numbers given in lines 1-4 should add up to the total number of patients assigned to you, as given in question 5 above.]

ADL - Activities for Daily Living refers to activities such as toileting, washing and feeding

1. Need total care ☐
2. Need assistance with most ADLs ☐
3. Need assistance with some ADLs ☐
4. Mostly self care ☐

7. How many of the following were on duty with you for all or most of your last shift and how many did you supervise?

	*Registered Nurses	#Nursing Auxiliaries	Student Nurses	Ward Clerks
Number on last shift				
Number you supervised on last shift				

* (total number of qualified nurses including ENs, not including yourself)
\# (health care assistants, nursing auxiliaries etc.)

8. How would you describe the quality of nursing care delivered on your last shift?

   1. Excellent
   2. Good
   3. Fair
   4. Poor

9. How has the amount of time you spend on each of the following areas of activity changed in the last 12 months? (please circle one response for a,b,c,d)

	decreased a lot	decreased a little	has not changed	increased a little	increased a lot
a. Management (e.g. doing the off-duty, budgets, covering the ward etc.)	1	2	3	4	5
b. Medical/Extended Role (e.g. venepuncture, ordering x-rays, inserting venflons etc.)	1	2	3	4	5
c. Domestic/Hotel (e.g. delivering and retrieving food trays, cleaning, restocking)	1	2	3	4	5
d. Clerical/Administrative (e.g. answering the phone, doing the bed state, filing etc.)	1	2	3	4	5

10 . Have you ever been stuck with a needle or sharp that had been used on a patient? 1. Yes 2. No

If No, please go to Q.11

If YES:

a. How many times has this happened in your nursing career? _____ times (Enter "0" if none)

b. How many of these incidents happened in the past year? _____ incidents (Enter "0" if none)

c. How many of these incidents occurred in the past month? _____ incidents (Enter "0" if none)

11 a. How many times have you taken sick leave in the last 3 months? _____times

If none, please go to Section E.

b. In total, how many shifts have you taken off sick in the last 3 months?_____Shifts

c. On the **last shift** you were off sick, what was the main reason?

1. Physical illness
2. Mental ill-health
3. Injury (work related)
4. Injury (not work related)
5. Sick child
6. Other family illness/crisis
7. Unable to get the off-duty needed
8. Other (please specify)

E. Last Shift

This section asks you questions about your nursing activities during the **LAST FULL SHIFT** that you worked in your **main job.** As with the other questions, please answer them by filling in the blank spaces of circling the number that most closely matches your response.

1. What was the last shift you worked?

1. Early
2. Late
3. Night
4. Other (please specify)

_____

2. On what type of unit did you work on during your last shift?

1. Medical
2. Surgical
3. Medical/Surgical
4. Intensive Care
5. Coronary Care
6. Accident & Emergency
7. Gynaecology
8. Orthopaedics
9. Elderly
10. Renal
11. Admissions Unit
12. Other (please specify)

_____

3. How many beds does your ward/unit have? ☐ Number of beds

4. How many patients were on your ward/unit during your last shift? (Number of patients on the ward or unit for the majority of the shift) ☐ Number of patients

5. How many of these patients were assigned to you? ☐ No. patients assigned to you

6. Please sort the patients assigned to you (from Question 5 above) into the following categories according to their care needs. [The numbers given in lines 1-4 should add up to the total number of patients assigned to you, as given in question 5 above.]

ADL - Activities for Daily Living refers to activities such as toileting, washing and feeding

1. Need total care ☐
2. Need assistance with most ADLs ☐
3. Need assistance with some ADLs ☐
4. Mostly self care ☐

7. How many of the following were on duty with you for all or most of your last shift and how many did you supervise?

	*Registered Nurses	#Nursing Auxiliaries	Student Nurses	Ward Clerks
Number on last shift				
Number you supervised on last shift				

* (total number of qualified nurses including ENs, not including yourself)
# (health care assistants, nursing auxiliaries etc.)

8. How would you describe the quality of nursing care delivered on your last shift?

1. Excellent
2. Good
3. Fair
4. Poor

F. Decision Making

We would like to know the extent to which nurses feel involved in making various decisions at work. Please indicate the extent to which you feel you are involved in each of the following decisions, by circling a number on each line.

How involved are YOU in decisions about ....

	Not at all	A little	Some	A lot
1. Use of patient donations	0	1	2	3
2. Clinical role of registered nurses	0	1	2	3
3. Roles of HCAs	0	1	2	3
4. Addition of activities into nurses' roles	0	1	2	3
5. Nurse uniforms	0	1	2	3
6. Staffing levels	0	1	2	3
7. Use of bank/agency staff	0	1	2	3
8. Grade mix on the wards	0	1	2	3
9. Job descriptions	0	1	2	3
10. Length of shifts	0	1	2	3
11. Off-duty roster	0	1	2	3
12. Access to training	0	1	2	3
13. Discharge policy	0	1	2	3
14. Recruitment of medics	0	1	2	3
15. Recruitment of staff nurses	0	1	2	3
16. The purchase of new equipment	0	1	2	3
17. Referral to Clinical Nurse Specialists	0	1	2	3
18. Referral of patients to dietician	0	1	2	3
19. 'Do Not Resuscitate' policy	0	1	2	3
20. Type of dressings used	0	1	2	3
21. Admission of particular cases	0	1	2	3

G. Background

This last section is included so that we can understand a little more about the way that people from different backgrounds have answered the questions. **Please circle the answer that describes you best - and remember that all of your answers are completely confidential.**

1. What is your sex? 1. Female 2. Male

2. What is your age? _____Years

3. What is your highest registered nurse qualification?
   1. First level Registration (i.e. RGN)
   2. Second level Registration (i.e. Enrolled)
   3. Diploma
   4. Degree
   5. Other (please specify) _____

4. Do you have any dependent children who live with you? 1. Yes 2. No

5. Do you have any other dependent relatives who live with you? 1. Yes 2. No

6. Which of the following best describes your ethnicity?
   1. Bangladeshi
   2. Black African
   3. Black Caribbean
   4. Black other
   5. Chinese
   6. Indian
   7. Pakistani
   8. White
   9. Other (please specify) _____

Thank you very much for the time you have taken to complete this form.

Your answers will be very helpful in understanding the relationship between nursing care and hospital organisation.

Please return the questionnaire in the pre-paid envelope provided.

Appendix 4a: IHOS Questionnaire - Icelandic version

Könnun á starfsumhverfi hjúkrunarfræðinga og ljósmæðra á Landspítala – háskólasjúkrahúsi

Kæri hjúkrunarfræðingur / ljósmóðir

TRÚNAÐARMÁL

Meðfylgjandi er spurningalisti vegna rannsóknar minnar um starfsumhverfi hjúkrunarfræðinga og ljósmæðra á Landspítala – háskólasjúkrahúsi sem ég bið þig vinsamlega um að svara. Þátttaka þín er mikilvæg til að ná markmiðum rannsóknarinnar sem eru að varpa ljósi á tengsl starfsumhverfis við líðan hjúkrunarfræðinga og ljósmæðra í starfi og gæði þjónustunnar og jafnframt að leita leiða til úrbóta í þessum efnum.

Með rannsókninni gefast starfsmönnum og stjórnendum spítalans ný tækifæri til að sjá samhengi samskipta, stjórnunaraðferða, starfsánægju og gæða þjónustunnar og koma auga á möguleika til framfara. Spurningalistinn er nafnlaus og ekki unnt að rekja neinar upplýsingar til þátttakenda. Starfsmenn og stjórnendur sjúkrahússins verða upplýstir um niðurstöður rannsóknarinnar en rannsakendur einir hafa aðgang að frumgögnum.

Rannsóknin er verkefni til doktorsprófs við London School of Hygiene and Tropical Medicine og er hluti af alþjóðlegri könnun. Rannsakandi nýtur handleiðslu Dr. Anne-Marie Rafferty og er verkefnið unnið á hennar ábyrgð (Keppel Street WC 1E 7HT, London, sími: 44 207 927 2305) og í samvinnu við rannsókna- og heilbrigðisdeild Vinnueftirlits ríkisins.

Rannsóknin er unnin samkvæmt leyfi Vísindasiðanefndar og jafnframt hefur hún verið tilkynnt til Persónuverndar. Ef þú hefur spurningar varðandi rétt þinn sem þátttakandi í rannsókninni getur þú snúið þér til Vísindasiðanefndar, Laugavegi 103, 105 Reykjavík, s: 551 7100.

Spurningalistanum er skipt í nokkra hluta og bið ég þig að merkja við allar spurningarnar eftir því sem best á við um núverandi starf þitt, aðstæður þínar og líðan. Það tekur um 20 - 30 mínútur að svara öllum spurningunum. Gert er ráð fyrir að þú svarir spurningalistanum á vinnutíma. Vinsamlega svaraðu listanum sem fyrst eftir að þú færð hann í hendur.

Ég geri mér grein fyrir að þú átt líklega mjög annríkt en svör þín skipta miklu máli fyrir gæði rannsóknarinnar og þá möguleika sem hún gefur til að bæta starfsumhverfi þitt og annarra starfsmanna spítalans.

Þegar þú hefur svarað spurningunum vinsamlega settu listann í umslagið sem fylgir fyrir innanhússpóst.

Ef þú hefur spurningar varðandi rannsóknina er mér ljúft að svara þeim.

Með þakklæti fyrir samstarfið,

Sigrún Gunnarsdóttir, hjúkrunarfræðingur MSc
Landspítala - háskólasjúkrahúsi, Eiríksgötu 19,
netfang sigrungu@landspitali.is, sími 543 1430

Reykjavík 2002

Spurningalistanum er skipt í 7 hluta.
Listinn er hannaður miðað við aðstæður almennra hjúkrunarfræðinga og ljósmæðra.
Vinsamlega svaraðu spurningunum eins og best á við um starf þitt núna.

A hluti: Núverandi starf
Spurningar um starfshlutfall, starfsheiti, svið, starfsaldur og vinnutíma.

B hluti: Vinnuumhverfi
Spurningar um vinnuumhverfi, starfsskilyrði og samskipti á sjúkrahúsinu.

C hluti: Viðhorf til vinnunnar
Spurningar um viðhorf til vinnunnar og líðan í starfi. Þessar spurningar byggja á margprófuðu mælitæki (HSS). Sumar spurningarnar eru nokkuð persónulegar en mikilvægar til að greina líðan hjúkrunarfræðinga / ljósmæðra í starfi og viðhorf þeirra til vinnunnar.

D hluti: Starfið á deildinni
Spurningar um starf þitt sem hjúkrunarfræðingur / ljósmóðir og viðhorf þín til þeirrar hjúkrunar sem veitt er á deildinni þinni.

E hluti: Líðan, veikindi og óhöpp
Spurningar um almenna líðan, veikindafjarvistir og stunguóhöpp.

F hluti: Síðasti vinnudagur
Spurningar um síðasta vinnudag sem þú vannst, fjölda sjúklinga í þinni umsjón, hjúkrunarþyngd og gæði hjúkrunarinnar.

G hluti: Bakgrunnsspurningar
Spurningar um aldur, menntun, börn og ættingja á þínu framfæri eða í þinni umsjón.
Áhersla er lögð á að hafa þessar spurningar sem fæstar til að koma í veg fyrir rekjanleika.

Vinsamlega svaraðu öllum spurningunum með því að merkja með penna í kassana eins og við á.

Svörin eru öll nafnlaus og ekki unnt að rekja svör til einstakra þátttakenda.

Allar upplýsingar eru meðhöndlaðar sem trúnaðarmál.

A Núverandi starf þitt

Hér er spurt um starfshlutfall þitt, starfsheiti, svið, starfsaldur og vinnutíma.

Vinsamlega svaraðu öllum spurningunum og merktu við það svar sem best á við um aðstæður þínar nú.

1. Hvert er starfshlutfall þitt á sjúkrahúsinu?
   ☐ 90 – 100% ☐ 70 – 89% ☐ 50 – 69% ☐ 49% eða minna

2. Á hvaða sviði starfar þú?
   ☐ Skurðlækningasvið ☐ Lyflækningasvið I ☐ Lyflækningasvið II ☐ Barnasvið
   ☐ Kvennasvið ☐ Geðsvið ☐ Slysa- og bráðasvið ☐ Endurhæfingarsvið
   ☐ Svæfinga- gjörgæslu- og skurðstofusvið ☐ Öldrunarsvið ☐ Annað

3. Hvert er starfsheiti þitt?
   ☐ Almennur hjúkrunarfræðingur / ljósmóðir
   ☐ Deildarstjóri, verkefnisstjóri, klínískur sérfræðingur eða annað

4. Hversu lengi hefur þú starfað sem:
   Hjúkrunarfræðingur / ljósmóðir
   ☐ 0 – 5 ár ☐ 6 – 15 ár ☐ 16 ár eða lengur
   Hjúkrunarfræðingur / ljósmóðir á spítalanum
   ☐ 0 – 5 ár ☐ 6 – 15 ár ☐ 16 ár eða lengur

5. Hversu langan vinnudag / langar vaktir vinnur þú venjulega:
   ☐ Minna en 8 stundir ☐ 8 stundir ☐ Meira en 8 stunda vaktir (breytilegar vaktir)

6. Hversu oft vinnur þú lengur en umsaminn vinnutíma?
   ☐ Á hverjum vinnudegi ☐ Nokkrum sinnum í viku ☐ Einu sinni í viku
   ☐ Sjaldnar en einu sinni í viku ☐ Aldrei

7. Vinnur þú morgunvaktir / dagvinnu að jafnaði (meira en helming af vinnutíma þínum)? ☐ Já ☐ Nei

8. Vinnur þú næturvaktir að jafnaði (meira en þriðjung af vinnutíma þínum)? ☐ Já ☐ Nei

9. Vinnur þú tvískiptar vaktir (morgun- og kvöldvaktir / morgun- og næturvaktir / kvöld- og næturvaktir)? ☐ Já ☐ Nei

10. Vinnur þú þrískiptar vaktir (morgun-, kvöld- og næturvaktir)? ☐ Já ☐ Nei

11. Tekur þú bakvaktir? ☐ Já ☐ Nei

Könnun á starfsumhverfi hjúkrunarfræðinga og ljósmæðra – 2002

B Vinnuumhverfi (NWI-R*)

*NWI-R – Nursing Work Index – Revised. Þýtt og staðfært með góðfúslegu leyfi Center for Health Outcomes and Policy Research, University of Pennsylvania, USA.

Vinsamlega svaraðu með því að merkja við þá fullyrðingu sem þér finnst best eiga við um núverandi starf þitt.
Athugaðu að þar sem stendur hjúkrunarfræðingur er átt við bæði hjúkrunarfræðinga og ljósmæður.

Eftirfarandi á við um núverandi starf þitt:	Mjög sammála	Frekar sammála	Frekar ósammála	Mjög ósammála
1. Góð mönnun samstarfsstétta gerir mér kleift að verja nægum tíma með sjúklingum mínum.	☐	☐	☐	☐
2. Læknar og hjúkrunarfræðingar vinna vel saman.	☐	☐	☐	☐
3. Gott aðlögunarferli er fyrir nýráðna hjúkrunarfræðinga.	☐	☐	☐	☐
4. Stjórnunarmáti á deildinni er uppbyggilegur fyrir hjúkrunarfræðinga.	☐	☐	☐	☐
5. Laun eru ásættanleg.	☐	☐	☐	☐
6. Hjúkrunarfræðingar ráða ákvörðunum um hjúkrunarfræðilega meðferð.	☐	☐	☐	☐
7. Hjúkrunarfræðingar eru hvattir til starfsþróunar, sí – og endurmenntunar.	☐	☐	☐	☐
8. Möguleikar til starfsframa og starfsþróunar eru fyrir hendi.	☐	☐	☐	☐
9. Almennir hjúkrunarfræðingar hafa tækifæri til að taka þátt í stefnumótun.	☐	☐	☐	☐
10. Stuðningur er við nýjungar í umönnun sjúklinga.	☐	☐	☐	☐
11. Nægur tími og tækifæri eru til að ræða vandamál varðandi umönnun sjúklinga við aðra hjúkrunarfræðinga.	☐	☐	☐	☐
12. Nægur fjöldi hjúkrunarfræðinga er í starfi til að veita sjúklingum góða umönnun.	☐	☐	☐	☐
13. Deildarstjórinn er góður stjórnandi og veitir góða forystu.	☐	☐	☐	☐
14. Framkvæmdastjóri hjúkrunar (hjúkrunarforstjóri) er mjög sýnilegur og aðgengilegur fyrir starfsmenn	☐	☐	☐	☐
15. Sveigjanlegt vaktafyrirkomulag er fyrir hendi.	☐	☐	☐	☐
16. Nægur fjöldi starfsmanna er til að vinna verkin.	☐	☐	☐	☐
17. Frelsi er til að taka mikilvægar ákvarðanir um meðferð sjúklinga og vinnufyrirkomulag.	☐	☐	☐	☐
18. Hrós og viðurkenning er veitt fyrir vel unnin störf.	☐	☐	☐	☐
19. Hjúkrunarfræðingar hafa tækifæri til að ráðfæra sig við klíníska sérfræðinga og aðra sérfræðinga í hjúkrun.	☐	☐	☐	☐
20. Góð samvinna er við aðrar deildir sjúkrahússins.	☐	☐	☐	☐
21. Ég er ekki sett (-ur) í þá aðstöðu að þurfa að gera eitthvað sem stríðir gegn dómgreind minni sem hjúkrunarfræðingur.	☐	☐	☐	☐
22. Framkvæmdastjórn sjúkrahússins gerir kröfu um hágæða hjúkrun.	☐	☐	☐	☐
23. Framkvæmdastjóri hjúkrunar (hjúkrunarforstjóri) hefur jöfn völd og áhrif og aðrir framkvæmdastjórar spítalans.	☐	☐	☐	☐
24. Mikil teymisvinna er á milli lækna og hjúkrunarfræðinga.	☐	☐	☐	☐
25. Læknar veita hágæða læknisþjónustu.	☐	☐	☐	☐
26. Möguleikar á stöðuhækkun eru fyrir hendi.	☐	☐	☐	☐

B Vinnuumhverfi (framhald)

Eftirfarandi á við um núverandi starf þitt:	Mjög sammála	Frekar sammála	Frekar ósammála	Mjög ósammála
27. Hjúkrunarfræðingar eru studdir til framhaldsnáms í hjúkrun.	☐	☐	☐	☐
28. Skýr hugmyndafræði hjúkrunar býr að baki allri umönnun sjúklinga.	☐	☐	☐	☐
29. Hjúkrunarfræðingar taka virkan þátt í að fylgjast með kostnaði.	☐	☐	☐	☐
30. Ég starfa með hjúkrunarfræðingum sem eru klínískt hæfir.	☐	☐	☐	☐
31. Hjúkrunarfræðingar taka þátt í vali á nýjum búnaði.	☐	☐	☐	☐
32. Deildarstjóri styður hjúkrunarfræðinga í ákvarðanatöku, jafnvel þó deilt sé við lækni.	☐	☐	☐	☐
33. Sviðsstjórar hlusta á og bregðast við áhyggjum starfsmanna.	☐	☐	☐	☐
34. Skipulagt mat og endurskoðun er á gæðum þjónustunnar.	☐	☐	☐	☐
35. Almennir hjúkrunarfræðingar taka þátt í innra stjórnskipulagi spítalans (t.d. í nefndum um verklag og stefnumótun).	☐	☐	☐	☐
36. Samstarf er á milli lækna og hjúkrunarfræðinga.	☐	☐	☐	☐
37. Nýútskrifaðir hjúkrunarfræðingar fá leiðsögn og stuðning frá reyndum hjúkrunarfræðingi.	☐	☐	☐	☐
38. Hjúkrun grundvallast á hugmyndafræði hjúkrunar fremur en læknisfræðilegu líkani.	☐	☐	☐	☐
39. Almennir hjúkrunarfræðingar hafa tækifæri til að starfa í nefndum á vegum stjórnar spítalans.	☐	☐	☐	☐
40. Í opinberum yfirlýsingum og skýrslum stjórnar spítalans er framlag hjúkrunar viðurkennt.	☐	☐	☐	☐
41. Sviðsstjórar hjúkrunar ráðfæra sig við samstarfsmenn um dagleg viðfangsefni og vinnuaðferðir.	☐	☐	☐	☐
42. Vinnuaðstaða er góð, aðlaðandi og þægileg.	☐	☐	☐	☐
43. Tækifæri eru til að vinna á sjúkradeildum þar sem stunduð er mjög sérhæfð umönnun.	☐	☐	☐	☐
44. Skráðar og uppfærðar hjúkrunaráætlanir eru fyrir alla sjúklinga.	☐	☐	☐	☐
45. Úthlutun verkefna miðar að samfellu í umönnun sjúklinga (sami hjúkrunarfræðingurinn annast sjúkling frá degi til dags).	☐	☐	☐	☐
46. Hjúkrunarfræðingar þurfa ekki að sinna verkefnum á öðrum deildum.	☐	☐	☐	☐
47. Hjúkrunarfræðingar taka virkan þátt í að skipuleggja eigin vaktaskýrslu (þ.e. hvenær vinna, hvenær í frí o.s.frv.).	☐	☐	☐	☐
48. Hver deild gerir eigin áætlanir og setur sér starfsreglur.	☐	☐	☐	☐
49. Ég vinn með reyndum hjúkrunarfræðingum sem þekkja spítalakerfið.	☐	☐	☐	☐
50. Hjúkrunarfræðingar og aðrir starfsmenn við umönnun eiga gott samstarf.	☐	☐	☐	☐
51. Hjúkrunargreiningar eru notaðar.	☐	☐	☐	☐
52. Stjórnendur nota mistök sem tækifæri til að læra af en ekki til að gagnrýna.	☐	☐	☐	☐

C Viðhorf til vinnunnar (HSS*)

Hér eru spurningar um viðhorf þín til vinnunnar og líðan þína í starfi.
Vinsamlega merktu við aldrei ef þú hefur aldrei upplifað það sem um er spurt, annars hversu oft eftir því sem við á miðað við starf þitt nú.

	Aldrei	Nokkrum sinnum eða sjaldnar á ári	Einu sinni í mánuði	Nokkrum sinnum í mánuði	Einu sinni í viku	Nokkrum sinnum í viku	Á hverjum degi
1. Mér finnst ég vera tilfinningalega úrvinda vegna vinnu minnar.	☐	☐	☐	☐	☐	☐	☐
2. Mér finnst ég útkeyrð (-ur) í lok vinnudags.	☐	☐	☐	☐	☐	☐	☐
3. Ég verð þreytt (-ur) á morgnana af tilhugsuninni um að þurfa að fara í vinnuna enn einn daginn.	☐	☐	☐	☐	☐	☐	☐
4. Ég get auðveldlega skilið hvernig sjúklingum mínum líður.	☐	☐	☐	☐	☐	☐	☐
5. Mér finnst framkoma mín við suma sjúklinga vera ópersónuleg.	☐	☐	☐	☐	☐	☐	☐
6. Það er verulegt álag á mig að vinna með fólki allan daginn.	☐	☐	☐	☐	☐	☐	☐
7. Ég leysi úr vandamálum sjúklinga minna á mjög skilvirkan hátt.	☐	☐	☐	☐	☐	☐	☐
8. Mér finnst ég vera kulnuð (-aður) vegna vinnu minnar.	☐	☐	☐	☐	☐	☐	☐
9. Mér finnst ég hafa jákvæð áhrif á líf annars fólks.	☐	☐	☐	☐	☐	☐	☐
10. Ég er orðin(-n) meira harðbrjósta gagnvart fólki eftir að ég byrjaði í þessu starfi.	☐	☐	☐	☐	☐	☐	☐
11. Ég hef áhyggjur af því að þetta starf geri mig tilfinningalega kalda (-n).	☐	☐	☐	☐	☐	☐	☐
12. Mér finnst ég hafa mikla orku.	☐	☐	☐	☐	☐	☐	☐
13. Mér finnst ég vera svekkt (-ur) á vinnunni.	☐	☐	☐	☐	☐	☐	☐
14. Mér finnst álagið of mikið á mig í vinnunni.	☐	☐	☐	☐	☐	☐	☐
15. Ég læt mér í léttu rúmi liggja hvað verður um suma sjúklinga.	☐	☐	☐	☐	☐	☐	☐
16. Það veldur mér of mikilli streitu að vinna í návígi við fólk.	☐	☐	☐	☐	☐	☐	☐
17. Ég á auðvelt með að skapa afslappað andrúmsloft hjá sjúklingum mínum.	☐	☐	☐	☐	☐	☐	☐
18. Mér tekst að koma til leiðar mörgu mikilsverðu í þessari vinnu.	☐	☐	☐	☐	☐	☐	☐
19. Mér finnst uppörvandi að vinna náið með sjúklingum mínum.	☐	☐	☐	☐	☐	☐	☐
20. Mér finnst ég vera komin (-n) á ystu nöf.	☐	☐	☐	☐	☐	☐	☐
21. Mér tekst að leysa tilfinningaleg vandamál í vinnunni á mjög yfirvegaðan hátt.	☐	☐	☐	☐	☐	☐	☐
22. Mér finnst sjúklingarnir kenna mér um sum vandamál sín.	☐	☐	☐	☐	☐	☐	☐
23. Ég fer úr vinnunni sátt (-ur) við það sem ég upplifði við hjúkrunina.	☐	☐	☐	☐	☐	☐	☐
24. Ég fer úr vinnunni vonsvikin (-n) og svekkt (-ur).	☐	☐	☐	☐	☐	☐	☐
25. Ég fer úr vinnunni vitandi að ég hef ekki unnið vel.	☐	☐	☐	☐	☐	☐	☐

D Starfið á deildinni

Hér er spurt um starf þitt sem hjúkrunarfræðingur / ljósmóðir og um viðhorf þín til þeirrar hjúkrunar sem er veitt á deildinni þinni.
Vinsamlega merktu við viðeigandi svar miðað við starf þitt nú.

1. Almennt séð, hversu ánægð(-ur) ertu í núverandi starfi?	Mjög óánægð(-ur) ☐	Nokkuð óánægð(-ur) ☐	Nokkuð ánægð(-ur) ☐	Mjög ánægð(-ur) ☐
2. Burt séð frá þínu núverandi starfi, hversu ánægð(-ur) ert þú með að vera hjúkrunarfræðingur / ljósmóðir?	Mjög óánægð(-ur) ☐	Nokkuð óánægð(-ur) ☐	Nokkuð ánægð(-ur) ☐	Mjög ánægð(-ur) ☐
3. Ef þú lítur til næstu 12 mánaða, hversu líklegt telur þú að þú missir vinnuna?	Mjög líklegt ☐	Nokkuð líklegt ☐	Ekki mjög líklegt ☐	Alls ekki líklegt ☐
4. Hefur þú í hyggju að láta af núverandi hjúkrunarstarfi / ljósmóðurstarfi?	Já, á næstu 6 mán. ☐	Já, á næstu 12 mán. ☐	Nei, ekki næsta árið ☐	
5. Ef þú værir að leita að öðru starfi, hversu auðvelt eða erfitt telur þú að það væri fyrir þig að finna annað ásættanlegt starf við hjúkrun / ljósmóðurstörf?	Mjög auðvelt ☐	Nokkuð auðvelt ☐	Nokkuð erfitt ☐	Mjög erfitt ☐
6. Almennt séð, hvernig myndir þú lýsa gæðum þeirrar hjúkrunar sem sjúklingum á þinni deild / einingu er veitt?	Framúr-skarandi ☐	Góð ☐	Sæmileg ☐	Léleg ☐
7. Hvernig telur þú gæði umönnunar sjúklinga á sjúkrahúsinu hafa breyst síðastliðið ár?	Batnað ☐	Haldist í sama horfi ☐	Hrakað ☐	
8. Hversu örugg(-ur) ert þú um eftirfarandi:	Mjög örugg(-ur)	Örugg(-ur)	Nokkuð örugg(-ur)	Alls ekki örugg(-ur)
a. Að sjúklingar þínir geti ráðið við eigin umönnun eftir útskrift af deildinni / sjúkrahúsinu?	☐	☐	☐	☐
b. Að sjúklingar þínir fái nægan stuðning frá fjölskyldu eftir útskrift af deildinni / sjúkrahúsinu?	☐	☐	☐	☐
c. Að sjúklingar þínir fái næga félagslega þjónustu eftir útskrift af deildinni / sjúkrahúsinu?	☐	☐	☐	☐
d. Að þú fáir nægan stuðning þegar þú segir frá aðstæðum þar sem þú gast ekki uppfyllt faglegar kröfur við umönnun sjúklinga?	☐	☐	☐	☐

9. Hversu mikið hefur sá tími breyst sem þú hefur varið til eftirtalinna verkefna undanfarna 12 mánuði?	Minnkað mjög mikið	Minnkað nokkuð	Ekkert breyst	Aukist nokkuð	Aukist mjög mikið
a. Umsýsla (t.d. gera vaktaskýrslur, fjárhagsáætlanir, vaktstjórn)	☐	☐	☐	☐	☐
b. Tæknileg verkefni (t.d. taka blóðprufur, panta röntgen myndatöku, setja upp æðalegg)	☐	☐	☐	☐	☐
c. Önnur þjónusta (t.d. bera inn og taka út matarbakka, þrífa, panta og ganga frá birgðum)	☐	☐	☐	☐	☐
d. Ritarastörf (t.d. svara síma, sjá um sjúklingabókhald og skjalavörslu)	☐	☐	☐	☐	☐

E Líðan, veikindi og óhöpp

Hér eru spurningar um nokkra þætti sem snerta líðan þína, veikindafjarvistir og stunguóhöpp.
Vinsamlega merktu við viðeigandi svar.

1. Hvernig metur þú heilsu þína almennt?	Mjög góða ☐	Góða ☐	Hvorki góða né slæma ☐	Slæma ☐	Mjög slæma ☐
2. Hversu mikið truflar andleg vanlíðan þig almennt?	Alls ekkert ☐	Mjög lítið ☐	Nokkuð ☐	Talsvert ☐	Mjög mikið ☐
3. Að hve miklu leyti takmarkar líkamleg heilsa þín almennt hreyfigetu þína?	Alls ekkert ☐	Mjög lítið ☐	Nokkuð ☐	Talsvert ☐	Mjög mikið ☐
4. Hversu oft (hve mörgum sinnum, um það bil) hefur þú verið fjarverandi vegna veikinda síðastliðna 12 mánuði?	Aldrei ☐	1–5 sinnum ☐	6–11 sinnum ☐	12–23 sinnum ☐	24 sinnum eða oftar ☐
5. Hversu oft hefur þú verið fjarverandi vegna veikinda síðastliðna 3 mánuði?	Aldrei ☐	Einu sinni ☐	Tvisvar sinnum ☐	Þrisvar sinnum ☐	Oftar en þrisvar sinnum ☐

Ef þú hefur ekki verið fjarverandi vegna veikinda undanfarna mánuði vinsamlega svaraðu næst spurningu númer 9.

6. Hversu marga vinnudaga /vaktir samanlagt (um það bil) hefur þú verið fjarverandi vegna veikinda síðastliðna 12 mánuði?	1–5 daga ☐	6–11 daga ☐	12–17 daga ☐	18–35 daga ☐	36 daga eða fleiri ☐
7. Hversu marga vinnudaga / vaktir samanlagt (um það bil) hefur þú verið fjarverandi vegna veikinda síðastliðna 3 mánuði?	1–2 daga ☐	3–4 daga ☐	5–6 daga ☐	7–13 daga ☐	14 daga eða fleiri ☐

8. Þegar þú varst síðast fjarverandi vegna veikinda, hver var aðalorsökin?

- ☐ Líkamleg veikindi
- ☐ Andleg vanlíðan
- ☐ Slys / áverki (tengt vinnu)
- ☐ Slys / áverki (ekki tengt vinnu)
- ☐ Veikt barn
- ☐ Önnur veikindi eða áföll í fjölskyldunni
- ☐ Gat ekki fengið frí sem ég þurfti á að halda.
- ☐ Aðrar orsakir

9. Hefur þú einhvern tíma stungið þig á nál eða oddhvössum hlut sem hefur verið notaður við meðhöndlun sjúklings?	☐ Já	☐ Nei				
Ef já:			Aldrei	Einu sinni	Tvisvar sinnum	Þrisvar sinnum	Oftar en þrisvar sinnum
a) Hversu oft hefur þetta komið fyrir á hjúkrunarferli / ljósmæðraferli þínum?			☐	☐	☐	☐	☐
b) Hversu oft kom þetta fyrir síðastliðna 12 mánuði?			☐	☐	☐	☐	☐
c) Hversu oft kom þetta fyrir síðastliðinn mánuð?			☐	☐	☐	☐	☐

Könnun á starfsumhverfi hjúkrunarfræðinga og ljósmæðra – 2002

F Síðasti vinnudagur

Hér eru nokkrar spurningar um síðasta vinnudag / síðustu vakt (síðustu heilu vakt) sem þú vannst í aðalstarfi þínu.
Vinsamlega merktu við eftir því sem best á við um starf þitt.

1. Hvers konar vakt / vinnudag vannst þú síðast? — Morgunvakt ☐ Kvöldvakt ☐ Næturvakt ☐ Annað ☐

2. Hver er fjöldi skráðra rúma á deildinni þinni?
☐ 0 ☐ 1-5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri

Hver var fjöldi sjúklinga á deildinni þinni þegar þú varst síðast á vakt?
(Fjöldi sjúklinga á deildinni meginhluta vaktarinnar)
☐ 0 ☐ 1-5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri

3. Hversu margir af þessum sjúklingum voru í þinni umsjón?
☐ 1-5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri ☐ Á ekki við

4. Hverjar voru þarfir sjúklinga þinna, sbr. spurningu nr. 3 hér að ofan, miðað við getu þeirra við athafnir daglegs lífs.

Þurftu aðstoð við allar athafnir dagslegs lífs. Fjöldi þeirra sjúklinga:
☐ 1 ☐ 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri ☐ Á ekki við

Þurftu aðstoð við flestar athafnir daglegs lífs. Fjöldi þeirra sjúklinga:
☐ 1 ☐ 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri ☐ Á ekki við

Þurftu aðstoð við sumar athafnir daglegs lífs Fjöldi þeirra sjúklinga:
☐ 1 ☐ 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri ☐ Á ekki við

Að mestu sjálfbjarga. Fjöldi þeirra sjúklinga:
☐ 1 ☐ 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 – 20 ☐ 21 eða fleiri ☐ Á ekki við

5. Hve margir / margar hjúkrunarfræðingar / ljósmæður unnu með þér á síðustu vakt?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

Hve margir / margar af þeim voru undir þinni umsjón?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

6. Hve margir nemar (hjúkrunarnemar, ljósmæðranemar, sjúkraliðanemar o.s.frv.) unnu með þér á síðustu vakt?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

Hve margir af þeim voru undir þinni umsjón?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

7. Hve margir sjúkraliðar unnu með þér á síðustu vakt?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

Hve margir af þeim voru undir þinni umsjón?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

8. Hve margir ófaglærðir starfsmenn unnu með þér á síðustu vakt?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

Hve margir af þeim voru undir þinni umsjón?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

9. Hve margir hjúkrunarritarar unnu með þér á síðustu vakt?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

Hve margir af þeim voru undir þinni umsjón?
☐ 1 ☐ 2 ☐ 3 – 4 ☐ 5 – 6 ☐ 7 – 8 ☐ 9 eða fleiri ☐ Á ekki við

10. Hvernig myndir þú lýsa gæðum þeirrar hjúkrunar sem var veitt á síðustu vakt sem þú vannst? — Framúrskarandi ☐ Góð ☐ Sæmileg ☐ Léleg ☐

G Bakgrunnspurningar

Hér á eftir eru spurningar um aldur, menntun, börn og ættingja á þínu framfæri eða í þinni umsjón.

1. Aldur

☐ 20 – 30 ára ☐ 31 - 40 ára ☐ 41 – 50 ára ☐ 51 – 60 ára ☐ 61 árs eða eldri

2. Menntun:

☐ Hjúkrunarfræðingur / ljósmóðir

☐ Framhaldsnám / viðbótarnám að loknu prófi í hjúkrunarfræði (t.d. í stjórnun, svæfingahjúkrun, ljósmóðurfræði, kennslufræði og svo framvegis)

☐ Frekara nám til háskólagráðu í hjúkrunarfræði eða öðrum greinum (t.d. MS, MA gráða)

3. Börn (yngri en 18 ára) á þínu framfæri sem búa hjá þér ☐ Já ☐ Nei

4. Aðrir ættingjar sem að einhverju leyti eru hjálparþurfi sem búa hjá þér ☐ Já ☐ Nei

Kærar þakkir fyrir þátttökuna og þann tíma sem þú gafst þér til að svara spurningalistanum.

Vinsamlega settu spurningalistann í meðfylgjandi umslag og sendu það lokað í innanhússpósti LSH.

Allar upplýsingar eru meðhöndlaðar sem trúnaðarmál og rannsakendur einir hafa aðgang að frumgögnum.

Appendix 4b: Questions on demographics

An English version of the adaptation to Icelandic nursing of questions about demographical and nurse characteristics information in the IHOS instrument (sections A and G)

Question [section & number]:

Job title [A3]
- Nurse/Midwife
- Manager/Specialist

Directorate / Speciality [A2]
- Surgical
- Medical I
- Medical II
- Children
- Women
- Psychiatric
- Accident/Emergency
- Intensive Care/Operation rooms
- Elderly
- Other

Years worked as nurse/midwife [A4a]
- 0-5
- 6-15
- > 16

Years worked hospital [A4b]
- 0-5
- 6-15
- > 16

Current job percentage [A1]
- 90-100%
- 70-89%
- 50-69%
- <49%

Appendix 4b continued:

Question [section & number]:

Hours worked shift/day [A5]
- <8
- 8
- >8

Work more than contracted hours [A6]
- Daily
- Few times a week
- Once a week
- <Once a week
- Never

Type of shift
- Early > 50% [A7]
- Night > 33% [A8]
- Two types [A9]
- Three types [A10]
- On call [A11]

Age [G1]
- 20-30 y
- 31-40 y
- 41-50 y
- 51-60 y
- >60 y

Education [G2]
- Post-basic (yes or no)
- Master's prepared (yes or no)

Appendix 4c: Additional questions on well-being

Three questions were added to section E in the Icelandic version of the IHOS instrument on perceived physical and mental well-being. These questions have been widely used in Scandinavian studies (Administration of Occupational Health and Safety, 2001). The measures were used as control variables in the subsequent data analysis (see table 15 page 156). The English version of these three questions is provided:

E-1: How do you estimate your health in general?

Very good

Good

Neither good nor poor

Poor

Very poor

E-2: How much does mental health discomfort disturb you in general?

Not at all

Very little

Somewhat

Much

Very much

E-3: How much does your physical health limit your mobility in general?

Not at all

Very little

Somewhat

Much

Very much

Appendix 4d: Cover letter for survey - English translation

(Front letter of the Icelandic Magnet questionnaire – an English translation)

Study of work environment of nurses and midwives in Landspitali – University Hospital

CONFIDENTIAL

Dear nurse / midwife

Following is a questionnaire for my study about work environment of nurses and midwives at Landpitali – University Hospital which I kindly ask you to answer. Your participation is very important for the aims of the study to describe the relationship between work environment and well being at work and the quality of the service as well as to look for possible improvement in this matter.

The study gives the staff and adiminstration of the hospital new opportunities to see how communication, management style, job satisfaction and the quality of the service is coherent and to discover new intervetions for improvements. The questionnaire is anonymous and it is not possible to indentify the views of individuals in the survey results. Staff and administration of the hospital will be imformed about the results of the study but reserachers alone will have access to the data.

The study is a PhD project at the London School of Hygiene and Tropical Medicine and is a part of an international study. The resercher's supervisor is Dr. Anne Marie Rafferty and she is responsible for the study (Keppel Street WC 1E 7 HT, London, tel. 44 207 927 2305). The study is also conducted in cooperation with the Instiute of Occupational Health.

The study is conducted following permission of the National Bioethics Committee and has been reported to the Data Protection Authority. If you have any questions about your right as a participant in the study you are free to contact the National Bioethics Committee, Laugavegi 103, 105 Reykjavik, tel. 551 7100.

The questionnaire has several sections and I ask you kindly to answer all the questions in accordance with your feelings about your present job and work conditions. It takes about 20 – 30 minutes to complete the questionnaire. It is recommended that to fill in the questionnaire during working hours. Please answer the questionnaire as soon as possible after you have received it.

I realise that you are most likely very busy but your answers are important for the quality of the study and the possibilities it provides for improvements of you own working environment and of your co-workers.

When you have answered all the questions please return it in internal post in the envelope provided.

If you have any questions about the study I am pleased to answer them.

Thank you very much for the co-operation.

sign

Sigrun Gunnarsdottir, RN, MSc
Landspitali – University Hospital, Eiriksgata 19
e-mail: sigrungu@landspitali.is, tel. 543 1430

Reykjavík 2002

Appendix 5: Questions on work history and codes

Variables description	Coding
Full-time/part-time work (%)	1=90-100; 2=70-89; 3=50-69; 4<50
Directorate	1=surgical; 2=medical I (+rehab); 3=medical II; 4=children; 5=women; 6=psychiatric; 7=accident, emergency; 8=intensive care; 9=elderly; 10=other
Title	1=nurse/midwife; 2=manager, clinical specialist, project manager
Work experience (years)	1=0-5; 2=6-15; 3>15
Work hours	1<8; 2=8; 3>8
Overtime	
Early shifts	1=Yes; 2=No
Night shifts	1=Yes; 2=No
Two types	1=Yes; 2=No
Three types	1=Yes; 2=No
On call	1=Yes; 2=No

Appendix 6: Factor analysis of NWI-R data

Why was the NWI-R data factor analysed?

According to previously published studies there are signs that the structure of the most widely-used NWI-R sub-scales may need re-consideration; some of these scales are different across studies in terms of names and clusters of items within individual sub-scales (Aiken and Patrician, 2000; Estabrook et al., 2002; Lake, 2002; Rafferty et al., 2001) (see appendix 1) and because in some cases the same item belongs to more than two scales (Aiken & Patrician, 2000). The structure of the most widely-used NWI-R sub-scales is not based on empirical data (Aiken & Patrician, 2000) and previous publications have considered the usefulness of these scales, e.g. the ability of the NWI-R to measures nurse autonomy because it has not been confirmed by empirical data (Lake, 2002). Similarly, the most widely used NWI-R sub-scale to measure nurse autonomy (Aiken & Patrician, 2000) has been questioned by a recent review on the literature (Tranmer, 2005). The conceptual foundation of this nurse autonomy scale has also been questioned (Kramer & Schmalenberg, 2003b), as well as the background of the scale about control over practice (Kramer & Schmalenberg, 2003a). In addition, it has been proposed that the NWI-R might be one-scale inventory (Estabrook et al., 2002).

Given these considerations about the usefulness of the published NWI-R sub-scales and the potential importance of language and culture when used in an Icelandic setting, it was decided to conduct exploratory factor analysis of the NWI-R data for the present study. The factor analysis was conducted to create factor analytic-based measures in preparation for subsequent data analyses to address the research questions. Factor analysis was appropriate for the present study because, firstly, the NWI-R includes dimensional latent variables accounted for item correlation, and, secondly the sample size was large enough (N=695).

What was done?

Principal axis factoring was conducted on the NWI-R data to identify meaningful and interpretable components of LSH nurses´ working environment, to look for a

generalisable factor structure, and to extract as many latent factors as necessary to explain the correlations among the items (Reise, Walker et al., 2000). Confirmatory factor analysis was also considered but was not feasible as empirical studies on NWI-R sub-scales were limited and previous publications present conflicting findings about the scale structures (Aiken and Patrician, 2000; Estabrook et al., 2002; Lake, 2002; Rafferty et al., 2001).

Oblique rotation was preferred over varimax rotation due to the conceptual link between factors. To increase the interpretability of factors, they were rotated without changing the underlying mathematical properties. First varimax rotation was tried as one of the published solutions on factor analysis on NWI-R data used this method (Lake, 2002). However, findings showed that the oblique rotation was more appropriate as the correlation between factors was estimated between 0.3 and 0.5 (Pearson correlation), i.e. the factors could not theoretically be assumed to be independent (Tabachnick and Fidell, 2001).

Before the creation of factor variables, missing values on items and cases were considered. Missing values on items and cases were inspected visually looking for items associated with high ratio of missing values. It was decided to exclude items with more than 10% missing values (two items). Items with low loadings (<0.3) and items with high loadings on two factors were excluded (five items) (Reise, Walker et al., 2000). Cases were included if 44 of the 52 items were answered (15 items). These criteria suggested the exclusion of 22 items of the original 52 NWI-R items from final the analysis of the NWI-R data.

Scree test was used to decide the number of factors to be extracted from the correlation matrix of NWI-R items. After visual analysis of the scree plot, the five factors were extracted according to the location of an elbow and turning points on the graphical line (Reise, Walker et al., 2000). Sub-scales were only moderately correlated with each other (Pearson coefficient: 0.3–0.4 according to factor correlation matrix) confirming that they pre-presented independent constructs. Items with a loading higher than 0.3 were included within each sub-scale. If loadings were on more than two factors, the conceptual link was used to decide where to place the item (Tabachnick and Fidell, 2001).

To avoid under- and over-extraction, solutions with four, six and more factors were also examined. Published recommendation to avoid under-extraction, even at

the risk of over-extraction, was considered (Wood, Tataryn et al., 1996). In the four-factor solution, some items were eliminated that were retained in the five-factor solution and, in addition, conceptually unrelated items grouped together. For the six-factor solution, some items moved across factors and loaded on conceptually inappropriate factors. The five-factor solution was readily interpretable, explained 34% of the variance, had a simple structure, was conceptually supported and had high loadings (>0.5) for relatively many items on each scale (Tabachnick and Fidell, 2001; Wood, Tataryn et al., 1996).

To check the stability of the five-factor solution, the analysis was repeated with a series of 33% random samples indicating same solution with almost no exceptions for item loadings on different factors. Adequacy of extraction is tied to number of factors, enough for an adequate fit but not too sparing (Tabachnick and Fidell, 2001). If too few factors are extracted, important distinctions among items may be missed, and if too many dimensions are retained the factors may be ill defined (Reise, Walker et al., 2000). Finally, to evaluate the validity of the constructs their meaningfulness was evaluated and their consistency with prior research.

What came out of the factor analysis?

Sub-scale scores were computed and factor variables were created by calculating means on items within each factor. The five sub-scales structure provided a profile of key domains in the nursing practice environment at LSH (table 4 page 146). Sub-scales were weakly correlated with each other (Pearson co-efficient: 0.3–0.4). The number of items within each scale ranged from four to nine. The longer scales are considered to being stronger than the shorter scales (Tabachnick and Fidell, 2001).

Despite the treatment of missing data, statistical power was ensured and 96% or more of the subjects were included for each of the five NWI-R sub-scales. For the sub-scale on nurse and doctor working relationships, 98% of the subjects were included (with values on at least three of four items); for unit level support, 96% of the subjects were included (with values on at least six of eight items); for staffing, 98% of the subjects were included (with values on at least three of four items); for philosophy of nursing, 96% of the subjects were included (with values on at least

four of five items); and for the sub-scale on hospital level support, 96% of the subjects were included (with values on at least seven of nine items).

As can be seen in table 4 page 146, the first subscale (nurse-doctor working relationships) measured working relationships between nurses and doctors and the doctors' competence to give high-quality care. Three of the four items on this scale are the same as for a corresponding scale in previous publications (e.g. Aiken & Patrician, 2000; Lake, 2002).

The second sub-scale (unit level support) measured managerial support at the unit level, back-up from unit managers, opportunities to develop professionally and influence shift patterns. Four of the eight items on this sub-scale are the same as on a nine-item scale of nurse management and leadership in a previously published solution by Lake (2002)

The third sub-scale (staffing adequacy) measured adequacy of staff and covered enough numbers of nurses, staff, support services and time to discuss with other nurses. The four items on this scale are the same as in Lake's sub-scale of staffing and resources (Lake, 2002).

The fourth sub-scale (philosophy of nursing) measured philosophy of the nursing practice about nursing plans, nursing diagnosis, nursing philosophy and opportunity to work on highly specialised wards. Four of the five items that clustered to this sub-scale are the same as in the ten-item sub-scale on nursing foundation for quality of care published by Lake (2002).

The fifth sub-scale (hospital level support) measured contact with senior management in terms of the visibility of the chief nurse, consultation with staff, reaction to employee concerns, and nurse involvement and opportunity to participate in hospital affairs (nine items). Four of the nine items on this scale are the same as in the nine-item scale of nurse participation in hospital affairs published by Lake (2002).

Cronbach's alpha was chosen as a method for assessing reliability, with a range between 0.0 and 1.0 with higher values reflecting a higher internal consistency (Tabachnick and Fidell, 2001). For this study the internal consistencies of the five NWI-R subscales were satisfactory (alpha: 0.7-0.8). The validity of the five scales was adequate as items within each scale are conceptually related whereas the five

scales were conceptually unrelated (Tabachnick and Fidell, 2001) and item content and factor structure are consistent with what is known about the construct (Reise, Walker et al., 2000). It was not possible in this study to evaluate whether factor structure is replicable and generalisable across samples (Reise, Walker et al., 2000).

The five-factor solution in the present study is somewhat different from the conceptually developed sub-scales used by Aiken and her associates (Aiken & Patrician, 2000). The one factor solution to the NWI-R has been suggested by nurse researchers based on findings from a study of Canadian nurses (Estabrook et al., 2002), but was not considered to be feasible for the present study based on visual analysis of the scree plot. However, based on the low correlation between factors, the multi-factor solution was supported.

The five-factor solution in the present study was supported by a five-factor solution that emerged from Lake's data (Lake, 2002) and considerable resemblance was indicated between Lake's findings and the findings of present study. However, Lake used varimax rotation, which was not the case in the present study. Additionally, loadings on items are higher in the present study than for Lake's, thus indicating the strength of the present findings. The stability of the solution is supported by the large sample size (N=695) (Guadagnoli & Vellicer, 1988). The differences in solutions may relate to the culture and context of the study and the population characteristics.

Appendix 7: MBI sub-scales

Sub-scales and items after factor analysis of MBI data[1]	Loadings on factors		
	Factor 1	Factor 2	Factor 3
1. Emotional exhaustion (nine items, alpha=0.84)			
c_3 I feel fatigued when I get up in the morning and have to face another day at work	0.75		
c_2 I feel used up at the end of the workday	0.75		
c_1 I feel emotionally drained from my work	0.74		
c_13 I feel frustrated by my job	0.68		
c_14 I feel I'm working too hard at work	0.67		
c_8 I feel burned out from my work	0.61	0.34	
c_20 I feel like I'm at the end of my rope	0.54		
c_6 Working with people all day is really a strain for me	0.48	0.38	
c_16 Working directly with people puts too much stress on me	0.42	0.41	
2. Depersonalisation (five items, alpha= 0.67)			
c_10 I've become more callous toward people since I took this job		0.74	
c_11 I worry that this job is hardening me emotionally		0.73	
c_15 I don't really care what happens to some patients		0.64	
c_5 I feel I treat some patients as if they were impersonal objects		0.53	
c_22 I feel patients blame me for some of their problems		0.44	
3. Personal accomplishment (eight items, alpha= 0.76)			
c_9 I feel I'm positively influencing other people's lives			0.69
c_19 I feel exhilarated after working closely with my patients			0.67
c_18 I accomplish many worthwhile things in this job			0.67
c_17 I can easily create a relaxed atmosphere with my patients			0.63
c_21 In my work, I deal with emotional problems very calmly			0.61
c_7 I deal very effectively with the problems of my patients			0.61
c_12 I feel energetic	0.44		0.50
c_4 I can easily understand how my patients feel about things			0.42

[1]Extraction method: Principal Component Analysis, Varimax Rotation with Kaiser Normalisation

MBI burnout measures; variables and their coding and range:

Variables description	Coding & Range
MBI 25 items	0=never; 1=a few times a year or less; 2=once a month; 3=a few times a month; 4=once a week; 5=a few times a week; 6 every day

Appendix 8: Job satisfaction variables and their codes

Variables description	Coding	Coding for impact analysis
Satisfaction with present job [D1]	1=very dissatisfied 2=a little dissatisfied 3=moderately satisfied 4=very satisfied	1=very satisfied 0=moderately satisfied + a little dissatisfied + very dissatisfied
Satisfied with being a nurse [D2]	1=very dissatisfied 2=a little dissatisfied 3=moderately satisfied 4=very satisfied	
Intention to quit [D4]	1=Yes, next six months 2=Yes, next 12 months 3=No, not the next year	

Appendix 9: Quality of patient care variables and codes

Variables description	Coding	Coding for impact analysis
Quality of unit [D6]	1=excellent; 2=good; 3=fair; 4=poor	1= excellent 0=good + fair + poor
Quality of last shift [F10]	1=excellent; 2=good; 3=fair; 4=poor	
Hospital quality changed [D7]	1=improved; 2=remained the same; 3=deteriorated	

Appendix 10: Questions on demographics and codes

Variables	Coding
Demographics	
Age (years) [G1]	1=20-30; 2=31-40; 3=41-50; 4=51-50; >60
Further education, diploma [G2b]	1=diploma; 2=not diploma
Further education, MSc, MA [G2c]	1=MSc, MA; 2=not MSc, MA
Living with children [G3]	1=Yes 2=No
Living with other relatives [G4]	1=Yes 2=No

Appendix 11: Questions on years of work experience and missing values

Variable [section and number]	Number (%)	
	N	Missing (%)
Years worked as nurse/midwife [A4a]	580	115 (16.5)
Years worked at hospital [A4b]	496	199 (28.6)

Appendix 12: NWI-R data, findings on all items

The following are present in your job ...

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	N	Missing values
1. Adequate support services allow me to spend time with my patients.	24.9%	38.6%	29.0%	7.4%	686	9
2. Doctors and nurses have good working relationships.	26.5%	64.9%	7.4%	1.2%	687	8
3. A good induction programme for newly employed nurses.	27.6%	49.1%	19.2%	4.1%	666	29
4. Ward management that is supportive of nurses.	22.3%	55.0%	18.3%	4.3%	667	28
5. A satisfactory salary.	2.6%	21.0%	46.0%	30.4%	682	13
6. Nursing controls its own practice.	49.2%	47.3%	3.1%	0.4%	683	12
7. Active staff development/continuing education programmes available for nurses.	21.8%	45.7%	25.1%	7.4%	685	10
8. Career development/clinical ladder opportunity.	10.4%	43.9%	37.6%	8.1%	681	14
9. Opportunity for staff nurses to participate in policy decisions.	12.7%	42.4%	35.1%	9.8%	684	11
10. Support for innovative ideas about patient care.	15.9%	63.0%	19.5%	1.6%	673	22
11. Enough time and opportunity to discuss patient care problems with other nurses.	9.9%	43.1%	38.7%	8,3%	687	8
12. Enough registered nurses on staff to provide quality patient care.	11.3%	38.8%	39.1%	10.9%	681	14
13. A ward manager/sister who is a good manager and leader.	34.8%	46.6%	14.6%	4.0%	646	49
14. A director of nursing who is highly visible and accessible to staff.	5.0%	17.9%	44.7%	32.3%	675	20
15. Flexible or modified shift patterns are available.	25.7%	47.8%	19.2%	7.3%	657	38
16. Enough staff to get work done.	10.6%	42.8%	36.0%	10.8%	678	17
17. Freedom to make important patient care and work decisions.	14.0%	60.3%	23.1%	2.7%	672	23
18. Praise and recognition for doing a good job.	15.5%	42.0%	34.4%	8.1%	678	17
19. The opportunity for staff nurses to consult with clinical nurse specialists or experts	14.9%	47.9%	30.7%	6.5%	678	17
20. Good working relationships with other hospital departments.	14.4%	66.1%	17.3%	2.2%	688	7
21. Not being placed in a position of having to do things that are against my nursing judgement.	33.4%	50.7%	12.1%	3.8%	679	16
22. High standards of nursing care are expected to by the Trust.	23.8%	52.3%	19.2%	4.7%	665	30
23. A director of nursing equal in power and authority to other executives on the trust board.	15.1%	52.3%	26.3%	6.2%	581	114
24. A lot of team work between nurses and doctors.	19.2%	48.2%	26.7%	5.9%	682	13
25. Doctors give high quality medical care.	21.0%	61.1%	15.3%	2.6%	666	29
26. There are opportunities for promotion.	3.7%	23.4%	55.1%	17,9%	672	23

Appendix 12 continued

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	N	Missing values
27. Nursing staff are supported in pursuing degrees in nursing.	9.8%	38.7%	39.6%	12.0%	675	20
28. A clear philosophy of nursing throughout the patient care environment.	15.8%	61.5%	20.5%	2.2%	678	17
29. Nurses actively participate in efforts to control costs.	7.6%	37.0%	45.0%	10.5%	687	8
30. Working with nurses who are clinically competent.	54.2%	43.0%	2.3%	0.4%	686	9
31. The nursing staff participates in selecting new equipment.	18.0%	44.2%	29.4%	8.4%	677	18
32. A ward manager/sister who backs up nursing staff in decision making, even if the conflict is with a doctor.	34.8%	50.3%	11.6%	3.4%	656	39
33. Senior management that listens and responds to employee concerns.	10.8%	37.4%	38.3%	13.4%	665	30
34. An active quality assurance/clinical audit programme.	8.9%	40.2%	42.1%	8.8%	662	33
35. Staff nurses are involved in the internal governance of the hospital (e.g. practice and policy committees).	7.4%	28.1%	43.7%	20.8%	659	36
36. Collaboration between nurses and doctors.	28.6%	64.1%	6.1%	1.2%	688	7
37. A preceptor programme for newly qualified RGNs.	48.2%	47.3%	3.7%	0.7%	672	23
38. Nursing care is based on a nursing rather than a medical model.	33.8%	54.6%	10.8%	0.9%	678	17
39. Staff nurses have the opportunity to serve in trust committees.	8.1%	31.7%	46.5%	13.7%	656	39
40. The management of the trust recognises the contributions of nurses in its reports and other public statements.	11.5%	50.0%	32.3%	6.2%	626	69
41. Ward managers consult with staff on daily problems and procedures.	3.5%	16.6%	52.5%	27.3%	651	44
42. A physical work environment that is attractive and comfortable.	14.2%	35.5%	31.1%	19.2%	692	3
43. Opportunity to work on a highly specialised patient care ward.	29.8%	51.5%	13.3%	5.4%	648	47
44. Written up-to-date nursing care plans for all patients.	17.5%	38.8%	32.8%	10.9%	659	36
45. Patient care assignments that foster continuity of care (i.e. the same nurse cares for the patient from one day to the next).	24.1%	54.8%	16.0%	5.0%	642	53
46. Staff nurses do not have to provide cover/ work on wards that are not their own.	51.0%	34.3%	9.4%	5.3%	673	22
47. Staff nurses actively participate in planning their own off-duty schedules (i.e. what days they work. days off etc.)	22.4%	42.8%	22.2%	12.6%	675	20
48. Each ward decides its own policies and procedures.	34.8%	55.8%	8.1%	1.3%	669	26
49. Working with experienced nurses who 'know' the hospital system.	46.7%	50.1%	2.6%	0.6%	683	12
50. Registered nurses and health care assistants have good working relationships.	48.1%	50.1%	1.6%	0.1%	688	7
51. Use of nursing diagnosis	27.8%	37.1%	20.9%	14.1%	665	30
52. Supervisors use mistakes as a learning opportunity	17.5%	56.0%	21.9%	4,6%	653	42

Appendix 13: Variation across nurse specialities at LSH

The clinical directorate is the main organisational unit at LSH that can be used to study the variation across nurse specialities. Clinical directorates are the administrative structure that includes one or more hospital units charged with the care of the same clinical population. The working environment assessments, job outcomes, and quality of care assessments were analysed using one-way ANOVA by directorate/speciality, followed by *post-hoc* comparisons to identify the specific directorates where nurses significantly differed from each other. The findings are presented in tables A and B (see in this appendix) showing means with different superscripts (a,b,c etc) corresponding to significant differences (based on the Tukey test) at the $p<0.05$ level. F test degrees of freedom vary slightly due to small amounts of missing data (one or two cases per directorate for each variable). A series of 10 one-way directorate by variable ANOVAs were performed to determine this (five for the working environment sub-scales of the NWI-R, one for job satisfaction as a continuous variable, three for each of the sub-scales of the MBI, and one for the quality of patient care treated as a continuous variable). Where the omnibus F-tests were significant, they were followed by *post-hoc* Tukey's tests (at the significance level of $p<0.05$) to determine which specific directorates had nurse responses on these variables that were different from the others. Analyses included statistical tests for differences in the dependent and independent variables across directorates as post-hoc tests to determine which directorates had statistically different scores on specific variables.

As seen in table A, all of the five working environment measures differed significantly across directorates. In the case of nurse-doctor relationships, more favourable environments were noted in the surgical directorate, psychiatry, and intensive care, and the higher scores for nurse-doctor relationships were identified by nurses in the directorate of care of the elderly. The directorate with the highest levels of unit-level support is accident/emergency. The women's and children's directorates, as well as medical I, were ranked lowest on this scale. Staffing is rated most favourably in the intensive care and children's directorates and is lowest in medical I. Philosophy of practice is lowest and distinctly different from all other directorates in the emergency area. The intensive care, surgical, elderly and medical

II directorates have the highest ratings on philosophy of practice. The lowest ratings on hospital-level support are found in medical I and the children's directorate, and the best assessments in this area are by nurses in the emergency directorate. Overall, the profiles of the directorates on each of the five practice environment scales are quite different from each other.

As seen in table B, there are no significant differences across directorates on satisfaction with current job, emotional exhaustion or personal accomplishment. There is a significant difference across directorates on depersonalisation with accident/emergency nurses reporting higher depersonalisation and psychiatry nurses having somewhat higher scores not distinguishable from the emergency nurses or any of the other groups. There were significant differences in nurse-assessed quality of care across directorates, with intensive care nurses reporting the highest quality and psychiatric nurses reporting the lowest quality.

In summary, all of the scales measuring working environment perceptions significantly differed across directorates, as did depersonalisation levels and perceptions of the quality of care. There are potential explanations for these differences in terms of the nature of the specialities, the size and spread of the units across the hospital sites, as well as organisational issues. In the regression analyses, examining the relationship of working environments to nurses' job outcomes and nurse-assessed quality, directorate/specialty will be an important control variable.

Table A: Means for the five nurses' working environmental factors across directorates[1]

Directorate/Speciality	Nurse-doctor relationsh.	Unit-level support	Staffing	Philosophy of practice	Hospital-level support
Surgical (n=94)	3.02^{ab}	2.98^{ab}	2.63^{abc}	3.02^{abc}	2.29^{ab}
Medical I (n=89)	2.92^{a}	2.87^{a}	2.33^{a}	2.91^{a}	2.12^{a}
Medical II (n=38)	2.98^{a}	3.00^{ab}	2.65^{abc}	3.23^{c}	$2.51b^{c}$
Children (n=52)	2.99^{a}	2.86^{a}	2.75^{c}	2.92^{ab}	2.21^{a}
Women (n=86)	2.97^{a}	2.80^{a}	2.59^{abc}	2.85^{a}	2.36^{abc}
Psychiatry (n=55)	3.10^{ab}	2.91^{ab}	2.35^{ab}	2.76^{a}	2.37^{abc}
Accident/Emergency (n=77)	2.95^{a}	3.17^{b}	2.61^{abc}	2.45	2.38^{abc}
Intensive care (n=96)	3.14^{ab}	2.92^{ab}	2.78^{c}	3.02^{abc}	2.32^{abc}
Elderly (n=50)	3.28^{b}	2.97^{ab}	2.70^{bc}	3.19^{bc}	2.58^{c}
F statistic degrees of freedom	8. 626	8. 622	8. 627	8. 614	8. 616
F-statistic	3.16	3.12	4.37	11.54	4.57
Significance level	0.002	0.002	<0.001	<0.001	<0.001

[1] Higher scores correspond to more favourable positive environments.

Table B: Means for nurse job outcomes and nurse-rated quality of care[1] across directorates

Directorate/speciality	Job satisfaction	Emotional exhaustion	Depersonal-isation	Personal accom-plishment	Quality of care on unit
Surgical (n=99)	3.13	13.46	3.30[a]	39.31	1.79[abc]
Medical I (n=92)	2.92	14.32	3.46[a]	39.75	1.82[abc]
Medical II (n=39)	3.21	14.16	3.44[a]	38.95	1.69[ab]
Children (n=55)	3.27	12.25	3.25[a]	38.80	1.83[abc]
Women (n=92)	3.15	12.55	3.49[a]	40.38	1.79[ab]
Psychiatry (n=56)	3.93	15.95	4.20[ab]	40.81	2.04[c]
Accident/Emergency (n=82)	3.05	13.92	6.03[b]	40.16	1.89[bc]
Intensive care (n=97)	3.20	13.81	3.66[a]	40.11	1.57[a]
Elderly (n=52)	3.16	13.82	3.37[a]	38.57	1.76[abc]
F statistic degrees of freedom	8. 649	8. 654	8. 653	8. 654	8. 648
F-statistic	0.48	1.16	7.13	0.91	4.51
Significance level[2]	NS	NS	p<0.001	NS	p<0.001

[1] Higher scores correspond to better nurse job outcomes and worse quality of patient care.

[2] NS=non-significant.

Appendix 14: Focus group topic guide

The main topics to be brought up as a framework for inquiry are perceptions of:

- Working environment
- Feelings of well-being and job satisfaction
- Collaboration between professionals/co-workers
- Collaboration with superiors
- Quality of patient care
- The term "excellent nursing care", i.e. "framúrskarandi hjúkrun"

Examples of questions:

- "What is the meaning of job satisfaction for you as a nurse?"
- "What is the meaning of your collaboration with doctors for your satisfaction?"
- "What is the meaning of your collaboration with doctors for the quality of patient care?"
- "What is the meaning of your collaboration with colleagues?"
- "In your mind, what is related to quality nursing care?"
- "How do you understand the term "framúrskarandi hjúkrun" (*excellent nursing care*)?

Participants are given opportunities to raise their own issues

Appendix 15a: Ethics survey

London School of Hygiene and Tropical
Medicine
Health Services Research Unit (HSRU)
Dr. Anne-Marie Rafferty, Head of HRSU
Keppel Street WC le 7 HT
London
United Kingdom

VÍSINDASIÐANEFND
National Bioethics Committe

Laugavegur 103, 105 Reykjavík,

Tel: 551 7100, Fax: 551 1444

e-mail: visindasidanefnd@vsn.stjr.is

Reykjavík, July 12, 2002
Ref: VSNa2002070002/03-1/BH/--

Regarding: **02-087-afg "Quality of working life and quality of care in an Icelandic hospital. The concept of Magnet hospital".**

At its meeting of July 9th 2002, the National Bioethics Committee discussed your application, dated July 1st 2002, concerning the research project's. The project's principal researcher is yourself and Ms. Sigrún Gunnarsdóttir, RN BS MS and PhD student, at the London School of Hygiene and Tropical Medicine, London. Other applicants are Kristinn Tómasson, chief M.D. and Guðbjörg Linda Rafnsdóttir, Sociologist.

Enclosed with your application were your Curriculum Vitae, a copy of a summary of theoretical background and methodological considerations, and copies of permits received from the institution where the research will take place (Landspítali Háskólasjúkrahús). Also enclosed were copies of the introductory letter to participants and a draft of the questionnaire in Icelandic.

The primary aim of this study is to investigate the perceived, working environment, well-being, job satisfaction and perceived quality of care provided among nurses in an Icelandic hospital using the Magnet hospital instrument. Working environmental factors are looked at as leader behaviour, resources at work, power structures, promotion structures, power structures, opportunity structures, relations at work, physical environment. The second aim is to compare personal and organization outcomes across different divisions within the hospital. Analysing and comparing data from staff working in different divisions, relationships between working environmental factors, will analyse job satisfaction, well-being and quality of care. Collaboration between nurses and doctors is one of the core elements of the working environmental factors of the Magnet Hospital instrument. The third aim is therefore to further explore the concepts under investigation by conducting qualitative in depth interviews with doctors and sub sample of nurses participating in the first study. An interview frame will be used drawn from the findings of the quantitative study as well as from findings from related studies based on the Magnet Hospital concept.

The National Bioethics Committee has reviewed your application and does request the following:

1. To receive a copy of the final version of the questionnaire after they have been pretested at Fjórðungssjúkrahús Akureyri and before the main part of the research project commence.

2. The Committee also requests a copy of a letter permitting to pretest the questioner at Fjórðungssjúkrahúsið Akureyri.

Respectfully yours,
on behalf of the National Bioethics Committee,

Björn Guðbjörnsson, Dr. Med Sci

Copy to:
Sigrún Gunnarsdóttir, RN BS MS, PhD student, London School of Hygiene and Tropical Medicine.
Dr. Jon J. Jonsson, Chairman, Landspitali University Hospital Ethics Committee.

Appendix 15b: Ethics survey – Full approval

AFRIT

London School of Hygiene and Tropical Medicine
Health Services Research Unit (HSRU)
Anne-Marie Rafferty, Head of HRSU
Keppel Street WC le 7 HT
London
United Kingdom

VÍSINDASIÐANEFND
National Bioethics Committee
Laugavegur 103, 105 Reykjavík
Tel: 551 7100, Fax: 551 1444
e-mail: visindasidanefnd@vsn.stjr.is

Reykjavík, September 25, 2003
Ref: VSNa2002070002/03-1/BH/--

Regarding: **02-087-S1 "Quality of working life and quality of care in an Icelandic hospital. The concept of Magnet hospital".**

The National Bioethics Committee has received your response, dated September 16th 2003, to the committee's requests and comments sent in a letter dated July 12th 2002, concerning the research project.

In your reply you respond to the Committee's comments in accordance with the Committee's letter.

The National Bioethics Committee received a copy of a letter from the Ethics Committee at the University-Hospital of Iceland, dated March 18th 2002, signed by Ólafur Þór Ægisson, Chairman as well as a copy of a approval letter from Fjórðungssjúkrahúsið á Akureyri, dated July 13th 2002. signed by Ólína Torfadóttir, Managing Director for Nursing and þorvaldur Ingvarsson, Managing director for Dr.Med.

The National Bioethics Committee hereby grants your research proposal it's full approval. Nevertheless, the committee critisises the delay in your response to its requests.

TThe National Bioethics Committee kindly requests that researchers include the given referral no. given to their project by the committee in published research papers. The committee would also like to receive copies of research papers portraying research approved by the committee. Researchers are reminded to notify the committee of the completion of the research project.

Respectfully yours,
on behalf of the National Bioethics Committee,

Ólöf Yrr Atladóttir, Managing Director

Appendix 16a: Approval from hospital management of LSH

LANDSPÍTALI
HÁSKÓLASJÚKRAHÚS

Sigrún Gunnarsdóttir, hjúkrunarfræðingur
Aflagranda 34
107 Reykjavík

Reykjavík, 27. júní 2002
Tilvísun: 16/EE/SA

Efni: Varðandi aðgang að upplýsingum um hjúkrunarfræðinga á Landspítala – háskólasjúkrahúsi

Vísað er til munnlegrar fyrirspurnar þinnar 24. júní s.l. um aðgang að upplýsingum um hjúkrunarfræðinga á Landspítala – háskólasjúkrahúsi.

Undirrituð veitir þér hér með leyfi til að fá upplýsingar um starfandi hjúkrunarfræðinga á sjúkrahúsinu, nöfn þeirra og deild/ vinnustað, vegna upplýsingasöfnunar fyrir rannsókn þína sem hefst í september 2002, um líðan hjúkrunarfræðinga, starfsánægju og gæði þjónustunnar.

Öll gögn sem tengjast rannsókninni skulu varðveitt í læstri hirslu á meðan á rannsókn og úrvinnslu gagna stendur.

Gert er ráð fyrir að öllum gögnum sem tengjast rannsókninni verði eytt eigi síðar en 5 árum eftir að rannsókn lýkur.

Gangi þér vel,

Erna Einarsdóttir
sviðsstjóri

Skrifstofa starfsmannamála
Eiríksgata 5 • 101 Reykjavík • Sími 543 1330 • Bréfasími 560 2944

Appendix 16b: Approval LSH – English translation

Landspitali University Hospital (LSH)

Office of Human Resources

Reykjavik, 27 June 2002

Sigrún Gunnarsdottir, MSc
Aflagrandi 34
107 Reykjavík

Regarding: Access to hospital records of staff nurses working at Landspitali University Hospital

With regard to your personal communication (24 June) about access to information about staff nurses work at LSH.

I hereby grant you permission to access information on all staff nurses working at the hospital, their names and workplaces, in relation to your data collection for your study about nurse well-being, job satisfaction and the quality of patient care, starting September 2002.
All data in relation to your study shall be kept under secure conditions during the study process.
It is expected that all raw data in relation to the study will be destroyed no later than five years after the completion of the study.

Best wishes and good luck,

Erna Einarsdottir (signature)

Director of Human Resources

Appendix 17a: Ethics Data Protection

Sigrún Gunnarsdóttir

Aflagranda 34
107 Reykjavík

Persónuvernd

Raudarárstíg 10 105 Reykjavík
sími: 510 9600 bréfasími: 510 9606
netfang: postur@personuvernd.is
veffang: personuvernd.is

Reykjavík 16. júlí 2002
Tilvísun: S841/2002/ EB/-

Hér með staðfestist að Persónuvernd hefur móttekið tilkynningu í yðar nafni um vinnslu persónuupplýsinga. Tilkynningin er nr. S841/2002 og fylgir afrit hennar hjálagt.

Allar tilkynningar sem berast Persónuvernd birtast sjálfkrafa á heimasíðu stofnunarinnar. Tekið skal fram að með móttöku og birtingu tilkynninga hefur engin afstaða verið tekin af hálfu Persónuverndar um efni þeirra.

Virðingarfyllst,

Erla Björgvinsdóttir
ritari

Appendix 17b: Ethics Data Protection - English translation

Sigrún Gunnarsdóttir

Aflagranda 34

107 Reykjavik

Reykjavik, 16 July 2002

It is hereby confirmed that Data Protection (*Personuvernd*) has received your report about data analysis on personal information. The report is no S841/2002 and a copy is attached.

All reports to the Data protection are automatically put on the website of the institution. It is noted that a receipt of a report does not mean that an evaluation of its content by the Data Protection is included.

Sincerely,

Erla Bjorgvinsdottir (signature)

Secretary

Appendix 18: Ethics LSHTM

LONDON SCHOOL OF HYGIENE
& TROPICAL MEDICINE
ETHICS COMMITTEE

APPROVAL FORM
Application number: 904

Name of Principal Investigator	Sigrún Gunnarsdóttir
Department	Public Health & Policy
Head of Department	Professor Gill Walt

Title Quality of working life and quality of care in an Icelandic hospital.

Continued approval of this study is granted by the Committee.

Chair
Professor Tom Meade

T.W. Meade

Date .....20 October 2003 .....

Approval is dependent on local ethical approval having been received.

Any subsequent changes to the consent form must be re-submitted to the Committee.

Appendix 19: Ethics focus groups

AFRIT

London School of Hygiene and Tropical Medicine
Health Services Research Unit (HSRU)
Anne-Marie Rafferty, Head of HRSU
Keppel Street WC le 7 HT
London
United Kingdom

VÍSINDASIÐANEFND
National Bioethics Committee
Laugavegur 103, 105 Reykjavík,
Tel: 551 7100, Fax: 551 1444
e-mail: visindasidanefnd@vsn.stjr.is

Reykjavík, September 25, 2003
Ref: VSNa2002070002/03-15/BH

Regarding: 02-087-V1 Quality of working life and quality of care in an Icelandic hospital. The concept of Magnet hospital.
- amendment no. 1.

At its meeting of September 23rd 2003, the National Bioethics Committee discussed your application, dated September 12th 2003, concerning the research project "Quality of working life and quality of care in an Icelandic hospital. The concept of Magnet hospital". The project's investigators are yourself and Sigrún Gunnarsdótir, RN BS MS and PhD student at the London school of Hygiene and Tropical Medicine, London, Kristinn Tómasson, chief M.D. and Guðbjörg Linda Rafnsdóttir, Sociologist.

Enclosed with your application was a copy of a new questionnaires as well as information sheet and consent form for the research participants, also there were copies of other documents regarding the research project.
After carefully reviewing your submitted documents, the National Bioethics Committee hereby grants the amendment no.1 its full approval.

Respectfully yours,
on behalf of the National Bioethics Committee.

Björn Guðbjörnsson, Dr. Med Sci

Copy to: Sigrún Gunnarsdóttir, hjúkrunarfræðingur, Aflagranda 34, 107 Reykjavík, Iceland.

Appendix 20a: Informed consent focus groups

Upplýst samþykki

Ég undirrituð samþykki hér með þátttöku í rýnihóp sem er seinni hluti rannsóknarinnar *Starfsumhverfi hjúkrunarfræðinga og ljósmæðra*. Rannsóknin er unnin af Sigrúnu Gunnarsdóttur hjúkrunarfræðingi sem verkefni til doktorsprófs við London School of Hygiene & Tropical Medicine undir leiðsögn Dr. Anne Marie Rafferty (Keppel Street WC 1E 7Ht, London, s. 44 207 927 2305). Tilgangur rannsóknarinnar er að auka þekkingu og skilning á starfsumhverfi hjúkrunarfræðinga og ljósmæðra og að koma auga á leiðir til úrbóta.

Seinni hluti rannsóknarinnar felst í viðtölum í rýnihópum við nokkra þátttakendur í fyrri hluta rannsóknarinnar sem var spurningalistakönnum meðal allra starfandi hjúkrunarfræðinga og ljósmæðra á Landspítala – háskólasjúkrahúsi haustið 2002. Viðtöl í rýnihópum, sem taka um 60 – 90 mínútur fyrir hvern hóp, verða tekin upp á segulband og síðan vélrituð. Skráning allra upplýsinga verður þannig að ekki verður unnt að bera kennsl á einstaka þátttakendur í rannsókninni. Allar upplýsingar verða meðhöndlaðar sem trúnaðarmál og rannsakandi einn hefur aðgang að þeim. Rannsóknin er unnin samkvæmt leyfi Vísindasiðanefndar og jafnframt hefur hún verið tilkynnt til Persónuverndar.

Ég geri mér grein fyrir að mér er frjálst að neita að taka þátt í þessari rannsókn en ef ég tek þátt í henni ákveð ég sjálf hverju ég svara eða segi frá. Mér er einnig heimilt að hætta þátttöku hvenær sem er og hvort sem ég ákveð að taka þátt í rannsókninni eða ekki mun það engin áhrif hafa á starf mitt eða störf vinnufélaga minna.

Mér er ljóst að yfirmenn Landspítala – háskólasjúkrahúss hafa veitt leyfi fyrir rannsókninni. Stefnt er að því að birta niðurstöður á vettvangi spítalans og í viðkenndum vísindaritum. Hafi ég einhverjar spurningar varðandi rannsóknina eða rétt minn sem þátttakandi í henni er mér heimilt að leita til rannsakanda hvenær sem er og / eða til Vísindasiðanefndar, Laugavegi 103, 105 Reykjavík, s. 551 7100.

Reykjavík, _____ 2003

_____ _____

Þátttakandi Rannsakandi

Appendix 20b: Informed consent - English translation

In signing this document I am giving my consent to participate in a focus group discussion as a second part of the study. "Working environment of nurse and midwives". The study is conducted by Sigrun Gunnarsdottir, nurse, and the research is a part of her doctoral studies at The London School of Hygiene and Tropical Medicine, supervised by Dr Anne Marie Rafferty (Keppel Street, WC1E 7HT, London, tel: 44 20 7927 2305). The purpose of the study is to increase knowledge and understanding of the working environment of nurses and midwives and to indicate ways for improvement.

This second part of the study is focus group interviews with some participants in the previous part of the study; a questionnaire survey of the total number of nurses and midwives working in direct clinical care at LSH hospital, autumn 2002. The interviews will last for 60-90 minutes for each group, and will be tape-recorded and transcribed The documentation of information will be anonymous and it will not be possible to recognise individual participants. The information will be handled in confidence and the principal investigator is the only person who will have access to the information gathered. The study has been accepted by The National Bioethics Committee in Iceland and has been reported to the Icelandic Data Protection Commission.

I understand that I am free to participate in the study and if I decide to participate I can refuse to answer any specific questions. I understand that I can decide to terminate my participation at any time, whether I've decided to participate or not, and I understand that my decision will not have any influence on my job or the job of my colleagues.

I understand that the management of LSH hospital has granted permission for the study. The findings of the study will be presented at the hospital and in scientific journals. If I have any questions concerning the study or my participation I'm free to request the principal investigator at any time and/or the National Bioethics Committee in Iceland, Laugavegi 103, 105 Reykjavík, tel: 551 7100.

Reykjavík, 2003

Participant's signature Interviewer's signature

Appendix 21: Feelings on burnout: MBI data, findings on all items

Indicate how often you have felt this way by circling the number (from 1-6) that best describes your experience.

Measures	Never	A few times a year or less	Once a month	A few times a month	Once a week	A few times a week	Every day	N	Missing values
1. I feel emotionally drained from my work.	5.7%	41.0%	14.3%	23.5%	6.0%	8.9%	0.7%	686	9
2. I feel used up at the end of the workday.	2.8%	17.0%	10.8%	33.6%	11.3%	21.1%	3.5%	688	7
3. I feel fatigued when I get up in the morning and have to face another day at work	35.0%	36.9%	11.3%	9.7%	4.1%	2.6%	0.4%	691	4
4. I can easily understand how my patients feel about things.	1.1%	1.1%	1.7%	4.7%	1.8%	25.0%	64.7%	657	38
5. I feel I treat some patients as if they were impersonal objects.	36.3%	33.2%	8.1%	11.7%	4.9%	4.6%	1.2%	677	18
6. Working with people all day is really a strain for me.	42.9%	32.5%	6.9%	8.8%	3.1%	3.0%	2.8%	671	24
7. I deal very effectively with the problems of my patients.	0.8%	1.8%	0.3%	4.2%	2.7%	24.7%	65.5%	661	34
8. I feel burned out from my work.	49.0%	36.6%	6.5%	4.4%	1.2%	2.1%	0.3%	680	15
9. I feel I'm positively influencing other people's lives.	1.3%	3.0%	2.5%	10.8%	6.3%	34.2%	41.8%	667	28
10. I've become more callous towards people since I took this job.	58.5%	24.7%	5.8%	5.8%	2.2%	2.2%	0.9%	677	18
11. I worry that this job is hardening me emotionally.	72.9%	18.4%	2.9%	3.1%	1.3%	0.4%	0.9%	679	16
12. I feel very energetic.	2.7%	3.3%	3.6%	11.8%	8.8%	41.9%	27.9%	670	25
13. I feel frustrated by my job.	24.4%	40.7%	12.9%	14.0%	3.4%	3.8%	0.9%	681	14
14. I feel I'm working too hard on my job.	4.5%	23.2%	15.8%	26.9%	8.8%	17.7%	3.2%	685	10
15. I don't really care what happens to some patients.	76.7%	15.4%	3.1%	2.5%	0.4%	1.3%	0.4%	674	21
16. Working directly with people puts too much stress on me.	60.0%	28.7%	5.9%	3.4%	0.6%	1.2%	0.3%	683	12
17. I can easily create a relaxed atmosphere with my patients.	1.9%	0.7%	1.0%	4.2%	4.9%	37.7%	49.4%	668	27
18. I accomplish many worthwhile things in this job.	0.3%	4.0%	4.8%	11.5%	7.5%	36.2%	35.7%	669	26
19. I feel exhileaated after working closely with my patients.	0.0%	1.5%	0.9%	6.2%	4.0%	30.5%	57.0%	679	16
20. I feel like I'm at the end of my rope.	76.1%	18.0%	1.6%	3.2%	0.4%	0.4%	0.1%	682	13
21. In my work, I deal with emotional problems very calmly.	2.4%	5.3%	5.5%	15.5%	8.6%	38.8%	23.9%	660	35
22. I feel patients blame me for some of their problems.	67.5%	23.3%	2.8%	4.0%	1.0%	0.9%	0.4%	681	14
23 I leave work feeling satisfied with my nursing experience.	1.0%	1.6%	1.2%	6.8%	3.4%	56.9%	29.1%	678	17
24 I leave work disillusioned and frustrated	27.6%	50.9%	8.2%	8.2%	2.9%	2.3%	0.0%	686	9
25. I leave work knowing I haven't done a good job.	34.7%	46.0%	8.0%	5.1%	1.3%	2.9%	1,9%	685	10

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Appendix 22: Questions on quality of patient care at hospital last year, findings

Nurse-reported assessment of quality of patient care over the last year at LSH.

Quality of care at LSH over the last year	Number (%)
Improved	112 (16.1)
Remained the same	277 (39.9)
Deteriorated	281 (40.4)

Appendix 23: Inter-correlation between control variables

Inter-correlation[1] between background variables to be used for regression analyses in relation to study objective four.

Background variable:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	--	-0.23**	0.08*	0.07	0.36**	0.02	-0.24**	-0.02	0.79**	-0.01	0.28**	-0.21**	-0.07	-0.22**	0.00
2. Children		--	-0.05	0.02	-0.10**	-0.02	0.05	-0.27**	-0.06	-0.03	0.05	0.08	0.02	-0.03	-0.02
3. Other relatives			--	0.08*	0.04	-0.03	-0.05	0.02	0.14**	0.00	0.00	0.03	0.02	-0.08*	0.03
4. Un-health				--	-0.04	0.00	-0.01	-0.03	0.11**	0.02	0.05	-0.06	0.07	-0.09	0.00
5. Postbasic educat.					--	0.04	-0.22**	0.07	0.39**	0.07	0.22**	0.09*	-0.12**	-0.14**	0.17**
6. Master's						--	-0.12**	0.05	0.07	-0.04	0.08*	0.06	-0.01	-0.05	0.02
7. Nurse title							--	-0.37**	-0.30**	0.04	-0.40**	0.22**	0.23**	0.30**	-0.02
8. % FTE								--	-0.01	0.08*	0.24**	-0.09*	-0.09*	-0.02	0.06
9. Experience									--	-0.01	0.31**	-0.20**	-0.11**	-0.26**	0.01
10. Hrs worked										--	-0.19**	0.28**	0.07	0.08*	0.19**
11. Early shift											--	-0.38**	-0.10**	-0.44**	-0.04
12. Night shift												--	0.16**	0.10*	0.04
13. 2 types shift													--	-0.31**	-0.02
14. 3 types shift														--	0,11**
15. On-call															--

[1]Pearson correlation

Significance: *p<0.05, **p<0.01

Appendix 24: Permission to use the NWI-R

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2002 07 01

Sigrún Gunnarsdóttir, MSc
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Iceland

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We appreciate your contacting us and wish you continuing success in your research endeavors.

Sincerely,

Sean Clarke

Sean Clarke, PhD, RN
Associate Director

Appendix 25: Permission to use the MBI

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