

EXPLORING THE NURSING WORK
ENVIRONMENT IN ENGLAND USING
THE ESSENTIALS OF MAGNETISM II
SCALE: A MIXED METHODS
SEQUENTIAL EXPLANATORY STUDY

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SEQUENTIAL EXPLANATORY STUDY

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A thesis submitted in partial fulfilment of the
requirements of the University of Greenwich
for the Degree of Doctor of Philosophy

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DECLARATION

I certify that the work contained in this thesis, or any part of it, has not been accepted in substance for any previous degree awarded to me, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations, except where otherwise identified by references and that the contents are not the outcome of any form of research misconduct.

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Professor Elizabeth West (Supervisor)

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ABSTRACT

Introduction and background

The Essentials of Magnetism II Scale (EOMII) developed in the US to measure nursing work environments (NWEs) has not yet been used in England.

Aims

To evaluate the structure of the EOMII Scale, and to describe the impact of different aspects of the NWE on nurse-assessed care quality (NACQ) using data from nurses working in England

Methods

A mixed-methods sequential explanatory design was utilised. First, in a cross-sectional survey study, 247 RNs in 29 wards in two NHS hospitals completed the EOMII and a single item measuring NACQ in 2012. Principal Component Analysis (PCA) was used to evaluate the structure of the EOMII. Correlation and regression analyses were used to describe relationships between factors and NACQ. Second, comments made by nurses on questionnaires were analysed. Third, a purposive sample of 48 RNs were recruited to explore their understanding of the concept of autonomy, using short-structured interviews.

Results

PCA identified a solution with explanatory variance of 45.25%. Forty items loaded on five factors: *ward manager support*, *working as a team*, *concern for patients*, *organisational autonomy*, and *constraints on nursing practice*. In correlation analysis, each of the factors was significantly associated with NACQ ($p < .001$). In a hierarchical multiple regression analysis, four factors were associated with NACQ. Only one factor, *organisational autonomy*, was not a significant predictor ($\beta=.02$, $t = .24$, *ns*) of NACQ. Analysis of the interviews revealed that nurses in this sample did not relate autonomy to involvements in managerial/higher level decisions, but limited their discussions to decision-making at the ward team level.

Conclusion

Results suggest that EOMII does measure important aspects of NWE and that each of the factors identified is related to NACQ. Analysis of qualitative data suggests several hypotheses about differences in the meaning of autonomy that could be tested in future research.

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ABBREVIATIONS

AfC	Agenda for Change
ANA	American Nursing Association
ANCC	American Nursing Credentialing Center
CPD	Continuing Professional Development
DoH	Department of Health
EBP	Evidence-Based Practice
EOM	Essentials of Magnetism
EOMII	Essentials of Magnetism II
FA	Factor Analysis
HEE	Health Education England
NACQ	Nurse-assessed care quality
NAO	National Audit Office
NHS	National Health Service
NICE	National Institute of Health and Clinical Excellence
NMC	Nursing and Midwifery Council
NOS	Newcastle-Ottawa Scale
NQB	National Quality Board
NWE	Nursing Work Environment
NWI	Nursing Work Index
NWI-PES	Practice Environment Scale of the Nursing Work Index
NWI-R	Revised Nursing Work Index
PCA	Principal Components Analysis
RCN	Royal College of Nursing
RN	Registered Nurses
SEM	Structural Equation Modelling
S-P-O	Structure-Process-Outcome
UK	United Kingdom
US	United States

CHAPTER 1

INTRODUCTION

Introduction

At the beginning of this research, the title of the study was "*The Impact of Nursing Work Environment on Patient's Evaluation of Care*", as reflected on some of the documents used in the application for research ethics approval, and for data collection (in the appendices). The Essentials of Magnetism II (EOMII) scale, which has been widely used in the United States (US), was selected as the instrument to gather data from nurses in England to assess their perceptions of the nursing work environment. When these data were analysed, the results differed from the results in the research published on US nurses, particularly around the concept of autonomy. The decision was taken to explore these differences, and rather than relate the results to patients' experiences of care, to use nurses' perceptions of care quality, which is gathered by the EOMII, as the main dependent variable. The focus then shifted to following up some of the findings that seemed to be different in England and to find out more about their conception of the concept of autonomy to generate hypotheses for future research. The title of the study was then changed to "*Exploring the Nursing Work Environment in England Using the Essentials of Magnetism II Scale: A Mixed methods Sequential Explanatory Study*". The NHS Ethics Committee which originally gave approval for the study was kept informed at each stage of the re-design process.

This chapter presents the background to the study, the significance of the study, the research questions, and the theoretical framework of the study. It will discuss the relationship between the Magnet hospitals and the United Kingdom, and the history, development, and the properties of the Essentials of Magnetism II (EOMII) scale (Appendix 1).

1.1 Researcher's experience and role, and interest in this aspect of nursing

The choice of topic was driven by my desire as a nurse to see a positive change in the nursing work environment in England. I have been a registered nurse since 2004,

working in acute and critical care and I am currently a nurse educator teaching acute and critical care in a university in England. My interest in the nursing work environment has evolved through my observation of its impact on the quality of care received by the patients. This research was borne out of my experience of working in both the acute wards/ICUs where staff shortage was a huge problem. I have also listened to my colleagues complaining about their inability to access staff professional development courses due to lack of/or inadequate funding. These aspects have motivated my research into examining both the current environment and alternative models such as the Magnet hospitals in the USA, to identify how the work environment of nurses can be improved.

1.2 Significance of the study

The importance of the nursing work environment was recognised nationally in the UK during the inquiry into failures of care at Mid-Staffordshire NHS Trust. Of particular concern, the report of the Francis Inquiry (Francis, 2013) linked low staffing levels and poor nursing work environments to the catastrophic collapse in the standard of patient care and outcomes that occurred in Mid-Staffordshire NHS Trust. The report states that *“...between 2005 and 2008 conditions of appalling care were able to flourish in the main hospital serving the people of Stafford and its surrounding area...”* (Francis Report, 2013:7). The report states: *“The culture at the Trust was not conducive to providing good care for patients or providing a supportive working environment for staff; there was an atmosphere of fear of adverse repercussions; a high priority was placed on the achievement of targets...”* (Page 13, no. 24). The report revealed that *“the Trust was operating in an environment in which its leadership was expected to focus on financial issues...Sadly, it paid insufficient attention to the risks in relation to the quality of service delivery this entailed”* (Francis Report, Page 45, no. 11.1); and further; *“As a result of poor leadership and staffing policies, a completely inadequate standard of nursing was offered on some wards in Stafford. The complaints...testified not only to inadequate staffing levels, but poor leadership, recruitment and training. This led in turn to a declining professionalism and a tolerance of poor standards”* (Francis Report, 2013:45, no. 1.14). The report revealed that *“...the Trust prioritised its finances...over its quality of care, and failed to put patients at the centre of its work”* (Page 45, no. 1.15).

These recent experiences in the NHS highlighted the centrality of the nursing work environment to the provision of safe, effective and compassionate care. The Francis report (2013) suggested that the issues in Mid-Staffordshire NHS Trust reflected serious systemic problems within the Trust that are relevant to care across the NHS as a whole, and made 290 recommendations, which were considered would bring urgent changes to elements of the nursing working environment (Francis, 2013). Chapter 9, Section 9.5 discusses the increasing pressure on Trusts post Francis (2013), to ensure safe staffing levels. The findings in this report have emphasised the importance of creating a work environment that is conducive to the protection of patients from healthcare errors; and assist in the recruitment and retention of experienced nurses. Improvements in healthcare delivery require that national and local policies support the development of healthy and productive nursing work environments.

1.3 Research objectives and research questions

It is important to understand the impact of the nursing work environment on nurse and patient outcomes in order to ensure that professional nurses can deliver safe and high quality nursing care. However, such understanding requires a tool which can be used to identify and measure aspects of the nursing work environment. The EOMII scale is a measure developed specifically for this purpose. As the EOMII scale is being used in England for the first time in this research, this study aims to evaluate the structure of the scale as a means to understand the working environment of a sample of nurses working in England by addressing the following research question:

- Research question 1: What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?

The second aim of the study is to explore the associations between the EOMII factors identified in this study and nurse-assessed quality of care by addressing the following research question:

- Research question 2: What are the associations, if any, between the EOMII factors used in measuring the nursing work environment and nurse-assessed care quality in data gathered from a sample of hospital nurses in England?

These two research questions were addressed by analysing data gathered in a survey of nurses in two English hospitals. Some of the findings from this cross-sectional survey study revealed some discrepancies between the ways that nurses in England were responding when compared to much of the published literature which had used data from US nurses. This prompted a redesign of the study to include post hoc qualitative, one-to-one, short structured interviews with some registered nurses from the same hospitals as in the earlier survey study. The results from the survey study and from the findings in the literature review were used to inform and develop the interview schedule which addressed the following research questions:

- Research question 3: How do registered nurses in England understand the concept of autonomy in practice?
- Research question 4: What are the experiences of nurses in England of autonomy in practice?

The study then became, with the addition of the post hoc qualitative phase, a mixed-methods study with sequential explanatory design. The rationale for this mixed methodology study was complementarity i.e. results from the qualitative study were used to clarify and to explain the results from the quantitative survey study.

1.4 What are Magnet Hospitals?

In the early 1980s, the United States was struggling with a serious nursing shortage, and yet this shortage of nursing staff did not affect certain hospitals. The nursing shortage prompted a formal investigation by a task force of researchers from the American Academy of Nursing in 1982 – 1983 (McClure *et al.* 2002). The task force was charged with examining hospital nursing practice, and it was discovered that nurses were attracted and retained in hospitals settings for reasons that had never been fully

explored or understood (McClure *et al.* 2002). This study by the task force was designed to collect data from a sample of the hospitals that had successful track records in attracting and retaining professional nurses. The purpose was to investigate the key factors responsible for their success, and to explain such factors in such a way that those hospitals might be emulated (McClure *et al.* 2002). Forty-one hospitals which had demonstrated high rates of nurse satisfaction, and low employee turnover rates were selected (as sample) (McClure *et al.* 2002). These hospitals were identified as “Magnet hospitals” on account of having features that attracted and retained highly skilled professional nurses (Kramer and Schmalenberg, 2002: 25). It was found that the professional practice environment and quality nursing care were important contributing variables to the hospitals’ “magnetism” i.e. a hospital’s ability to attract and retain nursing staff (Sovie, 1984).

Features they appeared to have in common included valued staff opinions, decentralised nursing organisation, with a participatory management structure and style that assured staff involvement in decision making (Sovie, 1984; McClure *et al.*, 2002). The head nurses were recognised as key managers in the hospital, and they shared with the clinical directors and the directors of nursing the responsibility for assuring that the required complement of well qualified, clinically competent nurses were available to give care to patients (Sovie, 1984; McClure *et al.*, 2002). Salaries were competitive and differentials were paid for education, experience, and clinical advancement (Sovie, 1984). Good nurse-physician relationships were based on mutual respect for each discipline’s knowledge and competence, and on mutual concern for quality patient care.

Based on the above research, 14 distinguishing features that were peculiar to “Magnet” hospitals were identified. These characteristics remain known as the American Nurses Credentialing Centre (ANCC) Forces of Magnetism that provide the conceptual framework for the Magnet appraisal process (American Nurses Credentialing Centre, 2017a); and they are: (1) *Quality of Nursing Leadership*, (2) *Organisational Structure*, (3) *Management Style*, (4) *Personnel Policies and Programmes*, (5) *Professional Models of Care*, (6) *Quality of Care*, (7) *Quality improvement*, (8) *Consultation and Resources*, (9) *Autonomy*, (10) *Community and Health Care Organisation*, (11) *Nurses as Teacher*, (12) *Image of Nursing*, (13) *Interdisciplinary Relationships*, (14)

Professional Development. The presence of these features in a hospital is required to achieve Magnet designation (ANCC, 2017a).

1.5 The National Health Service experience and the magnet connection

There are currently 467 accredited Magnet hospitals in the world: three in Australia, one in Canada, one in Lebanon, two in Saudi Arabia, and the remaining 460 are in the United States (ANCC, 2017b). Currently, in China (Gu and Zhang, 2014), some hospitals have begun constructing a Magnet nursing work environment by introducing Magnet evaluation standards, and using them to evaluate the effectiveness of producing a productive nursing work environment. Although there is currently no Magnet hospital in the United Kingdom, there are plans for the Magnet type accreditation in England (Health Education England, 2016a). Health Education England (HEE) has made excellence in nursing practice one of its priority areas in order to ensure that the education and training of registered nurses and care assistants is suitable to support them in delivering high-quality care over the next 10-15 years (Health Education England, 2015; Health Education England, 2016a). In order to promote learning and excellence in health and care practice, HEE is currently working with the Florence Nightingale Foundation to explore how the nursing excellence standards developed by the American Nurses Credentialing Centre can be applied in England (Health Education England, 2016a).

The Oxford University Hospital Trust in England has been working towards its application for a Magnet status (Merrifield, 2016). Oxford University Hospital has been making improvements in the areas of nurse education and training as part of its application, which may take up to five years to complete. These improvements have attracted interest from some other UK organisations, including Heart of England NHS Foundation Trust and Nottingham University Hospitals NHS Trust (Merrifield, 2016), leading to the creation of the UK Magnet Alliance in 2016, a group to support others considering Magnet accreditation (Merrifield, 2016, Weir-Hughes and Jackson, 2016).

Rochdale Infirmary in Lancashire was the only UK hospital to have previously been accredited Magnet status (Aiken *et al.*, 2008; Lomas 2010; Merrifield 2016), and it was recognised as the first Magnet hospital outside the USA (Aiken *et al.*, 2008). In order to

examine the impact of Magnet status on the Rochdale Infirmary, Aiken *et al.* (2008) drew primarily from the findings of two surveys of nurses working at Rochdale in 2000 and 2002. This study aimed to assess changes in the nurse work environment during the period that Rochdale was preparing for, and the period the Magnet designation was achieved (2000 – 2002). It was found that the implementation of the Magnet hospital intervention was associated with a significantly improved nursing work environment as well as improved job-related outcomes for nurses and markers for quality of patient care (Aiken *et al.*, 2008). For example, nurse autonomy increased significantly between 2000 and 2002 (mean 13.38, SD 3.04 vs mean 14.35, SD 2.86; $p < 0.01$). Administrative support was rated lower at baseline (mean 12.41, SD 3.65), but improved significantly in 2002 (mean 14.61, SD 3.37, $p < 0.001$), while the proportion of nurses who were moderately or very dissatisfied with their jobs was higher at baseline (47.2%), but declined significantly by 2002 to 32.1% ($p = 0.008$). Furthermore, the proportion of nurses intending to leave their jobs decreased significantly from 38.9% to 27.5% ($p = 0.03$), while there was a significant increase in the proportion of nurses reporting that care quality had improved over the past year from the baseline in 2000 (23%) to 40% ($p < 0.01$). However, Rochdale Infirmary, Lancashire failed to renew its Magnet Status when the Trust became part of Pennine Acute Hospitals Trust (Lomas, 2010; Merrifield, 2016).

To achieve Magnet accreditation, a hospital has to demonstrate and provide evidence that it is meeting a series of Magnet standards which include those of national safe staffing policies, minimum training levels and nurse-sensitive clinical indicators (Merrifield, 2016). Weir-Hughes and Jackson (2016) pointed out that the Magnet standards are consistent with Care Quality Commission standards, the World Health Organisation safety priorities and the UK Nursing and Midwifery Council Code of Conduct (NMC, 2015a).

1.6 The Nursing Work Index

The Nursing Work Index (NWI) scale was constructed in 1984 and was utilised to measure the nursing work environment based on the characteristics of Magnet hospitals (Kramer and Hafner, 1989). This was the first attempt to measure the nursing work environment on the basis of attributes and traits identified as related to a Magnet work

environment. The Nursing Work Index (NWI), a self-report comprising 65 items, was constructed utilising these structural characteristics of Magnet hospitals, and three of the four persons who conducted the original magnet study critiqued and assessed the NWI for completeness and content validity (Kramer and Hafner, 1989). The NWI was developed to measure nurse job satisfaction and productivity of quality patient care. In completing the NWI, the respondent makes three judgments for each of the items: (1) how important the factor is for job satisfaction; (2) how important the factor is for producing quality nursing care; and (3) the extent to which the factor is present in their current job.

Since the Nursing Work Index was introduced it has been modified by several authors. In 2000 Aiken and Patrician (2000) constructed the Revised Nursing Work Index (NWI-R) from the original Nursing Work Index (NWI) by analysing the data at the unit or hospital level rather than the nurse level. Aiken and Patrician (2000) eliminated 10 items (from the 65 original NWI items) considered less relevant to the professional nursing work environment, modified one item, and added two items, resulting in a 57-item NWI-R. Aiken and Patrician (2000) found that the NWI-R had discriminant validity in distinguishing between Magnet and non-Magnet hospitals, concluding that the NWI-R, with four subscales was a sound instrument for measuring hospital organisational attributes. Lake (2002) constructed the 31-item five subscale Practice Environment Scale of the Nursing Work Index (PES-NWI) using 1985 – 1986 nurse data from 16 Magnet hospitals. Estabrooks *et al.* (2002) constructed the Practice Environment Index (PEI), using 49 items from Aiken and Patrician's (2000) NWI-R scale. NWI-R was completed by 17,965 registered nurses working in 415 hospitals in three Canadian provinces. Using exploratory principal component analysis, with a one-factor solution, the practice environment index was obtained. Estabrooks *et al.* (2002) used a 51-item NWI-R tool in which 49 items came from Aiken and Patrician's (2000) instrument and two items (50, 51) were added to reflect the Canadian context. Lastly, Choi *et al.* (2004) constructed the Perceived Nursing Work Environment Scale (PNWE) also from the NWI-R.

Kramer and Schmalenberg (2005a) cautioned that the NWI only measures the structural characteristics of hospital units, and not nursing work processes. In addition, Kramer and Schmalenberg (2004a) warned that the NWI is now outdated, and many of its items

lack a commonly shared and understood definition. They also maintained that the revisions made in the NWI by Aiken and Patrician (2000) do not solve the NWI's problems of out-datedness, and that the revised NWI no longer measures job satisfaction or productivity of quality care, although it continues to be used by researchers for this purpose. The revised NWI now measures only the presence (not relative importance) of hospital organisational traits (Kramer and Schmalenberg, 2004a). Kramer and Schmalenberg (2004a) explained that what was useful, innovative, and important to magnetism, job satisfaction, and productivity in 1984 was not necessarily the same in 2004.

Furthermore, Cummings *et al.* (2006) examined the validity of three of the instruments mentioned above (i.e. Aiken and Patrician, 2000; Lake 2002; Estabrooks *et al.*, 2002) as measures of the nursing practice environment. The measurement models underlying the three instruments were reconstructed from the information provided by each author in published manuscripts and then were estimated using structural equation modelling (SEM) and the chi-square test of model fit. It was found that each of the three underlying measurement models did not have significant fit to the data. Only Aiken and Patrician's (2000) four-factor conceptually derived model had the closest fit to the data. They summarised their findings as follows:

"The results of model testing in this paper raise several challenges to traditional measurement procedures. First, these results challenge uncritical acceptance of scales and subscales as measurements of unitary concepts...What the NWI actually measures overall remains unclear, as no evidence of a single underlying concept measured by the NWI or NWI-R was found...." (Cummings *et al.*, 2006:92-93).

Similarly, Slater and McCormack (2007) examined the factor structure of the 15 items that comprise the four factors of Aiken and Patrician's (2000) NWI-R by using a random sample of 172 registered nurses in an acute care hospital in the UK. The four-factor structure of the NWI-R was not replicated in the data analysis. Instead a modified three-factor structure was identified accounting for 57% of the variance (Slater and McCormack, 2007). They (Slater and McCormack, 2007:38) concluded that:

"The findings presented here raise interesting questions regarding the NWI-R. Researchers have recently questioned the factor structure of the complete

NWI-R and no study provides statistical evidence of the four-factor structure as reported by Aiken and Colleagues. In this study, we were also unable to reproduce Aiken and Patrician's original four-factor model, calling into question those studies that have used the instrument".

In order to address some of these highlighted concerns, Kramer and Schmalenberg (2004a) designed another scale called the Essentials of Magnetism (EOM) through the processes described below.

Kramer and Schmalenberg (1988a, b) analysed 16 magnet hospitals to ascertain the extent to which they possess the characteristics similar to the “best run” companies in the corporate community, using the eight characteristics identified by Peters and Waterman in their book *"In Search of Excellence"* (1982, cited by Kramer and Schmalenberg, 1988a:13, 1988b:11). The eight characteristics were:

1) *Bias for action*: This principle means that an organisation has a degree of fluidity and informality that allows for communication and exchange of information quickly and easily at all levels. Permission did not need to be sought and approval obtained at multiple levels before action commenced. A problem was studied intensely for a short period of time by people who were knowledgeable, and then a decision was made.

2) *Closer to the customers*: Excellent companies are passionate about the quality of their product, about service reliability, about staying in touch with the customers. Excellent companies are dedicated to producing products that meet customer needs and to providing the necessary service to maintain these products. In order to achieve these, companies must inculcate and reward the values of quality and service in their employees.

3) *Autonomy and entrepreneurship*: This is about creating an environment that supports experimentation both from values as well as from a physical resource perspective. The excellent companies foster a system of champions in which an individual can work on a project and then receive the necessary support to move the project forward through to completion. Employees are trained to feel empowered. The same type of intense, informal communications which supported a bias for action supports innovation.

4) *Productivity through people*: Excellent companies were marked with a true respect for the individual, which takes the form of treating people with dignity and providing high performance expectations. There is reward for productivity and the employees often view themselves as an extended family.

5) *Hands-on, value-driven*: The major role of the leadership in excellent companies was seen as creating, instilling, and clarifying the value system of the company. The role of management was to generate enthusiasm down to the very last worker.

6) Stick to the knitting i.e. remain with the business, that the business knows best (the only principle not particularly applicable to the nursing department).

7) *Simple form, lean staff*: Excellent companies were characterised by radical decentralisation, had comparatively few people at the corporate level, a minimum number of levels, and appeared to be reorganising all the time.

8) *Simultaneous loose-tight properties*: This principle basically boils down to the co-existence of firm central direction and optimum individual employee autonomy. Loose-tight is about rope and about culture: lots of rope when it comes to individual autonomy, flexible organisation structure, extensive experimentation, copious feedback, and informality. But at the same time, a remarkably tight, culturally driven, and controlled set of rigidly shared values. Nothing gets far out of line. Concise paperwork and clear focus on action and realism is the order of the day.

Kramer and Schmalenberg (1988ab) considered that the Magnet hospitals excelled because they possess the same characteristics that Peters and Waterman (1982, cited by Kramer and Schmalenberg, 1988ab) found to be characteristic of the best run corporate communities. They were found to be infused with values of quality care, nurse autonomy, informal, non-rigid verbal communication, innovation, bringing out the best in each individual, and striving for excellence. They were led by nurse leaders and managers who were zealous in holding and promulgating these values. Many of the basic principles of the excellent companies were clearly present in the Magnet hospitals (Kramer and Schmalenberg, 1988ab).

1.7 The Essentials of Magnetism scale

The development of the EOM scale began in 2001 in a study involving 279 staff nurses working in 14 Magnet hospitals (Kramer and Schmalenberg, 2002). The purpose of the study was to obtain a true picture of what nurses deemed important to nursing effectiveness. At the beginning of this study, the authors eliminated items in the NWI scale which were seldom or never chosen by magnet hospital staff nurses as important to either their job satisfaction or enabling them to give quality patient care, since the scale was developed in 1984. The items were reduced from 65 to 37, and included only items related to and indicative of magnetic work environment, and labelled the tool “*Dimensions of Magnetism*” (Kramer and Schmalenberg, 2002: 25-27). Out of these 37 items, the Essentials of Magnetism scale was generated, as described below.

Participants in this study were then asked to select from the list of 37 items in the “*Dimension of Magnetism*” tool the 10 factors most important to them in giving quality patient care. Of the 37 items, eight were selected as essential by almost two-thirds of the 279 staff nurse respondents. Those eight items were the attributes which were considered essential by the staff nurses to giving quality care. They were labelled the “*Essentials of Magnetism*” (Kramer and Schmalenberg, 2002:29): i) nurse-physician relationships; ii) clinical autonomy; iii) a culture in which concern for the patient is paramount; iv) working with clinically competent co-workers; v) control of nursing practice; vi) perceived adequacy of staffing; vii) support for education, and viii) nurse manager support.

In order to develop the Essentials of Magnetism (EOM) scale, the authors determined to ascertain how staff nurses working in Magnet hospitals defined those eight “essentials”. In 2000 to 2001, Kramer and Schmalenberg (2002) conducted in-depth, individual, tape-recorded interviews with 289 staff nurses, directors of education, and chief nurse executives, as well as group interviews with nurse managers and clinical directors in 14 Magnet hospitals. A grounded theory approach was used to generate themes, taxonomies, typologies, and theories. In 2003, Kramer and Schmalenberg (2004a) utilised the definitions, examples, and theories generated from the interviews to construct a 65-item scale to measure the eight Essentials of Magnetism (EOM).

Kramer and Schmalenberg (2004a) established the psychometric properties of the EOM scale in a study involving 3602 staff nurses in 16 Magnet and 10 non-Magnet hospitals. Principal Component Factor Analysis, using Varimax rotation with Kaiser Normalisation, was run to identify subscales (i.e. factors). Initially, a 10-factor, 56-item EOM was generated, and the first eight factors contained the clusters of items constituting the eight EOM attributes but not as completely as designed. Kramer and Schmalenberg (2004a:365) pointed out that “*All items on the clinically competent co-workers and support for education scales loaded on the same factor, instead of on two factors*”. Factors 9 and 10 were not included because they related to different kinds of nursing care delivery systems. Finally, 8-factor, 54-item scale was generated (see Appendix 2 for details). Reliability was assessed in a test-retest (2 – 3 week interval) with a convenient sample of 42 registered nurses, and the results indicated good stability on all sub-scales, ranging between .689 - .937 (see Appendix 2)

In 2005 and 2007, substantive changes were made to the *Perceived Adequacy of Staffing* (Kramer and Schmalenberg, 2005b) and the *Nurse Manager Support* (Kramer *et al.*, 2007a) subscales respectively, and the EOM scale was renamed the Essentials of Magnetism II scale (2008a).

The substantive changes made to the *perceived adequacy of staffing* subscale was in a study (Kramer and Schmalenberg, 2005b) involving the survey of 729 staff nurses in 7 Magnet hospitals. A multi-item scale incorporating the results of a delivery system survey as well as other factors known to affect *Perception of Adequate Staffing* (11 items) was constructed. Validity test was done on the data through Principal Component Analysis (PCA), using Varimax rotation with Kaiser normalisation, which yielded only 2 factors. The first factor contained 6 items which accounted for 59.376% of the variance. It was labelled *Perception of Adequate Staffing*, and was retained. Factor 2 containing 5 items, and accounting for 9.634% of the variance was eliminated. Chronbach’s alpha for the 6-item on the final *Perception of Adequate Staffing* ranged from 0.841 to 0.862, and the total scale alpha was 0.873 (see Appendix 2).

The substantive changes were made to the *Nurse Manager Support* subscale of the EOM in a study (Kramer *et al.*, 2007a) involving 2382 staff nurses working on 199 clinical units in eight magnet hospitals, who completed the investigator-developed 30-

item *Nurse Manager Support Scale*. Principal Component Analysis (PCA), using Varimax rotation with Kaiser normalisation extracted Four factors which accounted for 55.49% of the variance, labelled: 1) Leadership, 2) Managing Work Group, Resources and Practice, 3) Career Development, 4) Managing the Unit. Semi-structured interviews with experts containing staff nurses, physicians and Nurse Managers (n=446) from the eight Magnet hospitals all identified Nurse Manager supportive role behaviours, which were listed in order of frequency were, the Nurse Manager: 1) is available, approachable, safe, and responsive, 2) demonstrates that he/she cares, 3) walks the talk, 4) motivates us to develop our self-confidence, self-reliance, and self-esteem, 5) gives genuine feedback, 6) provides adequate and competent staffing, 7) watches our backs, 8) promotes group cohesion and teamwork, 9) resolves conflicts constructively.

The Essentials of Magnetism II scale

Based on the changes on the *Perception of Adequate Staffing* and *Nurse Manager Support* subscales, the EOM scale was renamed the Essentials of Magnetism II scale (Schmalenberg and Kramer, 2008a), and its psychometric properties were established through the utilisation of secondary data from 10,514 staff nurses in 34 hospitals. Principal Component Analysis confirmed the factor analytic structure for seven of the eight essential work processes – all the *Support for Education* and *Clinically Competent Peers* items loaded on the same factor. Although seven factors were extracted (with items from two factors loading on same factor), it is being described as “eight factor EOMII”. The EOMII is a 58-item four-point rating scale designed to measure healthy, magnetic, and productive clinical work environments and it facilitates investigation of the extent to which the work environment supports or hinders nurses in providing high quality patient care (Appendix 1). The Cronbach alpha for the EOMII ranges from 0.83 – 0.97 (Schmalenberg and Kramer, 2008a) (Appendix 2). The corresponding items to each of the eight attributes of the Essentials of Magnetism II scale are described in Appendix 3. Each of the eight attributes are described below.

1) *Nurse-physician relationships*: Collegial and collaborative relationships between the physicians (i.e. doctors) and the nurses, wherein they work together with mutual respect and trust for the benefit of the patient. Power, the ability to mobilise resources to get things done, was described as a very important component in this relationship. In collegial relationships, physicians and nurses have equal power, and was considered

the most beneficial for patients. In collaborative relationships, the power is mutual (Kramer and Schmalenberg, 2004a). This attribute is measured by items 1, 2, 3, 4, 5, and 6 (Schmalenberg and Kramer, 2008a) (Appendix 3).

2) *Support for Education*: This is the extent to which staff nurses say that their organisation supports education (Kramer and Schmalenberg, 2004b). Items in this subscale measure availability, financial assistance, and organisational reward for education; and they are: items 7 – 10 (Appendix 3).

3) *Clinical Autonomy*: This is the freedom to make independent decisions that exceed standard nursing practice and are in the best interest of the patient (Kramer and Schmalenberg, 2004a). Kramer and Schmalenberg (2004a:368) described freedom as "*...without fear, not unduly inhibited by bureaucratic rules, and not having to get consent or orders, or permission first*". Nurses engaged in autonomous practice judge themselves to have the necessary knowledge, often enabled by evidence-based practice. They perceived that there is organisational sanction, and the nurse manager supports their practice (Kramer and Schmalenberg, 2004a). This attribute is measured by items 11 – 19 (Appendix 3).

4) *Control of Nursing Practice*: This is a participatory process enabled by a visible, organised, viable structure through which nurses have input and engage in decision making about practice policies and issues, as well as personnel issues affecting nurses (Kramer and Schmalenberg, 2004c). Control, an important component of this attribute, means both input and decision-making power. Input without decision making power breeds cynicism (Kramer and Schmalenberg, 2004c). This attribute is measured by items 20 – 27 (Appendix 3).

5) *Perceived Adequacy of Staffing*: This depends on staff nurses' perceptions of the work environment in terms of adequate staffing for quality patient care, and are affected by competency of the staff, teamwork, a flexible delivery system, and sufficient budgeted positions for the acuity level of patients (Schmalenberg and Kramer, 2009a). This attribute is measured by items 28 - 33 of EOMII scale (Appendix 3).

6) *Working with Clinically Competent Peers*: This considers whether specialty certification, degree education, and both formal and informal peer review, and reinforcement are evidence of clinical competency (Kramer and Schmalenberg, 2004b), and is measured by items 34 – 37 (Appendix 3).

7) *Nurse Manager Support*: Behaviours of nurse managers that were identified as supportive were: being diplomatic, fair and honest in resolving conflicts, "watching our backs", seeing to it that the staffing and resources needed were provided, providing both positive and negative feedback, being approachable, accessible and safe, promoting staff cohesiveness and sound decision making, making it possible for staff to attend educational programmes, "walking the talk" (Schmalenberg and Kramer, 2009b:61), measured by items 8, 18, 38 – 47 (Appendix 3).

8) *Patient-Centered Culture*: Culture is a normative "glue" that preserves and strengthens the group and provides the healing warmth essential to quality care (Kramer *et al.*, 2009a). It consists of a combination of symbols, language, beliefs, assumptions, and behaviours that manifest hospital staff' artefacts, values and norms (Kramer *et al.*, 2009a). The vitality, strength, dynamism, and adaptability of the culture depend of the degree of communication among the members and on the degree of acceptance of the values among subgroup members. Three processes need attention to ensure a dynamic culture: establishing values, transmitting the values and norms to new team members, and changing and updating new values and norms when necessary (Kramer *et al.*, 2009a). This is measured by items 48 – 58 (Appendix 3).

The above discussions have highlighted that the EOMII scale can be useful in revealing whether a hospital is a positive work environment that supports nursing in providing high quality patient care. Since the EOMII scale is being used in the UK for the first time in this research, it is important to consider whether its attributes have relevance to the UK NHS hospitals. The next section compares aspects of the US and the England NHS organisational structures, and the relevance of the EOMII scale to NHS hospitals in England.

1.8 Comparison of the nurse practice environments in the US and the National Health Service (NHS), England, and the relevance of the EOMII scale to England.

The United States and the United Kingdom tend to be cast as opposing polar models when compared (Klein, 2012). At one end of the spectrum, there is the insurance-based mainly private sector system in the US and at the other end, is the United Kingdom, with centrally controlled and funded (through general taxation) NHS, which ensures universal-coverage public system (Buchan, 1994; Klein, 2012).

In the United States, attention was drawn to the nursing work environment in the 1980s when a group of hospitals called *Magnet hospitals* were renowned for their ability to recruit and retain nurses. As discussed in Section 1.4 above, the original research on Magnet hospitals conducted in 1983 (McClure *et al.*, 2002) identified 14 organisational features common to Magnet hospitals called *Forces of Magnetism* which form the foundation for ANCC recognition programme (ANCC, 2017a). The ANCC *Forces of Magnetism* also include flat organisational structures, and decentralised, shared decision-making processes (ANCC, 2017a), wherein staff involvement is sought, encouraged, and valued at all levels in committee work and in the development and enhancements of programs and policies (McClure *et al.*, 2002). Staff nurses also felt listened to, and with careful considerations given to what they said, and with the intent to utilise the ideas put forth whenever possible and appropriate. In keeping with the participatory approach, the director of nursing was viewed, and viewed himself/herself as both visible and accessible. This was accomplished through a variety of means, such as rounds in patient units, formal staff meetings, and informal coffee hours (McClure *et al.*, 2002). Research has also linked shared decision-making and participative management style with work effectiveness and healthy nursing work environment (Tomey, 2009; Kramer *et al.*, 2010).

On the other hand, a report by the King's Fund (Ham, 2014) has described the NHS as a service characterised by emphasis on reforms, driven from the top down by politicians and regulators, as the NHS is centrally controlled and funded through general taxation (Buchan, 1994; Klein, 2012). It has also been highlighted (King's Fund, 2012) that NHS leaders focused more on the delivery of targets than engaging patients and staff. In order to address these issues in the NHS, the NHS Improvement (2016), a body

responsible for overseeing foundation trusts and NHS trusts, has developed a framework which focuses on helping NHS and social care staff to develop capabilities which include establishing quality improvement methods that draw on staff and service users' knowledge to improve service quality and efficiency. This framework also focuses on inclusive and compassionate leadership so that all staff are listened to, understood and supported (NHS Improvement, 2016).

The EOMII scale developed in the US is being used in the English context for the first time in this research, in spite of the differences in the organisational structures of the US and UK healthcare systems. Although, the Lord Willis Report (HEE, 2015) has recommended that the Magnet recognition programme should be implemented in the NHS in England, this research does not intend to designate the 'Magnet' status to the hospitals where this research was being conducted, but rather, to examine the standards of nursing practice and the quality of patient care through the utilisation of the EOMII, as delivering excellent care is the responsibility of every nurse. As highlighted above, the NHS Improvement (2016) has developed a framework that supports a more participative decision making style in the NHS, similar to the Magnet model in the US (NHS Improvement, 2016). This participative decision making style is now becoming more evident in the NHS. For example, a report by Stephenson (2017) highlighted that the Barts Health NHS Trust in England is planning to set up a new group or clinical senate to include nurses at all levels, from student nurses and healthcare assistants to consultant nurses and midwives and nursing leads, for the purpose of strengthening the voice of frontline nursing staff by collecting their views. At the first meeting, the clinical senate will identify factors that are hindering good care or changes they think are needed. This senate will meet three times a year to debate key professional and care issues and identify potential solutions. It could be argued that the formation of this clinical senate is a move towards a more parallel channel of communication to facilitate interactions between ward managers, policy makers, and the frontline nurses in the NHS, and will consequently highlight factors that hinder or promote good nursing practice, good quality care, and staff retention.

The EOMII scale has been used in other health care systems different from the US (e.g. Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015; De Brouwer *et al.*, 2014) and has been found to be stable and reliable. The EOMII scale is designed to evaluate autonomous

clinical decision making, interpersonal competence, support for education, collaborative, interdisciplinary relationships, and more (Schmalenberg and Kramer, 2008a). The EOMII measures the degree to which these attributes are present in the nursing work environment as they are crucial for quality patient care.

1.9 Summary and overview of thesis

This chapter has discussed the researcher's experience and role, and interest in this aspect of nursing. The significance of the study, as well as the research objectives and research questions were discussed. Magnet hospitals, their connections to the NHS experience, the evolution of the Essentials of Magnetism II scale, and the relevance of the EOMII scale to the NHS hospitals in England have been discussed.

This thesis consists of nine chapters. Chapter 2 presents the Donabedian's (1980, 1992) Structure-Process-Outcome (S-P-O) theoretical framework used in this research. It also discusses how the design of the EOMII scale was based on this framework, and how the framework applies to the research. Following a comprehensive literature review of the studies that utilised the Essentials of Magnetism II scale in Chapter 3, the methodological rationale for the study is presented in Chapter 4. The methods utilised in the data collection and analyses for each of the three studies within this research are discussed in Chapter 5. The results from each of the three studies are then presented in turn – Chapter 6: the survey study; Chapter 7: the free text section of the EOMII scale; and Chapter 8: the interviews. Finally, in Chapter 9, the results are drawn together, highlighting the original contributions to research, along with considerations for the implications for practice and policy. The strengths and the limitations of findings, reflections on Donabedian's framework, and the proposal for future research are discussed. Chapter 9 also contextualises the issues of autonomy in nursing, and the impact of managerial and target culture, and the attitude of nurses towards research and the evidence base. Lastly, it explores the recent changes in the NHS and nurse education, since the commencement of this research in 2012.

CHAPTER 2

THEORETICAL FRAMEWORK

Introduction

The Structure-Process-Outcome (SPO) Framework

The conceptual framework that was applied to this research was Avedis Donabedian's (1980, 1992) classical model of quality of care comprising Structure-Process-Outcome (SPO). This framework and the principles in Donabedian's (1966, 1969, 1980, 1985, and 1992) writings were utilised to guide this research.

Donabedian (1980:5-6) defined quality of care as *“that kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken account of the balance of expected gains and losses that attend the process of care in all its parts”*. Donabedian (1980:5) argued that *“quality is a property of, and a judgement upon, some definable unit of care, and that care is divisible into at least two parts: technical and interpersonal...the degree of quality is, therefore, the extent to which the care provided is expected to achieve the most favourable balance of risks and benefits”*. Donabedian (1980:83) proposed three major approaches to quality assessment: “structure”, “process”, and “outcome”.

Donabedian (1992:357) defined structure *“as physical and organisational properties of the settings in which care is provided”*. It includes the attributes of human resources such as the qualifications of staff. Donabedian (1980:82) argued that a good structure, which is *“a sufficiency of resources and proper system design, is probably the most important means of protecting and promoting the quality of care...since good structure incorporates a well-designed mechanism for monitoring the quality of care and for acting on its findings”*. Donabedian (1969:1833) maintained that structure is evaluated through the appraisal of the instrumentalities of care and of their organisation, which includes the properties of facilities, equipment, manpower, and financing. Its evaluation *“...assumes that when certain specified conditions are satisfied good care is likely to follow”*. Donabedian (1980) pointed out that the basic characteristics of structure are

that it is relatively stable, is a feature of the environment of care, and that it influences the kind of care that is provided (Donabedian, 1980).

Donabedian (1992:357) referred to process as what an organisation does by defining process as *“what is done for patients”*. Elements of process include laboratory tests, results of tests interpreted by the doctor, treatment chosen by the doctor, other personnel and the patient (Donabedian, 1992), actions, operations, and relationships that produce care (Kramer and Schmalenberg, 2005a). Donabedian (1969) pointed out that the process is evaluated through the appraisal of care itself. An example is the nursing audit, which Donabedian (1969:1833) believed *“...subjects to professional judgement the elements and details of care...”*, but puts to actual test the assumptions that certain structural characteristics are related to certain level of performance (Donabedian, 1969). The S-P-O framework is used primarily to interpret medical situation, its principles strongly suggest that it can be used in nursing situations as well.

Donabedian (1988) referred to outcome as the effects of care on the health status of patients and population; and defined outcome *“as states or conditions of individuals and populations attributed or attributable to antecedent health care. “They include changes in health states, changes in knowledge or behaviour pertinent to future health states, and satisfaction with health care (expressed as opinion or inferred from behaviour)”* (Donabedian, 1992:356). According to Kramer and Schmalenberg (2005a) outcomes also include the effect of processes on staff and patients, including patient and nurse job satisfaction. Outcome indicators range from mortality, adverse and positive patient reactions, nurse sensitive quality indicators, and nurse outcomes such as burnout and turnover. Outcome measures also include nurse-assessed quality of care on clinical units, and the presence of attributes valued by nurses, and the perception that they are providing quality care (Kramer and Schmalenberg, 2005a).

Donabedian (1969:1833) maintained that *“the evaluation of outcomes consists in the assessment of the end results of care - usually specified in terms of patient health, welfare, and satisfaction”*, and that *“the extent to which the agreed-upon desired outcomes are achieved is the ultimate test of the assumptions inherent in the use of structure and of process in the assessment of care”* (Donabedian, 1969:1833-1834). Donabedian (1992) revealed that one of the attributes of outcomes as indicators of

quality is that outcomes do not directly assess quality of performance. They only permit an inference about the quality of the process (and structure) of care. Further, *“poor outcomes can identify a set of cases that merit analysis of the process (and structure) of care in search of possible causes for the poor outcomes”* (Donabedian, 1992:359). Donabedian (1992) emphasised the importance of outcome in quality assessment in that it draws attention to the need for further investigation when outcomes are poor. Poor outcomes make it easier to identify substandard care, as *“...poor outcomes indicate that the damage we would have wished to prevent has already occurred...”* (Donabedian, 1992:360). Donabedian (1966) pointed out that outcome, by and large, remain the ultimate validator of the effectiveness and quality of medical care.

This model is linear and presumes that structure affects process, and process, in turn, affects outcome (Donabedian, 1966, 1969, 1980, 1992). This relation was shown schematically below in Figure 2.1:

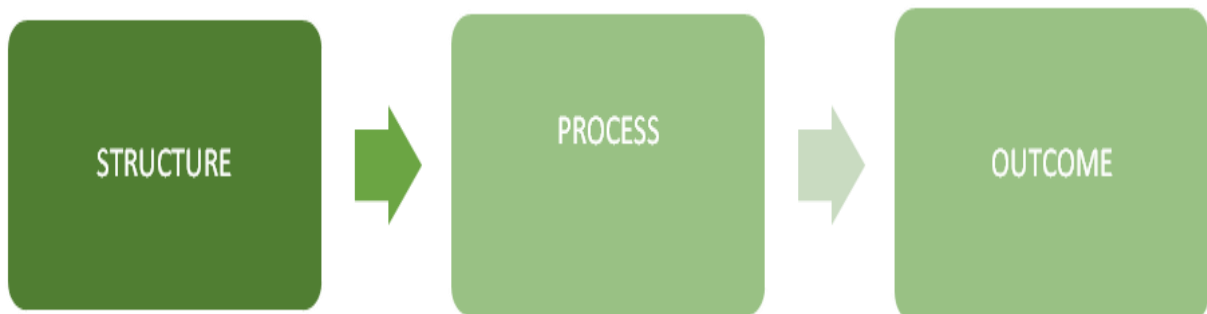


Figure 2.1: “Structure → Process → Outcome” Framework (Donabedian, 1980:83).

Donabedian (1980:83) stated that *“...structural characteristics of the settings in which care takes place have a propensity to influence the process of care so that its quality is diminished or enhanced. Similarly, changes in the process of care, including variations in its quality, will influence the effect of care on health status...”* (1980:84). Donabedian (1992) cautioned that the Structure-Process-Outcome information can be used to assess quality only when and to the extent that they are causally related.

2.1 The EOMII scale and the process domain of the SPO framework

The EOM (Kramer and Schmalenberg, 2004a) and the EOMII (Schmalenberg and Kramer, 2008a) scales were based on the Process domain of the Donabedian's (1980; 1992) (SPO) theoretical framework. Sidani *et al.* (2004) refer to the processes of care as the mechanisms responsible for producing the favourable, intended outcomes. They indicate what nurses do for, with, or on behalf of patients that make a difference in or lead to improvement in health status. They are therefore essential components of quality of care (Sidani *et al.*, 2004), but the least researched (MacPhee *et al.*, 2010).

Nurse staffing and nursing skill mix measures, and sometimes physician/doctor hospital staffing, tend to be the only organisational variables available in many countries, thus explaining why the existing research literature on staffing is more robust than the study of how other features of hospital organisations impact patient outcomes (Aiken *et al.*, 2011). Sidani *et al.* (2004) suggested that processes of care can be classified into micro (individual) patient level and meso (nursing function) level. Examples of the micro level are self-care facilitation, physiologic comfort promotion, provision of emotional support, and teaching. The meso level includes the role functions expected of nurses, and are described as independent, interdependent, and dependent nursing functions.

Furthermore, Kramer and Schmalenberg (2002; 2004a, 2005a), and Schmalenberg and Kramer (2008ab) described the eight attributes of the EOM and EOMII as processes, because in their study (Kramer and Schmalenberg, 2002), nurses were asked to select items most relevant to their ability to give quality patient care, and all the items that were contained in the EOM/EOMII were selected. The degree of the presence of these eight processes shows the extent to which the work environment supports or hinders nurses in providing high quality patient care.

2.2 The use of Donabedian's (1980, 1992) S-P-O framework in this research

The Donabedian SPO framework was utilised in this research to explore the associations between different aspects of the nursing work environment and nurse-assessed quality of care. In this research, Structure (S) included the registered nurse's age, gender, education, job role, and hospital worked; Process (P) included *clinically*

competent peers, collaborative nurse-physician relationships, clinical autonomy, support for education, perception of adequate staffing, nurse manager support, control of nursing practice, and patient-centred cultural values, as measured by the EOMII, and Outcome (O) included *nurse-assessed care quality*. The associations between the structural variables and the outcome; and, the process variables and the outcome will be measured. The associations between the structural and the process variables will not be measured, because it is not within the scope of this research to measure these two relationships. The conceptual framework for this research is shown in figure 2.2 below.

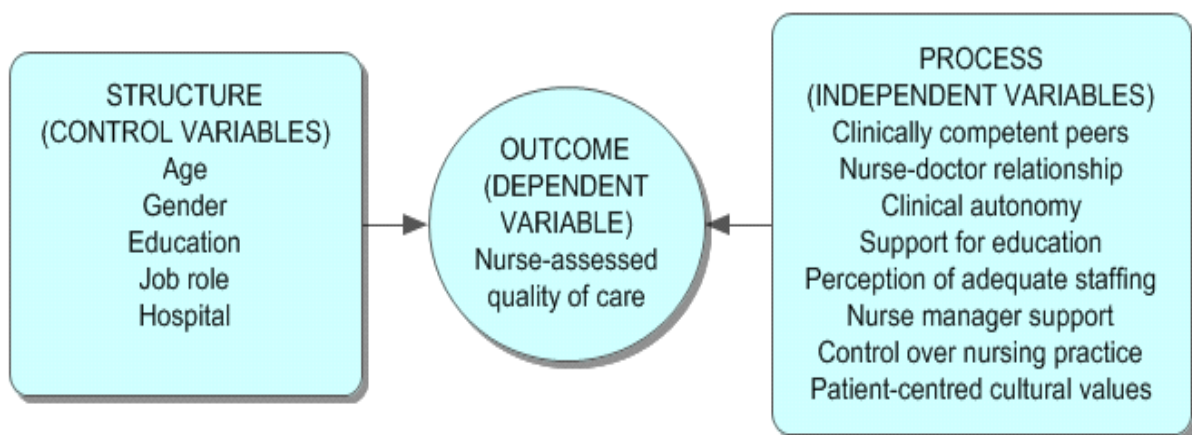


Figure 2.2: The conceptual framework based on Donabedian's (1980, 1992) framework

This research utilised Donabedian's (1980, 1992) framework because it has the ability to provide a structure-process-focused framework that can help identify organisational failings (Donabedian, 1992) that might lead to negative patient outcomes in hospitals. According to Donabedian (1992) the framework helps to conduct a multidimensional assessment of quality. This particular use (i.e. the multidimensional assessment of quality in the nursing work environment) has been demonstrated in the literature by many studies that have utilised the framework (El-Jardali and Lagace, 2005; Wagoro *et al.*, 2008; MacPhee *et al.*, 2010; Castle and Ferguson, 2010; Mears *et al.*, 2011; Kobayashi *et al.*, 2011; Rademakers *et al.*, 2011; Kelley *et al.*, 2011; Gardner *et al.*, 2013; Zhao *et al.*, 2015; Voyce *et al.*, 2015).

According to Kramer *et al.* (2010) and Kramer and Schmalenberg (2005a), this framework provides a unifying blueprint for evaluating the totality of quality patient care. It is also considered to be comprehensive in that it ensures that nothing is omitted including all of the important SPO linkages and the viewpoint of Staff Nurses (Kramer and Schmalenberg, 2005a). The S-P-O model provides an overarching conceptual framework useful in analysing current conditions and in developing strategies to improve work environments in acute care hospital settings where the majority of professional nurses practice (Kramer *et al.*, 2010). However, Donabedian (1992) cautioned that issues of accuracy in measurement are often more important than whether an indicator is an item of outcome or process. Furthermore, this S-P-O framework has been critiqued in the literature.

2.3 Critique of Donabedian's (1980, 1992) SPO framework

The Donabedian conceptualisation is extremely helpful in constructing a framework that will form the basis for comparing indicators (Mears *et al.*, 2011), and provides an evaluation framework that supports systematic enquiry into health services (Gardner *et al.*, 2013). Mears *et al.* (2011) pointed out that structure, such as insufficiently trained staff, is valuable in explaining reasons behind poor processes and treatment. Structural quality indicators (e.g. expenditure and staff numbers) are easy to measure as data used are often routinely available and relatively inexpensive because they are necessary for legal administration of organisations, and often used as proxy for unavailable data concerning processes and outcomes (Mears *et al.*, 2011). However, Castle *et al.* (2010) pointed out that although higher staffing levels are extremely important, it is how the staff members are used that may be just as inherently linked to quality.

According to Castle *et al.* (2010) process measures are easy to enumerate and do not require adjustment; they are also easy to interpret (Castle *et al.*, 2010; Mears *et al.*, 2011). Castle *et al.* (2010) critiqued process measures as representing measures of documentation rather than actual care, and highlighted that one of the limitations of process indicators is their ability to assess what is being done, but not necessarily the appropriateness of what is being done, or how well the procedure is done e.g. medication errors. Donabedian (1980) warned that elements of the process of care do

not signify quality until their relationship to desirable changes in health status has been established.

According to Mears *et al.* (2011) processes and outcomes combined assist to identify problems, or exceptionally good practice. Rademakers *et al.* (2011) pointed out that although positive patient experiences and evaluations should certainly be the ambition of healthcare professionals, patient satisfaction in itself is a multidimensional and subjective concept which is neither valid nor specific enough to measure quality of care. Mears *et al.* (2011) highlighted that a low mortality rate in a hospital does not always indicate better care or healthier patients. Consistent with this view, Castle *et al.* (2010) considered outcome measure to be problematic; by highlighting that outcome must be attributable to prior care for it to be a valid indicator. They argued that many outcomes are influenced by confounding variables such as genetic, environmental, or other factors unrelated to care. Castle *et al.* (2010) further argued that in the event that confounding variables were manipulated statistically (risk adjusted), the real risk is in either over or under adjustment of the value of the outcome indicator which will bias the reported outcome rate.

2.4 Summary

This chapter introduced the theoretical framework of Donabedian's (1980, 1992) Structure-Process-Outcome (S-P-O) used in this study. It described how the framework is utilised in this research, and it finally presented the critiques of the framework. Chapter 3 will present a comprehensive literature review of the studies that utilised the Essentials of Magnetism II scale.

CHAPTER 3

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to describe the findings of a systematic review of studies that utilised the EOMII scale in evaluating the nursing work environment as no other systematic review has been published on this topic. The purpose of this review, therefore, is to identify studies that have used the EOMII scale, critically review the studies, appraise their quality, and describe and synthesise their findings.

3.1 Literature review methods

The systematic review was conducted in June 2013 (updated in July 2016 and June 2017) according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Moher *et al.*, 2009). The PRISMA statement consists of a four-phase flow diagram (see Figure 3.1) aimed at helping authors improve the reporting of systematic reviews and meta-analyses. The PRISMA statement can also be useful for critical appraisal of published systematic reviews (Moher *et al.*, 2009).

Data bases

The electronic databases of Health Sciences Research containing MEDLINE, Academic Search Premier, Cochrane database, PubMed, Psychology and Behavioural Sciences, Life Sciences Research, and PsycINFO were systematically searched from January 2008 – June 2017. The reason for starting this systematic search from 2008 was that the EOMII was designed in 2008. The Google Scholar and the British Library Electronic Theses Online System (EThoS) were also searched for PhD theses. The only filters applied were the dates of publication and the language (which is English).

Search strategy

Medical subject headings (MeSH) as well as free text keys were used to identify relevant papers. Key words were identified and truncation were used to identify a range of possible spellings of similar terms. Appendix 4 presents the details of the search

terms employed. For the free text search, the terms included the following: (Essentials of Magnetism II OR EOMII) AND (scale) AND (Nurse OR Midwif*) AND (Work Environment OR Professional Work Environment OR Practice Environment OR Professional Practice Environment). In order to ascertain that possible pertinent materials were not omitted, a sensitive search was conducted by exploding MeSH terms whenever possible, and they included the following terms: “weight”, “measure”, “nursing”, “work place”, “work location”, “work site”, and “job site”. The Essentials of Magnetism II scale has no MeSH term. Search terms were combined using ‘OR’ and ‘AND’. The reference lists of all retrieved papers were manually screened and key nursing journals including the ‘in press’ sections were also hand-searched for eligible articles. The Google Scholar and the British Library Electronic Theses Online System (EThoS) were searched for PhD studies. Appendix 5 presents details of the search strategy.

Eligibility criteria

Papers were included if they had utilised the Essentials of Magnetism II scale and were published between 2008 and 2017. However, no restrictions were applied to country of origin or the care setting or source of data, as long as the data were collected using the EOMII scale and had been written in English. Papers were excluded if they had utilised the EOM scale, combined aspects of the subscales of the EOMII scale with other tools to form new tools, were discussion papers, grey literature or were qualitative studies. Papers were also excluded if they were not written in English. It was not within the scope of this research to translate papers that were not written in English which is one potential source of bias.

Quality Appraisal

Two tools were utilised to determine the methodological quality of included studies: 1) the Newcastle-Ottawa scale (NOS) for cohort studies (Wells *et al.*, 2014), and 2) an adapted form of the same scale for cross-sectional studies (Herzog *et al.*, 2013). The Newcastle-Ottawa Scale (NOS) is an ongoing collaboration between the Universities of Newcastle, Australia and Ottawa, Canada, and was developed to assess the quality of nonrandomised studies to be used in a systematic review. The methodological assessment for the cohort study was based on a quality score system in which a study is judged on three broad perspectives: (1) the selection of the study groups (0-4 points),

(2) the comparability of the groups (0-2 points), and (3) the ascertainment of outcome of interest for cohort studies (0-3) (Wells *et al.*, 2014). For the cross-sectional studies, the methodological assessment was also based on three broad perspectives: (1) the selection of the sample (0-5 points), the comparability (0-2), and (3) the outcome (0-3 points) (Herzog *et al.*, 2013). The maximum score achievable for cohort studies is nine, and 10 for cross-sectional studies. A higher score represents better methodological quality. Individual item scores were then compared for each paper. See Appendices 6 and 7 respectively for the NOS for cohort studies and the NOS for the correlation studies.

Study selection

The initial search yielded 114 references, of which 76 remained after the removal of duplicates. Papers were further screened using titles, key words and abstracts, reducing the number to 57 papers. Following the application of the eligibility criteria, 23 papers were obtained for the full text review. After full text reading, 10 papers were included (see figure 3.1 below) while 13 were excluded with reasons. The most frequent reasons for exclusion included the use of the EOM scale (n=6), just the mention of the EOMII scale (n=2), combining one subscale of the EOMII scale with another tool to form a new tool (n=1), were discussion papers (n=3), or were editorials (n=1). Full details of the excluded studies are available in Appendix 8.



PRISMA (Moher *et al.*, 2009) flow diagram for search strategy

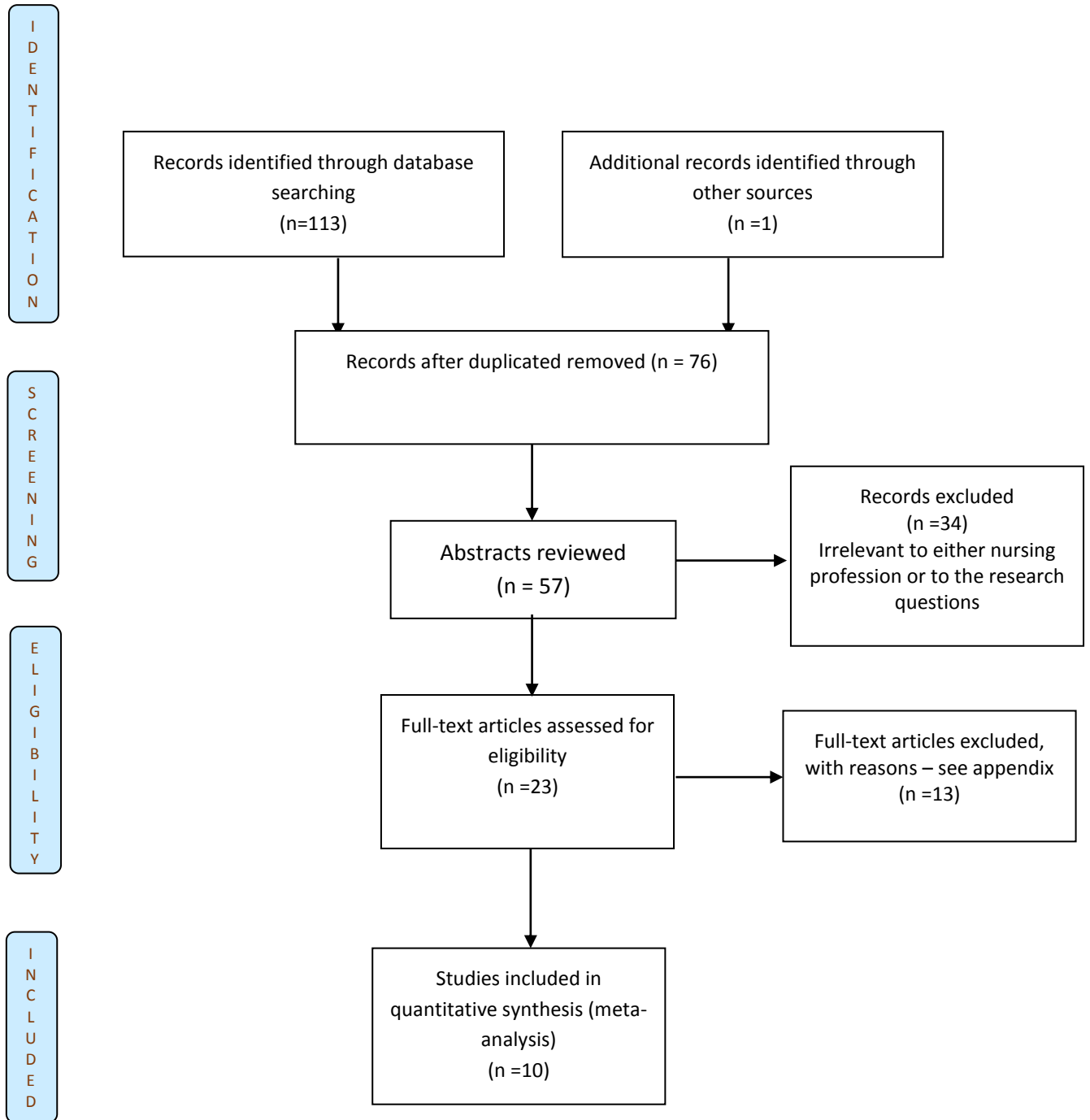


Figure 3.1: PRISMA flow

3.2 Literature review findings

Description of studies

Ten studies were identified. Appendices 9 – 16 present the key features of each study, which include study location, research design, sample, statistical analysis, outcome variables, and comments. Nine studies employed a cross-sectional design (Weatherford, 2011; Kramer *et al.*, 2011; Yildirim *et al.*, 2012; Bai *et al.*, 2013; De Brouwer *et al.*, 2014; Bai *et al.*, 2015; Stalpers *et al.*, 2017; De Brouwer *et al.*, 2017a; De Brouwer *et al.*, 2017b), and the remaining study (Kramer *et al.*, 2013) was a cohort study with an emphasis on direct comparison of results for matched groups. Seven studies were conducted outside the US (Yildirim *et al.*, 2012; Bai *et al.*, 2013, Bai *et al.*, 2015; de Brouwer *et al.*, 2014; Stalpers *et al.*, 2017; De Brouwer *et al.*, 2017a; De Brouwer *et al.*, 2017b), and the remaining three were undertaken in the US. Five of the studies (Yildirim *et al.*, 2012; Bai *et al.*, 2013; de Brouwer *et al.*, 2014; De Brouwer *et al.*, 2017a; De Brouwer *et al.*, 2017b) examined the psychometric properties of the EOMII scale, while the remaining studies that utilised the EOMII scale examined the associations between the nursing work environment, and nurses' outcomes and quality of care. The sample size within each study varied, ranging from the smallest with 92 registered nurses (Weatherford, 2011) to the largest with 12,233 registered nurses (Kramer *et al.*, 2011).

Methodological quality of the included study

The mean NOS score for the cross-sectional studies ranged from 4 – 9, (mean=7.22, SD=1.48). Only one study (Weatherford, 2011) had a low NOS score of 4 but was included in this review due to the paucity of data. The study also had a very small sample size of 92, with a very low response rate of 8% compared to the required 40% for reliable and accurate data when utilising the EOMII scale (Kramer *et al.*, 2009b). The only cohort study had a NOS score of 8/9. Individual item scores were compared for each paper and the results were tabulated and the overall figures are presented in Appendices 17 and 18.

The psychometric properties of the EOMII scale

Five cross-sectional studies explored the psychometric proprieties of the EOMII scale, and were in countries outside the US (one in Turkey, one in China, and three in The

Netherlands), but none in the US (see Appendix 9 for details). These studies included between 121 and 2542 participants with a mean of 806 participants and a total of 4030 participants. However, the studies were designed to evaluate the psychometric properties of the EOMII, and therefore, did not control for confounders. All five studies reported that the EOMII scale was found to be valid and reliable. The first was conducted among Turkish nurses (Yildirim *et al.*, 2012). A seven-factor solution with 55 items was identified largely reflecting the original solution although with *clinical competency* and *support for education* being combined as one factor. Three items were excluded, one (item 15) was due to low loading of <0.3 and the remaining two (items 18 and 33) because they loaded under two separate factors. Eight items (19, 23, 27, 30, 41, 42, 44 and 53) loaded under factors, different from the structure of the original EOMII scale. Of note were three items (19, 23, and 27) that moved between the clinical autonomy and control over nursing practice subscales. The Cronbach's alpha of the scale was found to be 0.91.

The second study was conducted in China (Bai *et al.*, 2013) and identified nine factors with 45 items. Thirteen items were deleted, (items 5, 11, 13, 17, 18, 29, 30, 34, 35, 43, 50, 51 and 54), and their solution was different, except for five factors that retained the same labels as the original EOMII (i.e. *nurse manager support*, *working with clinically competent peers*, *patient-centred values*, *support for education* and *perceived adequate staffing*). Of note were seven items (12, 14, 15, 19, 20, 21 and 22) that moved between the *clinical autonomy* and *control over nursing practice* indicating that both factors were inextricably entangled. Factor 2 (containing items 9, 16, 23, and 27) was labelled as *Restriction of Decision-making* because Chinese nurses experience prohibitions on autonomous decision-making. The authors suggested further clarifications of the definitions and scope of *autonomy* and *control over nursing practice* be explored in Chinese clinical settings.

The third study (De Brouwer *et al.*, 2014) of Dutch nurses identified five factors that replicated factors in the original solution and were named accordingly. The remaining items from the factors (i.e. *clinical autonomy*, *clinically competent peers* and *patient centred-culture*) loaded onto two novel factors and were also named according to the original solution. However, the original solution indicated one clear factor for clinical autonomy. The authors suggested that those three subscales were in need of further

research because of mixed results in their evaluation. The authors pointed out the wide variations in conceptions and practice of clinical autonomy across organisations and units within an organisation. They highlighted the possibility of Dutch respondents using different definitions of autonomy i.e. different from US nurses, which could have affected their responses to the questions. Of note were three subscales showing low internal consistencies: *nurse-physician relationships* ($\alpha = 0.66$) *support for education* ($\alpha = 0.62$) and *clinically competent peers* ($\alpha = 0.58$). This questioned the reliability of the scale as an 8-factor rather than 5-factor solution. According to DeVillis (2012) acceptable values of alpha range from 0.70 – 0.95, and a low value of alpha could indicate small number of questions or poor inter-relatedness between items (Tavakol and Dennick, 2011). The authors proposed the removal of item 52 in order to improve the scale's validity and reliability, however, it (item 52) was not removed.

The fourth study (De Brouwer *et al.*, 2017a), conducted in The Netherlands, identified that the subscales *adequacy of staffing*, *clinically competent peers*, *patient centered culture*, *autonomy* and *nurse manager support* can be used in Dutch nursing homes without problems. The remaining subscales (*nurse-physician relationships*, *support for education*, and *control over nursing practice*) cannot be directly applied to this setting. Three subscales formed clear factors, as in the original EOMII (*perceived adequacy of staffing*, *clinically competent peers* and *nurse manager support*). Two subscales (*nurse-physician relationships* and *support for education*) were spread over two factors, and three subscales (*clinical autonomy*, *control over nursing practice* and *patient centered culture*) were spread over three factors. Cronbach's α for the entire scale was 0.92, α for six subscales were above 0.70, while α was below 0.70 for two subscales (*support for education* and *clinically competent peers*).

Finally, the third Dutch study by De Brouwer *et al.* (2017b) was carried out to determine the construct validity of the Dutch EOMII with hypotheses testing, by relating the Dutch EOMII to the Dutch Practice Environment scale of the Nursing Work Index (PES-NWI). In the study, ten of the 15 hypotheses were formulated with regard to convergent validity between the two scales. For example, the first concerned the degree to which the measures of total D-EOMII score and the total PES-NWI score are correlated. It was revealed that the total scores of both instruments are strongly correlated ($r = 0.88$). The

results imply that an organisation scoring high on one of the instruments will also score high on the other

Associations between the factors of the EOMII scale

Only three studies assessed the associations between the factors on the EOMII (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015) (see Appendix 10 for details). One was conducted in Turkey (Yildirim *et al.*, 2012) and two (Bai *et al.*, 2013, 2015) in China. Although Bai *et al.* (2013) and Bai *et al.* (2015) utilised the same data, only one of their research questions was the same, generating the same findings. All the factors in these three studies were significantly correlated with one another (Yildirim *et al.*, 2012 - $p < 0.001$; Bai *et al.*, 2013, 2015 – $p < 0.01$), with the highest correlations being found between clinical autonomy and nurse manager support ($r = 0.61$, $p < 0.001$) in Yildirim *et al.* (2012). Also in Yildirim *et al.* (2012), clinical competency/support for education loaded on a single factor and has high correlations with nurse manager support ($r = 0.61$, $p < 0.001$), adequacy of nursing staff ($r = .56$, $p < 0.001$), cultural values ($r = .51$, $p < 0.001$), and nurse-physician relationship ($r = .51$, $p < 0.001$). It could be argued that perhaps, if clinical competency/support for education were two separate factors, their individual correlations with other factors would have been lower. In Bai *et al.* (2013, 2015), *patient-centred values* factor was found to have the highest correlations with nurse manager support ($r = .65$, $p < 0.01$) and perceived adequate staffing ($r = .60$, $p < 0.01$).

Associations between the EOMII factors, professional job satisfaction, and overall job satisfaction

Five studies (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015; Stalpers *et al.*, 2017; De Brouwer *et al.*, 2017a) assessed the associations between the EOMII factors and overall job satisfaction. Overall job satisfaction was assessed with the use of a 10-point single-item indicator, wherein nurses were asked to circle the number on the scale by considering how satisfied they were with their current nursing job (Schmalenberg and Kramer, 2008a). Benchmarks were 0 (it's terrible), 5 (I'm satisfied), and 10 (I love it) (Schmalenberg and Kramer, 2008a). In the first three studies, each of the factors had significantly positive correlation with overall job satisfaction ranging from 0.19 – 0.53 ($p < 0.001$) in Yildirim *et al.* (2012), and from 0.30 – 0.51 ($p < 0.01$) in Bai *et al.* (2013, 2015). In the first three studies, overall job satisfaction has high correlation with patient-centred values ($r = .51$, $p < 0.001$, Yildirim *et al.*, 2012; $r = .51$, $p < 0.01$ in Bai *et al.*, 2013,

2015). Overall job satisfaction also has high correlations with nurse manager support ($r=.53$, $p<0.001$) and clinical autonomy ($r=.49$, $p<0.001$) (see Appendix 11 for details).

Bai *et al.* (2013, 2015) utilised the same data in measuring the associations between the factors of the EOMII scale and professional job satisfaction. Professional job satisfaction was measured by the total score on the EOMII (Schmalenberg and Kramer, 2008a). Professional job satisfaction has the highest correlation with control over nursing practice ($r=.82$, $p<0.01$), patient-centred care ($r=.73$, $p<0.01$), clinical autonomy ($r=.72$, $p<0.01$), perceived adequate staffing ($r=.65$, $p<0.01$), and support for education ($r=.65$, $p<0.01$).

In De Brouwer *et al.* (2017a) all correlations were significant ($p<.01$). The total Dutch-EOMII score ($r=.45$) and five subscales (clinical autonomy $r=.32$; perceived adequacy of staffing $r=.35$; clinically competent peers $r=.31$; nurse manager support $r=.35$ and patient centered culture $r=.48$) correlated moderately to strongly with overall job satisfaction. However, three subscales correlated weakly with overall job satisfaction (nurse–physician relationships $r = .12$, support for education $r = .28$ and control over nursing practice $r = .22$). In Stalpers *et al.* (2017) all the eight factors of the EOMII scale were significant ($p<.001$) predictors of overall job satisfaction.

Associations between the EOMII factors and nurse-assessed quality of care

Four studies (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015; Stalpers *et al.*, 2017) assessed the associations between the EOMII factors and nurse-assessed quality of care (see Appendix 12 for details). Quality of care was measured using a 10-point single item indicator, wherein nurses were asked to indicate their perceptions of care quality provided by them to the patients (Schmalenberg and Kramer, 2008a). The anchors of quality of care were 0 (dangerously low), 5 (safe but not much more), and 10 (very high quality). In the first three studies, each of the factors had significantly positive correlation with the quality of care ranging from 0.13 – 0.37 ($p<0.001$) in Yildirim *et al.* (2012), and 0.20 – 0.40 ($p<0.01$) in Bai *et al.* (2013; 2015). In the three studies, quality of care had the highest correlation with perceived adequate staffing ($r=.37$, $p<0.001$, Yildirim *et al.*, 2012; $r=.40$, $p<0.01$, Bai *et al.*, 2013, 2015). Quality of care also showed high correlations with control over nursing practice ($r=.32$, $p<0.001$) in Yildirim *et al.* (2013),

and patient-centred values ($r=.37$; $p<0.01$), and nurse manager support ($r=.35$, $p<0.01$) in Bai *et al.* (2013, 2015).

Finally, after controlling for job satisfaction in Stalpers *et al.* (2017), nurse-perceived quality was positively associated with adequacy of staffing ($p<.001$), patient-centeredness ($p<.001$), competent peers ($p<.001$) and support for education ($p<.05$), with support for education and patient centred values explaining approximately 31% of the total variance.

Associations between nurse-assessed quality of care, professional job satisfaction, and overall job satisfaction

Four studies (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015; Stalpers *et al.*, 2017) assessed the association between nurse-assessed quality of care and overall job satisfaction, and all found the nurse-assessed quality of care to be significantly correlated with overall job satisfaction ($r=.39$, $p<0.001$, Yildirim *et al.*, 2012; $r=.52$, $p<0.01$, Bai *et al.*, 2013, 2015; $r=.45$, $p<.001$, Stalpers *et al.*, 2017). The results are shown in Appendix 13.

Only two studies (Bai *et al.*, 2013., 2015) assessed the association between nurse-assessed quality of care and professional job satisfaction and generated the same result as they utilised the same data - professional job satisfaction was found to have a significant positive correlation with nurse-assessed quality of care ($r=0.37$; $p<0.01$).

Association between overall job satisfaction and professional job satisfaction

Only two studies (Bai *et al.*, 2013, 2015) assessed the association between overall job satisfaction and professional job satisfaction and found that overall job satisfaction had a significantly high correlation with professional job satisfaction ($r=.53$, $p<0.01$) (see Appendix 14 for the details).

Differences in the healthy work environments (as measured by the EOMII scale), overall job satisfaction and nurse-assessed quality of care by care units

Four studies (Bai *et al.*, 2015; Weatherford, 2011; Kramer *et al.*, 2011, 2013) assessed the differences in the health of work environments (as measured by scores on the EOMII) in relation to *overall job satisfaction* and *nurse-assessed quality of care*. Details of the studies are summarised in Appendix 15. Bai *et al.* (2015) was performed in

China, while the remaining three studies were conducted in the US. Each study asked specific but different questions that examined the health of the work environment and therefore, the results were not comparable. Confounding variables were controlled for all studies except Weatherford (2011). Through the mean scores on the EOMII, Bai *et al.* (2015) found that nurses from medical ICUs had the healthiest work environment, the highest professional job satisfaction, the highest overall job satisfaction and quality of care, as well as the highest scores on most of the factors of the scale. In comparison, surgical ICUs had the least healthy work environment and the lowest overall job satisfaction and quality of care.

The second study (Kramer *et al.*, 2011) investigated the extent to which experienced nurses in magnet hospital confirmed that these hospitals had healthy work environments. Based on EOMII unit level scores, units were grouped as very healthy work environment (VHWE), healthy work environment (HWE) or work environments needing improvements (WENI). VHWE or HWE was confirmed by nurses on 82% of 540 clinical units. There were highly significant differences ($F=79.173$; $p\leq 0.000$) in nurse-assessed quality of patient care outcome scores by VHWE, HWE and WENI units. Nurses on VHWE units rated quality of care on their units significantly higher than did nurses on HWE and on WENI units. The mean score on the 10-point quality of care rating scale was 8.61 for VHWE, 7.95 for HWE units, and 7.43 for WENI units.

The only cohort study (Kramer *et al.*, 2013) examined the environmental reality shock that new nurses experience when they leave university. The concept of reality shock was used to describe the reactions of newly qualified staff nurses when they found out that the cultures of university and the hospital are so different. This occurs when they find themselves in a work situation for which they have spent several years preparing and for which they thought they were going to be prepared, and then suddenly find out they are not. They often find this situation disorientating leading to low job satisfaction or attrition. The EOMII was administered for at least one year to 4,639 experienced nurses on all clinical units that planned to employ new graduates in 2009. The Anticipated Professional Practice Environment and Nurse-Assessed Quality of Patient Care surveys were administered to all new graduates ($n=468$) starting work in the spring, summer, and fall of 2009 at four, eight, and 12 months post-employment. The Reality Shock-Related Issues and Concerns survey (Kramer and Schmalenberg, 1977, cited in Kramer

et al., 2013:356) was administered four and eight months post hire. It was found that most (n=88 of the 191) units were confirmed by experienced nurses as having VHWE, 58 were confirmed as units with HWEs, and 45 as WENI. New graduates on the WENI units experienced the greatest fall from the very high initial expectations of the environment, followed by new graduates working on HWE units and then by nurses working on VHWE units. For all the work environments quality of patient care ratings started out high at 4 months, decrease at 8 months, and increase markedly at 12 months. New graduates having their first professional work experience on units on which seasoned nurses confirmed that they had excellent unit work environments, rated the quality of patient care on their unit higher than their peers on other units (i.e. HWE, and WENI)

The fourth study was a doctoral dissertation (Weatherford, 2011) which investigated staff nurses' perceptions of safety priorities in their organisation through an on-line survey. Results indicated a significant positive correlation between work ownership climate and safety climate scores $r(90)=.542$, $n=92$, $p<.001$. Work ownership climate was measured by the total scores for EOMII scale, while safety climate scores was measured by the use of a scale called the Zohar's Safety Climate Questionnaire. This study has the lowest NOS score of 4, making it the only study of low quality. The author reported that some of the results violated the assumptions of normality and that the available population of staff nurses was $n=1,153$, out of which a total of $n=386$ responses were downloaded, and the total sample was determined to be 92 usable responses (response = 8% - does not add up). The risk of non-response bias was very high which could have invalidated the results.

Differences in the healthy work environments (as measured by the EOMII scale), overall job satisfaction and nurse-assessed quality of care by demographic variables

Three studies (Bai *et al.*, 2015; Kramer *et al.*, 2011; 2013) investigated the differences in the healthy work environment, overall job satisfaction and quality of care by demographic variables. Compared with those with 5-10 or 10-15 years of work experience in Bai *et al.* (2015), nurses with 3 years or less experience reported significantly higher scores of the EOMII, as well as higher scores in the professional job satisfaction ($p<0.001$) and overall job satisfaction ($p<0.01$), also reported higher scores

on support for education ($p < 0.01$), perceived adequacy of staffing ($p < 0.02$) and professional job satisfaction ($p < 0.02$). In terms of quality of care, nurses with 3 years or less of experience reported significantly higher scores than nurses with 10-15 ($p < 0.001$) and 20 or more years of experience ($p < 0.04$). In terms of education level, nurses with associate degrees scored higher in nurse-physician relationships ($p < 0.01$) and clinical autonomy ($p < 0.05$) than those with bachelor degrees.

However, in Kramer *et al.* (2011) BSN nurses scored higher on all work processes except on nurse-physician relationships. The 'over 30-year nurse' group scored the highest on most variables except control over nursing practice whereas, the '3 years or less nurses' scored the highest. In Kramer *et al.* (2013) the new graduates employed in academic-teaching hospitals anticipated significantly higher quality work environments than did new graduates in community hospitals – particularly with regards to better nurse-physician relationships ($F = 4.121$, $p = .003$), higher perceived adequacy of staffing ($F = 10.923$, $p < .001$), and more control over nursing practice ($F = 4.827$, $p = .008$). Appendix 16 presents the summary of the findings.

3.3 Summary

This systematic review is the first to investigate how the EOMII scale has been utilised in the literature. The systematic search of electronic databases identified 10 studies, out of which five explored the psychometric properties of the EOMII scale in countries outside the US. The first was conducted amongst Turkish nurses (Yildirim *et al.*, 2012). A seven factor solution was identified largely reflecting the original eight factor solution described by Schmalenberg and Kramer (2008a), although three items were excluded and a number of included items loaded on different factors in this sample. Of note were three items that moved between the clinical autonomy and control over nursing practice subscales. Similarly, a Chinese study found that seven items moved between the clinical autonomy and control over nursing practice and their solution differed from the original with nine factors identified (Bai *et al.*, 2013). A study of Dutch nurses identified five factors that replicated factors in the original solution. However, the remaining items from the factors clinical autonomy, clinically competent peers and patient centred-culture loaded onto two novel factors (de Brouwer *et al.*, 2014). A second Dutch study (De Brouwer *et al.*, 2017a), identified that the subscales *adequacy of staffing*, *clinically*

competent peers, patient centered culture, autonomy and nurse manager support can be used in Dutch nursing homes without problems. The remaining subscales (*nurse-physician relationships, support for education, and control over nursing practice*) cannot be directly applied to this setting. Three subscales formed clear factors, as in the original EOMII scale (*perceived adequacy of staffing, clinically competent peers and nurse manager support*). Two subscales (*nurse-physician relationships and support for education*) were spread over two factors, and three subscales (clinical autonomy, control over nursing practice and patient centered culture) were spread over three factors. Finally, the third Dutch study by De Brouwer *et al.* (2017b) revealed that the total scores of both the Dutch EOMII (D-EOMII) and the Dutch Practice Environment scale of the Nursing Work Index (PES-NWI) are strongly correlated ($r = 0.88$). The results imply that an organisation scoring high on one of the instruments will also score high on the other.

This review also identified that the EOMII factors are significantly correlated with one another (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015) with the highest correlation being found between clinical autonomy and nurse manager support, and between *patient-centred values* and nurse manager support. The only two studies (Bai *et al.*, 2013, 2015) that investigated the association between the factors and the professional job satisfaction found a very strong association. However, those two studies utilised the same data. The EOMII factors were also found to have high correlations with overall job satisfaction as well as quality of care. Nurse-assessed quality of care was found to have significantly high correlation with professional job satisfaction, as well as with overall job satisfaction. Overall job satisfaction was found to be positively and significantly correlated with professional job satisfaction (Bai *et al.*, 2013, 2015).

Four studies (Bai *et al.*, 2015; Weatherford, 2011; Kramer *et al.*, 2011, 2013) investigated differences in the healthy work environments, overall job satisfaction, and nurse assessed quality of care by care units. One study found that nurses from medical ICUs had the healthiest work environment including the healthiest professional job satisfaction, as well as the highest overall job satisfaction and quality of care (Bai *et al.*, 2015). Another study (Kramer *et al.*, 2011) found that nurses on *very healthy work environments* rated quality of care on their units significantly higher than did nurses on *healthy work environments* and *work environments needing improvements*. Another

study (Kramer *et al.*, 2013) found that new graduates on very healthy work environments rated quality of care significantly higher than did their counterparts working in healthy work environments or on units with work environments needing improvements.

Only three studies (Bai *et al.*, 2015; Kramer *et al.*, 2011; 2013) investigated the differences in the healthy work environment, overall job satisfaction and quality of care by demographic variables. Bai *et al.* (2015) found that in terms of educational level, nurses with associate degrees scored higher in nurse-physician relationships ($p < 0.01$) and clinical autonomy ($p < 0.05$) than those with bachelor degrees. However, in Kramer *et al.* (2011) BSN nurses scored higher on all work processes except on nurse-physician relationships. In Kramer *et al.* (2013) the new graduates employed in academic-teaching hospitals anticipated significantly higher quality work environments than did new graduates in community hospitals.

3.4 Discussion

There are indications from this current systematic review that the US 8-factor EOMII scale sufficiently mirrors the features of Magnetic work environment and therefore has the ability to distinguish between healthy work environments and work environments that need improvements as demonstrated in Kramer *et al.* (2011, 2013) and Bai *et al.* (2015). This is because findings from this review showed that higher scores on the EOMII scale indicated healthy work environment. The EOMII scale also has the ability to evaluate nurses' satisfaction with their job in relation to the quality of care given to their patients. This implies that the use of the EOMII scale can facilitate the creation and maintenance of high quality nursing work environment.

The significantly positive correlation between the EOMII factors, professional job satisfaction, overall job satisfaction, and nurse-assessed quality of care as demonstrated in this review (Yildirim *et al.*, 2012; Bai *et al.*, 2013, 2015) is consistent with the report from Schmalenberg and Kramer (2008a) that the EOMII scale is a valid and reliable measure of the nursing work environment. Schmalenberg and Kramer (2008a) maintained that the high degree of inter-correlation among the eight factors of the EOMII scale and the overall job satisfaction and quality of care outcomes indicated

that a productive and satisfying work environment is a multidimensional, and integrated phenomenon.

In a literature review undertaken by Gu and Zhang (2014) to assess the tools of nursing work environment in Magnet hospitals, six tools (*Nursing Work Index*, *Revised Nursing Work Index*, *Practice Environment Scale of the Nursing Work Index*, *Essentials of Magnetism instrument*, *Perceived Nursing Work Environment instrument*, and *Revised Individual Workload Perception*) were compared. It was determined that the *Essentials of Magnetism tool* is the most characteristic of Magnetism, while the *Perceived Nursing Work Environment instrument* and the *Revised Individual Workload Perception scale* emphasise subjective perception of the nursing work environment. Gu and Zhang (2014) therefore suggested that Magnet hospitals should use the *Essentials of Magnetism tool* for self-assessment to maintain and continuously improve the nursing work environment. They advised that non-magnet hospitals should use it to draw a clearer picture of the gap between non-Magnet and Magnet hospitals so as to implement reform programs.

Links between and among process and outcome variables

All correlations between the eight processes of the EOMII scale, were significantly correlated with one another and with outcomes of quality of care, professional job satisfaction and overall job satisfaction. This review revealed that the EOMII scale, based on the process domain of the Donabedian's (1980, 1992) framework could be a useful self-evaluation guide for hospitals which aim to improve their work environment, or seek to sustain improvements on their work environment. It also has the potential to identify what, if any, corrective action is required, and what supportive action is validated.

3.5 Original contributions and conclusion

This literature review is the first to investigate how the EOMII scale has been utilised in the literature. This review has indicated that the US 8-factor EOMII scale sufficiently mirrors the features of Magnetic work environment and therefore can be useful as a quality assessment tool of the work environment of nurses. This review has also indicated that the EOMII has acceptable reliability and validity to assess the quality of

the practice environment and the effectiveness of interventions designed to improve that work environment (Schmalenberg and Kramer, 2008b). Gu and Zhang (2014) maintained that as the EOMII emphasises the traits of a healthy nursing work environment, it can assist in evaluating the status of magnetism of the environment, forming the basis for administrators to decide whether a hospital is qualified to apply for the Magnet Recognition Program.

Overall, this evidence suggests that the structure of the scale may differ in significant ways across different healthcare systems. In particular, the results suggest that nurses' experience and/or conceptualisation of nursing autonomy and control over practice may vary depending on the organisation and management of nursing work which may vary from country to country. Findings from the above studies suggest that the US 8-factor EOMII picks up cultural differences in the organisation of nursing work, particularly in relation to the amount of autonomy and control over nursing practice that nurses enjoy in different settings. It has highlighted that there are often issues with the autonomy and control over clinical practice factors.

In conclusion, the features in the nursing work environment are important determinants of the health of that environment as they determine the levels of job satisfaction of nurses, and subsequently determine whether they leave or stay on the job. This systematic review has provided evidence for the use of the EOMII as an efficient tool for evaluating the health of the work environment of nurses. It has also demonstrated that the EOMII scale has acceptable reliability and validity to assess the quality of the work environment of nurses.

Chapter 4 of the thesis provides the philosophical rationale for this research.

CHAPTER FOUR

METHODOLOGY

Introduction

This study was initially designed as a quantitative survey of nurses in England, using the Essentials of Magnetism II (EOMII) scale, an instrument designed in the USA to measure the nursing work environment. Some of the findings from the survey study suggested that there were discrepancies between the ways that nurses in England were responding to questions on autonomy when compared with much of the published literature which had used data from US nurses. This highlighted the need for further clarification of the meaning of autonomy, which prompted the post hoc qualitative face-to-face, one-to-one, short structured interviews with a sample of registered nurses drawn from the same hospitals that participated in the survey in order to explore their perceptions of the concept of autonomy. The purpose for the qualitative interviews was to clarify and to explain the results from the quantitative survey study. The survey also included a free text section in which respondents were invited to make any comments.

This chapter provides the justification for the selected methodology utilised in answering the research questions of this research study. It also identifies the associated ontology and epistemology underpinning this research. The chapter structure is outlined in figure 4.1 below.

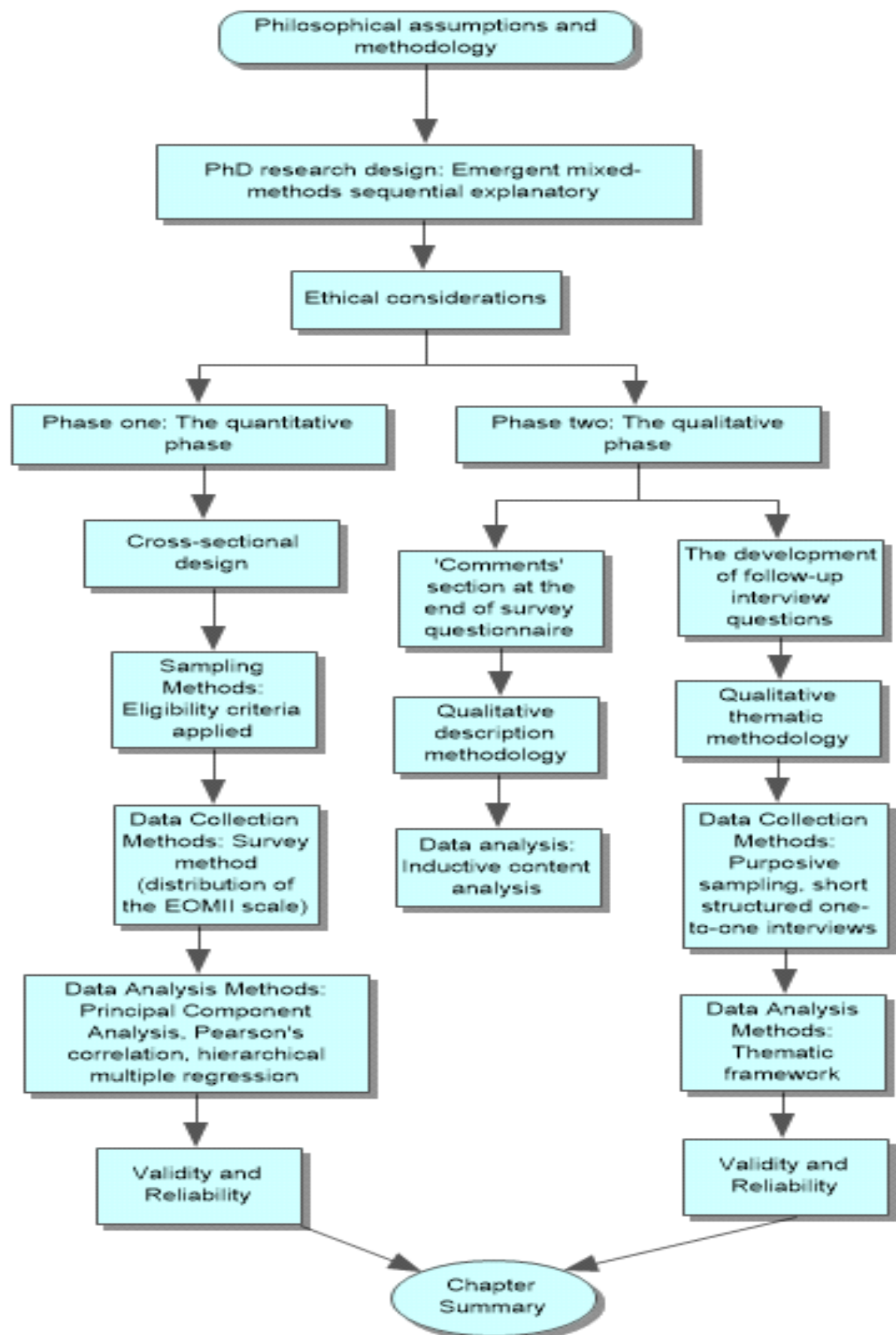


Figure 4.1: Structure of Chapter 4

According to Blaikie (2007), research strategies are located within the broader frameworks of theoretical or philosophical perspectives, commonly referred to as paradigms. The various research paradigms represent different ways of making connections between ideas, social experience and social reality. Kuhn (1970) developed the word paradigm maintaining that it is a set of beliefs, and values of a community of specialists, by stating that:

“The study of paradigms...is what prepares the student for membership in the particular scientific community with which he will later practice...Men whose research is based on shared paradigms are committed to the same rules and standards for scientific practice” (Kuhn, 1970:10)

To this extent, Blaikie (2007) asserted that the extent to which a research strategy shares ontological and epistemological assumptions with a research paradigm determines the extent to which they can be used together. More recently, Creswell and Clark (2011) promoted the term worldview over paradigm, pointing out that those who may or may not be associated with a community of scholars will be able to relate with the term ‘worldview’.

4.1 Philosophical assumptions and methodology

Ontology

Ontological assumptions are ways of answering the question: ‘what is the nature of social reality?’ These assumptions are concerned with what exists, what it looks like, what units make it up, and how these units interact with each other (Blaikie, 2007). A positivist or postpositivist view of ontology is that there is an external reality which exists independently of people’s beliefs or understanding about it (Snape and Spencer, 2003); they take a realist stance towards data, suggesting that it can be objective and that it is an index of what actually exists (Alexander *et al.*, 2008).

In contrast, interpretivists believe that reality is subjective, has multiple voices because of the different participants (Offredy and Vickers, 2010); they also believe that the world is socially constructed and they take an idealist or constructivist stance towards data (Alexander *et al.*, 2008). They argue that social research can never measure a single, external reality, but can produce only an interpretation of what researchers themselves

see (Alexander et al., 2008). They also argue that if several reports confirm a statement then it can be considered true as a representation of a socially constructed reality (Snape and Spencer, 2003). They believe that meaning does not exist in its own right; it is constructed by human beings as they interact and engage in interpretation (Robson and McCartan, 2016). Research participants provide researchers with interpretations, which researchers then reinterpret in the research process (Alexander *et al.*, 2008), using words or phrases provided by the participants of the study (Offredy and Vickers, 2010).

Epistemology

Epistemology is concerned with ways of knowing and learning about the social world; it is the method through which knowledge can be obtained and focuses on questions such as: 'how can we know about reality and what is the basis of our knowledge?' (Snape and Spencer, 2003). Positivism seeks causality and predictability, and test hypotheses (Alexander *et al.*, 2008). Regarding the relationship between the researcher and the researched, it is assumed that phenomena are seen as independent of and unaffected by the behaviour of the researcher. Consequently, the researcher can be objective in his/her approach and the investigation can be viewed as value free (Snape and Spencer, 2003) and unbiased (Offredy and Vickers, 2010). Manipulation and control of variables may be used in the study, and components of the study are analysed deductively (Offredy and Vickers, 2010). However, Broom and Willis (2007) pointed out that one of the weaknesses of the positivist approach is the inability to answer the question "why", specifically, as it cannot explore what is going on in a person's life and relationships that may have influenced them in making personal decisions (Broom and Willis, 2007).

Interpretivists on the other hand, argue that social research can produce only local, historically-contingent meaning (Creswell, 2014). The researchers' intent is to make sense of (or interpret) the meanings others have about the world. Rather than starting with a theory, inquirers generate or inductively develop a theory or pattern of meaning (Creswell, 2014). Researchers in the interpretivist tradition seek explanation and understanding (Alexander *et al.*, 2008), and may be closely involved in the study (Offredy and Vickers, 2010). Some qualitative researchers believe that in the social world, people are affected by the process of being studied and that the relationship

between the researcher and social phenomena is interactive (Snape and Spencer, 2003), but describe strategies used to create a distance between the researcher and the study (Offredy and Vickers, 2010). Broom and Willis (2007), however, pointed out that qualitative researchers sometimes attempt to make unjustified generalisations from the accounts of a small number of individuals; and argued that there is little value in funding research that cannot be generalised to the larger population.

Methodology

Methodology is the theoretical, political and philosophical backgrounds to social research and their implications for research practice and for the use of particular research methods (Robson and McCartan, 2016). Positivists and post-positivists draw more commonly on quantitative research, although, some draw on qualitative data. However, the positivistic (purist) scorns studies that draw on a small number of cases because they can never be representative and therefore do not offer the possibility of generalisability (Alexander *et al.*, 2008). Interpretivists (purists) on the other hand, argue that quantitative data can never produce understanding, in their terms. However, they also reject qualitative studies that aim to be exploratory inquiries that set the groundwork for causal theorising and the production of generalisable results. These purists state that methods cannot be mixed across paradigms (Alexander *et al.*, 2008).

Rationale for employing mixed-methods methodology (Pragmatism)

This research employed a mixed-methods methodology. The core assumption of this form of enquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Creswell, 2014). The goal of mixed-methods research is to draw from the strengths and minimise the weaknesses of both methods in research studies (Johnson and Onwuegbuzie, 2004). According to Creswell (2014:4) mixed-methods research is:

“...an approach to enquiry involving the collecting of both quantitative and qualitative data, interpreting the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks”.

Johnson *et al.* (2007:123) also define mixed-methods research as:

“...the type of research in which a researcher or a team of researchers combine elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, and inference techniques) for the broad purposes of breadth and depth of understanding and corroboration...”

Johnson *et al.* (2007) positioned mixed-methods research between the extremes (i.e. quantitative research and qualitative research), with mixed research attempting to respect fully the wisdom of both of these viewpoints while also seeking a workable middle solution for many (research) problems of interest. The importance of the research problem and questions is a key principle of mixed-methods research design (Creswell and Clark, 2011). This perspective stems from the pragmatic foundation for conducting mixed-methods research where the notion of “what works” applies well to selecting the methods that “works” best to address a study’s problems and questions (Creswell and Clark, 2011). Polit and Beck (2014ab) maintained that the strongest argument for mixed-methods research is that it is the research question that should drive the inquiry, its design and methods.

To follow on from the above discussion, the researcher adopted pragmatism as the theoretical framework for this research because she believes that quantitative and qualitative approaches should not be viewed as rigid, distinctive categories, polar opposites, or dichotomies, but instead should be seen as opposite ends of a continuum (Creswell, 2014). The researcher is concerned with coming up with answers to the research problems, and believes that mixing paradigms will lead to a fuller understanding of the social world (Robson and McCartan, 2016; Alexander *et al.*, 2008). The researcher believes in the value of choosing the most appropriate research methods in addressing the research questions than in the degree of philosophical consistency of the epistemological positions typically associated with different research methods (Snape and Spencer, 2003; Creswell and Clark, 2011). Qualitative and quantitative research should be considered as complementary strategies appropriate to different types of research questions or issues (Snape and Spencer, 2003), and this view is reflected in the mixed-methods methodology utilised in this research.

This research consisted of a quantitative (survey) component using the Essentials of Magnetism II (EOMII) scale; a “comments” section at the end of this scale where participants were invited to write comments if they wanted to; and a qualitative component using short structured, one-to-one interviews. Thus, the researcher commenced this research by taking a realist stance towards data collection, suggesting an objective approach through the use of the EOMII scale to measure the nursing work environment. At the same time, the researcher accepts that reality can also be subjective, and holds a constructivist stance towards data by reporting different perspectives of the research participants via short structured, face-to-face, one-to-one interviews, thus embracing the idea of multiple realities.

In the quantitative phase of this research, knowledge was based on objectivity through the use of statistical methods in evaluating the nursing work environment and the factor structure of the EOMII scale in data gathered from a sample of hospital nurses in England and the associations between the factors and nurse-assessed care quality. Objectivity was sought from the inception of the research idea, the design of the study, the methods used, the process of carrying it out and the analysis and interpretation of the research results (Bowling, 2005). In order to minimise bias and to make the investigation value-free, some variables were manipulated and controlled in the multiple regression analyses. In the qualitative component, on the other hand, the intention was to make sense of the meanings the interview participants had about the concept of autonomy and to develop a pattern of meaning (epistemology) based on their perspectives, understanding, and their experiences of autonomy in their practice environment. The researcher’s reinterpretation of the participants’ interpretations of their experiences, and the presence of bias, revealed the value nature of the research.

4.2 Research design

A research design is the framework for a study (Churchill and Iacobucci, 2002; LoBiondo-Wood, 2010), used as a guide in collecting and analysing data (Churchill and Iacobucci, 2002). According to Green (2008) every component of the research process is considered and planned in the research design. The design includes the background to the problem, the review of previous research, the methodological approach, and the methods of data collection and analysis.

At the early stage of this research process, a non-experimental fixed design with cross-sectional (survey), and prospective design was adopted. Non-experimental fixed designs do not involve a manipulation of the situation or the experiences of the participants, and the survey is a very common type of non-experimental fixed design (Robson and McCartan, 2016). This research began with the collection and analysis of quantitative data through a survey study. Parts of the findings from this survey study suggest that the nurses' conceptualisation of autonomy may vary depending on the organisation and management of nursing work which may vary from country to country. This highlighted the need for further clarification of the meaning of autonomy for the nurses in the clinical settings in England. These results were then used to guide the development of the qualitative strand of this research. In this way, an emergent mixed-methods, with explanatory sequential design was adopted.

The design of this PhD thesis can be described as 'emergent mixed-methods' because it began with a quantitative approach and then the qualitative component was added during the research process in order to explore the meaning of the quantitative results (Creswell and Clark, 2011). It can also be described as 'explanatory sequential mixed methods' because the initial quantitative results were explained further with the qualitative data (Creswell, 2014).

The challenges and strengths of the explanatory design

The challenges the researcher experienced while adopting the explanatory design included expenditure and ethics approval. Securing approval for the qualitative study of this research took several weeks. This issue was also identified by Creswell and Clark (2011) who pointed out that the time required for the implementation of the two phases is often lengthy. One of the benefits is that it enabled the researcher to pursue an interesting finding from the quantitative study, using a different approach. Creswell and Clark (2011) pointed out that the design lends itself to emergent approaches where the second phase can be designed based on what is learnt from the initial quantitative phase, as was the case in this research.

4.3 Quantitative methodology (first phase)

The first phase of this research adopted a quantitative methodology, which is a formal, objective, systematic process in which numerical data were used to obtain information about the nursing work environment (Burns and Grove, 2005). As explained in the preceding sections, quantitative methodology is appropriate in evaluating the factor structure of the EOMII, and to investigate the associations between those factors and quality of care, because it is concerned with measuring quantities and relationships between attributes, following a set of scientifically rigorous procedures (Bowling, 2008). In quantitative methodology, highly structured data are collected through the use of standardised data collection methods (Bowling, 2005, 2008). In this phase, the EOMII scale was utilised to collect data through a cross-sectional survey study.

Cross-sectional design

Cross-sectional studies are valuable for providing descriptive information about prevalence, and can be used for examining associations between variables (Newman *et al.*, 2007). The cross-sectional study has been criticised (Churchill and Iacobucci, 2002) for its narrow focus on the variables of interest at a single point in time, as contrasted to the longitudinal study, which provides a sequence of events and the changes that are occurring. It was chosen for this research because it has the advantage of avoiding the time, expense, and dropout problems of a follow-up design (Newman *et al.*, 2007). Cross-sectional survey design was appropriate for this study because one of the objectives of this research was to examine the associations between the variables used in measuring the nursing work environment and nurse-assessed.

4.4 Qualitative methodology (second phase)

The second phase of this research adopted a qualitative methodology, which is a research methodology that emphasises words rather than quantification in the collection and analysis of data (Bryman, 2016). This phase was in two parts – the ‘comments’ section of the survey questionnaire, and the short structured, one-to-one qualitative interviews. Qualitative methodology was chosen because the EOMII scale was also used to collect qualitative textual data (comments) from some of the participants of the survey study. Qualitative approach was appropriate for answering the research

questions concerning the concept of autonomy as perceived by the participants in the study. According to Denzin and Lincoln (2013), qualitative research involves the collection of a variety of empirical data – case study, personal experience, introspection, life story, interviews, artefacts, and cultural texts and productions, along with observational, historical, interactional, and visual texts. Qualitative techniques allow researchers to explore how people structure and give meaning to their daily lives (Berg and Lune, 2012).

The researcher considered qualitative methodology as the appropriate philosophical orientation for this phase of the research because it addresses 'how' the nurses perceived their work environments through their comments. It was also appropriate for answering the research questions 3 and 4 for the short structured interviews on 'how' the nurses understood the concept of autonomy and 'what' their experiences of autonomy were. According to Neergaard *et al.* (2009), qualitative research is an empirical method of investigation aiming to describe the informant's perception and experience of the world and its phenomena. It is well suited for "*why*", "*how*" and "*what*" questions about human behaviour, motives, views and barriers (Neergaard *et al.*, 2009). Neergaard *et al.* (2009) pointed out that qualitative research is suitable for problem identification, hypothesis generation, theory formation and concept development due to its inductive approach. Quantitative methodology and methods were not considered suitable for addressing the research questions 3 and 4 posed in the short structured interviews or for analysing the comments provided by some of the respondents in the EOMI survey. This is because quantitative methodology or methods is deductive in approach and are well suited for "*when*", "*how much*" and "*how many*" questions and are therefore suitable for problem quantification and testing of theories, interventions and new treatments (Neergaard *et al.*, 2009). Neergaard *et al.* (2009) emphasised that qualitative and quantitative methods can supplement each other in analysing a research topic from different perspectives, as both methods are being utilised in this research. Qualitative description methodology was adopted for the comment section, while qualitative thematic methodology was used for the short structured, one-to-one interviews.

Qualitative description methodology – the free text section of the EOMII scale

Qualitative description methodology was the philosophical orientation of choice for this comments section. According to Sandelowski (2000) the goal of qualitative descriptive studies is to present a comprehensive summary of events. Although qualitative descriptive studies are less interpretive than interpretive description in that they do not require researchers to move as far from or into their data Sandelowski (2000), they are still interpretive (Sandelowski, 2010). Sandelowski (2000) pointed out that no description is free of interpretation, but qualitative description, as opposed to, for example, phenomenological or grounded theory, entails a kind of interpretation that is low-inference. According to Neergaard *et al.* (2009) the aim of qualitative description is neither thick description (as in ethnography), theory development (as in grounded theory) nor interpretative meaning of an experience (as in phenomenology), but a rich, straight description of an experience or an event.

Qualitative description was considered appropriate because some of the comments written by the participants were short and superficial. Many of the participants wrote only one or two sentences to describe their work environments, while a few wrote lengthy comments and explored issues in their work environments. It was considered unreasonable to offer deep interpretations to short or superficial statements. However, the knowledge and use of qualitative description as a qualitative research approach in health research is limited and is often criticised for being too simple and lacking rigour (Neergaard *et al.*, 2009). Sandelowski (2000) maintained that there is nothing trivial or easy about getting the facts right, and the meanings participants give to those facts, and then conveying them in a coherent and useful manner, and cautioned that surface readings should not be considered superficial, or trivial and worthless.

Qualitative descriptive studies tend to draw from the general tenets of naturalistic inquiry, which is a generic orientation to inquiry that includes not only qualitative research, but also forms of behavioural research (Sandelowski, 2000). Sandelowski (2010) pointed out that naturalism is the typical theoretical foundation for qualitative descriptive studies and described it as entailing a commitment to studying a phenomenon in a manner as free of artifice as possible in the artifice laden enterprise known as conducting research. In any naturalistic study, there is no pre-selection of variables to study, no manipulation of variables, and no a priori commitment to any one

theoretical view of a target phenomenon (Sandelowski, 2000). However, qualitative descriptive studies may include statistical analysis (Sandelowski, 2010). Hence, Neergaard *et al.* (2009) described qualitative description as probably the least theoretical of the qualitative approaches, founded in existing knowledge, thoughtful linkages to the work of others in the field and clinical experience of the research group. Hence, the analytical process and presentation of data stay closer to the data, and descriptions depend on the perceptions, inclinations, sensitivities and sensibilities of the describer (Neergaard, 2009).

Qualitative thematic methodology – the qualitative, one-to-one, short structured interviews

Qualitative thematic methodology was the philosophical orientation of choice for the qualitative, one-to-one short structured interviews aimed at exploring registered nurses' understanding of the concept of autonomy, and their experiences of autonomy in practice. According to Teddlie and Tashakkori (2009:6), qualitative (thematic) data analysis is the analysis of narrative data using a variety of different inductive and iterative techniques, including categorical strategies and contextualising strategies. Qualitative thematic analysis tries to find out about participants' lives through what they say during the research process (Silverman, 2014). Its data are generally presented as accounts of social phenomena or social practices, substantiated by illustrative quotations (Silverman, 2014). It utilises categorical strategies through breaking down narrative data into smaller units and then rearranging those units to produce categories that facilitate a better understanding of the research question (Teddlie and Tashakkori, 2009).

At the planning stage of this phase of the research, the researcher considered using other qualitative approaches such as grounded theory, ethnography or phenomenology, but considered the qualitative thematic methodology more appropriate for the research questions (see Chapter 1). Other approaches were considered inappropriate, for example grounded theory is a methodology (Teddlie and Tashakori, 2009) or an iterative approach to the analysis of qualitative data (Bryman, 2016) that are systematically gathered and inductively analysed (Teddlie and Tashakori, 2009), in which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants (Creswell, 2014). Ethnography is a

method in which the researcher immerses himself or herself in a social setting for an extended period of time, observing behaviour, listening to what is said in conversations both between others and with the fieldworker, and asking questions (Bryman, 2016). Phenomenological research is a design of inquiry in which the researcher describes the lived experiences of individuals about a phenomenon as described by participants, which culminates in the essence of the experiences for several individuals who have all experienced the phenomenon (Creswell, 2014). The short structured interviews were conducted in order to assist in the explanation and the understanding of the results of the quantitative survey study, and not for the purpose of generating theories as in grounded theory. Ethnography was not appropriate because such an approach would require the researcher to be in the hospital environment for a longer period of time in order to observe and talk to research participants. The ward managers of the eligible wards informed the researcher that the wards were short staffed, the nurses were always busy, and that the presence of the researcher on the wards for a long period of time would be distracting. Lastly, phenomenological research was not appropriate because the interviews were not designed to describe the lived experiences of nurses but to explore their understanding of autonomy and how they practised autonomously. Qualitative thematic methodology was chosen over the aforementioned approaches because it aims to ground interpretation in the particularities of the situation under study (Silverman, 2014). The next chapter (Chapter 5, Section 5.3) will consider reflexivity in relation to the interview process.

4.5 Summary

This chapter has presented the philosophical assumptions and methodology that have guided this research. This study was originally designed as a quantitative survey of nurses in England, using the Essentials of Magnetism II (EOMII) scale, an instrument designed in the USA to measure the nursing work environment. The need to follow up the findings from this survey study prompted the *post hoc* qualitative face-to-face, one-to-one, short structured interviews with a sample of registered nurses drawn from the same hospitals that participated in the survey in order to explore their perceptions of the concept of autonomy. In this way, an emergent mixed-methods, with explanatory sequential design was adopted. The methodology applied to the free text data gathered with the EOMII scale was discussed.

Chapter 5 will present the methods utilised in cross-sectional survey study, and in the short structured interviews. It will also discuss the analytical method used in the analysis of the free text data of the comments section of the EOMII scale.

CHAPTER FIVE

METHODS

Introduction

This chapter presents the methods utilised in the cross-sectional survey study which utilised the Essentials of Magnetism II scale as a tool in measuring the nursing work environment in a sample of registered nurses working in two NHS hospitals in England. It also discusses the methods used in analysing the data gathered from the free text section of the EOMII scale. Finally, this chapter will describe the methods utilised in the post hoc short structured interviews of the nurses working in the same NHS hospitals where the survey study mentioned above was conducted.

5.1 Survey

Ethical considerations

Permission to use the Essentials of Magnetism II (EOMII) scale was granted by its authors Professor Marlene Kramer and Claudia Schmalenberg (Appendix 19). Permission to conduct the study in the two NHS hospitals was granted by their Directors of Nursing (see Appendices 20 and 21) and the National Health Service (NHS) Ethics Committee (see Appendix 22). Full ethical approval was granted by the Research Ethics Committee, London – Surrey Borders with the reference number: 11/LO/1329 (see Appendix 23).

For the quantitative study, the participant information sheet (see Appendix 24) about the study and two copies of the consent form (see Appendix 25) were distributed to the registered nurses. The purpose for giving each nurse two copies of the consent form was for a copy to be retained by the participant and the other returned to the researcher. As some of the questions were potentially sensitive, particularly those concerning relationships with the ward manager, the researcher was concerned to protect the anonymity of participants and the confidentiality of the data. Completed copies of the EOMII scale were returned anonymously via a secure box on each ward.

By ensuring anonymity and confidentiality, the researcher was seeking to protect participants and to decrease the pressures to give socially desirable responses.

Setting

This study was conducted in two National Health Service Trusts in the South East of England. A total of 29 wards were included in the study - 12 wards in hospital A, and 17 wards in hospital B. Hospital A is a District General Hospital which serves a population of around 300,000 in South East England. It has 478 in-patient beds in 23 wards and specialties that include day-surgery, general surgery, trauma, orthopaedics, cardiology, maternity and general medicine. The Trust was formally established in 1993 and was opened in 2000. It employs 2000 members of staff. In 2011/2012 the Trust employed 802 Nursing, Midwifery and Health Visiting Staff, while the number employed in 2012/2013 was 850. It had a cash balance of nearly £2m.

Hospital B is a general hospital which serves a population of about 400,000 in South East England. It has 588 beds in 29 wards under five main departments: accident and emergency, adult medicine, surgery and anaesthetics, children and women, clinical support services, and was founded in 1902. The hospital employs 4,000 members of staff. In 2011/2012, the Trust employed 1,253 Nursing, Midwifery and Health Visiting staff, while the number employed in 2012/13 was 1,195. In April 2008, it became a foundation trust which means that patients and the public can become members of the organisation and get involved in some of the hospital's work. The hospital returned a deficit of nearly £2m in the 2012/2013 financial year.

Changes to the EOMII scale

Some changes were made to the EOMII scale before the researcher made application for ethical approval of the research because the scale was being used in the UK nursing work environment for the first time. Minor changes were made to the wordings of some items to adapt to its use in an English sample. Some of the US terminologies were anglicised and validated by the authors of the scale (Professor Marlene Kramer and Claudia Schmalenberg): "*Techs*" (an abbreviation) was changed to "*technicians*"; "*unit*" was changed to "*ward*"; "*Physician*" was changed to "*Doctor*"; and "*Nurse Manager*" was changed to "*Ward Manager*". Also, the members of the Research Ethics Committee felt that item 19 of the original EOMII scale "*There is a general understanding among*

nurses on my unit that nursing administration wants us to function autonomously” might not be easily understood by some of the nurses. After collaboration with the authors of the scale item 19 was then changed to *“There is a general understanding among nurses on my ward that ward manager supports our independent decision-making”* (see Appendix 1 for the EOMII scale).

Conduct of the survey

Participants and the eligibility criteria

Registered nurses providing direct adult patient care in the medical and surgical wards were recruited. Nurses eligible to participate were those who had worked on their present ward for a minimum of one month, and there was no age limit on the participants. However, registered nurses working in Outpatient departments and Emergency Departments were excluded because patients do not stay up to 24 hours in those departments, and their nurses have different work flow different from in-patient wards. Maternity wards, Critical Care Units, and Paediatric departments were also excluded because they have different staffing levels from other in-patient wards, unlike most in-patient wards that allocate one nurse to between six to 12 patients. The target population of eligible registered nurses was a total 438, distributed across 29 in-patient wards (n=17 medical wards; n=12 surgical wards), across the two NHS hospitals.

Distribution of the Essentials of Magnetism II scale

Visits were made to the two NHS hospitals in order to discuss the practicalities of the research methods with the Research and Development Managers and with the Directors of Nursing. Initial contacts were made with the managers of each eligible ward in May 2012 in order to discuss the aims and the purpose of the research and also to give survey packs to the managers to distribute to the nurses. With their agreement, nurses on the wards were made aware of the study at ward meetings and an A3-sized research poster (see Appendix 26 for a size A-4 copy) about the study was displayed on the notice board in each ward, in order to aid recruitment. Survey packs containing a covering letter/letter of invitation (see Appendix 27), the participant information sheet (see Appendix 24), the EOMII survey scale (see Appendix 1), and two copies of consent form (see Appendix 25) were distributed to the registered nurses. Each ward manager was given a short form called ‘The Ward Manager’s Questionnaire’ to complete (see

Appendix 28). The purpose for this 2-page questionnaire was to extract information about the ward structure i.e. the number of Registered Nurses and Health Care Assistants working on the ward, their Full-Time Equivalence (FTE), the number of patients assigned to each Registered Nurse per shift, the bed occupancy of the ward, and the ward speciality. Table 5.1 below presents how the nursing job roles in this present study and some US nursing roles can be mapped meaningfully to the UK Agenda for Change bands (DoH, 2004).

The appropriate time to come to the wards to check the boxes for completed EOMII scale and to be available for the registered nurses in case they had queries concerning the scale was negotiated with each ward manager. The researcher visited each ward twice a week over the course of the study in order to check the response, to answer any questions about the scale or study, to give out extra copies of the scale to the registered nurses who had lost or misplaced theirs, and to collect completed EOMII scale. Reminder Letters (see Appendix 29) were sent 6 and 14 weeks after copies of the EOMII scale were first distributed to the registered nurses. The survey was conducted in the period 2nd May to 31st October 2012.

Table 5.1: Role description of participants and how their roles as well as the US nursing roles can be mapped meaningfully to Agenda for Change.

England, United Kingdom			United States	
Agenda for Change pay bands (DoH, 2004)	Some nursing roles	Descriptions	Some nursing roles	Descriptions
Bands 1 - 4	Healthcare Support Worker (HCSW)	Called Health Care Assistants in some hospitals, are unlicensed/unregistered health personnel who work alongside nurses, midwives, doctors, and allied health professionals in looking after the general wellbeing of patients (HEE, 2016b).	Unlicensed Assistive Personnel	UAPs are unlicensed health care providers trained to function in a supportive role by providing patient/client care activities as delegated by the RN. The term includes, but is not limited to nurse aides, orderlies, assistants, attendants, or technicians (Academy of Surgical-Medical Nurses, 2017).
Band 5	Staff nurse	The basic grade of qualified nursing staff, who are involved in direct patient care (initial NMC registration level). Staff Nurses have diploma or bachelor's degree.	Registered Nurse	RNs are nurses with an associate or bachelor's degree in nursing. They assist physicians in hospitals and a variety of medical settings and help in treating patients with illnesses, injuries, and medical conditions (Santiago, 2017).
			Licensed Practical Nurse	LPNs are licensed to perform a variety of tasks under the supervision of an RN. They administer medicine, check vital signs and give injections (Santiago, 2017).
			Staff Nurse	Staff nurses work in a variety of settings including rehab

				centers, critical care, psychiatric and outpatient facilities. They provide direct patient care, administer medications, and perform IV therapy and more. Staff nurses often have the opportunity to advance and supervise other medical staff, like RNs or LPNs (Santiago, 2017).
Band 6	Junior ward sister	A female nurse who has moved on to a higher rank/grade from a staff nurse, and has lesser responsibility to the ward manager. She has specific responsibilities for the running of the ward, in charge of nurses and are involved in direct patient care (Pembrey, 1980)		
Band 6	Junior charge nurse	A male equivalent role of a ward sister.		
Band 7	Ward manager	The leader of a unit or ward caring for patients. Has direct managerial responsibilities for both patients and nurses (Pembrey, 1980)	Nurse Supervisor	Also known as nurse managers, oversee the nurses caring for patients. A nurse manager is responsible for one clinical unit in the hospital (McClure et al, 2002).

How the US nursing roles can be mapped meaningfully to Agenda for Change

Table 5.1 shows how some US nursing roles can be mapped meaningfully to Agenda for Change (AfC) (DoH, 2004) bands in England. AfC is the current NHS grading and pay system for NHS staff, with the exclusion of medical staff and some senior managers (DoH, 2004). AfC system was commenced on 1 December 2004, and allocates posts to structured pay bands by taking into consideration aspects of the job, such as the skills involved, under an NHS Job Evaluation Scheme (DoH, 2004). In England, the job descriptions for the healthcare support worker under the AfC bands 1 – 4 are very similar to those of the unlicensed assistive personnel in the US. In the US, the job descriptions of the registered nurse, licensed practical nurse, and the staff nurse are similar to those of the AfC band 5 staff nurse in England. There are no ward sister/charge nurse job role in the US. Nurse Supervisors, also known as Nurse Managers are similar in role to the Ward Managers in England. However, there are difficulties in matching the pay bands of the nursing roles in these two countries due to different certifications in the US, clinical ladders available require different specific qualifications and competencies in the two countries.

Measures

The nursing work environment

The EOMII is a 58-item tool that measures each of the eight work environment attributes with a separate subscale (see Appendix 1). Responses to each of the 58 items are assessed on four-point rating scales. The first subscale items 1 – 6 assessing the relationships between nurses and medical staff are rated on scales anchored at 1 (Not true for any Drs); 2 (True for 1 or 2 Drs on occasion), 3 (True for some Drs, some of the time), and 4 (True for most Drs, most of the time). The remaining seven subscales use a similar 4-point response scales anchored at 1 (strongly disagree); 2 (disagree); 3 (agree); and 4 (strongly agree). Negative items are reverse scored.

Demographic and occupational characteristics of individual nurse

The EOMII was also used to collect information about the demographic characteristics of the nurses as follows (see Appendix 1):

1. Gender: male or female

2. Age: Participants were asked to indicate their age within one of nine categories, specifically i) 21-24, ii) 25-29, iii) 30-34, iv) 35-39, v) 40-44, vi) 45-49, vii) 50-54, viii) 55-59 and ix) 60 or over.
3. Education: Less than degree level (diploma) or a bachelor's degree or higher.
4. Years of nursing work experience.
5. Length of time working on current ward.
6. Job role: Staff nurse or Sister/ Charge Nurse (Table 5.1 above presents how the nursing job roles in the present study and some US nursing roles can be mapped meaningfully to the UK Agenda for Change bands (DoH, 2004).

The nurse-assessed quality of care

The Essentials of Magnetism II scale also contains an 11-point single item indicator which measures nurse-assessed quality of care. On the scale, nurses were asked to indicate their perceptions of care quality provided by them to the patients (Schmalenberg and Kramer, 2008a). The anchors of quality of care were 0 (dangerously low), 5 (safe but not much more), and 10 (very high quality). The nurse-assessed quality of care scale was modified by Schmalenberg and Kramer (2008a) from a 4-point scale developed by Aiken *et al.* (2002). This 11-point scale has been used in a number of several studies (Kramer *et al.*, 2011; Yildirim *et al.*, 2012; Bai *et al.*, 2013; Kramer *et al.*, 2013; Bai *et al.*, 2015). Appendix 1 presents the full details.

A recent study by Stalpers *et al.* (2016) examined the concordance between objective nurse-sensitive screening indicators (screening of delirium, screening of malnutrition, and pain measures) and the subjective nurse-assessed quality of care using Spearman's Rho correlation and found a significant positive correlation ($r_s = 0.943$, $p = 0.005$) between the two quality measures, indicating corresponding quality ranking. This strengthens the use of this single item scale as a reliable measure of nurse-assessed quality of care.

Data analysis

Data were analysed through the Statistical Package for the Social Sciences (SPSS) software version 20.0 (IBM Corporation, 2011). All data from the survey study were

collated and entered directly into the SPSS software by the researcher from the questionnaires.

Missing values

Frequencies were checked for any out-of-limit entries and corrected. There were a few missing values in the data, and it could be due to participants accidentally missing out some questions (Field, 2013), or that some participants may simply decline to give some information (Brace *et al.*, 2012). Field (2013) suggested choosing a discrete numeric value to represent the point where such a numeric value cannot occur in the data that have been collected. This is to let the SPSS recognise that there is no valid data available for this particular participant on this variable (Brace *et al.*, 2012). The value '999' was used for the missing values during data analysis.

Descriptive statistics

Descriptive statistics were used to describe the characteristics of the sample. Descriptive statistics are a wide variety of techniques that allow the description of the general characteristics of the data collected (Cramer and Howitt, 2004). The central tendency (i.e. typical score) was assessed by the mean, and the standard deviation was used to give an indication of how much all the scores in a data set vary around the mean (Cramer and Howitt, 2004; Dancey and Reidy, 2004).

Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index

Prior to estimating the PCA, Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index were estimated to determine whether the samples were adequate and whether the PCA was appropriate (Field, 2013). In KMO measure of sample adequacy, values from 0.5 are considered acceptable, and indicate a good factorability of the correlation matrix (Field, 2013). Field (2013) further suggested that values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb. Bartlett's sphericity test which is <0.05 (statistically significant) indicates the eligibility of the data for factor analysis (Field, 2013).

Principal Component Analysis (PCA)

Principal Component Analysis (PCA) with varimax rotation was used to assess and understand the factor structure (Field, 2013) of the EOMII scale, as the scale was being

used in England for the first time. PCA is an exploratory approach to Factor Analysis (FA). According to Bryman and Cramer (2011) Factor Analysis refers to a number of related statistical techniques which assists in establishing the extent to which those aspects or items which reflect a component or a factor are correlated with one another and are unrelated to those which represent another factor or component. In FA, if people respond in similar ways to questions concerning a subscale or a factor as they do to another, this implies that these two concepts are not seen as being conceptually distinct by these people. If, however, their answers to one subscale are unrelated to another, this suggests that these two feelings can be distinguished. This implies that FA makes it possible to assess the factorial validity of the questions which make up a scale by revealing the extent to which they appear to be measuring the same concepts or variables (Bryman and Cramer, 2011).

There are two main approaches to factor analysis - confirmatory and exploratory (Pallant, 2016). Exploratory factor analysis is often used in the early stages of research to examine relationships or inter-relationships among a set of variables, without determining the extent to which the results fit a particular model (Bryman and Cramer, 2011; Pallant, 2016). Confirmatory factor, on the other hand, is a more complex and sophisticated set of techniques used late in the process to compare the solution found against a hypothetical one (Bryman and Cramer, 2011). It is used to test (or to confirm) specific hypotheses or theory concerning the structure underlying a set of variables (Pallant, 2016).

However, some authors use the term 'factor analysis' to encompass a variety of different, although related techniques (DeVellis, 2012; Pallant, 2016). One is called Principal Component Analysis (PCA) and the other is usually referred to, simply as Factor Analysis, also called principal axis factoring (Dancey and Reidy, 2004). Principal axis factoring is concerned with the reduction of a number of observed variables to fewer factors in order to enhance interpretability and detect hidden structures in the data (DeVellis, 2012). In principal axis factoring, only the shared variance is analysed, unique variance is excluded, and some error variance is assumed (Dancey and Reidy, 2004). However, PCA is exploratory in nature - carried out simply to transform the original variables into a smaller set of uncorrelated components (Dancey and Reidy, 2004), and is concerned only with establishing which linear components exist within the data and

how a particular variable might contribute to that component (Field, 2013). In PCA, all the variance in the data is analysed, both shared and unique variance, with the assumption that there is no error (Dancey and Reidy, 2004).

Rationale for choosing Principal Component Analysis

In this study, Principal Component Analysis was chosen over principal axis factoring or confirmatory factor analysis in assessing the factor structure of the Essentials of Magnetism II scale because this initial analysis was exploratory rather than confirmatory. The analysis was not intended to compare the extracted solution against a hypothetical one, therefore, confirmatory factor analysis was considered inappropriate. PCA was preferred because in PCA, all the variance of a score or variable (both shared and unique) is analysed, compared to principal axis factoring, which excludes unique variance (Dancey and Reidy, 2004; Bryman and Cramer, 2011). Principal Component Analysis was chosen over principal axis factoring because it yields one or more composite variables that capture much of the information originally contained in a larger set of items, and the components, moreover, are defined as weighted sums of the original items (DeVellis, 2012). Principal Component Analysis has the ability to highlight the items that are not contributing to the construct or factor, which eventually can be considered for deletion from the scale (Field, 2013). Furthermore, Principal Component Analysis is a psychometrically sound procedure (Field, 2013) and the principal components are linear transformations of the original variables, and are grounded in actual data and are derived from the actual items (DeVellis, 2012).

Orthogonal factor rotation

Orthogonal factor rotation was chosen over the Oblique factor rotation technique for the purpose of factor extraction. According to Bryman and Cramer (2011), the first factors extracted from an analysis are those which account for the maximum amount of variance. Factors are rotated in order to maximise the loadings of some of the item for the purpose of increasing the interpretability of factors. Factor rotation can then be used to identify the meaning of the factor. There are two methods of factor rotation – orthogonal rotation such as varimax, quartimax, and aquamax, and the oblique rotation such as direct oblimin and promax (Field, 2013). The orthogonal rotation produces factors which are unrelated to or independent of one another, while in oblique rotation, the factors are correlated.

Orthogonal rotation technique via Varimax rotation was preferred to any of the oblique rotation techniques because the purpose for conducting PCA was to explore the factor structure of the EOMII scale. In order to achieve this purpose, the factorial validity of the questions which make up the EOMII subscales needed to be assessed to ensure items within each subscale were measuring the same concept. In orthogonal rotation, the information provided by the factors is not redundant, since a person's score on one factor is unrelated to his or her score on another (Bryman and Cramer, 2011). It was therefore important that the components were uncorrelated, rendering the oblique rotation technique inappropriate.

Rationale for choosing the varimax rotation technique

Varimax rotation was preferred to the two other types of orthogonal rotation techniques (i.e. quartimax and aquamax). According to Field (2013), quartimax rotation attempts to maximise the spread of factor loadings for a variable across all factors, making variable interpretation easier (Field, 2013). However, Field (2013) cautioned that this often results in lots of variables loading highly onto a single factor. Varimax rotation on the other hand, is the opposite of quartimax because it attempts to maximise the dispersion of loadings within factors, loading a smaller number of variables highly onto each factor resulting in more interpretable clusters of factors (Field, 2013). Field (2013) described equamax as the hybrid of the varimax and quartimax rotation techniques. However, equamax rotation technique has been reported to behave fairly inconsistently. Varimax rotation attempts to minimise the number of variables that have high loadings on each factor (Pallant, 2016), and was therefore chosen for this analysis. It has been recommended (Field, 2013) that for a first analysis, it is a good general approach that simplifies the interpretation of factors.

Factor loading

The factor level was set at 0.30 level. Factor loadings are a gauge of the substantive importance of a given variable to a factor, and are therefore used to place variables with factors (Field, 2013). A factor loading is simply a correlation coefficient or regression coefficient (Field, 2013). Field (2013) pointed out that researchers take a factor loading of an absolute value of more than 0.3 to be important and argued that the significance of a factor loading should depend on the sample size. Field (2013) therefore recommended that for a sample of 100 the loading should be greater than 0.512 and for

200 samples, the factor loading should be greater than 0.364. Since the sample for this study was 247, factor loading was therefore set at 0.30 because Bryman and Cramer (2011) recommended that items or variables which correlate less than 0.3 with a factor should be omitted from consideration since they account for less than 9% of the variance and so are not very important.

Eigenvalue and Scree test

The Kaiser (1960) rule and the Cattell (1966) scree test were the two criteria used in deciding which factors to exclude from the solution. They are the most often used procedures to determine the number of components to retain (Pallant, 2016). Using the Kaiser's (1960) criterion, only factors with an eigenvalue of 1.0 or more are retained for further investigation. The eigenvalue of a factor represents the amount of the total variance explained by that factor (Kaiser, 1960; Pallant, 2016). Kaiser's criterion of retaining only factors with eigenvalues of 1.0 or more has been criticised as resulting in the retention of too many factors in some situations (Pallant, 2016). For example, Patil *et al.* (2008:162) argued that the 'eigenvalue greater than one' rule often results in over extraction, leading to the development of non-parsimonious theories based on superfluous constructs.

In order to minimise the weakness of the 'eigenvalue greater than one' rule highlighted by Patil *et al.* (2008), the Cattell's (1966) graphical scree test was also applied. This involves plotting each of the eigenvalues of the factor (Pallant, 2016). Cattell's (1966) recommendation is to retain only those components above the point of inflection on a plot of eigenvalues ordered by diminishing size. The decision in choosing a point at which to cut off extraction must aim merely at encompassing what may be called the non-trivial common variance (Cattell, 1966). In the use of the scree test the issue will arise whether the last non-trivial factor is that immediately beyond or at the end of the straight scree line (Cattell, 1966).

Correlation

Associations between the extracted factors and nurse-assessed quality of care were assessed using Pearson's correlation. The reason for performing a correlational analysis is to discover whether there is a relationship between EOMII variables and the nurse-assessed quality of care. Correlational techniques are used to study relationships

and used in exploratory studies (Munro, 2005a). It also determines the direction of the relationship – whether it is positive, negative, or zero, and the strength or magnitude of the relationship between the two variables (Munro, 2005a). The purpose of performing a correlational analysis is to discover whether there is a relationship between EOMII variables and the nurse-assessed quality of care. It also determines the direction of the relationship – whether it is positive, negative, or zero, and the strength or magnitude of the relationship between the two variables (Darcey and Reidy, 2004; Field, 2013; Pallant, 2016).

Hierarchical multiple regression

To explore further the relationships between the extracted factors and nurse- assessed care quality a hierarchical multiple regression was conducted with nurse-assessed care quality as the dependent variable, with the predictor variables being added in four steps. In the first step the demographic variables, age, gender, and education were entered as *control* variables; in the second step, job role was entered, followed by a dummy variable identifying the hospital and in the final step, the extracted factors of the EOMII were entered.

Multiple regression predicts one variable on the basis of several other variables (Munro 2005b; Brace *et al.*, 2012). It is a technique used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors (usually continuous) (Pallant, 2016). Multiple regressions can be used to address how well a set of variables is able to predict a particular outcome; which variable in a set of variables is the best predictor of an outcome; and whether a particular predictor is still able to predict an outcome when the effects of another variable are controlled for (Pallant, 2016). In hierarchical regression (also called sequential) variables or sets of variables are entered in steps (or blocks), with each independent variable being examined in terms of what it adds to the prediction of the dependent variable, after the previous variables are controlled for (Field, 2013; Pallant, 2016). As soon as all sets of variables are entered, the overall model is examined for its ability to predict the dependent measure, and the relative contribution of each block of variables is also assessed, once all sets of variables are entered (Brace *et al.*, 2012; Pallant, 2016).

Validity and reliability of the EOM II scale

Naturally, researchers want their indicators to be as good as possible, meaning that the measurements that they make should be valid (accurately measuring the concept) and reliable (consistent from one measurement to the next) (Gilbert, 2008). The validity of the EOMII scale has been demonstrated in several studies (Schmalenberg and Kramer, 2008a; Kramer *et al.*, 2011; and Kramer *et al.*, 2013). The internal consistency reliability of the EOMII scale has been tested through the Cronbach's alpha test (Cronbach, 1951; Tavakol and Dennick, 2011). With regard to reliability, the EOMII questionnaire yielded similar responses in the USA when administered in Schmalenberg and Kramer (2008a) and Kramer *et al.* (2011), with Cronbach's alpha ranging from 0.83 – 0.97. Outside the USA, when administered in a study in Turkey (Yildirim *et al.*, 2012), the Cronbach's alpha of the scale was 0.92, indicating a high level of reliability. Cronbach's alpha consistencies in subgroups were between 0.70 - 0.87. When used in The Netherlands (de Brouwer *et al.*, 2014), the Cronbach's alpha of the entire scale was 0.92, and ranged from 0.58 – 0.92 for the subscales. In China (Bai *et al.*, 2013), it was 0.91 for the entire scale, and ranged from 0.56 – 0.89 for the subscales.

The internal consistency reliability test, otherwise known as Cronbach's alpha (α) was developed by Lee J Cronbach in 1951 (Chronbach, 1951) to provide a measure of the internal consistency of items on questionnaires, tests, or scales, and it is expressed as a number between 0 and 1. According to Tavakol and Dennick (2011) and Cramer and Howitt (2004), internal consistency describes the extent to which all the items in a test measure the same concept or construct. Hence, all the individual questions or items that make up the measure or scale should correlate well with the others (Tavakol and Dennick, 2011; Cramer and Howitt, 2004). Acceptable values of alpha range from 0.70 – 0.95 (DeVillis, 2012), with a low value of alpha indicating a low number of questions, poor inter-relatedness between items or heterogeneous constructs (Tavakol and Dennick, 2011). When too high, it may suggest that some items are examining the same question but in a different way, and are therefore redundant (Tavakol and Dennick, 2011).

Benefits and challenges in using EOMII scale

This research utilised the Essentials of Magnetism II (EOMII), which is a structured scale for gathering information about the nurses' work environment, and their

perceptions of care in the same work environment. This is because structured scales (or questionnaires) have the ability to collect unambiguous and easy to count answers, leading to quantitative data for analysis (Bowling, 2005). Structured questionnaires involve the use of fixed questions, batteries of questions, tests (e.g. psychological) and/or scales which are presented to the respondents in the same way, with no variation in question wording, and with mainly pre-coded response choices. Questionnaires are relatively economical and large samples of people can be included (Bowling, 2005), and they do not require as much time from research staff, and they are more standardisable (Cummings and Hulley, 2007). Thus, the EOMII was used to collect information about the demographic characteristics of the nurses: designation, gender, level of education, full-time/part-time, and years of work experience.

One major weakness of structured scales or questionnaires is that the pre-coded response choices may not be sufficiently comprehensive and not all answers may be easily accommodated, limiting the ability of the respondents to fully express their views regarding the research subject (Bowling, 2005). In order to address this major weakness, a large space was provided by the researcher at the end of the EOMII scale welcoming comments from the participants. This comments section was not a part of the original EOMII scale, but was created to enable respondent to discuss their views (if they had any) regarding the research topic. Also, structured interviews and self-administered questionnaire methods rest on the assumption that questions can be worded and ordered in a way that will be understood by all respondents. This may not always be justified, as respondents may not all share the same perspective and the same words, terms, and concepts may not elicit the same response from different respondents (Bowling, 2005). This other weakness was reflected in some of the findings from the survey study which indicates that the nurses' conceptualisation of autonomy may vary depending on the organisation of nursing work or the country.

5.2 Free text

This section presents the methods used in the analysis of the textual data gathered from some of the registered nurses who completed the EOMII scale in the survey study discussed in section 5.1 above.

Data collection

The Essentials of Magnetism scale was distributed to 438 eligible registered nurses providing direct adult patient care in medical (n=17) and surgical (n=12) wards in two NHS hospitals between 2nd of May and 31st October 2012. Responses to the 58 items on the EOMII scale were assessed on four-point rating scales, and not all answers were easily accommodated (Bowling, 2005). As a result, a section was provided by the researcher at the end of the EOMII scale asking respondents to: '*Finally, please add any comments you may have about your ward/work environment*'. Inviting comments about their work environments allowed the participants to offer their own accounts in their own words. The purpose of this comments section was to address one of the major weaknesses of survey questionnaires which is their inability to probe deeper, limiting the ability of the respondents to express in details their views regarding the research topic (Bowling, 2005). This request was accompanied by a large blank space for respondents to write comments in their own words.

Participants

Two hundred and forty-seven out of 438 registered nurses completed the EOMII scale (response rate = 56.39%), and comments were provided by 30% of the respondents (75/247). There was an even split of 37 from Hospital A, and 38 from Hospital B. Majority of the respondents were females (n=70), while the remainder were males (n=5), and their ages ranged from 20 to ≥ 60 years. Fifty-five of them were Staff Nurses, 19 were Sisters, and only one was a Charge Nurse. Table 5.1 above presents the role description of participants, and how their roles as well as the US nursing roles can be mapped meaningfully to Agenda for Change (DoH, 2004). Twenty-seven of them were educated to degree level, while the remainder (n=48) had Diploma, with years of nursing experience ranging from one month to 40 years. Appendix 30 presents the participants' characteristics.

Data analysis

Qualitative content analysis was used in analysing the comments section because it is the analysis strategy of choice in qualitative descriptive studies (Sandelowski, 2000). Content analysis was also chosen because the textual information gathered via the EOMII scale were unstructured; participants were asked to provide comments about their work environment, and were not asked any specific question. Burnard (1996)

pointed out that categories are not so difficult to identify when the same questions are asked of each respondent, but the process becomes more complicated when unstructured data arises out of unstructured interviews. Deductive content analysis was not appropriate because the structure of analysis was not operationalised on the basis of previous knowledge (Elo and Kyngas, 2008). The researcher did not know what types of comments the respondents would make, and it has been recommended (Elo and Kyngas, 2008) that if prior knowledge about the phenomenon was inadequate or if the knowledge is fragmented, inductive content analysis should be used. According to Bryman (2016) content analysis is a highly flexible method, which is applicable to a wide variety of different kinds of unstructured textual information. It involves establishing categories and then counting the number of instances when those categories are used in a particular item of text (Silverman, 2014).

The researcher decided to analyse the manifest content of the data. Manifest contents are those elements that are physically present and countable, and they describe the content (Berg and Lune, 2012), while the latent content is extended to an interpretive reading of the symbolism underlying the physical data, and seeks to discern its meaning. According to Elo and Kyngas (2008), latent content also aims to interpret hidden meanings in silence, sighs, laughter, or body posture. Analysis of manifest content was applicable to the textual data because most of the comments were short, unstructured, and the researcher was not in physical contact with the respondents, and therefore, unable to see their body language or record any verbal communication.

Benefits and challenges of using content analysis

As the researcher was analysing qualitative data for the first time, she found the inductive content analysis as proposed by Burnard (1996) to be flexible, transparent and very easy to utilise. This transparency in data analysis enabled the researcher's PhD supervisors to go through the transcripts and identify similar themes, giving internal validity, reliability and credibility to the analysis and the findings (Burnard, 1991). Bryman (2016) pointed out that content analysis is easily replicable, enabling a follow-up study because its coding scheme and the sampling procedures can easily be set up; it is often referred to as an objective method of analysis due to this transparent nature. As the comments were already written by the participants, there was no need for the researcher to spend time transcribing, and those comments enabled the researcher to

obtain the language and words of participants (Creswell, 2014). On the other hand, the researcher found that four participants did not write legibly, and so she had to present the comments to her PhD supervisors for confirmation and validation. In line with this challenge, Bryman (2016) pointed out that a content analysis can only be as good as the documents on which the practitioner works, and recommended that documents be assessed in terms of such criteria as authenticity and credibility.

Inductive content analysis – the processes

The researcher utilised the four-stage approach proposed by Burnard (1996), as a guide to inductive qualitative content analysis. It was decided to utilise this approach to guide the data analysis because, apart from the challenges the researcher faced in finding detailed information of the processes of theme extraction in most textbooks, she found Burnard's (1996) approach very easy to understand and follow. As the researcher is a novice in analysing qualitative data, the learning by direct experience approach by Burnard (1996) was appropriate for her in actually analysing the data, while learning to analyse the data. Finally, in content analysis, the researcher explores textual data with a view to grouping together similar types of utterances and ideas (Burnard, 1996).

All handwritten comments were transcribed into the word document exactly as written by the respondents (including spelling mistakes and grammatical errors). Responses were analysed using the four-phase inductive thematic analysis procedure described by Burnard (1996) without the use of any specialist software. The four-stage processes are detailed below:

Stage 1

The data were actively read and re-read carefully in order to get familiar with same. Initial ideas in the form of words or phrases were noted down in the right hand margin of the pages (i.e. 'open coded') and the data were actively searched for meanings and patterns. Extracts from the data were given codes in a systematic fashion across the entire data set. Figure 5.1 below presents the breakdown of the codes identified from the data.

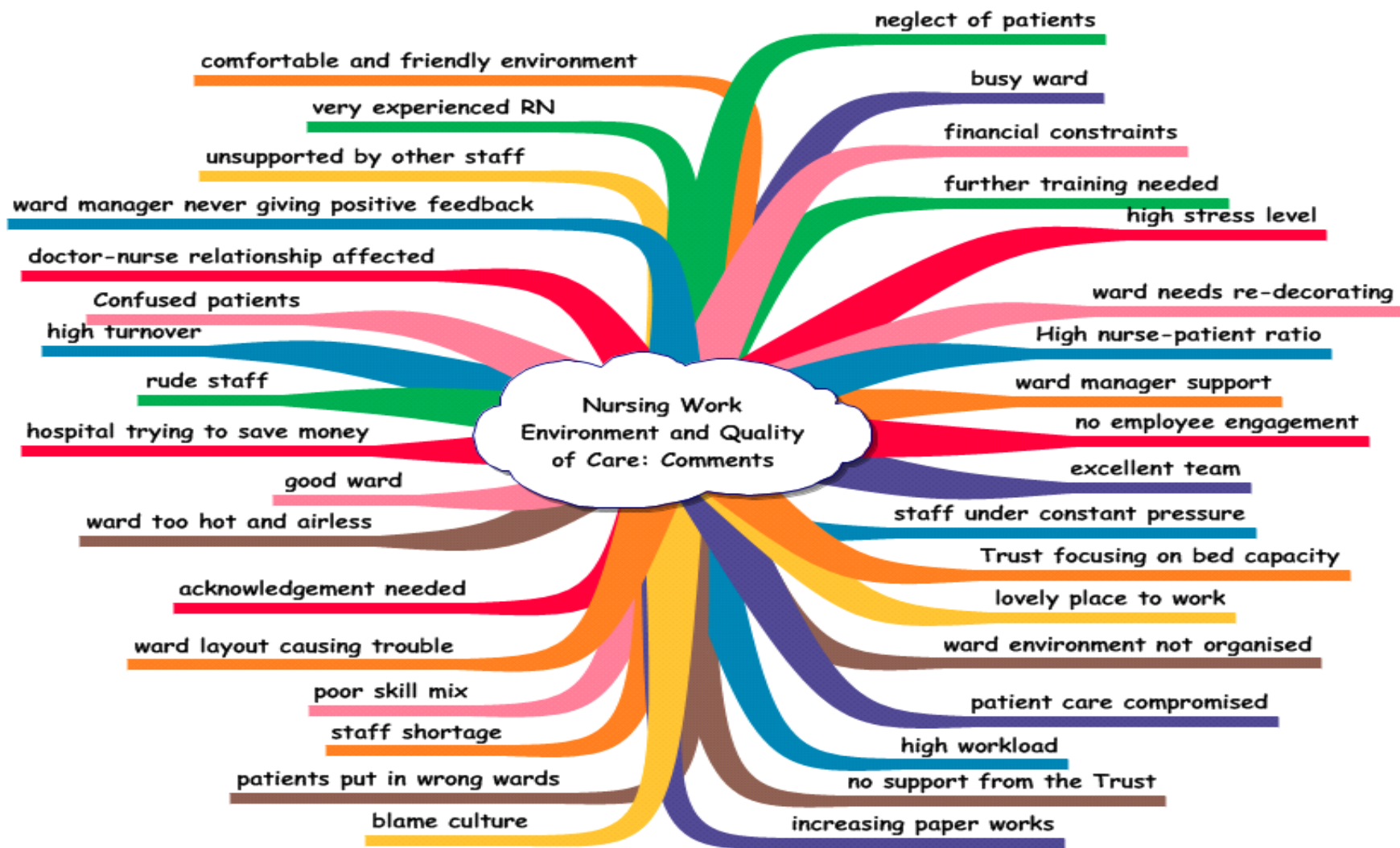


Figure 5.1 – Initial codes

Stage 2

The words and phrases were grouped together and 'reduced', and this process involved the reduction of the words and phrases by crossing out repetitions and similar words and phrases in order to produce a list of headings that accounted for all of the data in the transcript (Burnard, 1996). The textual data from this section were from 75 participants, far larger than those illustrated by Burnard (1996), some initial codes developed into the dominant themes, while others forming sub-themes within them. This breakdown of codes into themes (categories) and sub-themes (sub-categories) is presented in Figure 5.2 below.

Stage 3: Initial themes and subthemes

During this phase, the researcher refined all the categories and sub-categories and further collapsed some categories together i.e. two apparently separate categories that are similar or related were grouped together, see figure 5.3 below.

Each of the 'final' sets of categories were allocated different colours and marked with corresponding fluorescent marking pens. The transcripts were then marked with different colours that corresponded to the categories/themes and sub-categories/subthemes they belonged. The researcher then used a pair of scissors to cut up the various coloured sections. The researcher collected together all the cuttings and pasted them in their groups onto pages of A4 papers, giving the researcher a complete set of pages containing all of the analysed transcript. Each category and sub-category was named using content-characteristic words.



Figure 5.2: Breakdown of codes into themes and subthemes



Figure 5.3: Initial themes and subthemes

Stage 4: Presentation of findings.

Following the final refinement of the categories and sub-categories, three categories/themes and eight sub-categories/subthemes were identified in stage three and their descriptions and discussions are presented in chapter 7.

5.3 Interviews

This section presents the methods used in this *post hoc* qualitative study which was undertaken to explore registered nurses understanding and experiences of autonomy. The one-to-one, short structured interviews were conducted using samples from the same two NHS hospitals where the survey study mentioned in section 5.1 above was conducted.

Ethical considerations

Full ethical approval was also granted for the *post hoc* qualitative, one-to-one interviews (see appendix 31). Before the commencement of the interviews, each participant was given the information sheet (Appendix 32) containing information about the study, and two copies of the consent form – to retain a copy, and to return the other copy to the researcher (see Appendix 33). Confidentiality was assured, and participants were also informed that they could stop or discontinue with the interview at any time without prejudice. They were also informed that the interviews would be digitally audio-taped and that the audio tapes would be destroyed after the completion of the study. The digitally audio-taped interviews were transcribed verbatim by a paid professional secretary who signed a confidentiality agreement (see Appendix 34) not to share any aspect of the interviews with anyone else. The reason for employing a paid professional secretary was because it was the first time the researcher would conduct or transcribe qualitative interviews and was slow at transcribing. She was also running out of time with her PhD, as the qualitative interviews were not part of the original research design, but had to be included for the purpose of understanding the anomalies in the quantitative results. The researcher was experiencing a lot of time pressure with the inclusion of these interviews, which took a lot of her time.

Data collection

This section describes the eligibility criteria, sampling technique, and the recruitment of the participants and the actual conduct of the interviews, as detailed below.

Eligibility

The same eligibility criteria as in the quantitative survey study were applied. The exposure of the registered nurses to the EOMII scale in the previous survey study was not so important, because the interview study was designed to explore their understanding of the concept of autonomy. Moreover, there was no way the researcher would have known which nurse completed the EOMII scale even if she wanted to use their exposure to the scale as an inclusion or exclusion criterion.

Sampling

A purposive sampling technique was used to select participants from the same two NHS hospitals as in the earlier cross-sectional survey study. Purposive sampling (also known as judgemental sampling) is a non-probability technique that involves the selection of certain people whom the researcher wishes to include in the study (Offredy and Vickers, 2010). Maximum variation sampling technique was also used in recruiting the research participants in order to encapsulate the key themes that cut across the registered nurses for the purpose of achieving comparability (Sandelowski, 2000), as they varied in professional and socio-demographic characteristics. According to Teddlie (2007), maximum variation sampling is a purposive sampling procedure based on achieving representativeness or comparability. Participants were chosen because they had particular characteristics (such as experience, and roles) which would enable detailed exploration and understanding of the central themes which the researcher wished to study. The participants in this qualitative study included staff nurses, sisters, charge nurses and ward managers. They had different levels of nursing experiences, and were of different grade levels in nursing. Selecting samples with diverse characteristics would highlight the similarities or diversity in their views.

Sampling

Recruitment

Between the months of June and July 2013, the researcher contacted the ward managers of the eligible wards by telephone and booked appointments with them in order to discuss the plan to conduct qualitative interviews with the registered nurses. The researcher decided to use the telephone as a medium of communication because she considered that she would receive quicker responses than if emails were sent to the ward managers. This was because while the researcher was conducting the survey study, she had observed how busy all the nurses were and she considered that some ward manager might be too busy to check their emails regularly, let alone respond on time.

By appointment in July 2013, the researcher visited all the wards wherein she conducted the survey study except one ward in Hospital A. She decided not to telephone or visit that ward because when she visited that ward during the survey study in order to check for completed EOMII questionnaire, the ward manager sent the researcher out of the ward and asked her never to return for anything related to research in the future. That ward manager explained that she was declining participation on behalf of herself and her staff because the director of nursing of the hospital did not personally inform her of the study. The researcher visited the remaining 28 wards at different times and discussed with the ward managers the aims, plans and the purpose of the short structured interviews and how best to contact the nurses. The ward managers agreed to inform the nurses about the interviews during shift handovers and ward meetings. Twenty ward managers asked the researcher to visit the wards between 10.30 – 11:30hr, and between 14:30 - 17.30hr, when the nurses would have completed drug rounds with the patients, or finished feeding the patients. The researcher was asked to approach registered nurses within those time slots and conduct interviews with them if they would like to be interviewed or if they were not too busy with patient care. The remaining eight ward managers asked the researcher to visit the wards anytime, and talk to the nurses to find out whether they would be interested in being interviewed.

The participants

The participants in this qualitative study included staff nurses, sisters, charge nurses and ward managers (see Table 5.1 above for role description of participants). They were from different ethnic origins with different grade levels and years of nursing experiences (Appendix 35). Ritchie *et al.* (2003a) identified two principal aims of selecting potential participants, first, to ensure that all the key constituencies of relevance to the subject matter are included and second, to ensure that there is some diversity within each of the key criteria so that the impact of the characteristics concerned can be explored.

Sixty-five registered nurses were approached for the interview, seven declined simply because they did not want to be interviewed. The 58 nurses who had agreed to participate were later contacted and suitable times for the interviews were arranged. Out of the 58 nurses who agreed to be interviewed, five were unable to participate because they were too busy with patient care, and five were not interviewed because data saturation was reached at the 48th interview. Data saturation occurs when the researcher continues gathering fresh data until no new insights are apparent in the data (Creswell, 2014; Bryman, 2016). Forty-eight nurses were finally interviewed in July 2013. The sample size of forty-eight was considered adequate because the aim of obtaining qualitative data was to provide rich insights to some aspects of the results of the quantitative study in the previous chapters rather than obtaining statistical representation. Appendix 35 presents the summary of participants' characteristic.

Short structured face-to-face interviews

This phase utilised short structured, one-to-one, interview method. Standardised or structured interview has predetermined questions with fixed wording, usually in a pre-set order (Robson and McCartan, 2016). The use of an open-response questions is the only essential difference from an interview-based survey questionnaire (Robson and McCartan, 2016). The researcher asked the same question from one interview to another, and avoided asking leading questions (Fielding and Thomas, 2008). If the participant did not understand the question, the researcher would repeat the question, and if it failed, the researcher would rephrase the question slightly, as shown in the interview schedule (in the section below) which highlighted a list of acceptable

rephrases. The researcher delivered the questions in precisely the same way to each respondent (Fielding and Thomas, 2008).

The use of short structured interviews was considered appropriate because the researcher was aware of the fact that the potential participants would not have much time to spare for unstructured, one-to-one, interviews. This is because in the selected wards where the potential participants worked, the nurses were facing a lot of challenges such as inadequate staffing, heavy workload, and stress as indicated by several participants in the free text 'comments' section of the EOMII scale in the survey study. The researcher decided that it would be beneficial to utilise short structured interviews as opposed to the unstructured interviews, in order to accommodate the nurses' busy work flow. Although unstructured interviews have been criticised (Bowling, 2008) for being time consuming, but the researcher found that a few of the interviews took more time than anticipated because the respondents had more to say than others and the interview questions were open-ended.

Conduct of the interviews

Thirty-three interviews took place in the ward managers' offices when empty and available, 14 took place in coffee rooms, and one took place in a sluice room because that was the only quiet room available at that time. Interviews lasted between 6 – 18 minutes. Participants gave their informed consent for the interviews, and agreed for the interviews to be digitally audio recorded. There is considerable advantage in digitally audio-taping a research interview because it provides a permanent record and allows the researcher to concentrate on the conduct of the interview (Robson and McCartan, 2016). Each participant was informed that the data may appear in published work, but that they would not be identified.

An interview schedule containing four questions was developed in response to the aims of the study and was used to guide the interviews (see below). All interviews started with a standard introduction about the study and then moved to the broad aim of the research (Bowling, 2008). The questions were planned but flexible (Bowling, 2008) and the researcher asked all the questions the same way each time, but when required, altered their sequence and probed for more information (Fielding and Thomas, 2008). Probes and prompts (see below) were used to tease out from the interviewees various

strands of their narratives to complete the story (Offredy and Vickers, 2010), while the researcher maintained overall control of the interview via a structured topic guide or interview schedule which covered areas that were considered important to the research question (Carter and Henderson, 2008).

Interview Schedule

The first aim of the study was to explore nurses' views on the concept of autonomy. The first question is:

(1) Can you tell me what you understand by autonomous nursing practice please?

Specifically, the study aims to check registered nurses' understanding of autonomous nursing practice. The first question (above) was then re-phrased and asked differently:

(2) When nurses say "autonomous nursing practice", what does that mean to you?

The second aim of the study was to investigate the application of autonomy in practice:

(3) Can you give an example of an incident in your practice that was autonomous?

Finally, comments were invited from the participants:

(4) Have you any comment or is there anything that you think is missing that is autonomous practice?

Excerpt from the interview to demonstrate the use of probes and prompts

Researcher: Can you tell me what you understand by autonomous nursing practice please?

Participant: My understanding of autonomous ... I can't say the word now... autonomous practice is it's nurses using their own knowledge and experience to manage patient care, but also knowing their limitations and when to get help, so we use it for our heart failure patients when we are giving them information about their care and about what they can expect, and giving advice on how they can manage their care.

Researcher: OK, thank you. Do you want to add more?

Participant: Yeah, I suppose you could also... you know, we work autonomously when we are interpreting observations, so we'll take a full set of observations and if they are within normal limits we won't report those to anyone, but they will be documented and they will be visible for people to see, but if they are abnormal then some nurses with

more experience might do something differently, or I would expect my junior nurses to escalate to someone else.

Researcher: OK, so you're saying that autonomous nursing practice comes with experience?

Yeah, yes I do think so.

Reflexivity

The relationship of the researcher with the research participants was interactive, and so the researcher was aware that people could be affected by the process of being studied. The interview process involved a lot of reflexivity, and the researcher had to do a lot of reflections on her preconceptions, biases, and how the relationship dynamics affected the responses to questions. At times, the participants would look into the researcher's eyes for reassurance or for agreement with what they were saying. It was impossible to be neutral or to take an objective stance. According to Schreier (2012), objectivity is an important concern in quantitative research, but in qualitative research, the questions asked during the interview make the researcher think about their experience in a different way. From this perspective, objectivity becomes senseless and reflexivity becomes important instead (Schreier, 2012). According to Creswell (2014), the qualitative inquirer reflects about how their role in their study and their personal background, culture, and experiences hold potential for shaping their interpretations, such as the themes they advanced and the meaning they ascribe to the data. It is also about how the background of the researcher actually may shape the direction of the study (Creswell, 2014).

Risk assessment

Risk assessments were done before the commencement of both studies. To ensure that the research process does not pose any risk to the participants, the research protocol was submitted for consideration, comments, guidance and approval to the Research Ethics Committee, London-Surrey Borders, London, before the research commenced. This research is subject to on-going monitoring by the Research Ethics Committee, through the submission of yearly reports and updates by the researcher. This ethical process conforms to the *World Medical Association Declaration of Helsinki* (2013),

which was developed as a statement of ethical principles for medical (as well as social) research involving human subjects. Untoward effects to participants were perceived to be very low. However, the participants were made aware in the participants' information sheet that if they became affected by completing the questionnaire, or participating in the qualitative interviews, the principal researcher is an experienced nurse and would help the participants to manage their feelings. Ultimately the affected nurses could visit their General Practitioners.

The Social Research Association (2017) has provided the *Code of Practice for the Safety of Social Researchers*, which highlights what actions researchers should take should the research process poses risks to the researchers, such as psychological trauma, either from listening to subjects' traumatic experiences or from actual or threatened violence. The researcher did not consider any aspect of the research process to pose any risk to herself. She is a very experienced nurse, has good assessment skills, and would know when to stop the interview if the need arose. She was aware that she could discuss with the research and development team of the hospitals any situation that posed a risk. She was aware that she could also discuss same with her PhD supervisors.

Audio-taping and transcribing

All interviewees were digitally audio-tapped and they were transcribed verbatim by a paid professional secretary (as discussed under the ethical consideration section). Sixty-two pages of interview data were transcribed. As soon as the researcher received the transcribed interview data, she simultaneously read the transcripts and listened to the digitally recorded interviews to check for errors, as she did not transcribe the interviews data herself. The professional secretary made six mistakes with transcribing the interviews of two African nurses and three Filipino nurses because of their accents and pronunciations of some English words. For example, at times during the interviews, the three Filipino nurses pronounced 'for' as "pour", and the two African nurses pronounced 'think' as "tink". The researcher, being of African origin, understood the accents having worked with several nurses with African, and Asian origins, while she was working on the wards. The professional secretary, being an English lady did not have any problems understanding the English accent.

Data analysis

Analysis of the short structured face-to-face qualitative interviews

Data were analysed using qualitative thematic analysis which was facilitated through the use of the Framework Method. The framework method was developed during the 1980s at the National Centre for Social Research and is now widely used by qualitative researchers (Ritchie *et al.*, 2003b; Ritchie and Spencer, 1994). It is a matrix based analytic method which facilitates rigorous and transparent data management such that all the stages involved in the analytical hierarchy can be systematically conducted by allowing the analyst to move back and forth between different levels of abstraction without losing sight of the raw data (Ritchie and Spencer, 1994). Framework method is used to classify and organise data according to key themes, concepts and emergent categories of main themes, subdivided by a succession of related subtopics (Ritchie *et al.*, 2003b; Ritchie and Spencer, 1994). The framework method is a flexible tool that can greatly facilitate constant comparative techniques through the review of data across the matrix (Gale *et al.*, 2013).

Rationale for using framework method

The researcher considered the framework method to be appropriate because the short structured interview data covered similar key issues relating to autonomy. Gale *et al.* (2013) emphasised that the framework method cannot accommodate highly heterogeneous data, and is most commonly used for the thematic analysis of short structured or semi-structured interview transcripts. The researcher is more quantitatively orientated, and had no previous experience in qualitative research. She also found it easy to utilise the framework method because its matrix-based method facilitated rigorous and transparent data management, enabling analysis to be done systematically (Ritchie *et al.*, 2003b). According to Gale *et al.* (2013), the methodical processes and 'spreadsheet' approach associated with the nature of the framework method seem more closely aligned to the quantitative paradigm, therefore, makes it more attractive to the quantitative researcher exploring qualitative research for the first time.

Framework analysis

Framework method was used in analysing the interview data and it consists of five key stages (Ritchie and Spencer, 1994; Ritchie *et al.*, 2003b; Spencer *et al.*, 2013) as described below:

Stage 1: Familiarisation

The researcher read the transcript, and listened to the interview recordings several times in order to familiarise herself with the data. This was helpful in gaining an overview of the substantive content and identifying topics and subjects of interest (Ritchie and Spencer, 1994; Spencer *et al.*, 2013), as shown in Figure 5.4 below.



Figure 5.4: Subjects of interest identified during the familiarisation stage

Stage 2: Identifying a Thematic Framework

After familiarisation, data were broken down into components and labels, themes, or codes were applied to them. They were essentially recurring subjects or topics in the data. At this stage, 'open coding' took place, i.e. labelling concepts and developing categories based on their features. During this process, the initial coding framework was developed inductively (see Figure 5.5 below). Key issues, concepts and themes were identified according to which data they could be referenced (Ritchie and Spencer, 1994). A list of possible topics was developed for inclusion, which were then sorted into themes and sub-themes (Spencer *et al.*, 2013).

Stage 3: Indexing

Indexing is the process whereby the thematic framework is systematically applied to the data in its textual form (Ritchie and Spencer, 1994). The thematic framework was then used to interpret and label the data. This involves applying labels to chunks of data judged by the researcher to be related (such as authority and taking the lead) so that similarly labelled data extracts can be further analysed (Spencer *et al.*, 2013). This aims to classify all of the data so that it can be compared systematically with other parts of the data set (Gale *et al.*, 2013). Finally, six themes and seven sub-themes were identified, and discussed in Chapter 8 (Figure 8.1).

Stage 4: Charting

Data were lifted from their original context and rearranged according to the appropriate thematic reference. Charts were devised with themes and sub-themes drawn from the thematic framework (Ritchie and Spencer, 1994). An illustration of charting is shown in Table 5.2 below. Since a thematic approach was adopted, charts were drawn up for each subject area, and entries were made for several participants on each chart. Chunks of verbatim texts were regrouped according to their index reference, and each passage of text annotated with a particular reference was studied and summaries of the participant's views were entered on the chart (Ritchie and Spencer, 1994).

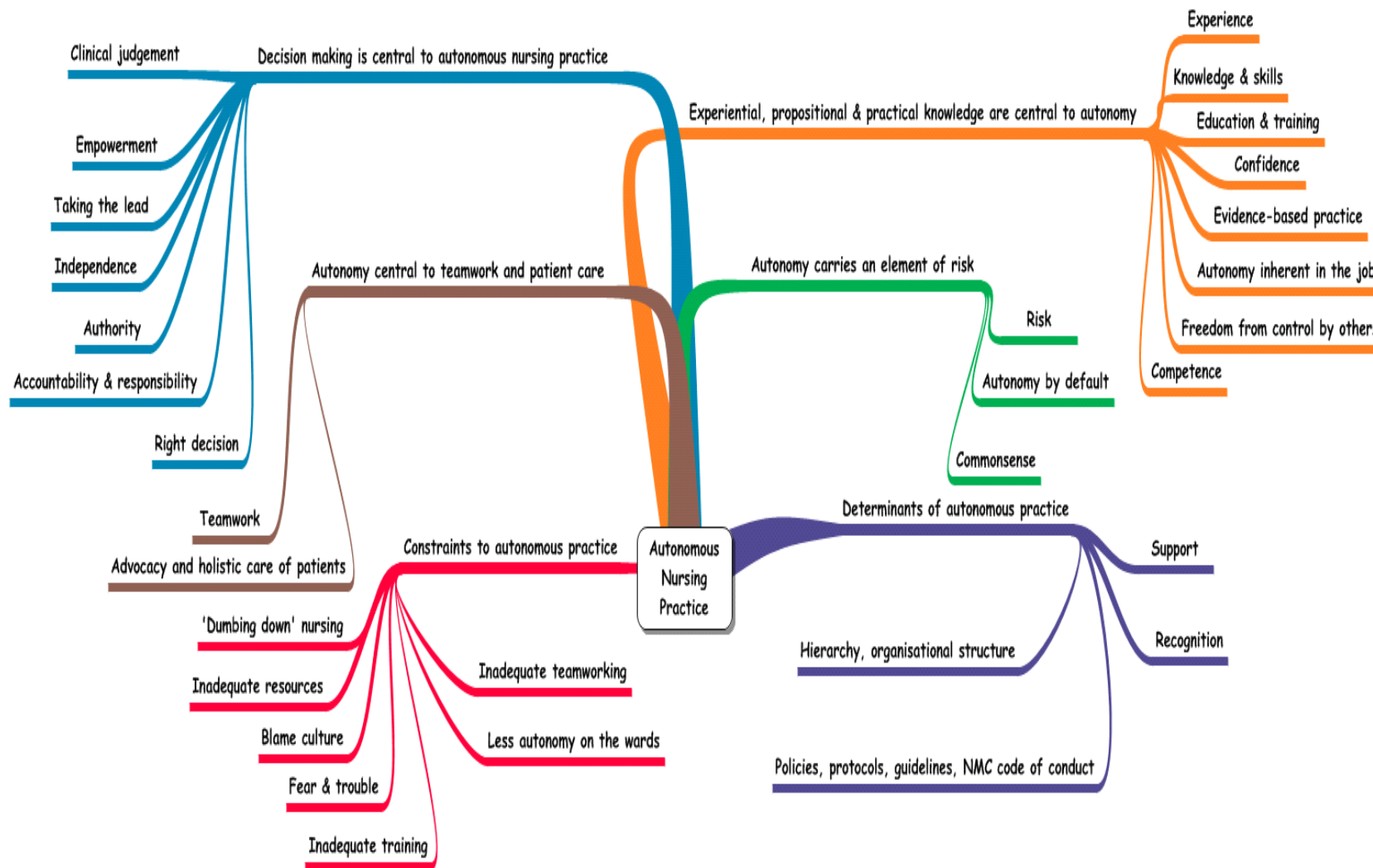


Figure 5.5: Coding framework (open coding)

Table 5.2: Charting (an illustration)

Participant	Working within the boundaries	Development of autonomy
P1(SN:14y)	“...It depends on the policies inside the structure of the NHS... we trained back home where you are allowed to prescribe. Here student nurses not allowed to give IV antibiotics...” (page 1)	“As long as you have support, then it’s alright ...” (page 2)
P37(SR:22y)	“...If I think I can manage because we have got a lot of policies and everything here, so with that policy...” (page 47)	“...If you are not sure, you get some senior review by the nurses...” (page 47)

Stage 5: Mapping and Interpretation

Summary for each subtheme and each person in the study was written. These summaries are then entered and displayed – by theme and by participant – in a set of matrices. Here, mapping and interpretation took place. Since the aim of this qualitative phase was to explore how the registered nurses in England conceptualise autonomy, the charts were reviewed in order to compare and contrast the perceptions, accounts, and experiences of the participants (Ritchie and Spencer, 1994). Data were searched for patterns and associations. Comparisons were made by years of experience, race, and age group. An illustration of a matrix is shown in Table 5.3 below.

Table 5.3: Mapping and Interpretation matrix (an illustration)

Participant	Working within the boundaries	Development of autonomy
P1(SN:14y)	Autonomous nursing practice is dependent on the organizational and hierarchical structure within the NHS (page 1)	As long as you have support, then it is alright (page 2)
P37(SR:22y)	Autonomy is about being guided by policies to make decisions (page 47)	Junior nurses can receive support or confirmation from the senior nurses when making decisions (page 47)

Validity and reliability in qualitative research study

Golafshani (2003) conceptualised reliability and validity as trustworthiness, rigour and quality in qualitative paradigm. Hutchinson and Wilson (1992:117) defined valid interview data as “those that accurately portray what the investigator is attempting to study”. The validity and reliability of data have an important bearing on whether any wider inference can be drawn from a single study (Lewis and Ritchie, 2003). In different ways, they are concerned with the robustness and credibility of the original research evidence. Because of the nature of qualitative data and the way it is collected and analysed, the terms confirmability, consistency, or dependability are often preferred, when referring to reliability. All of these refer to the security and durability of research findings (Lewis and Ritchie, 2003).

In qualitative studies, reliability is concerned with whether the issues and themes would be the same if another sample of registered nurses were interviewed. In this research, the themes and sub themes may not be exactly the same but may be similar. The use of structured interviews would have possibly yielded similar results, but since short structured interviews were being used, and each participant was approached differently, according to their circumstances or level of comprehension, it may be difficult to assess the reliability of these interviews. However, Golafshani (2003) maintained that

trustworthiness is crucial in order to ensure reliability in qualitative research. In order to attain trustworthiness, the researcher was transparent by explaining the research process in details.

Validity, in qualitative studies, is concerned with the extent to which the phenomena under study is being accurately reflected, as perceived by the study population (Lewis and Ritchie, 2003). Cho and Trent (2006) considered validity in qualitative research to be the degree to which researchers' claims about knowledge corresponded to the reality (or research respondents' construction of reality) being studied. Again, alternative terms such as credibility, transferability, dependability, and confirmability replace the usual positivist criteria of internal and external validity, reliability, and objectivity (Denzin and Lincoln, 2005). The research questions were relevant to the purpose of the study, and they were developed based on the findings of the literature review, and from some specific quantitative results. The qualitative research questions were aimed to complement and to explain these quantitative results further. Burnard (1991) suggested that internal validity of the categorising process in qualitative studies could be done through asking a colleague who is not involved in any aspect of the study but familiar with the process of category generation to read through the transcripts and to identify a category system. If the two category analyses prove to be similar, then the original category analysis was reasonably complete and accurate (Burnard, 1991). For this research, the researcher's supervisors, although, very familiar with study, were given the categories and the transcripts to read through. Their agreements over the researcher's category system suggested that it has internal validity.

While Bernard (1991) suggests that it is important to give interview transcripts to some of the people interviewed to check what points they thought have emerged from the interviews, the researcher decided that the nurses may not have the time to read the transcripts on the wards, and allowing them to take the transcripts home to read may compromise anonymity. However, failure to give interview transcripts to participants to peruse did not seem to pose any threat to validity since the tape-recorded interviews were transcribed verbatim.

Benefits and challenges of conducting short structured, face-to-face interviews

The researcher considered the utilisation of the short structured, face-to-face, one-to-one interviews beneficial because she was able to verify misunderstandings, and probe for more information. Bowling (2008) maintained that interviews enable inconsistencies and misinterpretations to be checked, and more information of greater depth to be obtained.

One of the challenges faced by the researcher was rescheduling appointments with some of the participants. Due to the staff shortage and increased workloads in many of the wards, some participants were not able to keep their interview appointments. The researcher had to re-schedule their interviews once or twice (in some cases), which increased the length of time for the research process. The researcher also found it difficult to secure quiet venues in some very busy wards in some few cases, such that a particular interview was conducted in a sluice room because the sluice room was the only quiet venue on that ward, at that moment. That particular interview had already been rescheduled twice due to staff shortage and the inability to find a quiet venue. The impact the sluice venue had on the interview process was that the interview seemed rushed because the nurse seemed to be in a hurry to return to her patients. Robson and McCartan (2016) also pointed out that one of the disadvantages of interviewing is rescheduling of appointments which may be time consuming.

5.4 Summary and conclusion

The methods utilised in this research have been discussed, and the rationale for their use were provided. The next three chapters will report the findings from the PhD study. The next chapter (Chapter 6) will present results from the quantitative survey study. Chapter 7 will present the analysis of the comments made by some of the participants of the quantitative survey study in the free text 'comments' section in the EOMII scale. Chapter 8 will present the results from the face-to-face, one-to-one, short structured qualitative interviews. Finally, the closing chapter (Chapter 9) will present a general discussion that triangulates key findings from each study, by examining to what extent, and in what ways the qualitative results explain or add insight to the quantitative results. It will also provide some recommendations and conclusions.

CHAPTER 6

RESULTS: SURVEY

Introduction

The purpose of this chapter is to explore the structure of the Essentials of Magnetism II (EOMII) scale using the data from nurses working in England through a survey study. It will also describe the impact of different aspects of the nursing work environment on nurse-assessed care quality. This chapter will present the methods used for the survey, and the results of the survey study.

This chapter relates to aims 1 and 2 of the thesis (research questions 1 and 2). The published paper below, which will be referred to as Oshodi *et al.* (2017) in the thesis was based on this Chapter (see Appendix 38, pp. 336-349 for the published paper):

Oshodi TO, Crockett R, Bruneau B, West E (2017) The nursing work environment and quality of care: A cross-sectional study using the Essentials of Magnetism II scale in England. *Journal of Clinical Nursing*, 26(17-18), 2721-2734.

<https://doi.org/10.1111/jocn.13783> (accessed 01/09/17)

6.1 Aims and research questions

The aim of this survey study is two-fold. This survey study aims to explore the structure of the Essentials of Magnetism II scale as a means to understand the working environment of a sample of nurses working in England by addressing the following research question:

- *Research Question 1:* What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?

The second aim of the study is to describe the impact of different aspects of the nursing work environment on nurse-assessed quality of care by addressing the following research question:

- *Research Question 2: What are the associations, if any, between the factors measuring the nursing work environment and nurse-assessed care quality?*

6.2 Methods

Setting

The study was conducted in two local district general hospitals in the South East of England. All the general medical and surgical wards in the two hospitals were included in the study.

Participants

Registered nurses providing direct adult patient care on 29 wards across the two hospitals were recruited. Nurses eligible to participate were those who had worked on their present ward for a minimum of one month.

Measures

The nursing work environment

The EOMII is a 58-item tool that measures each of the eight work environment attributes with a separate subscale (see Appendix 1 for details). Responses to each of the 58 items are assessed on four-point rating scales. The first subscale items 1 – 6 assessing the relationships between nurses and medical staff are rated on scales anchored at 1 (Not true for any Drs); 2 (True for 1 or 2 Drs on occasion), 3 (True for some Drs, some of the time), and 4 (True for most Drs, most of the time). The remaining seven subscales use a similar 4-point response scales anchored at 1 (strongly disagree); 2 (disagree); 3 (agree); and 4 (strongly agree). Negative items are reverse scored.

Nurse-assessed quality of patient care

Nurse-assessed quality of care was measured on a single-item scale. Nurses were asked to circle the number on the scale that indicated the usual quality of care provided by them to patients on their wards on an 11-point scale anchored at 0 (dangerously low quality) and 10 (very high quality) (see Appendix 1 for details).

Demographic and occupational characteristics of individual nurse

The EOMII was also used to collect information about the demographic characteristics of the nurses as follows (see Appendix 1):

- Gender: male or female
- Age: Participants were asked to indicate their age within one of nine categories, specifically i) 21-24, ii) 25-29, iii) 30-34, iv) 35-39, v) 40-44, vi) 45-49, vii) 50-54, viii) 55-59 and ix) 60 or over.
- Education: Less than degree level (diploma) or a bachelor's degree or higher.
- Years of nursing work experience.
- Length of time working on current ward.
- Job role: Staff nurse or Sister/ Charge Nurse

Distribution of the Essentials of Magnetism II scale

As mentioned in Chapter 5 (Methods) initial contacts were made with the managers of each eligible ward in May 2012 in order to discuss the aims and the purpose of the research and also to give survey packs to the managers to distribute to the nurses. The survey commenced on 2nd of May, 2012 and finished on 31st October 2012 (see chapter 5 for details).

6.3 Data analysis

Analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 20.0 (International Business Machines Corporation 2011). The value '999' was used to represent the missing values during data analysis.

Descriptive statistics

Descriptive statistics were used to describe the characteristics of the sample. The central tendency was assessed by the mean, and the standard deviation was used to give an indication of how much all the scores in a data set vary around the mean (Cramer and Howitt, 2004).

Principal Component Analysis (PCA)

Principal Component Analysis (PCA) with varimax rotation was used to assess and understand the factor structure (Field, 2013) of the EOMII scale, as the scale was being used in England for the first time. Prior to estimating the PCA, Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index were estimated to determine whether the sample was adequate and whether the PCA was appropriate (Field, 2013). The Cattell (1966) scree test and the Kaiser (1960) rule were also applied. They are the most often used procedures to determine the number of components to include in solutions (Pallant, 2016). Factor loading was set at 0.30 level. The values in the factor loadings are used to place variables with factors (Field, 2013).

Pearson's correlation analysis

Associations between the extracted factors and nurse-assessed quality of care were assessed using Pearson's correlation. The reason for performing a correlational analysis is to discover whether there is a relationship between EOMII variables and the nurse-assessed quality of care.

Regression Analysis

To explore further the relationships between the extracted factors and nurse-assessed care quality a hierarchical multiple regression was conducted with nurse-assessed care quality as the dependent variable, with the predictor variables being added in four steps. In the first step the structural variables (i.e. demographic variables - age, gender, and education) were entered as *control* variables. In the second step, job role (structural variable) was entered, followed by a dummy variable identifying the hospital (structural variable); and in the final step, the extracted factors of the EOMII (process variables) were entered. This research did not measure the associations between the structure and the process variables.

Application of Donabedian's (1980, 1992) SPO framework in this research

The Donabedian's SPO framework was utilised in this research to explore the associations between different aspects of the nursing work environment and nurse-assessed quality of care. At the initial stage of this research, evaluation included the Structure (the structural aspects of the registered nurses i.e. age, gender, education, job role, and hospital worked), Process (*clinically competent peers, collaborative nurse-*

physician relationships, clinical autonomy, support for education, perception of adequate staffing, nurse manager support, control of nursing practice, and patient-centred cultural values, as measured by the EOMII), and Outcome (i.e. nurse-assessed quality of care). It was beyond the scope of this research to measure the associations between the structure and the process variables, as shown in figure 6.1 below (reproduced from Figure 2.2 Chapter 2).

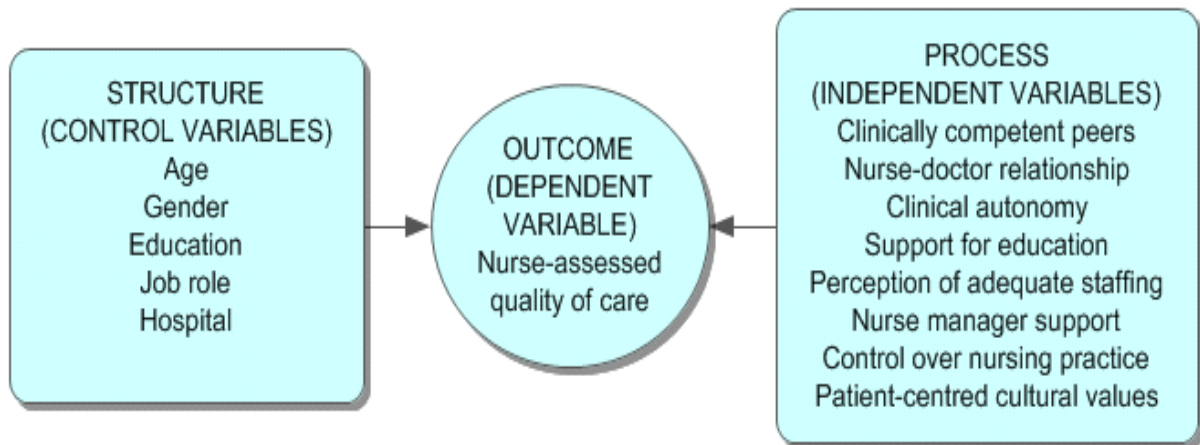


Figure 6.1 Conceptual framework based Donabedian’s (1980, 1992) framework (reproduced from Figure 2.2 in Chapter 2)

6.4 Results

Response rate

A final response rate of 56.39% was achieved, with 247 completed replies from 438 registered nurses. The 56.39% response rate of this survey compares favourably to the response rates of other cross-sectional studies that have evaluated the nursing work environment with either the EOM or EOMII scale. For example, the study by Yildirim *et al.* (2012) in Turkey had a response rate of 61% (n=385), the Dutch study (de Brouwer *et al.*, 2014) had a response rate of 52.1% (n=2,542). Two studies in the US by Newhouse *et al.* (2009, 2011) utilised the EOM and had a usable response of 34% (n=233/688). A doctoral dissertation in the US by Weatherford (2011) had a usable response of 8% (n=92), while another US doctoral dissertation that utilised the EOM (Al-Ateeq, 2008) had a response rate of 32% (n=160/500).

It also compares favourably with other studies that have evaluated the nursing work environment utilising other scales. For example, Armstrong *et al.* (2009) had a response rate of 51% (n=153/300), Stone and Gershon (2006) had data from 837 registered nurses from 39 ICUs located in 23 hospitals, with an average response rate per ICU of 49%, while Squires *et al.* (2010) had a response rate = 49.4% (n=267). However, Kramer *et al.* (2009b) revealed that when assessing the quality of work environments in hospitals, at least a 40% response rate is needed for reliable and accurate data.

Overview of the sample

The demographic characteristics of the sample are shown in Table 6.1. Most of the respondents were female (90.7%, n=224). Around a quarter were aged between 35 and 39 years old and around a third of the sample was educated to degree level. More than half (54.7%) of them were working in the medical wards, while the remaining were working in the surgical wards. The majority of the nurses (85%) worked full-time, 97.2% (n=240) were permanent staff. It is notable that the sample had relatively high levels of nursing experience (mean = 11.11 years; SD = 9.52 years). The length of time nurses worked at their current wards ranged from less than one year to 34.42 years, with a mean of 4.71 years and standard deviation of 5.14 years. Majority of the respondents were (76.1%, n=188) were staff nurses, 21.42% were sisters/charge nurses. Only 37% had BSc nursing degree, while the remaining sample (63%) had diploma in nursing. Seventy-seven percent were staff nurses, while the remaining (n=53, 23%) were either ward sisters or charge nurses.

The sample in this study compares favourably with samples in similar cross-sectional studies. For example, it compares favourably with regard to gender and qualifications in Bai et al (2013); 94.1% of the participants were female, 42% had Bachelor degree, and 56.4% of them obtained diploma or associate degrees. However, with regard to job role, Bai et al (2013) had fewer staff nurses (50.7%), while the remaining were either senior nurses (38.5%) or chief nurses (10.4%). Mean year of nursing work experience was less than that of the current study i.e. 6.65 (SD=5.70). In De Brouwer et al (2017a) 11.6% of the sample had a bachelor degree, while in De Brouwer et al (2017b) 29.8% had a bachelor degree, and majority of the respondents were female (95.6%). In Stalpers et al (2017), majority of the nurses had at least a Bachelor's degree (71%), and were female (78%). The mean age was 41 years (SD=10.8) and nurses on average had

20 years (SD=11.5) of experience as qualified staff nurses. However, in Yildirim et al (2012), 60% of respondents had baccalaureate degrees (or BSc degree) and 29% were associate degree graduate nurses. The mean years of work experience was 6.07 (SD=5.34).

The sample in this research compares favourably with statistical figure from a report from the NHS Employers (2017), in which the proportion of male to female nurses employed by the NHS in bands 5 – 7 (DoH, 2004) were 18% and 82% respectively. Although in this national figure provided by the NHS Employer (2017), the percentage of female is 82% compared with the 90.7% in this current research, it can be said to be a representative sample that accurately reflects the population of nurses in England. Sample in this study would surely capture the essential aspects of the study for nurses in England.

Table 6.1: Description of demographic and occupational characteristics of study participants (N=247)

Characteristic	Percentage (frequency)
Gender (n=246)	
Male	9 (n= 22)
Female	91 (n=224)
Age (n=244)	
21 – 24	6 (n=14)
25 – 29	10 (n= 23)
30 – 34	14 (n=35)
35 – 39	24 (n=59)
40 – 44	16 (n= 38)
45 – 49	12 (n=30)
50 – 54	10 (n=24)
55 – 59	7 (n=18)
≥ 60	1 (n=3)
Education (N=247)	
Diploma	63 (n=154)
B.Sc.	37 (n=93)
Job role (N=241)	
Staff Nurse	77 (n=188)
Sister/Charge Nurse	23 (n=53)
Mean (Standard Deviation)	
Years of work experience (n=239)	11.11 (9.52)
Years of experience on present ward (n=242)	4.72 (5.14)

- **Research question 1: What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?**

The Kaiser-Meyer-Olkin test result was .92, indicating a sufficiently large sample and Bartlett's test of sphericity was significant, indicating that there were sufficient correlations between variables to make it appropriate to conduct PCA. In PCA, the first component that is extracted accounts for the largest amount of variance shared by the tests. The second factor consists of the next largest amount of variance which is not related to or explained by the first one (Bryman and Cramer, 2011). The third factor extracts the next largest amount of variance, and so on. In other words, these factors are unrelated or orthogonal to one another. There are as many factors as variables, although the degree of variance which is explained by successive factors becomes smaller and smaller, meaning that the first few factors are the most important ones (Bryman and Cramer, 2011). PCA extracted five components in this study and the extraction process is described below.

The process of arriving at the final EOMII five factor solution

Initial analysis of the 58 EOMII items was done using .40 as cut-off for item loading. This resulted in 14 factors with eigenvalues greater than 1 which accounted for 65.81% of the variance. Examination of the scree plot however, suggested a five-factor solution. A total of 36 items were retained - Factor 1 had eigenvalues greater than 15, Factor 2 had eigenvalue greater than 3, while factors 3 to 5 had eigenvalues greater than 2. The remaining nine factors had eigenvalues less than 2 (between 1.761 - 1.064). A second analysis was done on the 58 EOMII items using .30 as cut-off for item loading; it also yielded 14 factors with same eigenvalues and percentage of total variance explained as in the first analysis. The scree plot indicated the inclusion of five factors. Some items had double loadings - they loaded on the excluded factors as well as on the factors included in the solution. Altogether, 45 items were included under five factors, which had many items similar to the first analysis. Again, PCA was run on the 45 items which were retained from the second analysis (above) and with .30 as the cut-off for item loadings. Table 6.2 below presents the SPSS output which lists the eigenvalues associated with each linear component before extraction, after extraction and after rotation.

Before extraction, SPSS had identified 45 components/factors within the data set, the eigenvalues associated with each factor represent the variance explained by that particular linear component and SPSS also displays the eigenvalue in terms of the percentage of variance explained (Field, 2013). The variance accounted for by the first factor is 14.486 or 32.191 per cent of the total variance (see Table 6.2). The total variance explained by the 45 factors is simply the sum of their eigenvalues, which in this case is 45. The proportion of variance accounted for by any one factor is its eigenvalue divided by the sum of the eigenvalues, which is multiplied by 100 to convert it to a percentage. Thus, the proportion of variance due to the first factor is about $14.486/45$ or $.32191111$, which, when multiplied by 100 equals 32.19 (Table 6.2). When the percentage of explained variance is reported for a particular dataset, the value that is actually reported is the addition of the percentages of the explained variance for each of the components retained (i.e. the accumulated percentage of explained variance) (Lorenzo-Seva, 2013). If the aim were to explain 100% of the variance in the correlation matrix, then it would be essential to retain as many components as observed variables, which would make no sense at all (Lorenzo-Seva, 2013). However, the idea is to select an optimal number of components, which can be defined as the minimum number of components that accounts for the maximum possible variance (Lorenzo-Seva, 2013).

The eigenvalues associated with these factors and the percentage of variance explained are again displayed in the columns labelled *Extracted Sums of Squared Loadings*. The values in this part of the table are the same as the values before extraction, except that the values for the discarded factors are ignored (hence, the table is blank after the 10th factor) (Field, 2013). In the final part of the table (labelled *Rotation Sums of Squared Loadings*), the eigenvalues of the factors after rotation are displayed. Only extracted and rotated values are meaningful for interpretation and the factors are arranged in the descending order based on the most explained variance (Yong and Pearce, 2013). Rotation has the effect of optimising the factor structure and the consequence for these data is that the relative importance of the 10 factors is equalised. Before rotation, factor 1 accounted for considerably more variance than the remaining nine, however, after rotation, it accounted for only 16.818% of variance (Lorenzo-Seva, 2013; Field, 2013). SPSS then extracts all factors with eigenvalues greater than 1. This

analysis resulted in 10 factors which explained 65.40% of the variance, and with each factor having eigenvalues greater than one.

As discussed in Chapter 5 (Methods), PCA has the ability to highlight the items that are not contributing to the construct or factor, which eventually can be considered for deletion from the scale (Field, 2013; Yong and Pearce, 2013). Retaining the 10 factors as indicated by the eigenvalues greater than one rule (Kaiser, 1960) would result in over extraction of factors, leading to the development of non-parsimonious theories based on superfluous constructs (Patil *et al.*, 2008). In order to minimise the weakness of the 'eigenvalue greater than one' rule highlighted by Patil *et al.* (2008), the Cattell's (1966) graphical scree test was also applied (see Figure 6.2 below). In this method, a graph is drawn of the descending variance accounted for by the factors initially extracted (Bryman and Cramer, 2011). The scree plot typically shows a break between the steep slope of the initial factors and the gentle one of the later factors. 'Scree' is a geological term for describing the debris found at the bottom of a rocky slope and implies that these factors are not very important (Bryman and Cramer, 2011). Cattell's (1966) recommendation is to retain only those components above the point of inflection on a plot of eigenvalues ordered by diminishing size. The decision in choosing a point at which to cut off extraction must aim merely at encompassing what may be called the non-trivial common variance (Cattell, 1966).

The scree plot (Figure 6.2) shows inflexions that would justify retaining only five components. An initial solution of five components with eigenvalues greater than one and explaining 45.25% of the variance was found. The solution was rotated using .30 as the cut-off for the inclusion of items on a factor. This resulted in a solution comprising 40 items loading on to one of the final five components or factors. Five items were lost in this final analysis because they loaded under the excluded factors. The five factors has Cronbach's alpha coefficients ranging between .76 and .94, indicating good reliability, and were labelled: *Ward Manager Support* (Factor 1), *Working as a Team* (Factor 2), *Concern for Patients* (Factor 3), *Organisational Autonomy* (Factor 4), and *Constraints on Nursing Practice* (Factor 5). Appendix 36 shows the factor loadings after rotation.

Table 6.2: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.486	32.191	32.191	14.486	32.191	32.191	7.568	16.818	16.818
2	2.853	6.339	38.530	2.853	6.339	38.530	3.993	8.874	25.692
3	2.771	6.158	44.688	2.771	6.158	44.688	3.558	7.908	33.600
4	1.886	4.191	48.878	1.886	4.191	48.878	2.695	5.989	39.589
5	1.740	3.866	52.744	1.740	3.866	52.744	2.545	5.656	45.245
6	1.242	2.760	55.504	1.242	2.760	55.504	2.173	4.828	50.073
7	1.210	2.689	58.193	1.210	2.689	58.193	2.093	4.651	54.724
8	1.149	2.553	60.746	1.149	2.553	60.746	1.766	3.924	58.649
9	1.090	2.423	63.169	1.090	2.423	63.169	1.715	3.811	62.460
10	1.002	2.226	65.395	1.002	2.226	65.395	1.321	2.935	65.395
11	.906	2.013	67.408						
12	.859	1.910	69.318						
13	.792	1.759	71.077						
14	.774	1.721	72.798						
15	.745	1.655	74.453						
16	.715	1.589	76.042						
17	.694	1.542	77.584						
18	.660	1.466	79.050						
19	.630	1.400	80.450						
20	.601	1.335	81.785						
21	.558	1.241	83.026						
22	.544	1.210	84.236						
23	.522	1.159	85.395						
24	.517	1.148	86.543						
25	.478	1.061	87.604						
26	.466	1.035	88.639						
27	.412	.916	89.555						
28	.407	.903	90.459						
29	.393	.872	91.331						
30	.368	.818	92.149						
31	.364	.810	92.959						
32	.340	.756	93.715						
33	.324	.719	94.434						
34	.299	.663	95.097						

35	.279	.620	95.718					
36	.262	.583	96.300					
37	.237	.527	96.827					
38	.226	.502	97.329					
39	.220	.489	97.818					
40	.204	.454	98.272					
41	.192	.426	98.698					
42	.175	.390	99.088					
43	.162	.361	99.448					
44	.139	.308	99.756					
45	.110	.244	100.000					

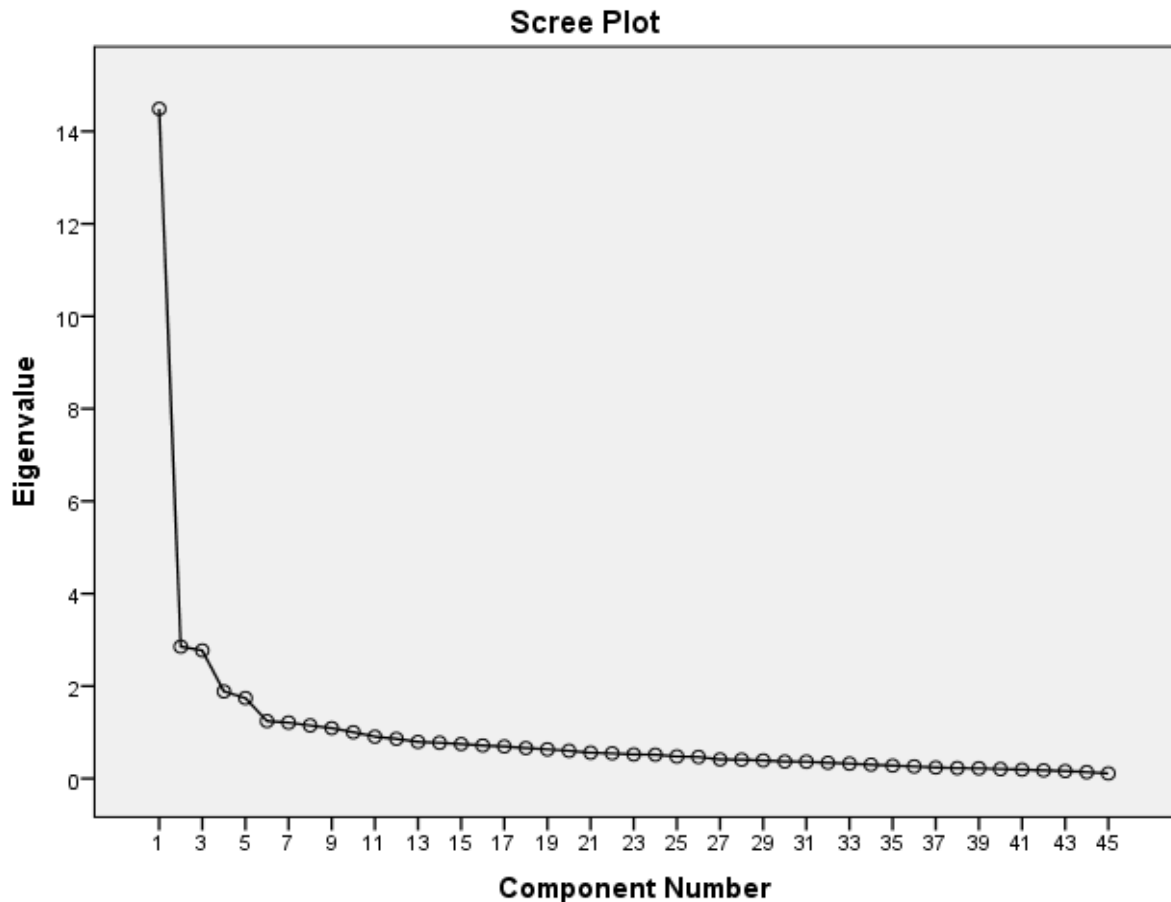


Figure 6.2: Scree Plot

The final five components:

Principal Component Analysis extracted five components namely: ward manager support, working as a team, concern for patients, organisational autonomy, and constraints on nursing practice, which are described below (also refer to Appendix 36).

Ward manager support

Thirteen items comprised this factor, with loadings between .39 and .84 which, taken together, explained 16.82% of the variance. Although there are some differences, this is essentially the same as the “Nurse Manager Support” factor in the EOMII eight factor solution which has been renamed to reflect the terminology used in England. The items reflect the role of the ward manager in supporting the work of individual nurses, for example by building team cohesion and facilitating effective management by being seen as diplomatic, fair and honest.

Working as a Team

Eight items with loadings between .40 and .72 comprised the second subscale, with an explanatory variance of 8.87%. This factor has items from three different EOMII subscales, which are “perceived adequacy of staffing”, “working with clinically competent peers”, and “a culture in which concern for the patient is paramount”. The items are indicative of team working both within nursing and with other disciplines present on the ward. Items also indicate expectations of high performance and productivity from everyone.

Concern for patients

Seven items comprised the third factor, with loadings between .39 and .76, explaining 7.91% of the variance. This component included items that represent the core beliefs, shared feelings and ethos of the organisation. It also includes items that are indicative of quality patient care being the priority in the organisation. There is a strong similarity to the “culture in which concern for the patient is paramount” subscale of the EOMII eight factor solution with 7 of the 11 items loading on this factor.

Organisational autonomy

Six items comprised the fourth factor, with loadings between .31 and .70 and explaining 5.99% of the variance. This has two items from the “clinical autonomy” and four items from the “control over nursing practice” subscales of the EOMII original eight factor solution. The items were concerned with the extent to which nurses perceived that they have *control* over their professional practice, make decisions relating to patient care and are recognised by other disciplines as being responsible for autonomous nursing practice. This factor explicitly focuses on nurses’ autonomy at the level of the organisation and the extent to which they have control over nursing practice and policy, rather than clinical autonomy which would be demonstrated in their work with patients.

Constraints on nursing practice

The final factor comprised six items with loadings between .50 and .80, explaining 5.66% of the variance. This has four items from “clinical autonomy” and two from “control over nursing practice” in the original EOMII eight factor solution. Included items concerned the barriers that nurses encountered in their work hindering their professional practice and to the exercise of clinical autonomy in relationship with

patients. For example, it included items indicating that nurses have to do things that, in their professional judgment, may not be in the best interests of the patient, or that they are limited in their independent decision-making. Constraints on nursing practice seem to indicate restrictions on clinical autonomy.

- **Research question 2: What are the associations, if any, between the factors used in measuring the nursing work environment and nurse-assessed care quality in data gathered from a sample of hospital nurses in England?**

The five factors identified in the principal component analysis were used to explore the relationships between aspects of the nursing work environment and nurse-assessed quality of care. Correlations between the factors and nurse-assessed care quality are shown in Table 6.3. The correlations between *ward manager support*, *working as a team*, *concern for patients* and *organisational autonomy* are all significantly positive at $p < .001$, and relatively large, varying between .50 and .69. In contrast associations between these factors and *constraints on practice* are negative and while still significant they are substantially smaller with the weakest association being between *organisational autonomy* and *constraints on nursing practice*. The correlations between nurse-assessed care quality and the three factors, *ward manager support*, *working as a team* and *concern for patients*, were all positive and substantial while the association between care quality and *organisational autonomy* was also positive but of a more moderate size while the correlation with *constraints on practice* was small and in a negative direction, as might be anticipated.

A hierarchical multiple regression model used to explore further the relationships between the factors assessing the nursing work environment and nurse assessed care quality revealed that each of the control variables (i.e. age, gender, and education) entered in the first step had very small, non-significant regression coefficients (Table 6.4). The R^2 of -.004 indicates that this model explains very little of the variance in nurse-assessed care quality. Job role and hospital which were then entered in the second and third steps respectively were also non-significant predictors accounting for very little additional variance. In the final step, the five factors extracted from the EOMII gave a significant model (adjusted $R^2 = .38$, $F = 14.30$, $p < .001$). *Ward manager support* ($\beta = .22$, $t = 2.86$, $p < .01$), *concern for patients* ($\beta = .18$, $t = 2.16$, $p < .05$) and *working as a*

team ($\beta = .27$, $t = 3.35$, $p < .01$) were all significant predictors of nurse-assessed care quality. *Constraints on nursing practice* was also a significant, but negative, predictor of nurse assessed care quality ($\beta = -.11$, $t = -2.00$, $p < .05$). However, *organisational autonomy* was not a significant predictor in this multivariate analysis ($\beta = .02$, $t = .24$, *ns*).

Table 6.3: Pearsons correlations between the five factors measuring the nursing work environment and the nurse-assessed quality of care in data gathered from a sample of hospital nurses in England.

Factor	Ward Manager	Teamwork	Concern for patients	Organisational autonomy	Constraints on nursing practice
Nurse-assessed care quality	.52 ^{***}	.57 ^{***}	.54 ^{***}	.42 ^{***}	-.27 ^{***}
Ward manager support		.63 ^{***}	.61 ^{***}	.50 ^{***}	-.29 ^{***}
Teamwork			.69 ^{***}	.54 ^{***}	-.26 ^{***}
Concern for patients				.59 ^{***}	-.23 ^{***}
Organisational autonomy					-.17 ^{**}

$p \leq .05$ (*), $p \leq .01$ (**), $p \leq .001$ (***)

Table 6.4: Regression analysis on the effects of the five factors EOMII on Nurse-Assessed Quality of Care

	Step 1			Step 2			Step 3			Step 4		
	B	SE	B	B	SE	B	B	SE	β	B	SE	β
Age	.15	.23	.05	.14	.23	.04	.12	.23	.04	.20	.18	.06
Gender	.34	.40	.06	.34	.40	.06	.36	.40	.06	.39	.31	.07
Education	.26	.24	.08	.26	.24	.07	.26	.24	.08	.10	.19	.03
R ²	-.004											
Designation				.06	.25	.02	.08	.26	.02	-.11	.20	-.03
R ² (Δ R ²)				-.009								
Hospital							-.25	.23	-.07	-.03	.18	-.01
R ² (Δ R ²)							-.008					
Ward manager support										.79	.28	.22**
Concern for patients										.63	.29	.18*
Working as a team										1.04	.31	.27**
Organisational Autonomy										.07	.28	.02
<i>Constraints on nursing practice</i>										-.38	.19	-.11*
R ² (Δ R ²)										.382***		

* $p < .05$, ** $p < .01$, *** $p < .001$

6.5 Discussion

This is the first research that explores the structure of the EOMII Scale in nurses working in England. The five factors were significantly associated with one another and with nurse-assessed care quality in univariate analyses. In the multivariate model, the control variables, which were also the structural variables (i.e. age, gender, education, job role, and hospital) had very small, non-significant regression coefficients, indicating that this model explains very little of the variance in nurse-assessed care quality, while four of the five factors assessing the nurse working environment were significant predictors of nurse-assessed quality of care, *organisational autonomy* was not a significant predictor of nurse-assessed quality of care (although, still a predictor).

Comparison of the factor structures of the EOMII scale across different cultures

As discussed in the literature review in Chapter 3, the systematic search of electronic databases identified five studies which explored the psychometric properties of the EOMII scale in countries outside the US. The first was conducted in Turkey (Yildirim *et al.*, 2012). A seven factor solution was identified largely reflecting the original eight factor solution described by Schmalenberg and Kramer (2008a), although three items were excluded and a number of included items loaded on different factors in this sample. Of note were three items that moved between the *clinical autonomy* and *control over nursing practice* factors (Appendices 3 and 37). Similarly, a Chinese study found that seven items moved between the *clinical autonomy* and *control over nursing practice* factors and their solution differed from the original scale with nine factors identified (Bai *et al.*, 2013). A study of Dutch nurses identified five factors that replicated factors in the original solution. However, the remaining items from the factors *clinical autonomy*, *clinically competent peers* and *patient-centred culture* loaded onto two novel factors (de Brouwer *et al.*, 2014) (Appendices 3 and 37).

The fourth study (De Brouwer *et al.*, 2017a), also from The Netherlands, identified that the subscales adequacy of staffing, clinically competent peers, patient centered culture, autonomy and nurse manager support can be used in Dutch nursing homes without problems. Three subscales formed clear factors, as in the original EOMII (perceived adequacy of staffing, clinically competent peers and nurse manager support). Two subscales (nurse-physician relationships and support for education) were spread over

two factors, and three subscales (clinical autonomy, control over nursing practice and patient centered culture) were spread over three factors. Finally, the third Dutch study by De Brouwer *et al.* (2017b) identified that the total scores of both the D-EOMII and the PES-NWI scales were strongly correlated ($r=.88$), implying that an organisation scoring high on one of the instruments will also score high on the other (Appendices 3 and 37).

The factor structure of the EOMII in this sample of hospital nurses in England was found to differ substantially from that found in the US. Principal Component Analysis extracted a 40-item five-factor solution, in contrast to the eight-factor solution in the US sample. None of the five factors wholly reflected the original solution, but two factors were substantially similar. The first of these was “ward manager support”. Of the 13 items that loaded on the *ward manager support* factor, 11 were from the US *nurse manager support* factor (see Appendices 3 and 37). The remaining two were from the US *clinical autonomy* factor. These two items (items 12 and 19) are ‘*autonomous nursing practice is facilitated because nurses knew that ward managers will support them*’ and ‘*our ward manager supports our independent decision-making*’. This implies that in this sample of hospital nurses in England, the nurse’s choice to make autonomous decisions is dependent on the support of the ward manager. Therefore, support of the ward manager in making autonomous decision is very important.

There was also a great deal of overlap between the “concern for patients” factor in England and the “culture of concern for patients” in the US. All the items in the *concern for patient* factor reflects seven out of the 11 items of the US *patient-centred cultural values*. In both countries, nurses are profoundly affected by the values and ethos of the hospital in relation to patient-centred care (Appendices 3 and 37). Eighteen items from the original EOMII which correlate less than 0.3 with any factor were excluded (Bryman and Cramer, 2011) from the English solution. All six items in the *nurse-doctor relationship* (items 1 – 6) in the original EOMII did not appear in the English solution. This may reflect differences in the organisation of medical work in the two countries. In the US, patients retain their own physician when they are admitted to hospital whereas the ward medical team takes over care in the UK.

Several, but not all, items from the US factors, *perceptions of adequacy of staffing* (2 items), *working with clinically competent peers* (2 items), and *cultural values* (4 items)

loaded onto the “working as a team” factor in England (Appendices 3 and 37). These differences may suggest either that the dimensions of the nursing work environment measured by some factors found within US populations may not be relevant to nurses in England or, alternatively, that these dimensions are important to nurses in England but the items do not capture the experience of the nurses. The differences in the structure of the scale in the two populations also raise the possibility that there may be dimensions of the US nursing work environment which are not apparent in a description of the nursing work environment in England using the EOMII.

Items that loaded on two factors in the US eight factor solution, “clinical autonomy” and “control over nursing practice” were distributed across two factors that are being labelled “constraints on nursing practice” and “organisational autonomy” in this research. Of the six items that loaded on the ‘organisational autonomy’ factor in England, four were reflective of the US *control over nursing practice* factor, while the remaining two were from the US *clinical autonomy* factor. Similarly, of the six items which loaded on the *constraints on nursing practice* factor in England, four were reflective of the US *clinical autonomy* factor, while the remaining two were from the US *control over nursing practice* factor (Appendices 3 and 37). Organisational autonomy is interpreted as the extent to which nurses’ control nursing practice and policy at the organisational level, while constraints on nursing practice are the organisational barriers that make it difficult to exercise clinical autonomy in their relationships with patients. The boundaries that exist around nursing practice and the extent to which nurses’ can exercise agency in the context of the hospital organisation are clearly relevant and important in both the US and England.

Clinical autonomy is recognised internationally as central to nursing practice and the delivery of high-quality patient care (Stewart *et al.*, 2004; Skar, 2009). It is therefore of particular interest that in this sample of nurses working in England organisational autonomy was not a significant predictor of nurse assessed care quality. Future research may seek to explore whether conceptualisations of organisational autonomy across different healthcare systems vary. In an increasingly globalised world, with a highly mobile workforce, a culturally shared understanding of autonomy will support high quality nurse education and practice internationally.

Overall, this evidence suggests that while the scale is very useful in different settings, the structure of the scale differs in significant ways across different healthcare systems. Findings from the literature review in Chapter 3 and from this survey study demonstrate that the factor structure of the EOMII scale in data gathered from a sample of hospital nurses in England is not an outlier. In particular the results suggest that nurses' experience and/or conceptualisation of nursing autonomy and control over practice may vary depending on the organisation and management of nursing work which may vary from country to country.

The conceptual framework post data analysis based on Donabedian's (1980, 1992) framework following data analyses

As discussed above, Principal Component Analysis, identified that a five-factor, 40-item solution for the EOMII was found to best fit the data. The five factors are: *ward manager support, working as a team, concern for patients, organisational autonomy, and constraints on nursing practice*, as shown in Figure 6.3 below. In the multivariate model, the control variables (structural variables) were not significant predictors of nurse-assessed care quality, while four of the five factors assessing the nurse working environment were significant predictors of nurse-assessed quality of care, *organisational autonomy* was not a significant predictor of nurse-assessed quality of care (although, still a predictor), as shown in Figure 6.3 below.

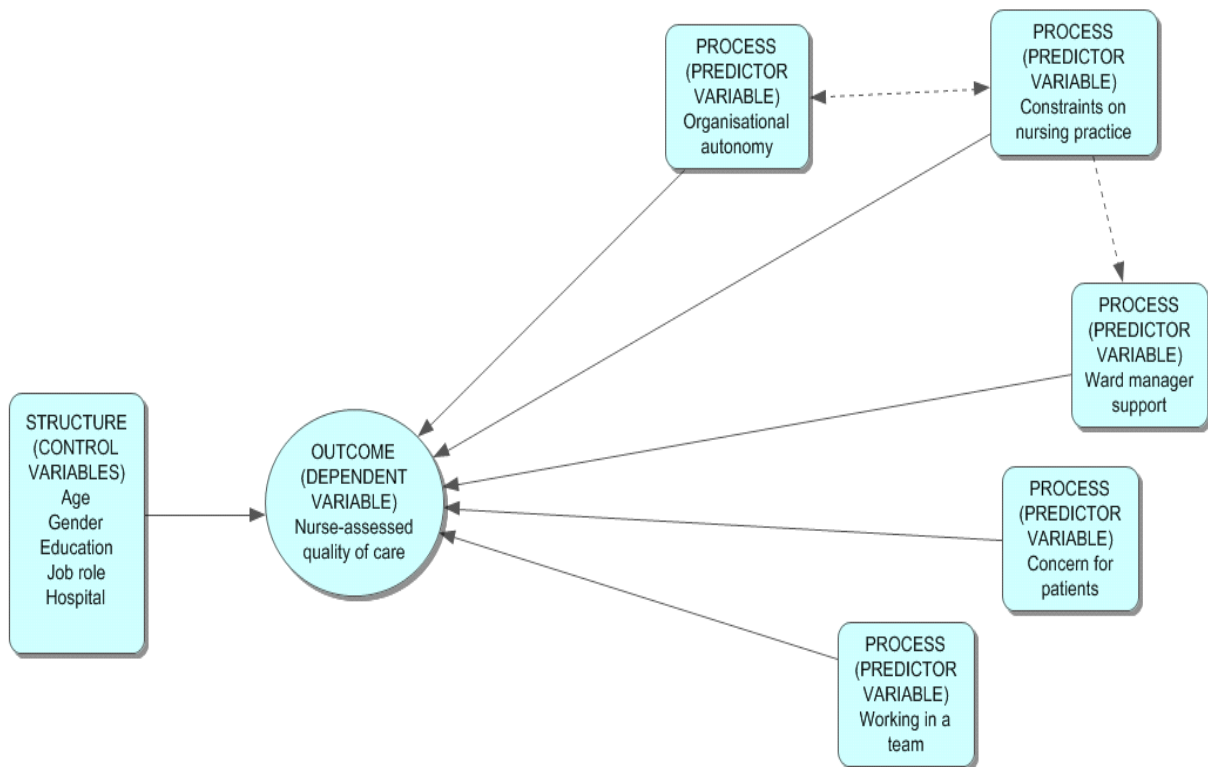


Figure 6.3: The conceptual framework post data analyses based on Donabedian's (1980, 1992) framework

As discussed above, items that loaded on two factors in the eight factor solution, *clinical autonomy* and *control over nursing practice* were distributed across two factors which are now called *constraints on nursing practice* and *organisational autonomy*. The broken lines connecting *organisational autonomy* and *constraints on nursing practice* in Figure 6.3 above suggests that participants responded in similar ways to questions or items concerning *control over nursing practice factor* as they did to those about *clinical autonomy factor* when completing the EOMII scale. This implies that those two concepts were not seen as being conceptually distinct by the participants (Bryman and Cramer, 2011). If however, their answers to *control over nursing practice* items were unrelated to their responses to the *clinical autonomy* items, these suggest that participants' perceptions towards those two concepts can be extricated. Items or characteristics which go together constitute a factor (Bryman and Cramer 2011), in that case all items which reflect clinical autonomy should be correlated with one another and unrelated to control over nursing practice. However, the situation was not the case in this analysis.

As discussed above, of the 13 items that loaded on the *ward manager support* factor in England, 11 were from the US *nurse manager support* factor, while the remaining two were from the US *clinical autonomy* factor. The broken lines connecting *constraints on nursing practice* and *ward manager support* in Figure 6.3 above suggest that when participants were responding to the EOMII scale, they perceived two items in the *clinical autonomy* subscale to be related to the *nurse manager support* factor. This implies that the ward manager support is important for nurses to practice autonomously. As there was no item from the ward manager support factor which loaded on the clinical autonomy factor, it implies that participants perceived the ward manager factor (or concept) to be conceptually distinct from the clinical autonomy factor, but not the other way round.

The statistical analysis performed in this survey study have changed the appearance of the Donabedian's SPO framework utilised at the beginning of this research. Due to the findings, the eight process variables have now been reduced to five, out of which two were interrelated (*organisational autonomy* and *constraints on nursing practice*); and one factor was related to another, but not vice versa (i.e. *constraints on nursing practice* and *ward manager support*). These five factors were found to be predictors of nurse-assessed quality of care, as shown in Figure 6.3 above. The appearance of the control variables (structural variables) were unchanged, although, statistically, they were not significant predictors of nurse-assessed quality of care.

6.6 Further research: The need for a qualitative research to explore the concept of autonomy

In line with the research question 1, i.e. to explore the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England, EOMII scale was utilised in a survey study. Items in the EOMII scale asked participants to describe their perceptions about their work environments in terms of the eight attributes of the nursing work environment as measured by the scale. The aim was to see to what extent those items which reflected each of the eight factors of the US EOMII were correlated with one another, and unrelated to those which represented other factors. Principal component analysis with orthogonal (varimax) rotation was used to assess the factorial validity of the questions which make up the EOMII subscales, to

ensure that items within each subscale were measuring the same concept (Bryman and Cramer, 2011). It was found that some items in the *control over nursing practice* factor which were expected to contribute to the participants' judgement of how much control they had over their nursing practice, were interrelated with the *clinical autonomy* factor. Similarly, some of the items in the clinical autonomy factor which were expected to contribute to participants' judgement of how much autonomy they exercised in practice, were interrelated to the *control over nursing practice* factor. It was also found that some items in the *clinical autonomy* factor were related to the ward manager support factor, but not vice versa.

Items in the clinical autonomy factor were expected to go together and constitute a factor (Bryman and Cramer 2011). However, the situation was not the case following PCA. It was found that *clinical autonomy* factor which has been labelled as *constraint on nursing practice* in this study, was the most unstable factor of the EOMII scale, as it was interrelated with *control over nursing practice* factor, and at the same time, related to the *nurse manager support* factor. In particular, the results in this study, as well as the findings in the literature review in Chapter 3, suggest that nurses' experience and/or conceptualisation of nursing autonomy may vary depending on the organisation and management of nursing work which may vary from country to country. This, therefore, necessitated research to be conducted in order to explore the understanding of the concept of autonomy in the sample of nurses working in England.

Based on the results of this survey study, findings from the literature review in Chapter 3, and, from liaising with Claudia Schmalenberg (one of the authors of the EOMII scale), the researcher generated the following research questions in order to explore the understanding of the concept of autonomy amongst nurses working in the same two hospitals where the quantitative survey study was conducted.

- Research question 3: How do registered nurses in England understand the concept of autonomy in practice?
- Research question 4: What are the experiences of nurses in England of autonomy in practice?

It was decided that a qualitative study utilising short structure, one-to-one interviews would be appropriate in addressing the above additional research questions. The qualitative short structure interviews study was conducted and the findings are presented in Chapter 8. Rationales for the choice of this method have been provided in the Methods chapter (Chapter 5).

6.7 Original contributions and conclusion

This is the first research that explores the structure of the EOMII Scale in nurses working in England. Principal component analysis of the data gathered from this sample of nurses using the EOMII identified five significant factors, each representing a different aspect of the nursing work environment: i) *ward manager support*; ii) *concern for patients*; iii) *working as a team*; iv) *organisational autonomy*; and v) *constraints on nursing practice*. As discussed above, all six items in the *nurse-doctor relationship* (items 1 – 6) in the original EOMII did not appear in the solution in England (Oshodi *et al.*, 2017). Several, but not all, items from the US factors, *perceptions of adequacy of staffing* (2 items), *working with clinically competent peers* (2 items), and *cultural values* (4 items) loaded onto the “working as a team” factor in England. The statistical analysis performed in this survey study have changed the appearance of the Donabedian’s SPO framework utilised at the beginning of this research. Due to the findings, the eight process variables have now been reduced to five, out of which two were interrelated (*organisational autonomy* and *constraints on nursing practice*); and one factor was related to another, but not vice versa (i.e. *constraints on nursing practice* and *ward manager support*). All these five factors were found to be predictors of nurse-assessed quality of care, as shown in Figure 6.3 above. The appearance of the control variables (structural variables) were unchanged.

The broken lines connecting *organisational autonomy* and *constraints on nursing practice* in Figure 6.3 above suggest that participants responded in similar ways to questions or items concerning *control over nursing practice* factor as they did to those about *clinical autonomy* factor when completing the EOMII scale. This implies that those two concepts were not seen as being conceptually distinct by the participants. The broken lines connecting *constraints on nursing practice* and *ward manager support* in

Figure 6.3 above suggest that when participants were responding to the EOMII scale, they perceived two items in the *clinical autonomy* subscale to be related to the *nurse manager support* factor. This implies that the ward manager support is important for nurses to practice autonomously. As there was no item from the ward manager support factor which loaded on the clinical autonomy factor, it implies that participants perceived the ward manager factor (or concept) to be conceptually distinct from the clinical autonomy factor, but not the other way round.

The correlations (univariate analyses) between *ward manager support*, *working as a team*, *concern for patients* and *organisational autonomy* are all significantly positive at $p < .001$, and relatively large, varying between .50 and .69. In contrast associations between these factors and *constraints to practice* are negative and while still significant they are substantially smaller. There is only a weak relationship between *organisational autonomy* and *constraints on nursing practice* ($r = -.17$, $p \leq .01$) implying that these two factors are largely independent of each other. This suggests that improving the nursing work environment and consequent patient outcomes requires that factors that both support as well as hinder nursing practice are addressed by policy makers and nurse managers.

In a hierarchical multiple regression model, these five factors gave a significant model (adjusted $R^2 = .38$, $F = 14.30$, $p < .001$). *Ward manager support* ($\beta = .22$, $t = 2.86$, $p < .01$), *concern for patients* ($\beta = .18$, $t = 2.16$, $p < .05$) and *working as a team* ($\beta = .27$, $t = 3.35$, $p < .01$) were all significant predictors of nurse-assessed care quality. *Constraints on nursing practice* was also a significant, but negative predictor of nurse assessed care quality ($\beta = -.11$, $t = -2.00$, $p < .05$). However, *organisational autonomy* was not a significant predictor in this multivariate analysis ($\beta = .02$, $t = .24$, *ns*).

These results suggest that the effect of *organisational autonomy* on quality of care may have been mediated by the other four factors. This non-significant effect of organisational autonomy on quality of care was thought to be due to organisational autonomy sharing its variance with the other four variables in the model, as in the case of partial mediation. If the variance of organisational autonomy is mostly explained by the other four variables, i.e. if it shares its variance with these other four variables, its effect on quality of care will be much reduced. Mediation analysis was therefore carried

out in Oshodi *et al.* (2017) to investigate whether the direct effect of *organisational autonomy* on quality of care was being mediated by the other four variables in the model (i.e. *nurse manager support, working as a team, concern for patients* and *constraints on nursing practice*). The results revealed that this non-significant effect of *organisational autonomy* on quality of care was due to *organisational autonomy* sharing its variance with the other four variables in the model (Oshodi *et al.*, 2017). Please refer to the published paper in Appendix 38, pp. 336-349.

The next chapter (Chapter 7) will present the findings from the comments made by registered nurses about their work environment and the quality of care using free text 'comments' space provided by the researcher on the Essentials of Magnetism II scale in this survey study. Chapter 8 will present the findings from the *post hoc* study, utilising interviews to explore the concept of autonomy. Chapter 9 will present the discussion, clinical implications, strengths, and limitations. It will also present the implications for further study, recommendations, and conclusion.

CHAPTER 7

RESULTS: FREE TEXT

Introduction

This chapter discusses the comments made by registered nurses about their work environment and the quality of care given to patients on their wards as they completed the Essentials of Magnetism II (EOMII) scale in the survey study in Chapter 6

7.1 Aims

The EOMII scale was specifically developed to measure healthy and productive nursing work environments based on the following eight attributes: i) nurse-physician relationships; ii) clinical autonomy; iii) a culture in which concern for the patient is paramount; iv) working with clinically competent co-workers; v) control of nursing practice; vi) perceived adequacy of staffing; vii) support for education, and viii) nurse manager support. The EOMII scale was distributed to 438 eligible registered nurses providing direct adult patient care in medical (n=17) and surgical (n=12) wards in two NHS hospitals between 2nd of May and 31st October 2012. The EOMII scale was utilised in this study to address the following two research questions:

- Research question 1: What is the factor structure of the Essentials of Magnetism II scale in data gathered from a sample of hospital nurses in England?
- Research question 2: What are the associations, if any, between the factors used in measuring the nursing work environment and nurse-assessed care quality in data gathered from a sample of hospital nurses in England?

The aim of this chapter is to present the results of the analysis performed on the free text data gathered using the Essentials of Magnetism II scale. This chapter will also present the original contributions to research, arising from the free text data.

7.2 Methods

Data collection

The EOMII scale asks participants to respond to each of 58 items using a four-point rating scale, but limits their ability to express in detail their views regarding their work environment. In order to address this major weakness of survey questionnaires (Bowling, 2005), a space was provided by the researcher at the end of the EOMII scale asking respondents to: '*Finally, please add any comments you may have about your ward/work environment*'. The purpose of inviting comments was to give participants the opportunity to offer their perceptions of their work environments in their own words.

Respondents

Two hundred and forty-seven out of 437 registered nurses completed the EOMII scale (response rate = 56.39%), and comments were provided by 30% of the respondents (75/247). There was an even split of respondents; 37 from Hospital A and 38 from Hospital B. Majority of the respondents were females (n=70). Respondents' ages ranged from 20 to ≥ 60 years. Fifty-five of them were Staff Nurses, 19 were Sisters, and one was a Charge Nurse. Twenty-seven were educated to degree level, while the remaining (n=48) had Diploma, with years of nursing experience ranging from one month to 40 years.

7.3 Data analysis

The researcher presumed that the 75 participants who wrote comments about their work environment would have responded to the stimulus provided by the items of the eight attributes measured by the EOMII scale. Originally, the researcher planned to analyse data generated from the participants' comments to align with the eight attributes of the EOMII scale, because she assumed that the data generated would be structured. Examination of the comments revealed unstructured data i.e. not organised in a pre-defined manner. Although comments were made regarding most of the attributes of the work environment as measured by the EOMII scale, the participants expanded on these attributes. Their comments went beyond the scope of the EOMII scale, addressing issues such as staffing numbers, increasing workload, high stress levels, and work engagement.

Inductive content analysis was chosen to analyse the textual information generated from the participants' comments because they were unstructured. Inductive content analysis was applicable to the data as it is effective in identifying patterns, themes, biases, and meanings.

7.4 Results: Three themes

Three key themes and eight subthemes were identified. The key themes are: 1) "nurses need nurses to nurse", 2) working as a team, and 3) workplace environment. The themes and subthemes are illustrated in figure 7.1 below.

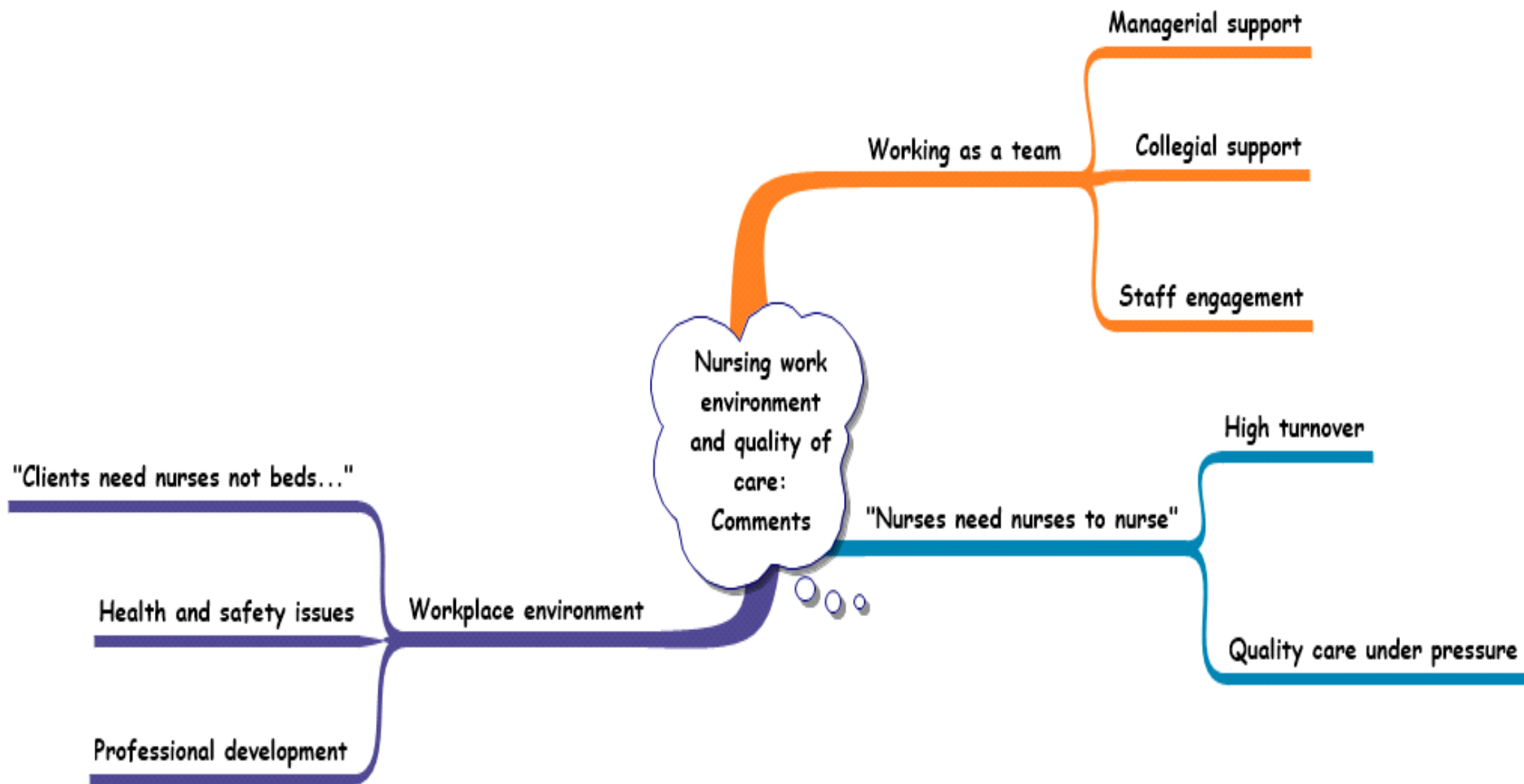


Figure 7.1: Overview of themes and subthemes

Participants' codes

Codes were used after each participant's quotes to represent information relating to their specialities, designations and years of nursing experience. The following examples are presented in Table 7.1 below.

Table 7.1: Participants' codes

Code	Interpretation
P1003(GM/SN:8y8m)	Participant 1003, General Medical Ward, Staff Nurse, 8 years and 8 months of nursing experience
P1015(OT/SN:14y)	Participant 1015, Orthopaedic Ward, Staff Nurse, 14 years of nursing experience
P1019(CD/CN:18y)	Participant 1019, Cardiology Ward, Charge Nurse, 18 years of nursing experience
P1026(EM/SN:3y11m)	Participant1026, Elderly Medical Ward, Staff Nurse, 3 years and 11 months nursing experience
P1064(GY/SN:4y3m)	Participant 1064, Gynaecology Ward, Staff Nurse, 4 years and 3 months of nursing experience
P1101(GS/SN:31y)	Participant 1102, General Surgical Ward, Staff Nurse, 31 years of nursing experience
P2038(HM/SR:11y2m)	Participant 2038, Haematological Ward, Ward Sister, 11 years 2 months of nursing experience
P2047(RP/SR:11y)	Participant 2047, Respiratory Ward, Ward Sister, 11 years of nursing experience
P2077(ST/SN:10y)	Participant 2077, Stroke Ward, Staff Nurse, 10 years of nursing experience
P2134(WM/SN:7y3m)	Participant 2134, ward missing from data, Staff Nurse, 7 years and 3 months of nursing experience.

In presenting findings, participant quotes have been typed as they were handwritten on the survey.

Theme 1: “Nurses need nurses to nurse”

“Nurses need nurses to nurse” is a direct participant comment and captures participants’ understanding that staffing issues resulted in an inability to provide high quality care to patients. A vicious cycle existed where high turnover rates of staff on their wards resulted in inadequate staffing. Shortage of staff resulted in high patient to nurse ratios which negatively affected quality of care. Participants also associated these staffing issues to increased workload. They described the negative effects that this had on their physical and psychological well-being, leading to staff having high stress levels. Participants expressed frustration and annoyance at having to compromise quality of care because they did not have sufficient staff on the wards. These issues are elaborated in the subthemes high turnover and quality care under pressure.

Subtheme: High turnover

Participants revealed their struggles in trying to improve care delivery on their wards in the face of high turnover in the hospitals. This was gathered from a participant who commented:

“...We as a ward have a high turnover and are constantly trying to improve care delivery” [P1021(CD/SN:3y11m)].

One participant was specific about the rate of staff turnover stating:

“Has been difficult recently – 4 Ward Managers within last 12 months” [P1070(RP/SR:5y9m)].

Supporting P1070(RP/SR:5y9m)’s comment (above), another staff attributed the high numbers of resignations to changes at work, stating:

“It was a lovely place to work but because of the changes at work lots have changed and several members of staff have left and more are leaving shortly...” [P2085(GS/SN:18y)].

However, the participant did not indicate the types of changes that took place. Another participant attributed poor skill-mix to retention problems by simply stating: *“Poor skill mix with retention problems...”* [P1071(RP/SN:3y9m)]; with some nurses describing the

situation as needing “...More staff/trained staff” [P1035(GS/SR:14y)]/[P1033(GS/SN:20y)]. Others commented that wards are “Experiencing some shortages of staff...” [P1059(GY/SN:8y6m)].

Participants also stated that inadequate staffing led to each nurse being assigned a large number of patients which influenced the quality of care that patients and relatives experienced. They were of the view that a higher ratio of patients to nurses negatively impacts on patients’, relatives’ and staff experience. Some of the participants stated the exact number of patients a nurse was required to look after on their wards, which they considered to be high. For instance, one participant wrote:

“...Management doesn’t consider the ratio of patients that needs to be looked by a nurse which is not safe. 14 patients for one nurse is not a good number. 14 for one nurse is too much. And if you are the nurse in charge you have to look after everyone i.e. patients, staff and even relatives” [P2072(EM/SR:18y)].

Participants expressed the need for improvement in the nurse-patient ratio:

“...Staff to patient ratio needs improving” [P2048(RP/SN:5y)].

“...that needs one more staff member a day is often challenged by other specialities that require a higher ratio of staff – need e.g. log roll!!¹...” [P2026(GY/SN:37y10m)].

Due to staffing issues, and the resultant poor skill mix on their wards, some participants indicated that having the most effective mix of staff was essential for high quality patient care, as can be gathered from the following comment:

“I like to say that two (long day) nurses and a clinical nurse are needed for best patient care. Also 4 CSWs am + 3 CSWs PM” [P2134(WM/SN:7y3m)].

In addition to having an effective mix of staff, one participant described skill-mix in terms of the type of skills needed to create positive working relations:

¹A log roll is a manoeuvre used in moving a patient from one side to the other or completely over without flexing the spinal cord. During log rolling, the patient’s arms are folded across the chest, the legs are stretched, and the head is held to immobilise the neck to ensure the patients’ safety during the procedure.

“Care provided varies dependent upon which other staff are rostered on. Some staff can work more effectively/efficiently and with better interpersonal skills than others” [P1038(GS/SN:10y)].

Participants indicated that they were still expected to deliver high quality care to patients despite experiencing staffing issues, coupled with poor skill-mix. This can be gathered from participants’ comments:

“Often short staffed still expected to deliver high standard of care...” [P2111(GS/SR:11y11m)].

“Need more staff (trained and HCA) to promote quality of care to patients” [P1034(GS/SN:21y4m)].

According to participants, staff shortage placed increased pressure on nurses, leading to low staff morale. They highlighted the need for more support:

“Feels that there needs to be more support. There are many times when we are short staffed – this puts pressure on everyone and reduces staff morale” [P2112(GS/SN:5y)].

In addition to staffing issues, participants further highlighted that their wellbeing and ability to function effectively were being compromised.

Subtheme: Quality care under pressure

“...staff stretched to limits, work load very high and staff here work to the limits...” [P2048(RP/SN:5y)].

The above quote highlights participants’ experiences of increased workloads, which in turn lead to being stretched to their limits. A high workload, which is a direct consequence of staff shortage, is also linked to decreased productivity in the wards. Hence, participants found it difficult to provide good quality care to their patients, as gathered from the comments below:

“We work very hard and have to deal with a high work load and we are short staff – the work is hard and we try to help our patients to the best of our ability” [P1036(GS/SN:6y)].

“...Due to the nature of the ward often I feel there is too much going on to give really good care to patients” [P2100(GM/SN:5m)].

Participants’ inability to provide high quality care to their patients was seen as more of a challenge when nurses were tasked with the dual duty of coordinating the whole ward and simultaneously looking after patients.

“Working as a nurse in charge performing to coordinate the whole ward and at the same time looking after 6 – 10 in-patients enabling delay and hinders provision of quality patient care” [P2108(GS/SR:19y)].

Despite the highlighted staff shortage and busy schedules of the wards, participants were of the view that making patients their priority is still important when they commented:

“Ward is always heavy and hard work, with limited staffing level, this make unfair to the staff and patients. We are trying to give standard of care @ all the times” [P2108(GS/SR:19y)].

“... - Our ward is extremely busy and we all work to ensure our patients’ safety and comfort” [P1104(OT/SN:22y4m)].

Apart from the busy nature of the nursing work, extensive attention was drawn to issues around increasing work demands attributed to age-related comorbidity, rising complexity and acuity of the patients, without consequent increases in staff. Specifically, participants stressed the complexity of care needs related to those patients who were generally older, with acute medical conditions and mental health issues. According to the participants, the care of this category of patients was being compromised due to inadequate staffing and increased workload. The following quotes from some of the participants highlighted the challenges being faced by nurses working in elderly medical wards, hindering them from delivering patient-centred care:

“This ward is an elderly acute medical ward, with patients who have dementia/confused. The staffing levels could be better, as you don’t feel like a nurse” [P1026(EM/SN:25y6m)].

“Very heavy, fast-paced job caring for male dementia/Alzheimer’s medically acute patient over the age of 70” [P2070(EM/SR:15y)].

In arguing for the increased work demands, especially regarding older patients and those with acute mental/health issues, one participant expressed their belief that the Trust increased workload in order to save money:

“Staff are given too many jobs to save money” [P1100(GS/SR:9y)].

Concerns were also raised by participants over the increasing amount of burdensome paperwork, such as chart checking and admission documentation, which they felt had taken priority over patient care. One participant was not sure if nurses were needed to look after patients or do cleaning and paperwork:

“Our ward is extremely busy and high dependency...Our staff have very high standards, but are pushed for time to care for patients by added paper work, check charts & cleaning tasks, admission documentation involves over 23 pages. The trust wastes so much paper with various checking charts that must be completed - we feel ‘do we look after patients or do cleaning & paper work!’” [P1101(GS/SN:31y)].

The increasing demand for documentation which takes participants away from bedside care prevents them from delivering high quality of care to their patients. This can be gathered from some of their comments:

“Very busy ward with not enough staff to meet the needs of our patients ...an ever increasing amount of paperwork. Registered nurses need to be “at the bedside” either delivering care or supervising and assisting in the delivery of care” [P1110(GS/SN:37y)].

“We expect high standards of care for our patients, but unfortunately paperwork taken over, too much paperwork, not able to give patients enough one to one hands on care” (P2038(HM/SR:11y2m)].

Some participants’ descriptions of the impact of the increased paperwork highlighted that some of their targets were unattainable as a consequence of this practice:

“...the amount of paperwork ↑↑. Some of the targets that need to be achieved can be unattainable” [P2113(GS/SR:7y11m)].

Another participant described feelings of being undervalued, overworked and frustrated as a result of increasing paperwork by making distinctive comments such as:

“...and feel that core staff are under-valued, overworked and frustrated with constantly increasing paperwork– and on occasion lack of training on some of this” [P2125(GM/SN:6y)].

Participants voiced concerns over their physical and psychological wellbeing. Nurses perceived their work environment as being stressful, and were worried about their inability to give quality care to patients as a result of staff shortage, increasing workload and pressure, leading to exhaustion, burnout, and stress. For example, a participant commented that:

“Due to staffing levels and pressure I feel we are not able to give the quality of care we would all want to give. Staff feel burn out and stressed” [P2049(RP/SN:4y10m)].

In addition to individual staffing issues highlighted above, participants also indicated that teamwork significantly influenced the quality of their work environment.

Theme 2: Working as a Team

Participants identified teamwork as a source of support in their work environment. Many participants placed emphasis on teamwork being demonstrated in staff members' professional relationships with one another. They described teamwork as one of the facilitating aspects of their work environment that they considered essential to improving their work experiences, as well as supporting them in providing quality patient care. Professional relationships linked to teamwork included ward manager support and support from other members of staff. They also highlighted specific inhibiting factors in teamwork, such as the absence of collaborative doctor-nurse relationships and negative attitudes of some nursing staff. These factors are elaborated in the subthemes: managerial support, collegial support, and staff engagement.

Subtheme: Managerial support

Many of the participants made positive comments about their ward managers. They described the supportive role of their ward managers as facilitating nursing practice. In describing their ward managers, participants used positive words such as “approachable”, “accessible”, “pleasant”, “good”, and “very good”. Typical responses

were: “...Ward manager is very good and approachable...” [P2015(OT/SR:18y6m)], “...an experienced ward manager. She is very accessible and pleasant” [P1074(RP/SN:27yr)], and “...So far it’s getting better here due to good management of our new manager” [P1015(OT/SN:14y)].

Many participants emphasised the supportive role of their ward managers in the smooth running of the ward. They noted that having the support of their ward manager resulted in better teamwork. This can be gathered from a participant’s comment:

“My ward is a 10-bed ward, very acute, and we take patients who are either step down from ITU or likely to be admitted into ITU. All nurses are HDU trained and we have excellent team, and a very supportive manager!!!” [P1106(RP/SN:31y6m)].

Participants’ descriptions of their excellent or committed team, as one which is enhanced by their ward managers, can be gathered from their comments such as: “...Good staff who all practice to their best. An excellent team and ward manager Xxx very supportive” [P1012(OT/SR:40y)], “...Well supporting ward manager” [P1045(RP/SR:4y3m)], “... We have a committed team run by 2 supportive managers...” [P1104(OT/SN:22y4m)]; and “N Ward is a fantastic place to work due to management of the ward...” [P2067(CD/SN:11m)].

Participants stated that due to the supportive role of their ward manager, their confidence improved. For example, one participant emphasised the understanding nature of the ward manager:

“I have got a wonderful ward manager who has helped me to improve in myself and my confidence because of her understanding nature” [P2057(GM/SN:3m)].

Participants described the supportive role of the ward manager as contributing to enhanced teamwork and better work environment. They indicated that at times when there was tension between staff, and the ward got busy and stressful, the supportive role of the ward manager helped to alleviate the unfavourable work situation, thereby enhancing patient care. Some of the participants elaborated on the situation by commenting:

“A busy ward where it can sometimes be stressful to work. Well supporting ward manager. Very experienced RNs. Good team to work in” [P1045(RP/SR:4y3m)].

“Although at times, there is tension between staff. We work well as a team and provide excellent care to patients. Ward manager supports the ward” [P2042(HM/SN:1y9m)].

Out of the 14 participants that commented about their ward managers, the majority (i.e. 12) were complimentary; however, two participants emphasised the lack of interpersonal relationship and the managers' inability to give encouragement or constructive feedback, leading to staff members feeling unappreciated and undervalued. The participants also revealed that those ward managers were instrumental to their resignation from the ward:

“...The manager never gives positive feedback or encouragement so left feeling unappreciated & devalued” [P2111(GS/SR:11y11m)].

The above comment was echoed by another participant who revealed that the attitude of the ward manager led to his resignation. As the participant stated, the ward manager's attitude destroyed the potential for the ward to shine. However, this participant stated that staff nurses were supportive towards each other:

“Staff nurses support each other very well but the ward manager...and her attitude towards staff is combative and usually aggressive. This has destroyed any potential for the ward to shine. Hence I have recently left...” [P2135(MW/SN:1y)].

Participants moved from talking about the ward-level managers (i.e. the ward managers) to the Trust-level managers who are outside the wards, as they have different perceptions about the two levels of management. One participant identified the lack of support as stemming from the Trust rather than the actions of the ward manager and colleagues:

“I enjoy working with my colleagues and our Ward manager as we work as a team. However, I feel we do not get the right support and back up from the Trust” [P1091(RP/SN:3y10m)].

The lack of appreciation or acknowledgement for their team efforts from management made them feel undervalued as can be gathered from comments such as: *“The ward team works well together, but this is not always acknowledged by senior mgt. A thank you from management can go a long way”* [P1019(CD/CN:18y)]; or *“Our involvement as nurse is not appreciate enough...”* [P1064(GY/SN:4y3m)].

The presence of blame culture in the hospital was revealed as a factor that could inhibit participants from putting their best performance to team efforts. This was gathered from participants' descriptions of the hospital situations when they commented:

“...As a Trust I feel there have been many improvements but feel there is a culture of blame...” [P2125(GM/SN:6y)].

“A hospital with blame culture, not good...” [P2072(EM/SR:18y)].

In addition to management, the success of working as a team lay in the degree of support received from the nurses' immediate colleagues.

Subtheme: Collegial support

Many of the participants indicated that the level of support received from other members of staff through teamwork increased their sense of belonging and strengthened their relationship with colleagues. They expressed their satisfaction with collegial support and ensuing teamwork, with short comments such as: *“...Very good team to work with”* [P1068(GM/SN:6y)], *“We have a good teamwork. I'm proud of it”* [P1027(EM/SR:21y3m)], *“Works well as a team”* [P2014(OT/SN:3m)], *“My ward has a lot of team work...”* [P2119(GS/SN2y)]; and *“Teamwork ✓”* [P2133(GY/SN:38y2m)].

Participants also indicated that the positive attitude of the staff towards patient care was enhanced by good teamwork. For example, a participant commented:

“The ward is a nice department or unit to work where all the staffs are competent, friendly, enthusiastic with a positive attitude towards patients care and with colleagues. Team work is always present among colleagues” [P2094(GS/SN:17y1m)].

The ethos of collegial support was echoed by other participants from their comments such as: “...my colleagues are really friendly, supportive...” [P2103(ST/SN:7y6m)], “...fellow colleagues working so well as a team and their support” [P2067(CD/SN:11m)], “Staff nurses support each other very well...” [P2135(MW/SN:1y)]; and “Very supportive and staff work well together in a team” [P2123(GM/SN:1y)].

However, one participant provided a contrasting view from those who were in praise of collegial support. This participant indicated that retention problems and increased workload, which led to an unproductive ward, were direct consequences of being “...Unsupported by other staff which increases work load and leads to unproductive ward...” [P1071(RP/SN:3y9m)].

In the same vein, some participants applauded the supportive role of their colleagues and ward managers, but nevertheless highlighted the rude behaviour of some of the staff as an inhibiting factor to effective patient care. For example, a newly qualified staff nurse stated thus:

“... The support I have had as a newly qualified nurse has been more than I could have anticipated, received from staff nurses, clinical sisters and the ward manager alike. I feel the ward is so well organised, I am supported and I am able to discuss any issues with the people I care for and receive support in the decision making processes. I also feel that the clinical support workers are amazing and have received a lot of support from them also. The only negative comment I have to make is that I find some specialist nurses who work at times on the ward can be rude and treat nurses on the ward as if they have less value in contributing to that particular area of care” [P2107(GS/SN:4m)].

The importance of inter-professional relationships in the provision of high quality care was also emphasised by the participants. They indicated that although they had excellent teamwork and good collegial relationships that were enhanced by managerial support, a collaborative nurse-doctor relationship was missing. For example, a participant linked inadequate staffing to the breakdown of nurse-doctor relationships, leading to loss of important information, which impacts on patient care:

“...Some of the targets that need to be achieved can be unattainable. Due to less nurses on the ward, the relationships between Drs & SN can be affected and important information can often be omitted” [P2113(GS/SR:7y11m)].

Another participant also supported the view that good inter-professional relationships were important in facilitating high quality care:

“The CSWs working particularly hard on this ward they are an asset...Doctor-nurse relationship very poor but other MDT members work really well together as a team and have a shared approach to patient care...” [P2015(OT/SR:18y6m)].

In describing their work experiences, participants revealed that despite the challenges they all faced on their wards, there was cohesiveness present among the nurses, which was demonstrated through hard work as a team to provide quality care. For example, a participant stated: *“There are challenges on each ward and within each working team however I believe our ward ‘team’ works hard to provide both staff and patient quality of care”* [P2055(GM/SN:2y9m)]; while another commented: *“Although at times, there is tension between staff. We work well as a team and provide excellent care to patients...”* [P2042(HM/SN:1y9m)].

Although, participants highlighted the presence of cohesiveness among the nurses, demonstrated through hard work as a team, they also drew attention to how frustrating it was to work alongside colleagues who were evidently not interested in their jobs, or committed to the team.

Subtheme: Staff engagement

Participants expressed frustration over some nurses' poor motivation and lack of interest on the job. According to the participants, being absorbed in, and being enthusiastic about their job would contribute to patient care, team cohesion, as well as improving their relationship with other members of staff. Some participants expressed disillusionment when they observed others displaying lack of interest in the job, often at the expense of good quality care to patients. For example, a participant stated:

“...Most of the staff in the ward work really hard. Some staff are just frustrating to work with. Other staff feels/thinks they know everything and does not want to be told what to do, but they don't do things the way it should be done. Other staff goes to work because they have to, no interest or enthusiasm...” [P2072(EM/SR:18y)].

In contrast to the above comments, many of the participants acknowledged their wards as good working environments where they were either happy or enjoyed working. Some participants expressed their love for their wards and their work:

“I love the ward I work upon and love the work that we do. I feel very privileged to have been chosen for the role I am in as this was where I wanted to work from the 2nd placement I did as a student...” [P2107(GS/SN:4m)].

Other participants were simply happy to be working on their wards, commenting: *“I am happy to work here as a nurse ...”* [P2103(ST/SN:7y6m)]; *“As a newly qualified nurse I am so far happy on my ward”* [P1094(OT/SN:4m)]; or *“I enjoyed working in my workplace since I started here”* [P1102(EM/SN:11yr1m)].

In addition, some participants enjoyed their jobs and would be happy to have their family members admitted on their wards: *“As a nurse, I enjoy and am proud of the level & quality of care my ward gives, that I would be happy for any family member to be admitted to my ward. ...”* [P2125(GM/SN:6y)].

Some participants also commented that even though working on their wards could sometimes be stressful, they still enjoyed coming to work due to the workplace culture: *“...I enjoy coming to work sometimes it is a bit stressful but we also have our good days”* [P2119(GS/SN:2y)]; and *“Stressful but fun and engaging + challenging...”* [P1035(GS/SR:14y)]. These comments indicated that the participants were engaged with their jobs.

Finally, some of the participants expressed how much they enjoyed working on their wards through the following descriptions: *“Really nice ward, team. Unsure about rest of hospital – from patients’ opinions, this ward is much better than others”* [2040(HM/SN:10m)]; *“Lovely place to work!”* [P2128(GM/SN:1y)]; and: *“The ward is a nice department or unit to work...”* [P2094(GS/SN:17y1m)].

In addition to inadequate staffing and teamwork, the workplace environment itself, in the form of pressure to create beds, health and safety issues, and professional development, were identified as having impact on their work, and quality of care given to patients.

Theme 3: Workplace environment

Participants expressed worries over their workplace environment in terms of the physical work space, and the need for further training and development. They were concerned that the absence of specific features such as adequate ventilation in their work environment, could impact on health and safety of both the staff and the patients. They were also concerned over the priority the management placed over bed management. These issues are elaborated below.

Subtheme: “Clients need nurses not beds...”

“Clients need nurses not beds...” is a direct participant comment and captures participants’ understanding that the quality of care given by nurses is not about the physical resources. Rather, it involves how well trained or skilled the nurse is and the availability of the nurse. According to participants, the focus of the Trust was on bed management - not on ensuring that patients were given the best care. In addition to inadequate staffing levels, increasing workload, and financial constraints, nurses were constantly being put under pressure by the management to create admission beds. According to the participants, bed managers continued to mount pressure on the nurses to create empty beds when it was inappropriate to discharge current patients, a situation the participants believed, was detrimental to patient care. Nurses reported that they do not feel “listened to” by bed managers:

“It is an interesting ward, however feel we are not listened to by bed management who ‘bed’ our query home, even though they may not go home. When we have no beds we do actually mean we have no beds!” [P2025(GY/SN:6m)].

Other participants elaborated on how bed management and bed pressure were taking priority over patient care, commenting: *“Trust seems to care about the day to day bed capacity on the wards and not how challenging it is to give good quality care along with other pressures that ward staff encounter” [P2047(RP/SR:11y)]; and “Recent financial constraints are causing problems and bed pressure are reducing patient care” [P2077(ST/SN:10y)].*

This issue of improper bed management resulted in compromised patient care when, consequently, patients were admitted into inappropriate wards, as gathered from participants' comments:

"Despite being a Gynae Surgical Specialist ward patient care can be compromised when we end up with ill medical patients who are placed here because there are no other beds available in the hospital. Patients should be put toward specialising in that particular medical problem not just put anywhere there is a 'spare bed'" [P1055(GY/SN:2y3m)].

"Our ward is extremely busy and high dependency, we are under constant pressure, day and night, to create empty beds, by transferring patients to other unsuitable wards, when not suitable for patients..." [P1101(GS/SN:31y)].

Finally, a participant was of the view that there was "...*Too much time spent on 'Bed Management'...*" [P1110(GS/SN:37y)], rather than patient care.

Furthermore, participants identified that apart from the pressure they were facing to create beds, the physical environment of their wards was creating health hazards and potentially compromising the quality of care nurses could provide to patients.

Subtheme: Health and safety issues

Participants highlighted that the physical condition and appearance of their wards could constitute health and safety issues. For instance, lack of ventilation in the ward was an issue. This was gathered from participants' comments such as: *"Too hot – airless – troubled by outside noise – car/ambulance fumes..."* [P2026(GY/SN:37y10m)]; and *"Hot – cramped – airless – windowless..."* [P2133(GY/SN:38y2m)].

Other participants expressed frustration with the ward, as was stated by a participant: *"Lots of walking to find staff with keys due to several side rooms spreading the ward over a large area"* [P2036(HM/SN:5y)]. This is in addition to participants feeling that the *"Ward environment is quite disorganised"* [P1080(ST/SN:16y6m)].

In addition to the issue of ward layout, participants also expressed their dissatisfaction with the lack of repair and maintenance of hospital equipment and furniture through short comments such as: *"...Repairing of bed side lights are almost impossible"*

[P1059(GY/SN:8y6m)]; and: *“...The ward itself is old and needs decorating...”* [P2015(OT/SR:18y6m)]. Nevertheless, despite the stated shortcomings of the ward environment, one participant was of the view that she worked in a *“Good ward and environment, also well organised”* [P2003(EM/SR:20y)].

Finally, participants identified that apart from the physical environment, their work was influenced by workplace practices consisting of policies, which guide the provision of continuous professional development courses for nurses.

Subtheme: Professional development

Participants emphasised the importance of workplace practices such as professional development for the performance of particular tasks, which impact on patient care. They registered their dissatisfaction over the Trust’s inability to meet their educational and training needs. Accessibility of these courses would have enhanced the fulfilment and performance of their roles. For example, a participant expressed the need for further training to help nurses to better understand patients’ behaviour:

“We may need a Psychologist/Counsellor at least once or twice a month to explain to staff nurses the different behaviour of different people. Just to broaden their awareness in other to stimulate subconscious minds...” [P1015(OT/SN:14y)].

Some participants simply highlighted the need for more development with such comments as: *“...The staff nurses need a lot of development...”* [P2015(OT/SR:18y6m)].

Whilst one participant expressed dissatisfaction over the lack of encouragement and time for the completion of a six-day course: *“...I recently updated my skills in stoma care completing a course that lasted 6 days in total. This had to be done in my own time...”* [P2111(GS/SR:11y11m)]; in contrast, a participant who was newly employed in the hospital nevertheless expressed satisfaction over the planned development and study days: *“I am new at this trust. I am very happy about the development I am getting and all the study days planned for me”* [P1003(GM/SN:8y8m)].

Finally, a participant expressed dissatisfaction over doing the job not matched with her level of education, skills, and expertise. She felt tied to a job not suited for her:

“Not long been made redundant...No choice about which job to take, now sister, not a role I wanted. Not overly challenging but to stay a hands on nurse, can’t get banding over 7” [P2116(OT/SR:23y)].

Participants in this study provided an insight into factors which affected the quality of their work environment, and how these factors influenced their ability to provide quality care.

7.5 Discussion

In response to the invitation to make comments about their work experiences, many nurses offered additional insight into aspects of their work environment which gave them concerns, while a few commended particular aspects of their work environment. Inductive content analysis was used to identify three key themes with eight sub-themes. The main themes were: “nurses need nurses to nurse”, working as a team, and workplace environment. A key finding was that despite the staffing problems that nurses faced and the resultant high workload and stress they were experiencing, nearly all the participants who commented about their ward managers, made positive comments. Overall, participants described the attitude of their ward managers towards staff as being supportive; this implies that leadership is very important, and the ward manager makes a huge difference to the workplace setting. Whilst a vast majority of the participants expressed satisfaction with the level of teamwork present on their wards, some expressed frustration at a lack of collegial support as well as the absence of collaborative doctor-nurse relationships. Other worries expressed by participants included lack of appreciation from the management, and the presence of blame culture in their hospital. This was in addition to issues such as their lack of control over increasing paperwork, priority of bed management over patient safety and lack of opportunities and time for professional development.

Relevance of findings to other literature

Findings from this study indicate that many nurses working in the two sample hospitals faced huge challenges in their work environment with extensive emphasis placed on

staffing shortage. Evidence from past qualitative studies (Choi *et al.*, 2011; Bogossian *et al.*, 2014) upheld the impact of staffing issues on the overall quality of nurses' work environment. Specifically, Choi *et al.* (2011) described inadequate staffing and absenteeism as having formed a vicious cycle – i.e. nurses unable to cope with work pressure are absent from work, which in turn increases the workload of the remaining staff, who gradually develop an inclination to leave their current posts, leading to increasing voluntary turnover. Stuebkel *et al.* (2007) also revealed that nursing shortage directly affects both staffing and workload issues, which results in dissatisfaction with the work environment leading to increased turnover rates. Also in a qualitative study by Kieft *et al.* (2014), participants indicated that management was tied to a system that was dominated by controlling costs.

Participants identified professional relationships as a factor that significantly affected their professional practice and team work. The support of the ward manager, his/her behaviour and attitude towards members of staff were said to have a huge impact on the work climate, job satisfaction, and intention to leave or stay. Similarly, a study of nurses in acute hospitals in London found that the quality of relationships between staff and the ward manager was key to their decision to stay in their jobs (Barron, West and Reeves, 2007). The ward manager occupies a pivotal role in the effective operation of the ward because of his/her good knowledge of the ward. They are also placed in a position of advantage to enhance nurse's performance because they have direct contact with the nursing staff. Numerous large studies (e.g. Kramer *et al.*, 2007a; Schmalenberg and Kramer, 2009b; Squires *et al.*, 2010; Cummings *et al.*, 2010; Ritter, 2011) in the literature have demonstrated a robust link between leadership behaviour in the work environment and nursing workforce. Participants in the current study identified non-supportive collegial relationships as inhibiting optimal delivery of care and creating frustration among team members. This issue was also identified by the participants in the study by Manion (2003), who cited non-supportive, and unpleasant attitudes of staff as barriers to their experiencing joy in their workplace.

Working as a team was identified as a feature that contributed to a supportive work environment by the participants in this current study. Other studies (Miller, 2006; Lindberg and Vingard, 2012) identified teamwork as a characteristic of a healthy and supportive work environment. Trybou *et al.* (2015) revealed that the relationship

between nursing staff and their colleagues had a positive impact on nursing staff satisfaction and affective organisational commitment. According to Xyrichis and Ream (2007) teamwork is accomplished through interdependent collaboration, open communication and shared decision-making, and generates value-added patient, organisational and staff outcomes. According to the participants in this study, there was high level of blame culture in the hospital. Similarly, a qualitative study by Choi *et al.* (2011), revealed that the presence of a fault-finding and blame culture threatened nurses' sense of security at work.

Furthermore, some participants perceived that their wards were not appealing to the senses in terms of beauty and physical comfort. The need for redecoration of the wards and the repairs and maintenance of some of the equipment were highlighted. In line with a previous qualitative study, Wikstrom *et al.* (2012) revealed that the aesthetic environmental enrichment of the ward, including colour, textile and photos, was perceived as positive by health professionals. Participants in their study revealed that environmental enrichment promoted a perceived positive atmosphere and an enrichment of their work circumstances.

Participants in this study identified that the breakdown of nurse-doctor relationship contributed to loss of important information, which had a huge impact on patient care. The importance of effective communication and maintaining collaborative working relationships among healthcare professionals has been elucidated previously in other qualitative studies (Kalisch *et al.*, 2009; Kieft *et al.*, 2014). Participants stated that nurses' involvement in patient care was not adequate and that their contributions to patient care were not acknowledged by doctors, leaving them feeling undervalued and unappreciated. One might argue that nurses in this study felt subordinated by the doctors and that they were not so involved in autonomous nursing practice. In line with this argument, Schmalenberg and Kramer (2009c) revealed that patient safety and high quality patient care outcomes demand that clinical nurses engage in the practice of clinical autonomy and that physicians (i.e. doctors), nurses and other professionals practice collegially and collaboratively.

Furthermore, participants highlighted the management team's lack of recognition or appreciation of the nurses' contributions to patient care, making them to feel

undervalued. Wilkes *et al.* (2015) found that to enjoy work, nurses need to be recognised for what they do but this is not always the case. According to Manion (2003) recognition includes compliments, appreciation expressed, awards, being singled out for a certain experience or for more responsibility, or being accorded the respect of others in the workplace. Saks (2006) stressed that when employees perceive a greater amount of rewards and recognition for their role performances, they will be more likely to engage themselves at work. When employees believe that their organisation is concerned about them and cares about their well-being, they are likely to respond by attempting to fulfil their obligations to the organisation by becoming more engaged because of the continuation of favourable reciprocal exchanges (Saks, 2006).

Some participants in the current study were clearly satisfied with and enthusiastic about their jobs, while others expressed frustration over other nurses' lack of engagement with the job. Schaufeli and Bakker (2004:295) defines engagement as "*a positive, fulfilling, affective motivational state of work-related well-being that is...characterized by vigour, dedication, and absorption*". Employee engagement is a desirable condition, has an organizational purpose (Macey and Schneider, 2008) because engaged employees work hard, are involved, and feel happily engrossed in their work (Bakker *et al.*, 2008). Thus, engagement provides a more complex and thorough perspective on an individual's relationship with work (Maslach *et al.*, 2001). Engaged staff are more likely to show empathy and compassion despite the pressure they work under (The King's Fund, 2015). Individuals who are more engaged are more loyal, more likely to contribute more, be in more trusting and high-quality relationships with their employer and will be more likely to report more positive attitudes and intentions towards the organization (Saks, 2006; Macey and Schneider 2008), and they will be less likely to leave their jobs (Macey and Schneider, 2008).

Participants from this study understood the importance of patient-centred care and desired to provide same but were unable to. They were being constrained by issues related to work-related pressures, inadequate nursing staff, increasing workload, bed management, increasing amount of paper work. They were concerned that those factors were compromising patient safety, as they did not have enough time to deliver good quality care. Similar to the findings of this research, Bogossian *et al.* (2014) revealed that nurses in their study felt that the healthcare system was to blame for the

lack of time available to care for patients, and the situation was made worse by the press for constant criticism of nurses for poor care. Similarly, participants from other studies (El-Jardali *et al.*, 2011; Kieft *et al.*, 2014) reported an increasing amount of administrative workload which was taking over patient care. Kieft *et al.* (2014) reported that this increasing amount of administrative workload was out of balance and participants stated that they had little autonomy to change this policy. Another qualitative study (Esmielli *et al.*, 2014) revealed that the barriers of patient-centred care being faced by the participants in their study were lack of common understanding of teamwork, personal barriers (such as motivation) and organisational barriers (lack of managerial support and shortage of nursing personnel). Murphy (2011) pointed out that health care systems should revolve around the needs of patients in order to improve patient satisfaction. Findings from previous research advocate the importance of patient-centred care. For example, in a quantitative study, Charalambous *et al.* (2010) revealed that nurses' perceptions about the support of individuality correlated significantly with work motivation, control over practice, leadership and autonomy, relationships with physicians, and cultural sensitivity. Berwick (2009) asserted that patient-centredness is a dimension of health care quality in its own right, not just because of its connection with other desired aims, like safety and effectiveness. Baron (2009) argued that excellence in patient-centred health care continues to evade many areas of the NHS because many of these initiatives still appear to fail to reach or include frontline staff, but maintained that it is imperative to take into account both patients' and healthcare providers' views if the NHS is to fulfil its vision of personalised, patient-centred health care.

Participants in the current study expressed concerns over the lack of provision for their continuous professional developments and the difficulties experienced in getting access to further training. In an integrative review, Coventry *et al.* (2015) found that nurses were reluctant or prevented from leaving clinical settings to attend continuous professional developments due to lack of relief cover, obtaining paid or unpaid study leave, and the use of personal time to undertake mandatory training. Another qualitative study (Sellgren *et al.*, 2009) reported that participants in their study perceived that opportunities for continued education and professional growth were motivators and a lack of these opportunities were associated with intention to leave.

7.6 Summary, original contributions, and conclusion

In response to the invitation to make comments about their work experiences, many nurses offered additional insight into aspects of their work environment which gave them concerns. Inductive content analysis was used to identify three key themes with eight sub-themes. The main themes were: “nurses need nurses to nurse”, working as a team, and workplace environment. A key finding was that despite the staffing problems that nurses faced and the resultant high workload and stress they were experiencing, nearly all the participants who commented about their ward managers, made positive comments. Overall, participants described the attitude of their ward managers towards staff as being supportive; this implies that leadership is very important, and the ward manager makes a huge difference to the workplace setting.

Chapter 8 will present findings from the short structured one-to-one interviews which were conducted to explore how nurses who were working on the wards where the EOMII questionnaire was implemented, conceptualised autonomy in their work environment. Chapter 9 will present the discussion, clinical implications, strengths, and limitations of this research. It will also present the implications for further study, recommendations, and conclusion.

CHAPTER 8

FINDINGS: INTERVIEWS

Introduction

Autonomy is a complex concept often used in the health professions but there is no general agreement as to what it means in nursing, as suggested by the results in the systematic review in Chapter 3, and in the survey findings presented in Chapter 6, where the results showed that the sample of nurses in England and US nurses were quite divergent. The main motivation for this study is to understand the differences between US/England/UK on the concept of autonomy. This chapter reports the findings of a qualitative study which aimed to further explore the understanding and experiences of autonomy of nurses working in England. To further unravel and distinguish how they understand or perceive the concept of autonomy a qualitative study using short structured, one-to-one interviews was undertaken.

8.1 Aims

The overarching goal is to understand why there was a difference in the survey. In the previous chapters, the first two research questions below were addressed:

- Research Question 1: What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?
- Research Question 2: What are the associations, if any, between the factors used in measuring the nursing work environment and nurse-assessed care quality in data gathered from a sample of hospital nurses in England?

The specific research questions addressed in this chapter are:

- *Research Question 3*: How do registered nurses in England understand the concept of autonomy in practice?

- *Research Question 4:* What are the experiences of nurses in England of autonomy in practice?

Principal Component Analysis described in the previous chapter suggested that nurses working in the two hospitals in England responded differently to nurses working in the US where the EOMII has predominantly been used. This qualitative study reported below was designed to explore how nurses in England define autonomy and how they put the concept into practice. The motivation for this chapter is to try and explicate the results in Chapter 6 through the use of short structured, one-to-one, qualitative interviews.

Prior to the discussion of the findings in this study, it would be beneficial to first examine some key definitions of autonomy from the literature, because the findings from Chapters 3 and 6 suggest that nurses' experience and/or conceptualisation of nursing autonomy may vary from country to country, depending on the organisation and management of nursing work.

8.2 Definitions of autonomy

The concept of autonomy has been an important topic of study in the nursing profession for many decades. In a literature review on professional autonomy, Varjus *et al.* (2011) revealed that due to the wide variety of definitions of the concept of autonomy in those research studies reviewed, utilisation of findings from such studies has been difficult. This section examines a few definitions of autonomy selected from a literature search. Beauchamp and Childress (2009:99) identified that the word autonomy, derived from the Greek *autos* ("self") and *nomos* ("rule", "governance", or "law"), originally referred to the self-rule or self-governance of independent city-states. They emphasised that virtually all theories of autonomy view two conditions as essential for autonomy: liberty (independence from controlling influences) and agency (capacity for intentional action). However, disagreement exists over the meaning of these two conditions and whether additional conditions are required (Beauchamp and Childress, 2009:100).

Kramer *et al.* (2006:481-2) delineated three dimensions of autonomy in clinical practice settings. The first is *clinical or practice autonomy* which refers to independent,

interdependent, and accountable decision making by nurses for the primary and immediate benefit of the patient. The second dimension is *control over nursing practice autonomy*, which relates to the regulation and the development of policies for nursing by nurses. The third is *job or work autonomy*, which describes unit-level-group decision making for the purpose of organising the work day and setting priorities among tasks. Gagnon *et al.* (2010) also stated that individual, clinical, organisational, and professional autonomies have been identified in the literature and in some cases, have been used interchangeably. They cautioned that these terms are not synonymous, even though they share similar features such as responsibility and accountable decision making. Some of the definitions presented by different researchers to conceptualise autonomy are shown in table 8.1 below. As can be seen in Table 8.1, these definitions vary in their levels of precision.

Table 8.1: Definitions of autonomy

Concept	Authors	Definitions
professional autonomy	Bularzik <i>et al.</i> (2013:584)	<i>"...a professional's ability to 1) utilise their knowledge, competence and abilities independently without oversight of another; 2) identify patient needs and concerns; and 3) decide on and implement nursing actions resulting in patient advocacy and positive patient outcomes..."</i>
professional nurse autonomy	Wade (1999:310)	<i>"...belief in the centrality of the client when making responsible discretionary decisions, both independently and interdependently that reflect advocacy for the client"</i>
professional autonomy	McKay (1983:21)	<i>"...socially granted and legally defined freedom to make practice decisions without technical evaluation from sources outside the profession"</i>
professional autonomy	Skar (2009:2226)	<i>"Professional autonomy means having the authority to make decisions and the freedom to act in accordance with one's professional knowledge base".</i>
<i>control over nursing practice autonomy</i>	Kramer <i>et al.</i> (2006:481-2)	<i>"...the regulation and the development of policies for nursing by nurses"</i>
organizational autonomy, <i>control over nursing practice, autonomy over unit operations, or control over the context of practice</i>	Weston (2008:405)	<i>"...decision making that guides the work of the unit, department, or organization"</i>
<i>clinical or practice autonomy</i>	Kramer <i>et al.</i> (2006:481-2)	<i>"...refers to independent, interdependent, and accountable decision making by nurses for the</i>

		primary and immediate benefit of the patient”.
clinical autonomy, <i>autonomy over patient care decisions, or control over the content of practice</i>	Weston (2008:405)	“... <i>decisions made by nurses about individual patient care and consequently involve decisions made within the existing professional, regulatory, organizational, and departmental rules...</i> ”
Autonomy	Lewis and Batey (1982:15)	“... <i>freedom to make discretionary and binding decisions consistent with one’s scope of practice and freedom to act on those decisions. Freedom denotes the rightful power to act; freedom derives from positional authority, (that is, organizational expectations for the position) and from authority of expert knowledge held by professionals who occupy the position</i> ”
Autonomy	Kramer and Schmalenberg (1993:59)	“... <i>the freedom to act on what you know, so as you are not competent, you cannot function autonomously</i> ”
Autonomy	Karagozoglu (2008:70)	“... <i>ability to choose between opposite desires and inclinations</i> ”
Autonomy	Ballou (1998:105)	“... <i>the capacity of an agent to determine its own actions through independent choice within a system of principles and laws to which the agent is dedicated</i> ”
<i>job or work autonomy</i>	Kramer <i>et al.</i> (2006:481-2)	“...which describes unit-level-group decision making for the purpose of organizing the work day and setting priorities among tasks”

Discussion of the definitions of autonomy

This brief review of some of the definitions of autonomy in nursing in the literature indicates that autonomy may be multi-dimensional.

Professional autonomy

Four authors defined the concept of professional autonomy (McKay, 1983; Wade, 1999:310; Skar, 2009:2226; Bularzik *et al.*, 2013:584). In three of the definitions (McKay, 1983:21; Wade, 1999:310; Bularzik *et al.*, 2013:584), the attribute of independence was indicated as the ability to make decisions or to act without external influence. Wade (1999), however, also included the attribute of interdependence to indicate that in defining autonomy, decisions can be made independently as well as

interdependently, in terms of collegial interdependence. Rather than the term “independently” or “interdependently”, Skar (2009:2226) used “having the authority to make decisions”, which is equivalent to having the power or right to make decisions. Another attribute mentioned in two of these definitions was the ability of the decision-maker to make decisions based on knowledge (Skar, 2009:2226; Bularzik *et al.*, 2013:584). Skar (2009) simply indicated the type of knowledge as professional knowledge. In addition to knowledge, Bularzik *et al.* (2013) indicated competence, but did not indicate the type of knowledge and/or competence. Only two of the definitions (Wade, 1999:310; Bularzik *et al.*, 2013:584) addressed patient advocacy. Wade (1999:311) pointed out that any definition of autonomy which does not address advocacy or the centrality of the patient or client could be applied to any profession. Overall, the four definitions of professional autonomy are inconsistent.

Control over nursing practice autonomy

Weston (2008) identified other phrases used in referring to control over nursing practice autonomy as *organisational autonomy, autonomy over unit operations, and control over the context of practice*. Two authors (Kramer *et al.*, 2006:481-2; Weston, 2008:405) defined control over nursing practice autonomy; although Kramer *et al.* (2006:481-2) referred to the concept of *control over nursing practice autonomy* as *organizational autonomy*. While Kramer *et al.* (2006) referred to the concept as “*the regulation and the development of policies for nursing by nurses*”, Weston (2008) defined it as “*...decision making that guides the work of the unit, department, or organisation*”. The keywords in these two definitions are “decisions that guide the work” (Weston, 2008) and “regulation...and policies” (Kramer *et al.*, 2006), both of which equate to guideline, which aims to provide guidance to a profession, or guide professional practice. These two definitions are fundamentally synonymous, as they both imply the standards that guide or regulate a profession or the work of a unit, department, or an organisation.

Clinical autonomy

Two authors provided definitions of the concept of clinical autonomy (Kramer *et al.*, 2006:481-2; Weston, 2008:405) (see Table 6.1). While Kramer *et al.* (2006) referred to the concept as “clinical or practice autonomy”, Weston (2008) used the phrases “clinical autonomy, *autonomy over patient care decisions, or control over the content of practice*”. In both definitions, the feature of decision was indicated as a resolution

reached after deliberating on several possibilities. Kramer *et al.* (2006), however, also added accountability, which is taking responsibility for one's decisions or actions, to qualify the type of decisions made in clinical autonomy. Rather than the term "code of conduct", Weston (2008) used the phrase "...*within the existing professional, regulatory, organizational, and departmental rules...*" This phrase denotes policies, principles, and guidelines, which are organisational and departmental rules. It is implied that the decisions made within those rules can be independent or interdependent, as indicated in the definition by Kramer *et al.* (2006). Finally, both definitions were about decisions made for "the primary and immediate benefit of the patient" or "about individual patient care". Overall, the two definitions of clinical autonomy are consistent.

Autonomy

Four authors gave general definitions of autonomy without specifying the type of autonomy, i.e. whether it is clinical or professional autonomy (Lewis and Batey, 1982:15; Kramer and Schmalenberg, 1993:59; Karagozoglu, 2008:70; Ballou, 1998:105). Lewis and Batey (1982), Kramer and Schmalenberg (1993), and Ballou (1998) used the term "freedom" or "independent" to indicate the power or the right to make decisions, or to act. Rather than the term freedom, in addition to the term "independent", Ballou (1998) also use the term "capacity" to indicate the power or the possession of the means to make decisions. The term "capacity" also denotes "ability", a term used by Karagozoglu (2008) to indicate the power to make a choice. While Lewis and Batey (1982) and Ballou (1998) indicate that such decisions are "consistent with one's scope of practice" or "are made within a *system of principles and laws to which the agent is dedicated*", Kramer and Schmalenberg (1993) implied that the attribute of competence was required to function autonomously. Overall, there are overlaps in these four definitions of autonomy, with each stressing different aspects of autonomy. However, reviewing these statements overall, they seem to converge on "freedom to act" (Kramer and Schmalenberg, 1993), "freedom to make...decisions" (Lewis and Batey, 1982), "...ability to choose..." (Karagozoplu, 2008), and "...capacity...to determine" (Ballou, 1998), as being significant components of autonomy.

Job or work autonomy

The literature search produced only one definition of job/work autonomy, which was by Kramer *et al.* (2006). In this definition, reference was made to unit-level/group decisions

for the purpose of organising work day or tasks, but was not linked to a profession or patients.

Kramer *et al.* (2006) and Gagnon *et al.* (2010) argued that the concept of autonomy is poorly defined and understood in the literature and that there is no consensus on a global definition (Verjus *et al.*, 2003; Kramer *et al.*, 2006; Gagnon *et al.*, 2010). According to Kramer *et al.* (2006) professional autonomy most likely engenders the most confusion because the term is used to label autonomy that is both an attribute of a profession as well as that dimension of autonomy occurring in a bureaucratic setting. Kramer *et al.* (2006) identified that in some studies, professional autonomy means control over practice alone; while in others, it is a combination of clinical and organisational autonomy. Kramer *et al.* (2006) further warned that the impact of autonomy on patient outcomes cannot be determined when various concepts of autonomy are labelled the same but differ in meaning and are measured with tools or instruments that do not fit the concept. In furtherance of this discussion, Ballou (1998) argued that construct validity is essential in the development and use of research instruments. Without operational definitions and defining attributes, conceptual measurement is futile (Ballou, 1998). It is therefore important for the nursing profession to have an absolutely clear, shared and consistent understanding of the meaning, together with an understanding of the empirical measurement of autonomy.

This review revealed that there is no one readymade definition of nursing autonomy. Data from the qualitative interviews are analysed for the purpose of investigating registered nurses' understanding and experiences of autonomy.

8.3 Methods

As discussed in the Methods chapter (Chapter 5), 48 registered nurses were interviewed in July 2013 using one-to-one, short structured interviewing technique, in order to understand their perceptions of autonomy and how they experienced same in practice. The interview cohort comprised both nurses who had originally taken part in the survey in addition to new nurses drawn from the same ward context. The interviews were deliberately kept short (6 - 18 minutes) to enable nurses on duty, or on their breaks, to participate without giving up substantial periods of their limited time.

Furthermore, for ease of access, the interviews took place in a quiet room on the ward. Participants gave their informed consent for the interviews, and agreed for the interviews to be digitally audio recorded.

8.4 Data Analysis

This section briefly describes the analytical technique utilised in the analysis of the short structured interview data gathered from nurses who were working on the wards where the EOMII questionnaire was implemented. The data were analysed using thematic framework analysis (Ritchie and Spencer, 1994; Ritchie *et al.*, 2003b). Thematic Framework Analysis was considered appropriate because the short structured interview data covered similar key issues relating to autonomy. Gale *et al.* (2013) emphasised that the framework method cannot accommodate highly heterogeneous data, and is most commonly used for the thematic analysis of short structured interview transcripts. The researcher is more quantitatively orientated, and had no previous experience in qualitative research.

8.5 Results: Six themes

Appendix 35 highlights gender, ethnic origin, ward specialities, years of nursing experience and ages. Twenty-six registered nurses were interviewed from hospital A, and 22 from hospital B. Participants were interviewed on the wards, and they included 13 ward managers, 11 ward sisters, two charge nurses and 22 staff nurses. Forty-five of the respondents were female, around a quarter were aged between 35 and 39 years old and 23 of them worked on the surgical wards, while the remaining worked in the medical wards.

Themes and Sub-themes

The results show that the definition and practise of autonomy is complex and difficult to disentangle. Many of the quotes contain more than one idea and even short quotes could belong under more than one heading. The interviewees sometimes used “I” and gave their own subjective interpretation, while some spoke objectively, referring to the expectations of an “autonomous practitioner”. Six key themes emerged from the

analysis of data, and are shown in table 8.2 and Figure 8.1 below. Each theme is examined in turn and illustrated by quotations.

Table 8.2: Final themes and subthemes

THEME	SUBTHEME
1. Working independently	
2. Teamwork	
3. Professional knowledge	Skills and knowledge
	Clinical judgement
	Informed and evidence-based decisions
4. Experiences of autonomy	On a daily basis
	In exceptional circumstances
5. Boundaries around autonomy	Working within the boundaries
	Working out of boundaries for the benefit of the patient
6. The development of autonomy	

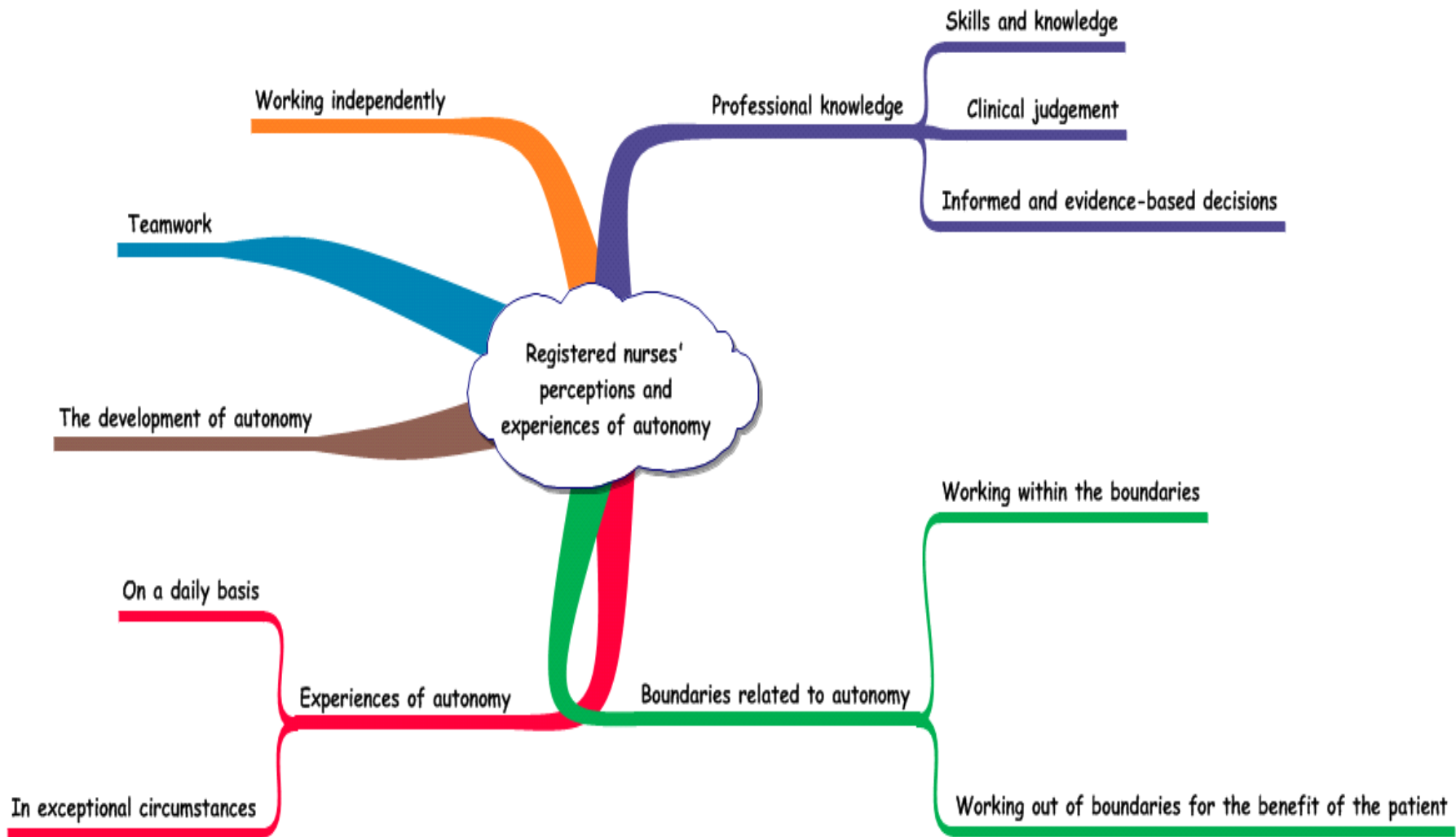


Figure 8.1: Final themes and subthemes

Interviewee codes

Codes were used after each participant's quotes to represent information relating to their designations and years of experience. The following examples are presented in Table 8.3 below:

Table 8.3: Interviewee codes

Code	Interpretation
P1(SN:14y)	Participant 1, Staff Nurse, 14 years of nursing experience
P10(SN:8m)	Participant 10, Staff Nurse, eight months of nursing experience
P3(SR:33y)	Participant 3, Ward Sister, 33 years of nursing experience
P27(CN:15y)	Participant 27, Charge Nurse, 15 years of nursing experience
P39(WM:25y)	Participant 39, Ward Manager, 25 years of nursing experience

Theme 1: Working independently

This theme describes participants' understanding of autonomy as nurses' ability to work on their own without external influence. Participants stated that working on their own, requires their readiness in initiating action, or to act on their own initiative. For instance, typical descriptions of autonomy as provided by participants include comments such as: "...to be able to obviously perform my job autonomously, it's to be able to work ... It's to work on your own..." by P44(SR:18y); "being able to work independently..." by P6(SN:3½y); "autonomy is working on your own ..." by P5(WM:43y). Comments such as stated above were similar to those made by other participants such as P10(SN:8m) who described autonomy by stating "...that you are working on your own"; and P44(SR:18y) who stated that autonomy means "...to be able to obviously perform my job autonomously, it's to be able to work ... It's to work on your own...". Other comments which add to participants' understanding of autonomy to mean the ability to work on their own without external influence were made by participants such as P17(SN:14y) who stated: "It means that well, I can work on my own, I can be independent and work on my own"; "The ability to make your own decisions and work independently, acting on

your own” by P22(SN:5y); and *“It [autonomy] is part of my practice and I am working on my own...”* by P5(WM:43y). Most participants reinforced “working on my own” at some point in the interviews.

Some participants linked autonomous nursing practice to working without supervision, or working under their guidance. The ability to work with freedom from control by other practitioners was emphasised, and this can be gathered from the following comments made by P47(SN:10y) when he/she stated: *“... they’re not given their direction from somebody, so they can work independently, on their own...”* This was similarly echoed by P28(WM:17y) from his/her comments: *“To me it is the ability to be able to work under your own guidance...and prepare your day outside of a team...”*.

These quotes refer to the ability to work independently, rather than as a practitioner dependent on direction from other healthcare practitioners, and this takes confidence. Participants, therefore, described confidence as being connected with autonomous practice. For instance, P15(SR:5y) commented that: *“...they (autonomous practitioners) are responsible and having the confidence to do things on your own without having to constantly seek help and advice from others, or relying on others to do it for you...”*. This was the same view held by another participant who commented that autonomy for him/her means *“...being able to and confident enough to carry out areas of my work that need to be done...”* P39(WM:25y). Another participant added to the description of autonomy by stating that *“...it means we should be very confident about what we are doing...”* P37(SR:22y).

In addition to participants’ beliefs that working on their own requires confidence, they also linked accountability and responsibility to their ability to work on their own. The participants mentioned the corollary to working independently which is that one is then accountable for the actions taken and responsible for the results. It was noted that the issues of accountability and responsibility came up mostly during the interviews with the ward managers, and the ward sisters. For example, a participant was of the opinion that: *“...we should be accountable for what we are doing and things like that ...”* P37(SR:22y), while another believed that autonomy is about: *“...the nurse making decisions for herself and being accountable for the decisions that she’s made and being responsible for the consequences of those actions...”* P35(WM:15y). A ward manager

described autonomy as the responsibility and accountability that are associated with working independently, without being told what to do when he/she stated:

“...I think autonomous practice is working independently and being accountable for your own actions... I think it can be from planning their day, from planning the care that they are giving to the patients, prioritising the care. They’re doing it on their own back if they’re not being told what they need to do first, they are deciding what is needed and they’re taking responsibility for the care that they’re giving...” P40(WM:7y).

Additionally, in associating working on their own to accountability and responsibility, participants also linked it with risk and acceptance of uncertainty. This leads to consideration of the risks that are associated with autonomous action. The participants perceived risk as the likelihood of an event happening with potential beneficial or harmful outcomes for the patients or for themselves, with respect to their jobs. This can be gathered from the responses of participants such as P34(WM:11y) who perceived autonomous action to be linked to the likelihood of risk when he/she stated that autonomous action *“...obviously comes with an element of risk when dealing with patients, but it’s being able to evaluate and weigh all that risk and make all the right choices for your patients...”*; and P1(SN:14y) who commented thus: *“...that’s why sometimes being independent, having independent autonomous, it can create trouble and then you will feel that fear... but at the same time you have to take risk; it’s OK to take risk.”*

An important point that emerged was that participants did not only perceive autonomy as restricted to working on their own but encompassed working within a team, as described in the theme below.

Theme 2: Teamwork

These participants were clear that nurses do not just work independently. Part of their work is independent but they are also part of a team and this was evident in their responses and highlighted in the quotes below. Nurses contribute their own knowledge and skills to the team and one participant indicated that medical decision making is complex and involves “the group of care”. In the previous chapter, one of the main themes that nurses wrote about in the comments section of the questionnaire was

staffing levels, leading to the theme “nurses need nurses to nurse”. One participant reiterates that aspect during the interview and this indicates the detrimental impact on teamwork caused by factors that reduce the size of the nursing establishment, such as sickness or to nurses leaving the job (turnover) as can be gathered from the comments below:

“...I think there has to be teamwork, they have to... because they rely on each other, you can't do your job if part of your team is missing, as in sickness, you feel the dynamics change with the sickness. You have to have the correct establishment, the right staffing. If we have a lot of people leave, it affects the dynamics and the patient care...” P39(WM:25y).

Many of the participants perceived autonomy as working and making decisions within the context of a team, with typical comments such as: *“...that you're working, obviously as part of a team...”* by P10(SN:8m); and *“...I think there has to be teamwork...”* by P39(WM:25y). In addition, other participants made similar comments such as *“...but to also work within a team as well, yeah”* P44(SR:18y); and *“...work in part of a team”* by P16(SR:4y).

A participant also perceived autonomy as: *“...making my own decisions, obviously within the context of everyone I am working with, as being part of the team, but being part of the team also...”* P9(SN:23y). This highlighted participants' emphasis on the importance of collaboration as enabling team members to work more closely together to make decisions. The emphasis placed on team involvement as a key ingredient in autonomy, can be gathered from comments such as: *“...but it has to be into a team as well...It is not the authority but it's the group of care so... at times we have to wait for their decision too...”* made by P3(SR:33y); *“...you always involve the team...”* by P1(SN:14y); and *“...Well there's more team involvement out on the ward, there's more members of the team...”* by P31(SN:8y).

Participants identified that within the team, members may have a range of skills which may be complementary, in the sense that the skills of a team member may support and help another member of the team, and improve their performance as well. They also described teamwork as a support system through contributions of their practice and knowledge to the multidisciplinary team, or through reliance on the team as guidance, as can be gathered from the following comments made by P41(SN:20y) who

acknowledged the power of teamwork when he/she stated: “...*how you will demonstrate your practice and how you contribute your knowledge to the other team, MDT [Multi-Disciplinary Team]...more team work needed*”; as well as P31(SN:8y) who stated that: “...*it's good to have guidance as well from team members and yeah... I must admit sometimes I am not very assertive and I do rely on my colleagues...*”

Again, one participant mentioned the inter-relational nature of nursing work when he/she stated that nurses work within the scope of their proficiency, skills and knowledge framework but seek support from senior colleagues including doctors. This can be gathered from the response of P16(SR:4y) when he/she stated: “...*to be working in one scope of proficiency and knowledge and skill framework, to be able to practice independently but also be able to seek support from seniors, doctors, and so on...*”

In summary, this subtheme was about the description of autonomy in the context of teamwork, wherein nurses work interdependently, utilising and/or sharing their knowledge and skills. In addition to the description of autonomy as teamwork, participants emphasised the skills and knowledge required for autonomy, as described in the theme below.

Theme 3: Professional knowledge

This theme depicts the skills and knowledge nurses require for autonomy, and is comprised of three subthemes, namely skills and knowledge; clinical judgement; and informed and evidence-based decision.

Subtheme: Skills and knowledge

Nurses are aware of the importance of their skills, knowledge, experience and competence in relation to working independently, making complex decisions and managing patient care. This gives them the “support and backing” to be autonomous practitioners. Participants described the use of nursing knowledge and skills as important ingredients in autonomy. These were the views of P14(SR:41y) who mentioned practitioner knowledge and skills as important ingredients in autonomy from his/her comments: “...*in my eyes it is your basic nursing skills and your knowledge...*”. These were similarly the views echoed by P19(WM:8y) who stated: “...*I think what it*

means is with the knowledge I have and the skills I have...”; as well as “...Skills and your knowledge that you have to give to your patients...” made by P41(SN:20y).

Participants further highlighted the ability to be able to work independently with the use of skills and knowledge, and the reliance of existing skills and knowledge in making decisions, as described by P6(SN:3½y) who commented that: *“Being able to work independently using my own skills and knowledge basically...”* and *“...as an autonomous practitioner relying on my own skills and knowledge, I am able to make those basic decisions and some more complex decisions based on my existing knowledge”* by P16(SR:4y).

One of the participants gave an example of how decisions are made in practice based on nursing knowledge. This participant emphasised that nursing knowledge and skills are required in order to make decisions such as choosing the right dressings, and doing drug administration when he/she stated that:

“...their drug rounds are autonomous. They very rarely have to come to me. They have their BNF [British National Formulary] if they need back-up. Dressings they do, that’s autonomous, but obviously they must have the knowledge to be able to choose the right dressings...” P39(WM:25y).

Some participants also described autonomous nursing practice as being linked to nurses having the confidence, using their knowledge and experience to make decisions. Comments such as: *“...Staff having the confidence and experience and knowledge...”* by P7(WM:33y); and those by P43(WM:10y) who stated that: *“...it’s nurses using their own knowledge and experience to manage patient care”* tend to support this finding. The participants believed that autonomy *“...depends as well on your experience, experiences...”* P1(SN:14y), and this was also the same view held by P44(SR:18y) who stated: *“...my experience and my knowledge, my nursing knowledge...”*.

Autonomous nursing practice was also described by some of the participants as being linked to nurses making decisions based on their levels of experience. This was because they were of the view that autonomy is a process that developed over time, through the experience of nursing practice, and this was captured through comments such as: *“...we work autonomously when we are interpreting observations...but if they*

are abnormal then some nurses with more experience might do something differently...”
made by P43(WM:10y).

In a similar vein, another participant perceived autonomous practice as synonymous with a certain level of experience by stating that:

“...once you have got a certain level of experience you can work autonomously within your group of patients, so you probably wouldn’t be changing the structure of what the ward does as a whole, and more junior nurses, you would obviously expect them to use less autonomy than somebody with more experience...”
P47(SN:10y).

This was corroborated by a ward manager when she stated thus:

“...it means that a nurse is making a decision to give the best possible care that she can give in a particular decision, sorry, in a particular situation. So therefore she might have autonomy in one area of her practice but she may not have it in another, she may defer to somebody else, so it is dependent on your experience and again...” P18(WM:18y).

When responding to the question which asked participants to provide examples of autonomy in practice, a ward manager commented that this meant that nurses make decisions on their own in certain situations, and provided an example in practice by stating thus:

“...I suppose it’s when say one of my nurses are working on a patient with non-invasive ventilation and they make the decision to adjust the patient’s settings based on their response to the treatment, they are doing that of their own ... based on their own education and their own practices and experiences without the doctors being there to say ‘Alter the settings to this and this,’...”
P35(WM:15y).

The following quote illustrates one participant’s detailed knowledge of the adverse events that could occur in her clinical area. She then listed the clinical indicators of sepsis that she was monitoring, which was part of her autonomous practice:

“To understand basic anatomy, and to have a good clinical indication of how everything biologically runs for you to give necessary treatments, right?... Again, the same sort of thing that I have just said before, like considering biological effects and clinical indications for treatments and stuff, yeah. E.g. We have had quite a few patients who have gone on to sepsis for example, so we know that

the blood pressure is obviously going to go down and the heart rate is going to go high, the temperature is going to go high as well and that's to indicate the terms of infection. We have also looked at blood results in terms of that, so we know that CRP is going to be high as well to indicate there is some sort of infection, and in terms of looking at the blood, their FBCs results as well in terms of autonomy” P42(SN:6m).

A participant also linked nursing knowledge and skills with competence, highlighting that nurses feel supported in being autonomous when they are equipped with the right competence and the right skills as expressed in the following comment:

“...I think by ensuring that nurses are equipped with the right competence and the right skills gives them that support and the backing for them to be autonomous...” P19(WM:8y).

One of the participants believed that *“...the more training you have like to back you up, it's very good, yeah” P31(SN:8y)*. However, another participant stated that having enough training in autonomy would be useful for the understanding of patients' treatments as *“...I do think autonomy is really important and I don't think we do get enough of it in our training. I do think that we need ...have an understanding in terms of patients' treatments” P42(SN:6m)*.

Closely related to the above beliefs that getting more training will provide support to the nurses, which will result in better patient care, some other participants highlighted inadequate training as one of the factors hindering autonomous nursing practice and good quality care. This view was expressed by a participant who believed that: *“...provided that we get ...the level of training and the level of exposure we can deliver good patient care, you know, always...” P48(SR:17y)*, while another participant pointed out how difficult it is to have access to courses, when he/she stated that: *“...sometimes it can be hard to get on all the courses that you perhaps want to because of ward pressures, but without having that knowledge, sometimes these decisions are perhaps not safe decisions, if your knowledge isn't up-to-date, yeah...” P29(SN:9y).*

One of the participants maintained that there is a deliberate diminution of the intellectual level of nursing education, and insisted that due to the oversimplification of aspects of the nursing education or role, the intellectual standards of nursing profession or education are undermined when she commented that: *“...I think that we have dumbed*

down nursing/nurse training, I think a lot of the stuff that we see as extended practice, things like cannulation, phlebotomy, OK it's task-orientated but it is actually improving your patient's care, we have made a big thing of, and it's become an add-on. It's not, it's basic nursing care, it's what we do and I actually feel that we have dumbed down nursing to some extent..." P18(WM:18y). This perceptions appeared to be shared by another ward sister who commented that autonomous practice is an important element that should be focused on during nursing training when she stated that: *"... I think autonomous practice is very important for nurses. I think it needs to be something that's focused on in the nurse training. I think the trainee nurses are very well supported but I think sometimes we don't allow them to think for themselves and to act for themselves. So I think that's an important element to maybe take back to the basics in nurse training..."* P16(SR:4y).

In addition to describing knowledge and skills as traits which are required for autonomy, participants also discussed clinical judgement as being important for autonomy as elaborated in the subtheme below.

Subtheme: Clinical judgement

Clinical judgement is a form of decision making that involves taking into consideration a great number of factors and is based on observation, knowledge, experience and reflection. Participants described clinical judgement as one of the skills nurses draw upon while making clinical decisions, and viewed it as being a key attribute of professional practice. They perceived clinical judgement as being central to safe and effective care, as it enables nurses to distinguish between bad and good decisions based on knowledge. For example, a staff nurse linked autonomy with clinical judgement and knowledge by stating that: *"...you're taking your own clinical judgment and knowledge to make the decisions that you're making regarding the patients that you're looking after on the day..."* P10(SN:8m). The above statement was corroborated by a ward sister and two ward managers, who perceived that autonomy is about: *"...making my own clinical judgements..."* P44(SR:18y), when nurses: *"...feel able to make decisions Yeah, they make judgements..."* P7(WM:33y), or when: *"...I am making decisions based on my clinical judgement and my experience..."* P35(WM:15y).

The above description was supported by another participant who pointed out the importance of being autonomous by not seeking consultation with a more senior practitioner when making decisions based on clinical judgement. This was aptly captured by his/her response when he/she linked autonomy to clinical judgement by: *“...making a decision about care given based on your clinical expertise without having to go to someone higher for further permission...”* P18(WM:18y).

Another participant provided an example of how clinical judgement is being utilised in practice when he/she commented on making clinical judgement to escalate patients without going to superiors:

“...I suppose if they come across a patient who is unwell, they know how to escalate that without having to go to someone more senior. Yeah, they make judgements...” P7(WM:33y).

Another participant linked clinical judgement to the ability to make logical rational decision based on the observation of the patients. This could be gathered from the response by P10(SN:8m) when he/she stated: *“...whether or not you need to put IV fluids up, so then they're prescribed but the patient may not necessarily need it, you are using your clinical judgement.”*

In summary, participants described clinical judgement as one of the key elements required for making clinical decisions, and without consultation with a senior member of staff. It was also linked with experience. In addition to describing clinical judgment as an attribute required for autonomy, participants also highlighted the ability to make informed and evidence-based decisions as important in autonomous nursing practice. This aspect will be reviewed under the following subtheme.

Subtheme: Informed and evidence-based decisions

Participants described autonomy as the ability to make evidence-based decisions. Such decisions were described as being dependent on the availability of the best knowledge, up-to-date knowledge, and research, without which practice will be unsafe. This can be gathered from the following comments by P29(SN:9y) who stated that: *“...but without having that knowledge, sometimes these decisions are perhaps not safe decisions, if your knowledge isn't up-to-date, yeah...”*

P29(SN:9y)'s comment was corroborated by two ward managers who put a lot of emphasis on the importance of the information utilised in making safe and informed decisions, and again, reiterated the corollaries of autonomy which are accountability and responsibility. This was captured in the response of the first ward manager who commented that: *"...to make informed decisions and take responsibility for them..."* P7(WM:33y). The other ward manager did confirm the importance of information in relation to decisions, but mentioned working within boundaries (this will be discussed in a later theme):

"...having the awareness of the information to make informed decisions about being a safe practitioner...that you act within your own boundaries...and you are accountable for your responsibility of the information that you use for practice..." P38(WM:16y).

Some participants were more specific and referred not just to informed decisions, but to decisions based on scientific knowledge. This finding was from their comments such as: *"...making my own clinical judgements and decisions on an evidence base, also what I have... my experience and my knowledge..."* by P44(SR:18y); and *"...so autonomy to me means being able to make your own evidence-based decisions in practice based on the best knowledge and research that's available to you..."* made by P34(WM:11y).

Participants also connected autonomous nursing practice to their ability to make informed decisions. This can be gathered from the comments below:

"I think making informed decisions yourself. Constantly throughout your nursing you do have to make these decisions, whether they are big or small, whether to wash someone now or whether a certain medication is right... yeah, just having the knowledge to be able to make that decision..." P29(SN:9y).

Finally, this view was reiterated by a staff nurse who pointed out that in addition to being able to make informed decisions, nurses also wish to be recognised for being able to make autonomous decisions. This was the view of P33(SN: 33½y) when he/she stated: *"Being able to make decisions that are informed ... but being able to make those decisions yourself...they (nurses) want to be recognised as being able to make decisions"*.

In summary, participants described autonomy as informed and evidence-based decisions based on the best knowledge, up-to-date knowledge, and research. They emphasised safety as the basis of such decisions. In addition to the discussion of the skills and knowledge required for autonomy, participants also discussed the importance of decision making either in day-to-day basis or in emergency situations, as reviewed below.

Theme 4: Experiences of autonomy

This theme is specifically about participants' experiences of autonomy. Those were almost narratives in form, involved their presentation in longer quotes. Two main types of examples were provided; they were the importance of decision making either in day-to-day basis or demonstrating autonomy in exceptional circumstances.

Subtheme: On a daily basis

This subtheme is about the day-to-day autonomy that nurses demonstrate on every shift. It is about participants' descriptions of autonomous practice as being a component of the nursing job, based on nursing knowledge, linking it to everyday routine and procedures. As a result of autonomy being expressed through everyday tasks, participants revealed how autonomy is implied rather than overtly expressed. A ward manager stated that nurses would be unable to explicitly define autonomy in reference to their own practice, when asked questions about autonomy in relation to their practice. She maintained that autonomous practice was something that nurses do automatically without actually thinking about it, a statement also supported by Mantzoukas and Jasper (2008), who likened the situation to a state of automatic and unconscious doing, where nurses are unable to explain precisely why they are practising as they are. This kind of situation was aptly captured from the response of one of the ward managers when he/she commented:

"...when I am talking to my nurses about it, I feel that they probably don't have that full understanding of what it means. They know that they are needing to work within their Code of Conduct, of which they do, but I think they're also aware of the decisions that they need to make and they are aware of the word, but I think that they find it very difficult to describe it in use in practice...I think it's something that they probably automatically do but don't really think 'Ah this is what I am doing' and put a name to actually being autonomous in their practice..."
P38(WM:16y).

Some participants also equate autonomous practice to routine tasks such as washing the patients, and dressing wounds. Examples of such views were from their comments such as: *"...I think autonomous is just like you do it routine, routine, just like ... it's like you come to work, you wash the patient, and every day you go to work, it's routine to give it to the patient. You give them a wash, you give them medication, you take your observation and make things comfortable and of course you have to change the social situation as well..."* made by P24(SR:22y); in addition to those made by P27(CN:15y) who stated: *"...when you wash a patient and you care for a patient or you do a certain procedure that's for the nurses to do, and that's autonomy, yeah, what a nurse has to do. So some procedures that nurses can do by themselves, ok?..."* This view was also held by another participant who stated that autonomous practice is an exercise that is performed on a daily basis when he/she stated:

"...It's an exercise, it's what you're doing on a daily basis in your job, so you deal with people, you deal with patients and they ask questions and... you have a team, yeah, so the patient ... every single day that you work, you practice and that's what you call autonomous practice, you exercise what you have learned, what you have experienced..." P1(SN:14y).

Besides describing autonomous practice as routine tasks, a participant linked it to procedural tasks, which requires procedural knowledge. Mantzoukas and Jasper (2008) described procedural knowledge as taking the form of ready-made answers for daily and routine situations that are developed by nurses when confronted with similar incidents. In this case, repetition of problems leads to repetition of actions derived from previously implemented solutions. For example, a participant illustrated how she practised autonomously through the discontinuation of IV fluids if the patient is eating and drinking:

"...if somebody is eating and drinking while stopping their IV fluids, if there's no need for them to have IV fluids running and they're eating and drinking and then you can make a decision to stop the IV fluids, something like that, is that what you mean?" P22(SN:5y).

Finally, participants also described autonomy as being demonstrated in exceptional circumstances, such as emergency situations, as discussed in the subtheme below.

Subtheme: In exceptional circumstances

Nurses' level of autonomy is situational. Some nursing work is routine as described above, but the patients' condition can deteriorate and the nurse will need to take action. Sometimes this involves anticipating the information that the doctor will require, such as an ECG and in some cases it is an independent decision, such as giving the patient oxygen when they are short of breath. This also involves nurses having to be more autonomous when there are no senior professionals around, especially on weekends, as can be gathered from the comments made by a ward manager; when he/she stated that: *"...my junior sister would make a decision to take out a central line, to take out a catheter and to move a patient onto diet and fluids without referring to a doctor over a weekend..."* P18(WM:18y).

The above opinion was supported by a staff nurse who described autonomy in relation to the staff nurse taking a lead role in decision making and taking more responsibility on weekends when there was no senior member of staff around to offer them support. She emphasised that the ward sisters or the sisters in charge ran the ward during the week, but that the staff nurses took a leading role in running the shifts on weekends due to unavailability of more senior nurses to offer support in decision making, when he/she stated:

"... well it would be sort of me taking my role as more a lead... I suppose taking more responsibility. I think for staff nurses as well, because we have the sisters who are obviously more I suppose accountable for the whole autonomous role on the ward... for me I'd say autonomy more comes into like... I'd say like weekends and stuff, that you have to be more autonomous...I would probably take more of an autonomous role of a weekend in a way, of that leadership with like my patients...Yeah, the sisters of a week kind of run the shift don't they, or the nurse in charge I suppose runs the shift, and for me, yeah, I suppose... but then I suppose I do try and be autonomous with my patients anyway, but I suppose at the weekend you are more so..." P21(SN:2y, 9m).

The above comment was corroborated by another participant who was a staff nurse when she stated that: *"...I know there are people who are higher than me, like the site managers or things like that. Sometimes you feel that when you are in charge, when you are in charge of the ward, you make some decisions..."* P17(SN:3y), *"...so at that time I feel I have made an autonomous decision because I was in charge at the time and I didn't have somebody else to ask..."* P25(SN:20y). In addition to the comments

gathered from staff nurses occupying a lead role and taking more responsibility when they are in charge of the ward, a ward manager described autonomy as making decisions on the spur of the moment when there is lack of constant support. He/she described that at times nurses are being put in difficult situations to make such decisions, which they would not have made if they had a choice, as can be gathered from her comments:

“...I think in this line of work where you don't always have somebody 24 hours a day to back you up and support you it's very difficult, that you have to make a decision on the spur of the moment whether you are ready to or not. Sometimes the nurses are put in difficult situations where they don't have a choice, whereas given the choice they probably wouldn't always make those same decisions...”
P35(WM:15y).

Closely related to the above comments about nurses finding themselves in situations where they have to make decisions on the spur of the moment, participants also identified situations in which autonomous decisions were required in emergency situations, in which the motivating factor was to save lives. A participant used the term “on-the-spot” decision to capture a decision made in an emergency situation, without having to first consult with other members of staff, by stating that: *“I am able to make on-the-spot decisions about patient care in emergency situations and so on that would need to be made without sort of consultation of a doctor or anything first...”* P16(SR:4:9y). One of the participant stated that acting in emergency situations sometimes requires anticipating and getting the information that the doctor will require when making independent decisions when he/she commented that: *“...if a patient was poorly ...then I would take it upon myself to take bloods from the patient and cultures and call the doctor ...I wouldn't have to be told to do that, I would do that myself...”* P32(SR:3y). In support of the above statement, another participant pointed out that: *“...if I notice a patient becoming acutely unwell I use my own initiative to check their observations, get in touch with the doctor and seek some help”* P15(SR:5y).

This view about anticipating and providing the information that the doctor will require was reiterated by another participant who gave an illustration of how he/she independently acted quickly when a patient complained of central chest pain, and then did observations and an electrocardiogram on the patient before informing the doctor, as can be gathered from his/her statement:

“...e.g. a patient complained with central chest pain radiating down the left arm. From that I knew that I needed to act quickly just in case that was an acute cardiology problem so I informed the doctor who was on the ward, I went ahead and did an ECG because I knew that would be the first thing that they would want, while the patient was in pain, did observations... basically from previous experience that it would be something that I needed to act on quite quickly...” P44(SR:18y).

Some participants provided examples of how they would demonstrate autonomy in emergency situations, by escalating patients without first involving other members of staff. One of the participants described how he/she would act in a cardiac arrest situation by stating that: *“...I don't need to run every 2 seconds to the nurse in charge or to the doctor to say ‘How do I do this?’ or ‘How do I do that?’ so if I find the patient needs attention you act on it and then you liaise with professionals... you find a cardiac arrest, you act on it, that's my autonomy. I act on it and then I liaise with the profession and take it from there”* P20(SR:24y); while another stated that: *“...for example a patient with a post-operated knee or a hip replacement and then you find out the patient is having a chest pain and so you could actually decide straight away what to do...”* P1(SN:14y).

Another illustration of the demonstration of autonomy in an emergency situation was given by another participant who understood autonomous practice as being based on decisions that are independent from doctor's consent, when she stated:

“This is based on what you can do about decisions...for example, if you see patients having problems, you need to do something which you can do without the doctor's consent... Giving independent decisions based from yourself to this patient having problems...It's like if patient is complaining of shortness of breath, obviously what you need to do is basic, you need to do observations. If you find something wrong with these observations, for example, saturations, I am basing my practice here...If you find observations is like saturations is dropping, obviously your main concern is putting oxygen [on]. You can put oxygen [on] provided after doing this one, you need to call the doctor, for me that is autonomous...” P36(SN:19y).

Finally, a ward manager emphasised that demonstrating autonomy in exceptional circumstances, depends on what aspect of nursing care the nurse is capable of doing without support from senior members of the team, as commented: *“...It depends... what element they are happy to actually do without support from the senior team, but I mean*

anything from escalating a poorly patient, to how often to do those obs [observations] on that patient, anything really can be an autonomous decision, who to escalate it to, when to jump and go to the consultant to see if you have got deteriorating patients, and they make those decisions on an hourly basis almost” P34(WM:11y).

Apart from describing autonomy as the importance of decision-making in a day-to-day basis, and in exceptional circumstances, participants described autonomy in relation to boundaries, as discussed below.

Theme 5: Boundaries around autonomy

Participants discussed boundaries related to autonomy as policies, which are principles, rules and guidelines which are information formulated, that are intended to advise people on how something should be done. They are systematically developed statements designed to help practitioners decide on appropriate healthcare for specific conditions or circumstances. They are designed to influence and determine all major decisions and actions, and all activities take place within the boundaries set by them. The Nursing and Midwifery Council (NMC, 2015a) governs standards of practice for nurses and midwives. The Code contains the professional standards that registered nurses and midwives must uphold. UK nurses and midwives must act in line with the Code, whether they are providing direct care to individuals, groups or communities. Participants discuss the impact of these set of rules in terms of working within boundaries, and breaching the boundaries for the benefit of the patient, as elaborated below.

Subtheme: Working within the Boundaries

It was acknowledged that nurses' autonomy operates within strict limits. The most important, mentioned by many nurses is the NMC code of practice but there are also many policies, guidelines and protocols that are specific to the individual Trust. Several respondents mentioned working within their own boundaries and limitations which involves a degree of self-knowledge.

During the course of the interviews, participants disclosed that there are different expectations of nurses at different levels within the profession. They described features

of their practice that allow them, or not, to practice autonomously with specific reference to hierarchy and organisational structure, as highlighted by a participant: *"...based on where you are in the nursing... I don't like to say hierarchy but in the nursing management scheme...my junior nurses I would expect to seek advice from the junior sister that is on. I will make a decision to discharge a patient without recourse to a doctor, whereas my junior nurses might actually say to me 'Do you think this patient... we can send this patient home?'"* P18(WM:18y). One of the participants described hierarchy as the "level" a nurse is: *"... It depends what level they are..."* P34(WM:11y), while another simply stated that: *"...I suppose we work in a rank in a way..."* P21(SN:2y, 9m).

In addition to hierarchy determining whether a nurse practices autonomously or not, the structure within the NHS was described as determining the work pressure experienced by nurses on the wards. One of the participants was of the view that the ability of nurses to practise autonomously was determined by the structure within the NHS, which was being referred to as 'outside forces' depicting the attitudes of those in managerial positions when he/she commented: *"... it seems to be geared towards the ward. Sometimes I think the pressures come from outside of the ward in regard to this which is kind of outside us. Sometimes it's not the ward manager or the ward itself, it's those outside like those in managerial positions that force pressure onto the nurses..."* P6(SN: 3½y). This perception that nurses' ability to practice autonomously is determined by the attitudes of those in managerial positions appears to be shared by a ward manager, as can be gathered from his/her comments:

"...There's obviously that aspect of how I am being treated by my managers and how they're treated back from my point of view to my staff. If my manager is very controlling, and I might become very controlling to my staff because I think that's the way it's supposed to work maybe. Now I have got a little bit more experience but even so it could happen that way because you think well you have to follow the organisation's way of working. But you might find in another department the manager is not so controlling so you become less controlling isn't it ...?" P13(WM:29y).

One of the participants, an internationally recruited nurse, compared practise in England to the way she was trained at home which restricts nurse's autonomy, particularly when they are students.

“...about prescribing some of the medications, you know, because we were trained back home, then sometimes we are allowed to prescribe; but here you have to have a course which is good but...you know, very simple medication, very easy to use, it’s not really harmful, it’s harmless as long as you know the frequency, the dose and all that, especially ...Paracetamol and all that stuff, so I should be OK, you know, giving IV antibiotics, giving antibiotics, the student nurses, they are not allowed to give it and it’s sad because they could do better when they come as a nurse – newly qualified nurse, but they are not allowed to do those things, so the lack of confidence is ... you know, they are affected, yeah...” P1(SN:14y).

Some participants described the importance of working within their own boundaries and limitations, involves self-awareness, which is about understanding of oneself, or one’s motive or character. It also involves nurses understanding their needs, failings, and capabilities in patient care, as can be gathered from the comments made by the participants, such as: *“...that you act within your own boundaries...” P38(WM:16y), “...but also knowing their limitations and when to get help....” P43(WM:10y), and the “...need to consider our limitations as well, especially with the patient care...” P17(SN:3y).* Comments such as stated above were similar to those made by other participants such as P23(WM:28y) who described working within the boundaries as *“... it’s giving me freedom to work within what I know I can do, but also to achieve what I need to achieve”.* A ward manager described boundaries in terms of nurses having had nursing training and such training providing them with the capability to look after patients within that remit, as can be gathered from his/her comments: *“That the nurse is being seen to be their own individual professional and have had training as such and therefore they should be able to look after patients within that remit...the training would help you to be an autonomous professional” P13(WM:29y).*

Participants also revealed that some guidance supports autonomy, rather than restricts it. The example given by a ward manager is the British National Formulary. *“...their drug rounds are autonomous. They very rarely have to come to me. They have their BNF [British National Formulary] if they need back-up...” P39(WM:25y).* Another participant illustrated how the policy with regard to wound dressing was used as guide to re-dress a patient’s wounds when they were unable to get hold of the tissue viability nurse, as can be gathered from his/her comments:

“...Like a patient come admitted with some pressure sore, and then somebody stating that clearly we need to contact the tissue viability, then from my knowledge, I done the training for the tissue viability and everything,... we can't get hold of the tissue viability for all the pressure sore because there are only one or two persons in the hospital. If we think we can manage in here, then we can manage. If I'm confident with my things, I can say that we don't need to involve the tissue viability, and then if I am worried then I will involve the tissue viability. If I think I can manage because we have got a lot of policies and everything here, so with that policy, we do the dressing and other things like that, so that's...” P37(SR:22y).

In addition to describing hierarchy and organisational structure and policies as boundaries of autonomous practice, guidelines, and the NMC Code of Conduct were also highlighted as factor that could determine or inhibit autonomy practice. A participant in particular described policies as hindrance to exercising autonomy, highlighting the fear of getting into trouble as an end result, by stating that *“...if we fear getting into trouble it's because it depends on the policy inside the structure of the NHS...”* P1(SN:14y). Others described working within boundaries as: *“...Kind of being able to be my own boss following guidelines set down by obviously the Trust and NMC and everything...”* P6(SN:3½y), *“...To me that means they are practising to the level which I expect of them within the Code of Practice...”* P14(SR:41y), *“...They know that they are needing to work within their Code of Conduct...”* P38(WM:16y). *“...to be able to practice within the guidelines of the NMC and with your own Trust...”* P9(SN:23y), *“...and ensuring...and abiding by the NMC Code of Practice...”* P14(SR:41y).

In addition to highlighting working within boundaries as a determinant of autonomy, participants described breaching the boundaries for the benefit of the patient, as discussed within the next subtheme.

Subtheme: Working out of boundaries for the benefit of the patient

This subtheme explores how nurses viewed autonomy as the ability to make decisions in the best interest of the patients. This subtheme is about patient advocacy and about providing leadership to the multi-disciplinary team. In some cases, it involves breaking the rules of normal practise, or protocols for the patient's benefit. Some of the participants perceived patient advocacy to exist when nurses were empowered by patients to make decisions on their behalf, without judgement or prejudice, as can be gathered from the following statements: *“That you're autonomous for the patient, that you want to act in their best interest and be their advocate and work in an autonomous*

way, so without judgement, prejudice...” P46(SR:10y), “...making patient focused decisions, so making decisions that are in the best interests of the patient...” P19(WM:8y), and “...if you were doing things on behalf of patients, so you would be their, you would be their guardian and do things for them” P5(WM:43y).

This was in addition to the perception of a staff nurse who viewed autonomous practice as: “...being able to make decisions that are informed and for the best interests of the patient, but being able to make those decisions yourself...” P33(SN:3½y). A similar view was shared by a staff nurse who perceived autonomy as being able to stand in the gap of their patients: “...you can make a decision in their best interests.... I believe it’s in your... understanding your patient and their situation and being able to stand in the gap for them when they are unable to do so....” P45(SN:1m). In describing patient advocacy, the above views were reiterated by a ward manager, who added that in being patients’ advocates, nurses should not allow themselves to be overruled by someone who does not have much knowledge of the patients: “...and to the care of the patient, taking into account what she has learnt, and how much she knows about the patient, and not being overruled by somebody who actually doesn’t know the patient, for instance the ward manager” P13(WM:29y).

Some participants provided narratives of how they have acted in the best interest of the patients. For example, a participant illustrated how he/she had acted in a situation perceived to likely compromise patient safety, when she made an independent decision to delay taking a patient to do an urgent x-ray until the patient was more comfortable:

“...I had a patient that needs an urgent x-ray – she is not very well – but we were told on handover that this patient is ... although all her results are coming back as negative to C-diff, we still need to treat her as a barrier nurse – that was from the infection control nurses – that’s what we had been told...And because of that I had to make the decision of whether or not to send her down, so I phoned up the x-ray dept [department] and told them about that, and they said we have to hold off from that, come back later, and then I had to make the decision – is that OK because of how unwell this woman is? And so I made that decision to leave it for a couple of hours so she is more comfortable and I know that they are prepared for her downstairs...” P9(SN:23y).

Another illustration was provided by another participant who used his/her initiative, based on his/her knowledge of the patient, to make the decision not to remove the

patient's cannula when the patient had to go to a different hospital for an appointment. The participant knew that the patient would miss her doses of IV antibiotics, if he/she removed the cannula, as the patient was found to be very difficult to cannulate or re-cannulate. Although, the participant was aware that his/her decision not to remove the cannula was against the Trust's policy, he/she decided to take responsibility for his/her action in the best interest of the patient:

"...I had a patient going out to a different hospital and if you have like that kind of patient and you know the decision... like this patient has a cannula, yeah, and away from different hospitals, ... the policy should be we take the cannula out, but this patient was only going for an appointment and coming back, so you decide 'Do I send this patient with a cannula or not?' and at the time I thought I would rather send them with a cannula because he's a very difficult patient to cannulate and he's on 6 hourly antibiotics, so if he comes back and he comes back late (within the 6 hours he'll be back), but if he comes back they are struggling to put in a cannula and he'll miss his dose and he really needed his antibiotics because he was a vascular patient - what do you do? So at the time I thought I must decide that this patient is safe because he was quite competent...I explained to him about the cannula issue and he said 'I will take care'...and that's what I did...the policy would be you take it out..." P25(SN:20y).

Another participant gave an illustration of how he/she acted in the best interest of the patients, by cancelling the patient's transport because patient's safety could be compromised because it was late in the night, defying the hospital's policy (i.e. boundaries):

"...What I am talking about is if I give you an example: there was a patient and this patient was supposed to go home at night so they ring the ambulance people and they say they were going to collect the patient at 8 o'clock. 9 o'clock the patient was still there. 10 o'clock the ambulance said....10 pm now, well 'I don't think we will be able to get your patient as soon as possible now, maybe if you wait for us, book her in an hour,' and then I said 'Well I am not happy at all for my patient to go at that time' so obviously I had to cancel the discharge but the managers, because they are just for beds isn't it? But we as a nurse, we are patients' advocates. So they said 'Who are you to make a decision?' Because we are looking at the patient safety as well and everything. You can't... even me, being transferred at that time I wouldn't be happy at all if it's me, but all we want here now with the NHS is the bed - we need to get rid of the patients and make the beds available for someone to come - they don't care about the patient. But you as a nurse, you're the advocate isn't it?" P17(SN:3y).

Participants further gave illustrations of their exercise of autonomy through the provision of nurse leadership to the multidisciplinary team while acting as patient's advocate, as

can be gathered from the comments of a senior member of the nursing team, when he/she stated that:

“...I think in my role, because I am in a senior role, I have the confidence and I feel I have got the knowledge and skill to question some decisions, some medical decisions, not to belittle their decisions but to suggest as part of an MDT to say ‘I think if we did this it would be a good idea’ and there are some decisions that I don’t need the doctor to back me up, I can make a decision to say ‘Do you know what? I feel that it would be the right thing for all, in the patient’s best interest to do A, B or C’...” P19(WM:8y).

Another senior member of the nursing team provided a narrative of how she used her senior position to advance a patient’s treatment through the involvement of the multidisciplinary team:

“...delivery good nursing, or good care, quality care to patients and you will be able to do your job in the patient’s best interest, aided by the multi-disciplinary team... It means that we don’t have to act on something just because perhaps the doctor feels like ‘Oh this is no way to go,’... because I think it used to be very doctor-orientated...there was a gentleman who was diagnosed with cancer and the patient came in because of low haemoglobin and therefore had to have a blood transfusion. Now from what the nurses are thinking based on the patient’s ability of course in the ward and the physio, we feel that the patient had reached maximum potential, he can’t go any further and that to subject him to any more is not in his best interests. But the doctors...just to find out what the plan is, they’re not very concise... so in the end we sort of took a decision to refer the patient to palliative care and then maybe ask an advice on how to go forward with looking at discharging the patient properly and with support and also appropriately. And in the end it was decided that yes, in the patient’s best interests not to carry on with any more further tests, and we were able to escalate his case and he was funded to go to a nursing home placement which ... and I thought that was an autonomous decision and autonomous assessments because we had taken the initiative to do that - not really overrun the doctors’ decision as such - but taking the initiative to involve others and perhaps ask us to aid in the decision-making process and of course ... prolonging the treatment is not in his best interests like...” P48(SR:17y).

In addition to describing autonomy in relation to nurses working within boundaries or breaching the boundaries for the benefit of the patients, participants further described the development of autonomy as elaborated below:

Theme 6: The development of autonomy

This theme is linked to participants' perception of how autonomy can be developed in the junior members of the nursing staff. During the course of the interviews, participants discussed how availability and provision of support in their work environment help them to develop their professional capacity of practising autonomously, as stated by one of the participants: *"...As long as you have the support, then it's all right"* P1(SN:14y). Having support in the work environment was highlighted by the participants as an important ingredient for the development and the promotion of autonomy. The senior nurses believed that when support is provided to the junior nurses in making decisions, the nurses develop confidence in themselves and will then be enabled to practice autonomously. A ward manager gave an illustration of how she supported a junior member of staff by reducing the number of patients and pairing her with a more senior nurse to build her confidence when she stated:

"...I have a particular staff nurse that doesn't feel as though she can work on her own at all, so what I have done is I have actually reduced the amount of patients that she has because on here we have an 8 bedded bay and we have 2 staff nurses to look after them 8 patients because they tend to be the more poorly of patients, so because this nurse doesn't feel that she can work autonomously at the moment, I have actually put her into the 8 bedded bay with another staff nurse that's usually more senior, just so that we can build her confidence to enable her, because it's good for her to be able to make decisions on a day-to-day basis while she is working and she is doing very well, she is coming on leaps and bounds.." P28(WM:17y).

Ward managers described the development of autonomy as receiving support from more senior management staff *"...I also feel that my manager encourages me to be autonomous in how I manage the ward, in achieving what needs to be done,...So yeah, so I get support from my boss, but I have also not got my boss on top of me all the time, so it's giving me freedom to work within what I know I can do, but also to achieve what I need to achieve..." P23(WM:28y);* or giving support to nurses who are lower to them in grades by *"...trying to encourage and guide my nurses towards autonomous practice, it's almost been an element of stepping back and allowing them to go through their own clinical decision-making process to come from A to B to make a decision for that patient, and supporting them to do that..." P34(WM:11y);* and to *"... encourage my nurses to*

work autonomously on the understanding that I am there to support them if they need to come to me, if they are worried about anything..." P28(WM:17y).

Participants also described the development of autonomy as a situation whereby a junior nurse receives or seeks a confirmation or affirmation that he/she has made the right decision:

"...to be somebody making decisions but being guided on how to make those decisions...Autonomous practice to me means that they are making decisions themselves but sometimes, you know some decisions you need clarification, just confirmation for, so they would perhaps come to me for 'Have I done the right thing? I am going to do A, B, C, would you say this is the right thing to do?' because that's how they learn, that's how they learn to manage, that's how they learn to practice holistic nursing by learning themselves - even if they make a mistake they... for the ones that made the decision, then you look, get them to reflect on whatever that is, to know that they have done the right thing. That's what I would say it was anyway" P23(WM:28y).

The above narrative was corroborated by another senior nursing staff who concurred that junior nurses develop autonomy by being empowered to make decisions through the confirmation of their decisions by more senior nurses, as can be gathered from the comments from a ward sister, when she stated that developing autonomy is:

"...how to give them [junior nurses] the power to decide what is good for their patient's management...If she says that...'From my point of view so-and-so patient is able to go home today,' so I consider the decision. But then in a broad spectrum then they look into, probably something which I felt that oh, that Social Services' input has not been into place, so I agreed with her decision. I gave the power for her to decide for her patient care, then something like ..." P3(SR:33y).

In corroboration with what the above comments, participants described the development of autonomy as being empowered to make decisions: *"...so you have that instinct already that you have the power or you can decide what you like to do and you can be OK..." P1(SN:14y), and "...it's when the nurses are allowed to make their own decisions regarding the care of patients..." P17(SN:3y).* One of the participants highlighted the need for recognition or acknowledgement as a factor that supports the development of autonomy. He/she emphasised the lack of recognition or acknowledgement for nurses' ability to make autonomous decisions as a hindrance to the development of autonomy, because such a situation makes nurses to feel undervalued as can be gathered from

the comments of one of the participants: "... they [nurses] want to be recognised as being able to make decisions" P33(SN:33½).

In addition to citing the lack of recognition or acknowledgement as a factor which hinders the development of autonomy, participants also highlighted the tendency for nurses to look for one person that can be held responsible for an accident or incident. It was disclosed that nurses were unwilling to take risks or to accept responsibility for mistakes due to a fear of criticism or prosecution. Participants stated that staff nurses refrain from making autonomous decisions when they perceived that they might be blamed by their colleagues if they did not make the right decisions, as illustrated by a participant who stated that: "...They are very good at getting together and talking about A, B or C but they're not that happy in being that assertive and making a statement or making a point to a senior person...they don't want to put themselves on a pedestal and say 'Right, I know this because X, Y and Z happened. I know the staff will back me, but they're not willing to come forward and support me' - so that's why nurses don't like taking big risks because of the implications it may have on their career I suppose..." P26(SN:26y).

Closely related to the above views, a ward manager maintained that taking out the blame culture in the NHS was likely to breed autonomy, otherwise, nurses will refrain from making decisions if they believe that they are likely to be blamed if something goes wrong as a consequence of their decisions, by stating that:

"... If you want to breed autonomy with your nurses, is not having a blame culture because they are going to make mistakes when they are making their own choices and decisions and we are very sort of proactive in the sense that we won't go 'Why on earth did you get wrong?' and come out and start picking on people?' We all go 'Give me your rationale as to why you did what you did.' If it's a sound evidence-based rationale 'No, OK, we can see why you did it, but perhaps next time you need to think about this' and there will always be a learning opportunity rather than a blame thing because if you do that they'll just shut down and won't make decisions, so that's really important..." P34(WM:11).

Nevertheless, a staff nurse attested to the view that taking out the blame culture was likely to develop autonomy in nurses when she stated: "...I'd say it's very good that we get all the responsibility, but I think in some cases that blame is a bit of a problem...so if things go wrong they just blame you even though... while you were making it, your

decision was supported, but when something went wrong they say ‘Oh, you did this?’...”
P10(SN:8m).

In summary, this theme described the various ways in which junior nurses were being supported by senior nurses in making autonomous decisions in practice. Participants highlighted the development of confidence in the junior nurses, enabling them to make autonomous decisions when they receive affirmations or confirmations before or after making their decisions. They also highlighted the importance of the absence of blame culture, for autonomy to thrive.

8.6 Discussion

Findings illuminate how nurses perceive autonomous practice in the two district general hospitals. Interpretation of their perceptions allowed an understanding of autonomy in practice. Thematic Framework Analysis (Ritchie and Spencer, 1994; Ritchie *et al.*, 2003b) was utilised for the analysis of the data. Six key themes and seven subthemes were identified, namely: working independently; teamwork; Professional knowledge; examples of autonomy; boundaries around autonomy; and the development of autonomy.

Participants identified working independently as their perception of autonomy, which they described as nurses having the ability to work on their own without external influence; and this is in line with the definition of professional autonomy by Bularzik *et al.* (2013:584), which emphasises working “...*without oversight of another*” (Table 8.1). Participants in the qualitative study by Gagnon *et al.* (2010) also perceived autonomy as freedom from control by others. The nurses in this study associated this freedom with the ability to define their clinical practice and have control over their workday. Participants in the current study perceived autonomy as the work that they do on their own. They also identified that working on their own requires confidence, which they also linked to accountability and responsibility. These findings are similar to those of the focus groups in the Canadian study by Stewart *et al.* (2004) wherein nurses understood autonomy as having confidence in their knowledge of how to get things done on behalf of patients. Collins and Henderson (1991) also made reference to this area and identified that in the nursing role, autonomy is a concept that is theory-based and that

when practised, allows for accountability in decision making. Keegan (1999) equates accountability to responsibility and answerability to authority for one's actions. Thus, if an individual is prepared to act autonomously, the individual must be prepared to accept that they must be answerable for their action (Keegan, 1999).

Participants in the current study identified that nurses do not just work independently, but work and make decisions within the team, which is in line with Wade's (1999:310) definition of professional nurse autonomy, which emphasises "*making...decisions both independently and interdependently...*" (Table 8.1). In a UK study, Rafferty *et al.* (2001) also identified a strong association between teamwork and autonomy, and revealed that nurses who are more involved in team working exhibited higher levels of autonomy and were more involved in decision making. However, in another UK study, the participants in Traynor *et al.* (2010) described teamwork as constraints on their professional autonomy. Teamwork was described as both empowering and disempowering. They maintained that it could be empowering because several professional groups had to work closely together and make joint decisions, which would make the most powerful individual professionals less powerful, and the less powerful individual more influential; it could be disempowering because the nurses themselves would lose part of their professional autonomy through the inter-professional teamwork.

Participants in the current study identified skills and knowledge as traits required for autonomy, which is in line with the definitions of professional autonomy by Bularzik *et al.* (2013), which places emphasis on "*...a professional's ability to utilise their knowledge, competence and abilities...*"; and Skar (2009), which stresses acting "*...in accordance with one's professional knowledge base*". These views were in line with those expressed by the participants in Gagnon *et al.* (2010) who viewed autonomy as using sound nursing knowledge to make decisions. Participants in the current study also identified clinical judgement as a requirement for autonomy, which is consistent with the findings from three focus group interviews in Traynor *et al.* (2010). Participants in the focus groups identified clinical judgement as one of the repertoires nurses draw on while making clinical decisions. Similar results were found in Norris and Melby (2006) which, through the use of semi-structured interviews identified sound judgement based on expert knowledge as one of the defining attributes that describe autonomy. Participants in this study identified nurses' ability to make informed and evidence-based

decisions as requirements for autonomy. Kramer *et al.* (2007b) identified educational programs and evidence-based practice as autonomy-enabling structures. Evidence-based practice does this by providing in-depth, evaluation-based knowledge that is essential to making autonomous decisions. Participants in the qualitative study by Gagnon *et al.* (2010) also described that keeping up with knowledge was a prerequisite for helping them become more confident and comfortable in making clinical decisions.

Also identified by the participants in the current study was the theme about the day-to-day autonomy that nurses demonstrate on every shift, which they linked to everyday routine and procedures. It was also identified that autonomy expressed through everyday tasks is implied rather than overtly expressed. This description of autonomy by the participants is in line with the definition of job/work autonomy by Kramer *et al.* (2006), which is described as “...*unit-level-group decision making for the purpose of organising the work day and setting priorities among tasks*”. Similar findings were highlighted by Gagnon *et al.* (2010), who found that autonomy is implied rather than overtly expressed. There was a sense that autonomy was a topic not openly discussed amongst nurses. The nurses in that study provided rich descriptions about their roles and responsibilities about caring for their patients, but when asked questions about nurse autonomy in their practice, they said they had not explicitly defined autonomy in reference to their own practice. Similar findings were revealed in Stewart *et al.* (2004) where nurses discussed their ability to organise their work day, set priorities among the tasks, assessments, personal care, teaching, and psychosocial care during a particular shift, as examples of inherent autonomy in their practice. The nurses further commented that those domains are so inherent that they are taken for granted and do not stand out as areas of significance in relation to autonomy. Similarly, interviewees in Skar (2009) emphasised that performing tasks is an essential part of their autonomous nursing practice. They maintained that even if nursing tasks are delegated or based on prescribed guidelines, the procedures are described as the nurses’ ‘own’ and autonomy is described as the necessity to know what to do when performing these tasks. However, a study conducted in the US by Kramer and Schmalenberg (2003) revealed that nurses in their study argued that it is not autonomy when, for example, a nurse decides to advance a patient’s diet from soft to full, or to discontinue IVI fluids when a patient is eating and drinking. They maintained that the decision is based on knowledge

and assessment, but the nurse is acting on an order or prescription to 'advance diet as tolerated', therefore it is not autonomy.

Participants described autonomy as being independent decisions made in exceptional situations, such as during emergencies, when junior nurses find themselves to be in charge of the wards on weekends, or when there is no senior members of staff around. These findings were also supported by Stewart *et al.* (2004) where nurses felt acutely responsible for everything by default overnight through the relative absence of other team members. During the night shift, nurses were often challenged to make decisions beyond their scope of practice. These views were also supported by Skar (2009:2231) where the participant identified the theme 'to dare' to express their personal endeavours in challenging situations where there are no standards or routine to follow.

Participants also identified boundaries related to autonomy as hierarchy, and policies, which are principles, rules and guidelines. They mentioned working within their own boundaries and limitations which involves some self-knowledge. Their descriptions of autonomy are in line with Kramer *et al.* (2006) and Weston's (2008) definitions of control over nursing practice/organisational autonomy, which stress the development or the use of policies or regulations that guide nursing practice. Regarding hierarchy, Lewis and Batey (1982) asserted that as long as another unit of the organisation legitimately can veto power, autonomy cannot exist. Kramer and Schmalenberg (1993) maintained that an ingredient for autonomous practice at the staff nurse level is a flat, debureaucratized organisational structure. They stated that nurses will not function autonomously even if they are competent, if they have too many bosses, and constantly feel that they have to 'go through channels' to get decisions made. If nurses are competent and desire autonomy in their practice, a hierarchical, bureaucratic structure is a major source of job dissatisfaction and reason for exodus. Likewise, participants in Traynor *et al.* (2010) described hierarchical decision-making as constraints on their professional autonomy. The nurses in the focus groups described themselves as overruled in hierarchical decision-making processes, where they had to comply with decisions made by other higher ranking nurses or by other professional groups, notably medical doctors. Regarding boundaries such as policies and guidelines, Stewart *et al.* (2004) also made reference to the above views by revealing that nurses wanted protocols that would enable them to follow through on problem solving for commonly encountered situations

that they believed could be resolved within their ability and judgement. The nurses were aware of contravening hospital policies and professional association guidelines regarding scope of practice and were aware that they would be held personally accountable in the event that a patient might be harmed.

Participants in the current study identified several examples where they had breached boundaries for the benefit of the patients, whilst acting as patients' advocates. This is in line with the definition by Kramer *et al.* (2006:482) of clinical or practice autonomy, which places emphasis on "...*decision making by nurses for the primary and immediate benefit of the patient*"; and the definition of professional autonomy by Bularzik *et al.* (2013:584), which emphasises "...*nursing action resulting in patient advocacy and positive patient outcome...*". In Stewart *et al.* (2004), nurses related the coordination of patient care activities to nursing autonomy through getting things done on behalf of the patients through their knowledge of how the system works. The participants in Gagnon *et al.* (2010) also viewed autonomy as advocating for the patients. They were of the notion that being autonomous meant taking every opportunity to engage and advocate for patients and their families. It was also found that nurses experienced autonomy when they were able to accomplish patient outcomes through their interdependent work with other members of the healthcare team. Hyland (2002) identified that to act as patient's advocate may put nurses at personal and professional risk. Weston (2010) also pointed out that building trust in the clinical setting by supporting nursing actions that may be risky, yet are safe, encourages innovative practice and enhances autonomy.

Participants identified the development of autonomy which stresses how the availability and provision of support in their work environment helped nurses in their development of autonomy, which is in line with Wade's (1999) definition of professional autonomy which emphasises interdependent decision making. This theme is very important as it helps in unravelling an aspect of the results in the survey study in Chapter 6, in which some items in the clinical autonomy factor loaded on the ward manager support factor. Participants in the study by Gagnon *et al.* (2010) identified that autonomy is acquired through supportive and trusting relationships, and they believed that relationships with nurse colleagues helped individual nurse to validate their nursing knowledge and increase comfort and self-confidence for decision making skills. They also spoke of the

importance of good nursing leadership and how the administration provided nurses with the authority to be autonomous. They believed that such relationships were necessary to support autonomous nursing practice within the organisational structure. Participants in the current study identified the need for recognition for their abilities to make autonomous decision. These views were supported by Finn (2001) who stated that nurses need some form of appreciation or recognition for their additional work by administration. The above views were also supported in a Canadian study (Stewart *et al.*, 2004) where autonomy was perceived as having their knowledge and expertise in assessment of patient needs and conditions acknowledged and incorporated in the treatment plan. There was much discussion and frustration regarding nurses' quest for respect and recognition for their clinical knowledge, skills, and judgement. Their sense of autonomy was diminished in instances in which nursing knowledge was ignored, not solicited, or not valued. They described this experience as degrading (Stewart *et al.*, 2004).

Participants also identified the persistence of a "blame culture" as a hindrance to autonomy. However, Lewis and Batey (1982) stated that decisions and actions in the context of autonomy are the professional's own; and cannot be shifted to another when the outcomes have been less than favourable. Lomas (2009) also reported that removing the NHS blame culture around making mistakes is essential to improving patient safety. Khatri *et al.* (2009) maintained that a just culture has emerged as an imperative for improving the quality and safety of patient care. They argued that moving from a blame culture to a just culture requires a comprehensive understanding of organisational attributes or antecedents that cause blame or just cultures. Khatri *et al.* (2009) maintained that a blame culture is more likely to occur in health care organisations that rely predominantly on hierarchy, compliance-based functional management systems. A just culture is more likely to occur in health organisations that elicit greater employee involvement in decision making.

A very interesting finding was that when nurses talked about autonomy, they did not relate it to the achievement of professional status. Rather, nurses were very clinically focused and also limited their discussions of autonomy to the ward team. There was no mention in these short interviews of acting autonomously within the hospital and being involved in managerial, or higher level decisions. This might account for some of the

differences between the US and England as, at least in Magnet hospitals, ward nurses are expected to be involved in changing practice, writing protocols and sitting on hospital boards. Due to these revelations, it was considered essential to examine autonomy and the organisation of nursing in the United Kingdom and the United States, as discussed below.

Autonomy and the organisation of nursing in the United Kingdom and the United States

One of the main findings from this study is that nurses in England defined autonomy clinically, rather than politically. The concept of autonomy has been an important topic of study in nursing for several decades. To better understand autonomy and the organisation of nursing in the United Kingdom and the United States, it is important to first of all highlight the considerable differences in their health care systems and their educational systems.

Some comparisons of nurse education in the US and the UK highlight important differences. Traditionally, pre-registration nurse education in the UK was based on an apprenticeship model, where student nurses were employees of the health service and learnt their required skills 'on the job', with minimal time allocated to theoretical input (Linsley *et al.*, 2008). In the late 1980s, Project 2000 – a new form of education was launched, wherein all of nursing education was established in higher education (Robinson *et al.*, 2003). Three-year nursing degree courses were introduced alongside the three year diploma courses, making possible two routes leading to a qualification in nursing: the degree course and the diploma course (Robinson *et al.*, 2003). The Nursing and Midwifery Council (Nursing and Midwifery Council, 2010) of the UK proposed in 2008 that all pre-registration nursing courses in England must lead to degree level education by 2013. Scotland and Wales have pioneered establishing the degree as the main qualification for RNs. Branch programmes in the UK are currently divided into four clinical areas, i.e. adult, mental health, paediatric, and learning disability. Compared to the US system of preparing a generalist nurse first before specialisation; the UK model offers a less flexible route for nurses to move from one branch to another (Hakesley-Brown and Malone, 2007).

The participative decision-making system in the US organisation of nursing has strengthened autonomy and has made autonomy inherent in their nursing practice. For example, in the original Magnet hospitals research study (McClure *et al.*, 2002) conducted in 1982-83, amongst the 14 Forces of Magnetism (American Nursing Credentialing Center, 2017a) identified by the American Academy of Nursing (AAN) were the organisational structure, management style, professional model of care, autonomy and professional development which could have strengthened autonomous nursing practice in the United States (see section 1.4 in Chapter 1).

The organisational structures of Magnet hospitals are generally flat, rather than tall, and decentralised decision-making prevails. Strong nursing representation is evident in the organisational committee structure (McClure *et al.*, 2002). The management style reflects the organisational structure wherein the health organisation and nursing leaders create an environment supporting participation. Feedback is encouraged, valued, and incorporated from the staff at all levels and professional models of care are operational. These models (primary nursing, case management, family-centered, district, and holistic) give nurses responsibility and authority for the provision of direct patient care. Nurses are accountable for their own practice as well as the continuation of care. Autonomy is one of the core features of Magnet hospitals. The nurse is expected to practice autonomously, consistent with professional standards. Independent judgement is expected within the context of interdisciplinary and multidisciplinary approaches to patient/resident/client care. Professional development is a key feature of Magnet hospitals, wherein health care organisation values and supports the personal and professional growth and development of staff (McClure *et al.*, 2002). Section 1.8 in Chapter 1 compares the nurse practice environments in the US and the NHS in England.

The participants in the current study highlighted organisational structure and hierarchy in the NHS as determinants of nurses' autonomous practice. They perceived that hierarchy and the tall structure in the NHS are contributing to the decrease in the exercise of autonomy by the nurses. Professional development is one of the key characteristics of Magnet hospitals. However, in the current study, the participants highlighted difficulties in getting on the courses, inadequate training and knowledge as some of the factors hindering autonomous nursing practice. Furthermore, in the survey

study in Chapter 6, the factor structure of the EOMII in a sample of nurses in England was found to differ substantially from that found in the US. Principal Component Analysis extracted a 40-item five-factor solution, in contrast to the eight factor solution in the US sample. Support for education was one of the four factors which did not appear in the solution in England. As discussed in chapter 6, the disappearance of this factor may suggest either that the dimensions of the nursing work environment measured by some factors found within US populations may not be relevant to the nurses in England or, alternatively that these dimensions are important to nurses in England but the items do not capture the experiences of nurses in England as revealed through Principal Component Analysis (Bryman and Cramer, 2011). In a mixed methods study by Baykara and Sahinoglu (2014) it was revealed that problems related to education are hindrances to the acquisition of autonomy; and that when there is increased education, knowledge, and research skills, there would be increase in self-confidence, success, motivation, and happiness among members of the profession.

8.7 Summary original contributions and conclusion

Findings in this study suggest that there were mixed views amongst the participants about the concept of autonomy and about what constitutes autonomous nursing practice. There appears to be no set definition of autonomy and some of their interpretations of autonomy were found to be conflicting. However, some of their definitions were in line with the various definitions of autonomy found in the literature (Table 8.1). For example, whilst some nurses understood autonomy as working independently; some viewed it as working in a team. In addition, some of the participants perceived autonomous practice as carrying out actions based on their own decisions, while others perceived it as nurses making decisions themselves but with clarifications or confirmation from more senior staff. It could be argued, based on the findings in this study, that the participants made decisions which were dependent on their scope of practice and the levels of knowledge required to make such decisions. The introductory section in Chapter 9 expands on this argument.

The next chapter (Chapter 9) will present a general discussion that triangulates key findings from each sub-study, by interpreting to what extent, and in what ways the qualitative results explain or add insight into the quantitative results. It will contextualise

the issue of autonomy, and discuss the impact of managerial and target culture, the attitude of nurses towards research and the evidence base. It will also consider the policy and practice implications, recommendations for practice and suggestions for future research.

Chapter 9

DISCUSSION AND CONCLUSIONS

Introduction

This research adopted a mixed methods sequential explanatory design which sought to examine the following research questions:

- Research question 1: What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?
- Research question 2: What are the associations, if any, between the factors used in measuring the nursing work environment and nurse-assessed care quality in data gathered from a sample of hospital nurses in England?
- Research question 3: How do registered nurses in England understand the concept of autonomy in practice?
- Research question 4: What are the experiences of nurses in England of autonomy in practice?

The rationale for this mixed methodology study was complementarity in that results from the qualitative study were used to clarify and to explain the results from the quantitative survey study. This research was implemented in two phases; it commenced with a cross-sectional survey which showed that of the six items that loaded on the *organisational autonomy* factor in England, four were reflective of the US *control over nursing practice* factor, while the remaining two were from the US *clinical autonomy* factor. Similarly, of the six items which loaded on the *constraints on nursing practice* factor in England, four were reflective of the US *clinical autonomy* factor, while the remaining two were from the US *control over nursing practice* factor. This suggests that the two concepts *control over nursing practice* and *clinical autonomy* were not seen as being conceptually distinct by the participants when completing the EOMII scale, that is, participants perceived these two concepts as overlapping. Furthermore, of the 13 items that loaded on the *ward manager support* factor in England, 11 were from the US *nurse manager support* factor, while the remaining two were from the US *clinical autonomy*

factor. This suggests that the ward manager support is important for nurses to practice autonomously in England. As there was no item from the *ward manager support* factor which loaded on the *clinical autonomy* factor, it suggests that participants perceived the *ward manager* factor (or concept) to be conceptually distinct from the *clinical autonomy* factor, but not the other way round.

As the *clinical autonomy* factor was perceived to be the most unstable, it became necessary to conduct follow-up qualitative short structured interviews with a sample of registered nurses drawn from the same hospitals that participated in the survey in order to explore their perceptions of the concept of autonomy. Participants' interpretations of autonomy were found to be conflicting in this research. For example, whilst some participants perceived autonomy as independent decisions and working independently, others perceived it as working within their scope of practice, working in a team, or confirming their decisions with more senior members of the nursing staff. Although it is impossible to generalise the findings in this qualitative study to the entire nurse population in England, it could be argued, based on the findings from this study that the ability of a nurse to make discretionary decisions and act on them is dependent on the level of his/her knowledge, competence, and confidence. It could also be argued that the ability to make discretionary decisions is consistent with the nurse's scope of practice, as the nurse is equipped with the knowledge required to make such decisions, and therefore should not need to confirm such decisions with other member of staff. However, the presence of blame culture is one of the limitations the participants perceived was associated with autonomous decision making.

The Nursing and Midwifery Standards for Competence for Registered Nurses (NMC, 2015b) stipulates that all nurses must practise autonomously, compassionately, skilfully and safely, and that decision making must be informed by critical analysis of a full range of possible interventions. It also stipulates that all practice should be informed by the best available evidence and comply with local and national guidelines. The need for nurses to practise autonomously and demonstrate critical analytical skills was the stimulus behind the decision that nurses in England should be educated to degree level from 2013 (DoH, 2009).

As it is the case that legal responsibility for nursing care lies solely with the registered nurse, it can therefore be argued that any person holding such heavy responsibility needs the highest level of education possible (Shields and Watson, 2007). Hence, educating nurses to higher standards is better for the health of all. In addition, it is cost effective as it is likely to reduce the consequence of poor education and mistakes. In this regard, the imperative to educate nurses to the highest standard, with the aim of providing them with ways to access the best evidence, the critical thinking skills to use that evidence safely, and the skills to generate their own knowledge, is mandatory (Shields and Watson, 2007).

Evidence-based practice, which is currently one of the most important developments in health care in England, is often dependent on reflective skills in nursing practice. With its focus on critical thinking, evidence-based practice within nursing is achieved by developing and supporting patient-centered approaches to care using the most current evidence (Emanuel *et al.*, 2011). In support of this development, Andre *et al.* (2016) suggest that degree level nursing students' attitudes towards evidence-based practice and skills can be influenced by curricula and pedagogical perspectives in nursing education. An example of the use of curricula and pedagogical perspectives in nursing education which has the ability to influence nursing students' attitudes towards evidence-based practice and skills, is the use of portfolios which have long been used as repositories of professional development artifacts and as mechanisms for promoting reflection and learning (Birks *et al.*, 2016). Another example is the on-going revalidation process in nursing practice (NMC, 2016) which requires nurses to be more reflective in their practice. In addition, it is the expectation that the all-degree nursing programmes in the UK (HEE, 2015) will provide the platform for nurses to be more knowledgeable, and more independent in decision making. These points will be discussed in more details in section 9.5 below.

It is important to report that, historically, evidence-based practice devolved from a medical model which is scientifically grounded (Emanuel *et al.*, 2011) and the integration of evidence-based practice into nursing in general and as a foundation for student nurse education, challenges this view. Nevertheless, even though evidence-based practice has been accepted and integrated into nursing, it continues to be dominated by the medical profession (Emanuel *et al.*, 2011). Section 9.3 below

discusses the impact of managerial and target culture, the attitude of nurses towards research and the evidence-base. The link between graduate education and evidence-based practice also places an emphasis on accountability and this has led to the need for highly visible, well-researched guidelines for practitioners in health and social care to follow (Emanuel *et al.*, 2011). This is due to the fact that since evidence cannot be used in the absence of clinical judgement, nurses are therefore required to make evidence-based judgments and decisions, in partnership with others involved in the care process, to ensure high quality care (NMC, 2015b).

This chapter summarises the main findings and original contributions of each sub-study and shows how they answer the research questions. It provides a synthesis of the findings from the quantitative and qualitative approaches, contextualises the issue of autonomy, and discusses the impact of managerial and target culture, the attitude of nurses towards research and the evidence base. It also considers the policy and practice implications, recommendations for practice and suggestions for future research. Finally, the strengths, limitations, and generalisability of the results are discussed together with the final conclusion reached.

9.1 Summary of findings

The review of the literature, and the nursing work environment and quality of care

The Donabedian Structure-Process-Outcome framework was utilised in this research to explore the associations between different aspects of the nursing work environment (Process) and nurse-assessed quality of care (Outcome). This research set out to measure the nursing work environment using the Essentials of Magnetism II Scale which was developed in the United States to measure and describe nursing work environments. It has been widely used in the US, but it has not, as yet, been used in the United Kingdom. Therefore a literature review was conducted in Chapter 3 to identify studies that have utilised the EOMII scale, including countries outside the US, critically review the studies and describe and synthesise their findings. Findings from the literature review provided the foundation upon which the development of this primary research was based.

The systematic search of electronic databases identified 10 studies, out of which five explored the psychometric properties of the EOMII scale in countries outside the US. The first was conducted amongst Turkish nurses (Yildirim 2012). A seven factor solution was identified largely reflecting the original eight factor solution described by Schmalenberg and Kramer (2008a), although three items were excluded and a number of included items loaded on different factors in this sample. Of note were three items that moved between the *clinical autonomy* and *control over nursing practice* subscales. Similarly, a Chinese study found that seven items moved between the *clinical autonomy* and *control over nursing practice* and their solution differed from the original with nine factors identified (Bai *et al.*, 2013). A study of Dutch nurses identified five factors that replicated factors in the original solution. However, the remaining items from the factors *clinical autonomy*, *clinically competent peers* and *patient centred-culture* loaded onto two novel factors (de Brouwer *et al.*, 2014). Another Dutch study (De Brouwer *et al.*, 2017a), identified that the subscales adequacy of staffing, clinically competent peers, patient centered culture, autonomy and nurse manager support can be used in Dutch nursing homes without problems. Three subscales formed clear factors, as in the original EOMII (*perceived adequacy of staffing*, *clinically competent peers* and *nurse manager support*). Two subscales (*nurse-physician relationships* and *support for education*) were spread over two factors, and three subscales (*clinical autonomy*, *control over nursing practice* and *patient centered culture*) were spread over three factors. Finally, the third Dutch study by De Brouwer *et al.* (2017b) revealed that the total scores of both the Dutch EOMII (D-EOMII) and the Dutch Practice Environment scale of the Nursing Work Index (PES-NWI) are strongly correlated, implying that an organisation scoring high on one of the instruments will also score high on the other.

This review identified that *clinical autonomy* is the most unstable factor, as some of its items loaded under other factors such as *control over nursing practice*, *clinically competent peers*, and *patient centred-culture*. Evidence from the literature review suggests that the factor structure of the EOMII scale may differ in significant ways across different healthcare systems. Chapter 3 was the first to systematically review the studies which have utilised the EOMII scale in evaluating the nursing work environment as no other systematic review has been published on this topic.

Based on the findings from the systematic review, this thesis originally set out with two aims, to be addressed through research questions 1 and 2 above. The quantitative cross-sectional survey study in Chapter 6 was designed to address the first two research questions, and this was the first research that explored the factor structure of the EOMII Scale in nurses working in England (Oshodi *et al.*, 2017). The factor structure of the EOMII in the English sample was found to differ substantially from that found in the US. Principal Component Analysis extracted a 40-item five-factor solution, in contrast to the eight-factor solution in the US sample. The findings from the systematic review within Chapter 3 and the survey results in Chapter 6 are consistent, in that none of the extracted factors in the studies that evaluated the psychometric properties of the EOMII scale in the systematic review in Chapter 3, and in the survey study in Chapter 6 wholly reflected the original solution of the original US EOMII scale.

Specifically, PCA revealed that of the 13 items that loaded on the *ward manager support* factor in England, 11 were from the US *nurse manager support* factor, while the remaining two were from the US *clinical autonomy* factor. This suggests that when participants were responding to the EOMII scale, they perceived two items in the *clinical autonomy* subscale to be related to the *nurse manager support* factor. This implies that in this sample of nurses, the support of the ward manager facilitates autonomous practice. This is not surprising since the pivotal role played by ward managers (in the UK) or nurse managers (in the US) have been recognised for decades. In the US, the role of the nurse manager has been the subject of much research (e.g. Kramer *et al.*, 2007). In the UK the importance of the role has been recognised in reports on the organisation and management of acute health services since the Salmon report (1966), in research on ward sisters (Pembray 1980), in the literature study by Allan, Smith and Lorentzon (2008), and has again been highlighted in the Francis report (2013) on failures of care in Mid Staffordshire NHS Trust. A study of nurses in acute hospitals in London found that the quality of relationships between staff and the ward manager was key to their decision to stay in their jobs (Barron, West and Reeves 2007). The NHS is now focussing on actions to broaden and deepen the NHS leadership pool in order to lead the transformation of care (Cummings, 2016). To support this, NHS England, NHS Improvement and Health Education England have been working with the NHS Leadership Academy to deliver a talent management programme in order to support this. This programme will address issues that prevent staff from considering senior

leadership roles. It will be supported by a talent management toolkit that will help raise awareness of critical thinking, and assist in areas such as problem analysis, influencing skills and decision-making (Cummings, 2016).

It was also found that the US *control over nursing practice* and *clinical autonomy* (labelled *organisational autonomy* and *constraints on nursing practice* respectively in this study) were related to one another. It was found that *clinical autonomy* factor was the most unstable factor of the EOMII scale, as it was interrelated with *control over nursing practice* factor, and at the same time, related to the *nurse manager support* factor. This, therefore, warranted further research to be conducted in order to explore the understanding of the concept of autonomy in the sample of nurses working in England. In particular, the results in this study, as well as the findings in the systematic review in Chapter 3, suggest that nurses' experience and/or conceptualisation of nursing autonomy may vary depending on the organisation and management of nursing work which may vary from country to country. Thus, the first aim of this research has been addressed.

The second aim for the thesis was to explore the associations between the factors measuring the nursing work environment and *nurse-assessed care quality*. It was found that the correlations between *nurse-assessed care quality* and the three factors, *ward manager support*, *working as a team* and *concern for patients*, were all positive and substantial while the association between care quality and *organisational autonomy* was also positive but of a more moderate size while the correlation with *constraints to nursing practice* was small and in a negative direction. In multivariate analyses, *ward manager support*, *working as a team*, and *concern for patients* were significant and positive predictors of nurse assessed care quality. *Constraints on nursing practice* was also a significant, but negative, predictor of nurse assessed care quality. However, *organisational autonomy* was not a significant predictor in this multivariate analysis. Thus, the second aim of this research has been addressed.

Given the findings from the systematic review in Chapter 3 and the cross-sectional survey study in Chapter 6, a mixed methods sequential explanatory design was adopted to include a qualitative phase. It is worthy of note that adopting a mixed methods approach enabled the limitations of each research approach to be addressed within the

other paradigm. Specifically, a major limitation of quantitative research, is its inability to provide understanding of the context of a phenomenon, and briefly that of the qualitative research, which is its inability to generalise findings to the study population, made the adoption of the mixed methods approach relevant as it enabled the use of these two research approaches to complement each other's strengths.

The nursing work environment, quality of care, and nurses' perceptions and experience of autonomy

In order to provide more understanding to the findings of the cross-sectional study in Chapter 6, in relation to autonomy, a qualitative phase, utilising short structured, one-to-one, interviews was implemented in order to explore the perceptions and the experiences of autonomy among registered nurses in Chapter 8. Findings illuminated how nurses perceived autonomous practice in the two district general hospitals. The interpretation of their perceptions allowed an understanding of autonomy in practice. Six key themes and seven subthemes emerged from the analysis of data, namely: working independently; teamwork; professional knowledge; the centrality of decision-making either in day-to-day work or in emergencies; the boundaries related to autonomy; and the development of autonomy. Findings in this study suggest that there were mixed views amongst the participants about the concept of autonomy and about what constitutes autonomous nursing practice. There appears to be no set definition of autonomy and some of their interpretations of autonomy were perceived to be conflicting. For example, whilst some nurses understood it as working independently; some viewed it as working in a team. In addition, some of the participants perceived autonomous practice as carrying out actions based on their own decisions, while others perceived it as nurses making decisions themselves but with clarifications or confirmation from more senior staff.

One issue that was consistently highlighted in most of the subthemes was the importance of the support or the guidance of the ward managers or the ward sisters/charge nurses in decision making. Specifically, the theme of 'the development of autonomy', portrayed the ward managers' descriptions of autonomous nursing practice as receiving support from their superiors and giving support to nurses who are lower to them in grades. This finding was particularly enlightening and forms part of the researcher's attempt to utilise the qualitative research to explain the anomalies revealed

through the Principal Component Analysis with regards to *clinical autonomy (constraints on nursing practice* in this research) in Chapter 6. Furthermore, a subtheme ‘*Working within the boundaries*’, explored the determinants or hindrances to autonomy, such as, hierarchy and organisational structure in the NHS, policies, protocols, guidelines, and the NMC Code of Conduct. These findings were also enlightening as they provided explanations as to why organisational autonomy was not a significant predictor of nurse assessed care quality. Thus, the findings from Chapter 6 with regards to clinical autonomy and organisational autonomy, and the results in Chapter 8 in relation to the support of the ward manager in making autonomous decisions and the determinants of autonomy are consistent.

The nursing work environment, quality of care, and the nurses’ comments, and the nurses’ perceptions and experiences of autonomy

In response to the invitation to make comments about their work experiences, many nurses offered additional insight into aspects of their work environment which gave them concerns, while a few commended particular aspects of their work environment. Inductive content analysis was used to identify three key themes with eight sub-themes. The main themes were: “nurses need nurses to nurse”, working as a team, and workplace environment. Participants described the staffing issues they were facing which ranged from high turnover rates, inadequate staffing levels, high nurse-patient ratios, poor skill-mix, increasing workload, busy ward and high stress levels, to financial constraints. Inductive content analysis revealed that more than half of the participants made comments about the professional relationships of staff. Participants described the attitude of their ward managers towards staff as being supportive, while a few had less positive experiences of their ward managers. Whilst a vast majority of the participants expressed satisfaction with the level of teamwork present on their wards, some expressed frustration at a lack of collegial support as well as the absence of collaborative doctor-nurse relationships. Other worries expressed by participants included a lack of appreciation from the management, the presence of a blame culture in their hospital, and their colleagues’ evident lack of interest in their jobs. This was in addition to issues such as their lack of control over increasing paperwork, priority of bed management over patient safety and lack of opportunities and time for professional development.

In Chapter 6, one of the factors extracted using PCA was “working as a team”; also in Chapter 8, participants perceived autonomy as synonymous with teamwork. Findings from these three Chapters corroborate each other. Furthermore the ward manager support factor in Chapter 6, the subtheme of “managerial support” in Chapter 7, and the theme “the development of autonomy” through the support of the ward manager in Chapter 8 are also consistent. In Chapters 7 and 8, participants highlighted difficulties in getting access to the continuous professional development courses. In Chapter 8, inadequate training and knowledge were some of the factors highlighted as hindering autonomous nursing practice. In the survey study in Chapter 6, the factor structure of the EOMII in a sample of registered nurses in England was found to differ substantially from that found in the US. The Principal Component Analysis extracted a 40-item five factor solution, in contrast to the eight factor solution in the US data. Support for education was one the four factors which did not appear in the solution in England. As discussed in chapter 6, the disappearance of this factor may suggest either that the dimensions of the nursing work environment measured by some factors found within US populations may not be relevant to nurses in England or, alternatively that these dimensions are important to nurses in England but the items do not capture the experience of nurses in England.

9.2 Contextualising the issue of autonomy in nursing

According to Nelson (1995), the development of practices or the knowledge of care of the sick originated from the establishment of hospitals in the 4th century as part of a Christian approach. Current practices of care and the discussion of holistic nursing are argued (Nelson, 1995) to have grown from “these traditional Christian knowledge of care”. According to Traynor and Evans (2014) nursing was a new occupational opportunity for women in 19th century Britain, and has a religious history where ideas of duty and servitude were present and shaped its professional identity. The transformation of the informal and poorly trained nurse into the trained and uniformed persona of the modern nurse, a result of the efforts of Nightingale and others, is the subject of many nursing histories and part of nursing mythology (Nelson, 1995). Nelson (1995) argued that the establishment of nursing as an autonomous profession did not represent a clear and total break with prior forms of nursing and older practices of care. Traynor and Evans (2014) pointed out that a remnant of a quasi-religious ethic within

the profession makes it acceptable for nurses to talk about self-sacrifice and powerlessness as part of their working subjectivity. They (Traynor and Evans, 2014) further state that this analysis offers a new consideration of the issue of power and professional identity in nursing. Traynor and Evans (2014) maintained that nursing promotes notions of autonomy, and emulates medicine's status but constantly struggles for influence and recognition.

On the other hand, doctors have been socialised in tertiary education and at work, through legal, organisational and cultural structures, to see themselves as key decision-makers about patient care and the patient pathway, and therefore, in some circumstances, constrain the input of clinicians in other roles into patient care (Nugus *et al.*, 2010). At the levels of autonomy, doctors have previously enjoyed almost unconstrained autonomy in the performance of their work, leading to a large variations of medical practices (Willis, 2006). Since the 1970s such idealised conceptions of professionalism and professional autonomy have been criticised and appraised following the emergence of evidence based medicine (Willis, 2006; Traynor *et al.*, 2010). In the UK, the collegial model of self-regulation of the medical profession that had been in existence for over 150 years came to an end following a series of medical scandals from the mid-1990s onwards (Dixon-Woods *et al.*, 2011). A few examples of the scandals are the notorious cases of General Practitioners Doctor Harold Shipman, who is thought to have committed approximately 236 patient murders; and Clifford Ayling, who was convicted in 2000 of 12 counts of indecent assault on women he had treated as a General Practitioner and gynaecologist (Dixon-Woods *et al.*, 2011). There has been a clear failure on the system of self-regulation of peer review that supports the autonomy of individual doctors (Willis, 2006), and these scandals both provoked and legitimised erosion of the profession's self-regulatory power (Dixon-Woods *et al.*, 2011). There followed a series of reforms to the UK regulatory framework, and the medical profession can now no longer properly be understood as self-regulating, as powers of setting standards, monitoring practice, and managing defaults have been relocated to outside the profession (Dixon-Woods *et al.*, 2011).

Despite the erosion of the medical profession's self-regulatory power in the UK, other healthcare professionals perceive the doctors as dominating other occupations in decision-making and having unrestricted autonomy. In a focus group conducted in the

UK, Stievano *et al.* (2016), found that nurses in the study perceived that their autonomy and decision making processes were restrained by rigid barriers with the medical profession. Participants described the doctors as being disrespectful towards the nurses. They also stated that the nurses were autonomous to the point when the doctors come round and then take over, and when the doctors leave, nurses carry on as autonomous practitioners (Stievano *et al.*, 2016). In another focus group study carried out in Australia, Evans *et al.* (2014) revealed that nurses complained about the way they were being treated by the doctors. Participants also described the disparity they witnessed between how nurses and doctors were perceived and treated by others.

9.3 The impact of managerial and target culture, the attitude of nurses towards research and the evidence base

This section aims to explore the literature to establish some of the key barriers to the use of evidence in practice, for the purpose of overcoming these barriers and providing the support for evidence-based practice (EBP) in clinical care.

According to Wallis (2012) EBP is a problem-solving approach to patient care that integrates the best evidence from well-designed studies with clinicians' expertise, patient assessments, and patients' own preferences, leading to better, safer care; better outcomes; and lower health care costs. Despite all these advantages of engaging in EBP, many key barriers to engaging in EBP have been identified in the literature. The National Institute of Health and Clinical Excellence (NICE) (2007) pointed out that barriers to changing established practice may prevent or impede progress in all organisations. In a focus group conducted in the UK NHS by Henderson and Fletcher (2014), lack of resource utilisation was identified as one of the barriers to EBP. Participants in the focus group described the difficulties they encountered whilst trying to gain access into Athens (for databases). In relation to this barrier described in Henderson and Fletcher (2014), a study carried out in Singapore (Majid *et al.*, 2011) found that nurses in their study lack the appropriate literature searching skills, and many of them were unfamiliar with Boolean and proximity operators. The nurses also highlighted lack of time, inability to understand statistical terms, and inadequate understanding of the jargon used in research articles, as key barriers to EBP. Tacia *et al.* (2015) in a focus group, also identified lack of knowledge, lack of motivation, and

limited access to up-to-date user-friendly technology and computer systems. NICE (2007) also identified that healthcare professionals are often unaware of, and lack familiarity with, the latest evidence-based guidance.

It has also been identified (Henderson and Fletcher, 2014) that there is an inherent belief that every aspect of nurses' practice is evidence-based and pre-decided by somebody higher up the chain and so seeking out independent evidence or added evidence is not necessary. Personal disengagement was identified as personal barriers around non-prioritisation of time, lack of interest, and negative attitudes to the utility of evidence (Henderson and Fletcher, 2014). Wallis (2012) and Tacia *et al.* (2015) also cited lack of time as a barrier to EBP.

An important barrier to EBP was identified as institutional and/or cultural barriers (Tacia *et al.*, 2015) or organisational culture (Wallis, 2012), or nursing culture/ tradition (Henderson and Fletcher, 2014). A situation that Wallis (2012:15) described as workplace resistance and the constraining power of the phrase, "That's the way we've always done it here." Henderson and Fletcher (2014) described nursing culture as the nuances that impact on nurses' ability to carry out EBP. Tradition was mentioned, and described as the power structure within the NHS that meant questioning practice was often discouraged by more senior staff. However, Henderson and Fletcher (2014) identified that the structure of the NHS is making a cosmic shift, wherein, evidence was becoming a priority in paper, in reports and in other official statements. But in practice, the means to access this evidence were not there. Participants in their focus group felt that nurses were expected to spend more time at the bedside and more time reading policy documents and little time in education or further learning (Henderson and Fletcher, 2014). NICE (2007) also identified that an individual's personal beliefs and attitudes impact significantly on the way they behave. Also identified (NICE, 2007) was that some healthcare professionals may find it difficult to accept new guidance if it is in conflict with other guidance issued by professional bodies or the opinion of an influential colleague.

Henderson and Fletcher (2014) identified trust disengagement, which is a perceived lack of engagement at employer level with the evidence-based nursing agenda as a barrier. This occurs when senior staff nurses could not always implement meaningful

changes to practice because of existing managerial structures and junior nurses often did not have the support to apply the research skills they have learned (Henderson and Fletcher, 2014). According to NICE (2007) the financial and political environment can impact on healthcare professional's desire, motivation and ability to make changes. At an organisational level, financial systems may not facilitate payments for new interventions and resources may be constrained. Furthermore, incentive mechanisms and regulatory processes may not be aligned with what is needed to implement the changes (NICE, 2007).

NICE (2007) proposed the need to understand the type of barriers faced in healthcare in order to develop a successful strategy for change. Strong leadership has been identified (NICE, 2007; Tacia *et al.*, 2015) as a factor that may help to foster an environment that is conducive to change, as such is likely to develop motivated staff with a desire for continuous improvement. External factors can drive motivation and change behaviour, for example, the provision of incentives or penalties imposed as part of regulatory checks (NICE, 2007). Tacia *et al.* (2015) proposed that engaging in a participatory approach, by exposing nurses to EBP and for the translation of current standards into clinical practice may help in overcoming barriers to EBP. Building infrastructure to sustain and support EBP via time provision; access and support for continuing education (NICE, 2007; Majid *et al.*, 2011; Henderson and Fletcher, 2014; Tacia *et al.*, 2015), collaborative integration of team members (Tacia *et al.*, 2015), and being mentored by nurses with EBP experience, would encourage nurses to implement EBP (Majid *et al.*, 2011).

9.4 The international diffusion of Magnet hospitals

There are currently 467 accredited Magnet hospitals in the world: three in Australia, one in Canada, one in Lebanon, two in Saudi Arabia, and the remaining 460 are in the United States (ANCC, 2017b). Currently, in China, some hospitals have begun constructing a Magnet nursing work environment by introducing Magnet evaluation standards, and using them to evaluate the effectiveness of producing a productive nursing work environment (Gu and Zhang 2014). Also in Russia and Armenia, the nursing quality improvement initiative was implemented using the ANCC Forces of Magnetism in four hospitals (Aiken and Poghosyan, 2009). Practice environment

features such as nurses' involvement in hospital affairs, better collegial relationships with physicians, more support for nursing care from administrators, and improved continuity of nursing, became evident after the implementation of the ANCC Forces of Magnetism (Aiken and Poghosyan, 2009).

Internationally, Magnet recognition is limited, as there are only seven Magnet hospitals outside of the US. The Rochdale Infirmary in Lancashire was the only UK hospital to have previously been accredited Magnet status (Aiken *et al.*, 2008, Lomas 2010, Merrifield 2016), and it was recognised as the first Magnet hospital outside the USA (Aiken *et al.*, 2008). However, it failed to renew its Magnet Status when the trust became part of Pennine Acute Hospitals Trust (Lomas 2010, Merrifield 2016). This failure to follow up with renewal might be to do with budgetary constraints and other pressures, but it could also indicate that the high costs for attaining the award may outweigh any identifiable short term benefits (RCN, 2015). The South London and Maudsley NHS Foundation Trust has been actively seeking magnet accreditation since 2011 – the first UK mental health trust to do so. However, the Trust has highlighted that several of the accreditation standards require them to compare their performance against UK-wide data that is not currently being collected and the Trust is in discussion with the ANCC about what they may be prepared to accept as national data (RCN, 2015). In the US, Magnet has been profoundly shaped by the dynamics of a private, market-orientated health system in which hospitals compete with one another for a competitive edge to attract patients - a process which ensures their income, whereas, in the UK, the NHS provides services free at the point of delivery, based on clinical needs, not ability to pay and there are national systems for planning the workforce (RCN, 2015). Furthermore, the application process for international care settings does not differ significantly for those in the US (RCN, 2015). Therefore, there is a risk that care settings with significantly different structures to the American model, but where good nursing standards, practice and competence exist, may find it more difficult and expensive to attain Magnet status (RCN, 2015).

9.5 Exploration of recent changes in the NHS and nurse education

Since the data for this study were collected in 2012, there have been a number of changes in the NHS that may have an impact on the nursing work environment. Some

of the most significant include an emphasis on compassion as a key to excellent patient care, the move to an all-graduate professional qualification, the introduction of the NMC Code, the implementation of NMC Revalidation, and the increasing pressure on Trusts, post-Francis (2013), to ensure safe staffing levels.

A document entitled *Compassion in Practice* (Department of Health, 2012) refocused nurses, midwives and care staff on their main aim which is to deliver high quality, compassionate care and to achieve excellent health and wellbeing outcomes. The strategy was underpinned by six fundamental values: care, compassion, competence, communication, courage, and commitment (the 6Cs). The “6Cs” build on the enduring values of the NHS Constitution, and are now embedded in all nursing and midwifery education and training. The purpose of the 6Cs is to improve patient experience of care, specifically, it focuses on putting the person being cared for at the heart of the care they are given (Department of Health, 2012). This has provided an important clarification for both nurses and managers about the goals of nursing and midwifery.

On the 12th of November 2009, the then Health Minister Ann Keen announced that the minimum level for pre-registration courses for nurses would be raised from diploma to degree level and that all courses should meet the new standards developed by the Nursing and the Midwifery Council (DoH, 2009). All new nurses were educated to degree level from 2013, making them better equipped to improve the quality of patient care (DoH, 2009). The minority of nurses who participated in this current study were graduates, but over time, the population of registered nurses will gradually change so that eventually all will be educated to degree level. This could have a profound impact on nurses’ perceptions of key concepts in this study, including, importantly, clinical and organisational autonomy.

In future, the role of the registered nurse is also likely to change as they assume responsibility for staff who have entered the profession as apprentices or associates. The apprenticeship route into nursing will enable students to train directly towards becoming a nurse (Department of Health, 2014) and will provide an opportunity for talented care support workers to progress into nursing, giving them a route to advance their careers and a chance to use their vocational experience to enter the nursing profession (Department of Health, 2014).

In 2015, the government announced a plan to create a new nursing support role, called nursing associates (HEE, 2016c) who will work alongside care assistants and registered nurses to deliver hand-on care. This role, recommended by The Shape of Caring Review (HEE, 2015) could also be a new route for those wishing to become a registered nurse. Again, on the 12th October 2016, the government announced that over 2,000 Nursing Associates will begin training before the end of 2016, and run over a two year period. Eleven sites have been chosen to deliver the first wave of training that will start in December 2016 (HEE, 2016d). Taken together, these changes in nursing education, including the move towards graduate preparation and the development of new roles are likely to have a profound impact on the nursing work environment and consequently the key concepts in this study, particularly team work and autonomy.

In the light of the recommendations in the Francis report, the new NMC Code was launched in January 2015 and came into force in April 2015 (NMC, 2013, 2015a). The Code has a particular focus on issues relating to fundamental standards, to ensure that the needs of patients are always put first (NMC, 2013, 2015a). A fundamental aspect of the Code is the requirement that nurses and midwives to be open and honest (NMC, 2015a, 2016). They need to have the support of a working culture where they are able to learn from mistakes and feel comfortable reporting incidents that have led to harm (NMC, 2015a, 2016). The NMC Joint Guidance with the General Medical Council on the professional “duty of candour” for doctors, nurses, and midwives was published in June 2015 and provides practical advice on the common duty to be transparent and truthful with patients (NMC, 2016).

Central to the new NMC Code is the NMC revalidation (NMC, 2013, 2016), which was part of the NMC’s response to the Francis Report into the failings at Mid Staffordshire NHS Foundation Trust (Francis, 2013). The revalidation process was launched in April 2016, and is a new process that all nurses and midwives will need to go through in order to renew their registration with the NMC (NMC, 2016). It was introduced to raise awareness of the Code and professional standards expected of nurses and midwives. Revalidation requires that every nurse and midwife on the register demonstrate on a regular basis that they are able to deliver care in a safe, effective and professional way. This puts public protection at the heart of the nursing and midwifery professions and

supports nurses and midwives to continually develop and reflect on their practice throughout their careers (NMC, 2016). Future research on the nursing work environment will need to consider the statements in the code which set out what good nursing practice looks like.

Reports into the failings at Mid Staffordshire NHS Foundation Trust revealed that inadequate staffing levels were related in an important way to the poor quality of care (Francis, 2013). Post-Francis, there has been a sharp increase in the demand for nursing staff. Trusts have spent more on staffing, including temporary and agency staff, in order to provide safe and compassionate care. However, levels of staffing remain one of the most critical issues that challenge the NHS.

Concerns about staffing led to the proposal in the Francis report that the National Institute for Health and Care Excellence (NICE) develop an evidence-based guideline for the NHS on staffing levels across a variety of settings in 2014 (NICE 2014; RCN 2016). In that year, the minimum staffing for adult nursing was published, and the report concluded that there was no single nurse-to-patient ratio that could be applied across all acute adult inpatient wards (NICE, 2014). It noted, however, that there was evidence of increased risk of harm associated with a registered nurse caring for more than eight patients during daytime shifts (NICE, 2014:22). This guideline is regularly cited as an underlying factor for the rise in agency bills and the shortage of nurses in England (RCN 2016).

In June 2015, NICE announced it was abandoning the safe staffing programme and did not publish the finished Accident and Emergency guideline (RCN, 2016). It has been claimed (RCN, 2016) that the decision to decommission NICE was linked to concerns that the cost of implementing the guideline would be too great. The NHS Improvement has since taken over the safe staffing project (RCN, 2016). A report published by the National Audit Office (2016) highlighted that all major clinical staff groups with data available had shortages in 2014, with particularly high levels for nurses, midwives and health visitors. There was a shortfall of 7.2% between the number of nursing, midwifery and health visiting staff that the staff providers said they needed and had budgeted for (386,200) and the number of staff in post (358,220). The shortfalls as at 31 March 2014 was - 27,980 (7.2%) (National Audit Office, 2016). Nurses leaving the NHS increased

from 6.8% in 2010/11 to 9.2% in 2014/15 and all staff (including non-clinical) leaving the NHS increased from 7.9% in 2010/11 to 9.0% in 2014/15 (National Audit Office, 2016).

In summary, there have been some very significant changes in the NHS since the data for this study were collected. The profession has been refocused on the provision of compassionate and safe care as stated in the NMC code, and nursing education has moved towards graduate level, supplemented by new routes into nursing, such as apprenticeships and new roles such as nursing associates. At the same time, however, the NHS is caught in an increasingly difficult dilemma which is that while compassionate and safe care demands high levels of nurse staffing, the financial situation and the availability of suitably trained staff makes it increasingly difficult to provide adequate numbers of nurses to meet the demands for care.

9.6 Novel findings and original Contributions of the PhD

This section summarises the original contributions of the findings in this research. There are several novel contributions of this research. Firstly, the systematic review in Chapter 3 is the first to investigate how the EOMII scale has been utilised in the literature. Importantly, findings from the systematic review suggest that the US 8-factor EOMII picks up cultural differences in the organisation of nursing work, particularly in relation to the amount of autonomy and control over nursing practice that nurses enjoy in different settings. It has highlighted that there are often issues with the autonomy and control over clinical practice factors.

This is the first research that explored the factor structure of the EOMII Scale in nurses working in England (Oshodi *et al.*, 2017; Chapter 6). Principal component analysis of data gathered from a sample of nurses in England using the EOMII identified five significant factors, each representing a different aspect of the nursing work environment: i) *ward manager support*; ii) *concern for patients*; iii) *working as a team*; iv) *organisational autonomy*; and v) *constraints to nursing practice* (Oshodi *et al.*, 2017). Consistent with the literature, the survey study highlighted that *clinical autonomy* (labelled as *constraints on nursing practice* in this research) is the most unstable factor of the EOMII scale. Findings in the survey study post Principal Component Analysis in Chapter 6 has changed the appearance of the Donabedian's (1980; 1992) framework

utilised at the beginning of this research. Due to the findings, the eight process variables have now been reduced to five, out of which two were interrelated (*organisational autonomy* and *constraints on nursing practice*); and one factor was related to another, but not vice versa (i.e. *constraints on nursing practice* and *ward manager support*). All these five factors were found to be predictors of nurse-assessed quality of care, as shown in Figure 9.1 below (figure taken from Figure 6.3 in Chapter 6). The appearance of the control variables (structural variables) were unchanged.

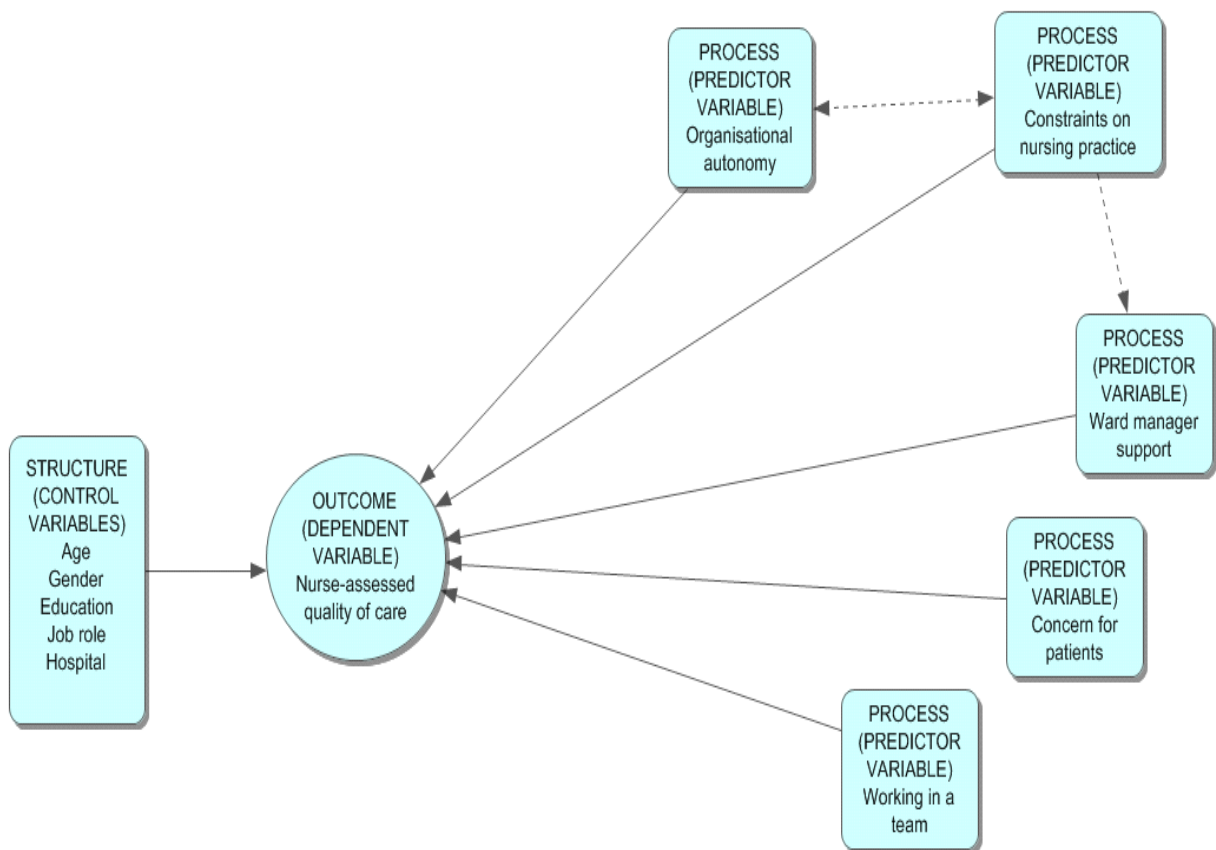


Figure 9.1: The conceptual framework post data analyses based on Donabedian’s (1980, 1992) framework (taken from Figure 6.3 in Chapter 6)

This is also the first research conducted in England (Chapter 7) that revealed that despite increased workload and stress resulting from inadequate staffing, nurses perceived teamwork in particular, ward manager support, as one of the facilitating aspects of their work environment that they considered essential to improving their work experiences, as well as supporting them in providing quality patient care.

Chapter 8 is the first qualitative study to highlight that nurses (in this sample in England) limited autonomy to the ward team, as opposed to the achievement of professional status. There was no mention in these short interviews of acting autonomously within the hospital and being involved in managerial, or higher level decisions. This might account for some of the differences between the US and England as, at least in Magnet hospitals, ward nurses are expected to be involved in changing practice, writing protocols and sitting on hospital boards.

Evidence from this research suggests that the nurses' understanding of autonomy in England is diverse, giving credence to previous findings in the literature that there is no agreed definition of autonomy. Finally, this study provided evidence that validated autonomy as a concept in nursing practice.

9.7 Recommendations

Findings from Chapter 6 (survey study) revealed that there is only a weak relationship between *organisational autonomy* and *constraints on nursing practice* implying that these two factors are largely independent of each other. This suggests that improving the nursing work environment and consequent patient outcomes require that factors that both support as well as hinder nursing practice are addressed by policy makers and nurse managers.

Nurse leaders could use the five-factor EOMII scale identified in this study to give a baseline measurement of the nursing work environment in the clinical areas for which they are responsible. If interventions to improve the nursing work environment could be devised and implemented, the EOMII could then be used to measure their effectiveness. In addition, it is imperative that systems are in place to regularly audit and monitor quality of care to maintain improvements in the nursing work environments. This is in order to ensure high quality patient care, foster staff retention, and monitor the effect of on-going changes to the nursing profession.

This study has highlighted the important role played by the ward manager in fostering a positive work environment, good team work, and achieving high standards in the care of the patients. It is therefore important that Directors of Nursing and other nurse leaders

make appropriate training in nurse leadership available and accessible to the ward managers in order to strengthen leadership in the nursing profession as well as contributing to the priorities of the organisation. This research highlights differences in the interpretation or experience of clinical autonomy among English nurses as well as the importance of ward managers in supporting autonomous nursing practice. Thus education and support to develop clinical autonomy among nurses might effectively be delivered by ward managers themselves.

The EOMII originated in the identification of Magnet hospitals in the USA. Magnet accreditation currently provides the only system for benchmarking nursing internationally, without an equivalent alternative. It has taken many years to develop. The recently launched initiative by the Florence Nightingale Foundation to explore how the nursing excellence standards developed by the ANCC can be applied in England is an exciting development. This study indicates a number of key areas on which nurse leaders might want to focus in the drive to improve the nursing work environment. Given the importance of the role of ward managers in the nursing work environment, giving ward managers support and resources to facilitate their work in supporting autonomous nursing practice is a step towards achieving excellence in nursing.

In Chapter 7, it was noted that despite the staffing problems the nurses were facing, in addition to the resultant high workload and stress they were experiencing, out of the one-third of the participants who made comments about their ward managers, nearly all were positive comments. This implies that leadership is very important, and the ward manager makes a huge difference. This study has highlighted the supportive role of the ward manager as being instrumental to positive work environment, good team work, and achieving high standards in the care of the patients. Directors of nursing/nurse leaders should therefore strengthen the supervisory role of ward manager in order to enable them to contribute to the development of their ward teams as well as contributing to the priorities of the organisation.

Chapter 8 highlighted deficits in the clinical autonomy experienced by nurses working in England, as well as the importance of ward managers in supporting autonomous nursing practice. It was also found that the participants limited autonomy to the ward team, as opposed to the achievement of professional status. Based on the interesting

findings in Chapter 8, it is recommended that there should be an active involvement of registered nurses in writing up hospital guidelines and policies, and to make the concept of autonomy an important aspect of nurse training. Chapters 7 and 8 also identified the need to increase the knowledge base of nurses by providing professional development programmes to address the concept of autonomy. Therefore, hospital management should financially support continuing professional development and education, and provide nurses time-off for attendance of programmes

9.8 Implications for practice and policy

As nursing has become an all-graduate profession, and the first set of the all-graduate nurses have recently qualified, ward teams will also include new roles in nursing i.e. nursing associate and apprenticeship roles; registered nurses will be expected to practise more autonomously. The implication for registered nurses is that they will be expected to be in charge of the wards and delegate tasks to care support workers, nursing associates and the nursing apprentices. Responsibilities for managing less highly qualified staff may have implications for registered nurses' conception and experience of autonomy.

This research has provided important implications for nurse leaders and policy makers suggesting that inadequate staffing is an on-going problem in the nursing work environment and has very serious consequences if not addressed. The fact that staffing issues have not improved despite evidence from many previous studies demonstrating close associations between inadequate staffing, nurse and patient outcomes is alarming. Nurse leaders and policy makers should invest in recruitment and retention of frontline nurses. The research also demonstrated the importance of professional relationships of members of staff to patient and nurses' satisfaction. Of importance was the role of the ward manager being shown to be important to the effective function of the ward, and central to the nurse' decision to leave or to remain in the job. The ward manager should be seen as supportive, approachable and accessible. This research highlighted the values of employee recognition and engagement to staff and patient outcome, as well as demonstrating the need for care to be more patient-centred. The importance of staff training and development was also emphasised.

9.9 Strengths and limitations of finding in this research

The strength of this study lies in the fact that the study commenced at a very important junction in the history of nursing profession where nursing in the UK was moving to becoming an all graduate profession. This study has provided a baseline for the measurement of the impact of all-graduate nursing profession on autonomy and quality of nursing care. Statistical analysis through the utilisation of the Principal Component Analysis in this research is robust, giving credibility to the findings.

In Chapter 3 (systematic review) only 10 studies were found for the conduction of this systematic review, out of which one (Weatherford, 2011) was of a poor quality. Although the remaining nine studies were of very high quality (i.e. NOS score 7 – 9), caution should be applied when interpreting the results of this review due to paucity of data. Out of these 10 studies, only one was a cohort study, while the remaining were cross-sectional studies. Five studies evaluated the psychometric properties of the EOMII scale and the remaining five asked specific but different questions that examined the health of the work environment and therefore, the results were not comparable, making it impossible to conduct meta-analysis with the data.

In Chapter 6, the study was conducted in two district general hospitals in the South East of England. They both had a stable workforce and it is difficult to say how typical they are of acute trusts in England, which may limit the generalizability of the study. It would be beneficial to replicate this study using a wider range of National Health Service (NHS) hospitals. Finally, the main outcome, nurse assessed quality of care was measured on a single item which may not be adequate to capture a range of perceptions and ratings of nursing. Although there was justification for the use of the single item given its widespread use in other research using the EOMII (Kramer *et al.*, 2011; Yildirim *et al.*, 2012, Kramer *et al.*, 2013, Bai *et al.*, 2013; Bai *et al.*, 2015). Furthermore, a recent study by (Stalpers *et al.*, 2016) examined the concordance between objective nurse-sensitive screening indicators (screening of delirium, screening of malnutrition, and pain measures) and the single item subjective nurse-assessed care quality using Spearman's Rho correlation and found a significant positive correlation ($r_s = 0.943, p 0.005$) between the two quality measures, indicating corresponding quality

ranking. However, it would be interesting to use a more complex measure, or to replace nurse assessed quality of care with data on patients' experiences and outcomes.

The strength of the results in Chapter 7 (analysis of free text data) lies in its credibility, as demonstrated in the nurses' first hand descriptions of their work experiences. However, the data gathered were short comments from the participants in response to the invitation to provide any comments that they might have about their ward or work environment. This method of data collection did not present the researcher any opportunity to probe the participants or to clarify information given. Further qualitative study in the form of in-depth or focus group interviews may be conducted to explore nurses' experiences of work and work environments, incorporating the themes already generated in the chapter. This study was restricted to nurses; it may be beneficial to gather qualitative data of patients to fully understand how the themes such as inadequate staffing identified in this study affects patients' experiences of care. Further quantitative research is suggested to examine the associations of the identified themes on patient experiences of care. Finally, majority of the participants were female (n = 70/75), therefore the sample may not represent a more diverse nursing workforce in terms of gender.

In Chapter 8, 48 registered nurses participated in the qualitative interviews. The sample size is large enough, and it consisted of subjects with diverse characteristics which contributed effectively to the discussions. This also made it possible to highlight differences or similarities in their views. However, it is difficult to say how typical they are of acute trusts in England and this may limit the generalizability of the study. This is because the sample in the study was predominantly women (45/48; 94%), which could be a limitation. Perhaps, their perceptions would have differed if there were more male participants.

9.10 Reflections on Donabedian's (1980, 1992) conceptual framework based on this research findings

The strength of the Donabedian's framework lies in its ability to assist in predicting which aspects of the work environment were important to this sample of nurses in England in providing high quality care to patients. This research evaluated the

associations between the Structure (i.e. age, gender, education, job role, and hospital - control variable) and the outcome variable (nurse-assessed care quality); and between the process and the outcome variables, but did not evaluate the association between the structure and the process variables, as it was not within the scope of this research to do such. Therefore, it was not possible to test whether there is a linear relationship of the SPO framework with regard to the nursing work environment in this study.

Findings in Chapter 6 highlighted the deficit in autonomous practice (labelled as *constraints on nursing practice* in this study) in the participants, which the nurses in this study perceived as inhibiting high quality patient care. In the same vein, the importance of the ward manager in encouraging or inhibiting autonomous nursing practice was highlighted. The structural variables (control variables) made very little impact to the model in Chapter 6, and explained very little of the variance in *nurse-assessed care quality*. It was not part of the aims of this study to measure the structural domain of the SPO framework with regard to the nursing work environment. However, during hierarchical multiple regression analysis, it was considered important and necessary to measure some structural variables (i.e. the demographic variables) because they were extraneous variable, which had to be measured and held constant in order to measure the true effect of the five extracted EOMII factors on *nurse-assessed quality of care*. However, it could be argued that, as opposed to the demographic variables used in this study as the “S” in the SPO framework, if other structural aspects of the work such as staffing numbers, skill-mix, nurse-patient ratios (as highlighted by the participants in Chapter 7), were used in the model, perhaps, items in the “S” domain would have been significant predictors of the outcome.

Based on the findings of this research, and on the reflections on the Donabedian’s framework, suggestions or future research are made, as discussed in the next section.

9.11 Proposals for future research

Findings from Chapter 6 (survey study) revealed that while in univariate analyses each of the factors was significantly associated with quality of care, in multivariate analyses, the relationship between *organisational autonomy* and quality of care no longer reached significance. These results suggest that the effect of *organisational autonomy* on quality

of care may have been mediated by the other four factors (i.e. *nurse manager support*, *working as a team*, and *concern for patients* and *constraints on nursing practice*). It was considered important that mediation analysis be carried out to investigate whether the direct effect of organisational autonomy on quality of care was being mediated by the other four variables in the model. This has been achieved in the published paper (Oshodi *et al.*, 2017) based on Chapter 6 of this thesis. In Oshodi *et al.* (2017) a multiple mediation model indicated that the effect of *organisational autonomy* on nurse-assessed care quality was mediated by *nurse manager support*, *working as a team*, and *concern for patients* but not *constraints on nursing practice*, indicating that these three constructs (i.e. *ward manager support*, *concern for patients* and *working as a team*) act as facilitators of *organisational autonomy*. Please see Appendix 38 for the published paper (Oshodi *et al.*, 2017).

Findings from the analysis of participants' comments in Chapter 7 revealed that a vicious cycle existed where high turnover rates of staff on their wards resulted in inadequate staffing. Shortage of staff resulted in high patient to nurse ratio which negatively affected quality of care. Participants also attributed these staffing issues to increased workload and stress. Working as a team, with subthemes of staff engagement, managerial and collegial support were identified by the participants as having impact on the work environment of nurses. Workplace environment with subthemes of professional development, pressure of bed space and health and safety issues were also identified as affecting the nurses' work environment.

Based on these findings in Chapter 7, it is hereby suggested that staffing issues in the form of nurse-patient ratio, stress and workload, and the subtheme of bed space pressure (i.e. "*Client need nurses not bed...*") be included in the structure (S) domain of the Donabedian's framework, and measured using validated and reliable scales, in order to measure their impact on the process and the outcome variables. An area for further research would be to examine the impact of these structural (S) variables on the process (P) variables, and how they both impact on the outcomes. Teamwork is within the framework as measure by the EOMII scale, so the theme *working as a team* in Chapter 7 has already been taken into consideration.

The subtheme *professional development*, which took the form of *support for education* as measured by the EOMII scale was not included in the final solution in England. However, further qualitative studies could be conducted to explore how nurses could be supported in their professional development. The subtheme *health and safety issues* which addresses the need for the decoration of the ward and lack of cross ventilation could further be explored in a qualitative study.

Furthermore, analysis on the qualitative interview data in Chapter 8, revealed six key themes which are working independently; teamwork; professional knowledge, examples of autonomy, the boundaries around autonomy; the development of autonomy. Specifically the themes the development of autonomy and boundaries around autonomy have been instrumental in extricating participants' perceptions towards the concepts of *clinical autonomy*, *control over nursing practice*, and *ward manager support* while completing the EOMII scale in this research. Finally, it is therefore suggested that further qualitative studies be carried out in order to explore how nursing work environment could be improved and made more conducive for autonomous nursing practice.

9.12 Conclusion

The overarching aim of this research, at the beginning of this thesis was to explore the factor structure of the Essentials of Magnetism II scale, and to explore the associations, if any, between the extracted factors and nurse-assessed quality of care in data gathered from a sample of hospital nurses in England. In responses to questions about autonomy, as measured by the EOMII scale, there was a need to further explore the interesting findings. This therefore prompted post hoc qualitative face-to-face, short structured interviews with a sample of registered nurses drawn from the same hospitals that participated in the survey in order to explore their perceptions of the concept of autonomy. The research design at the beginning of this research was quantitative, but in response to the findings of the survey study, a mixed methods approach was adapted to include a post hoc qualitative phase. The study was therefore described as a mixed-methods study with sequential explanatory design. The rationale for this mixed methodology study was complementarity, which has been achieved in this research i.e.

results from the qualitative study were used to clarify and to explain the results from the quantitative survey study.

THE RESEARCHER'S PREVIOUS PUBLICATIONS

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The following papers are based on this thesis and in preparation for suitable journals for publication:

The nursing work environment and quality of care: Content analysis of comments made by registered nurses responding to the Essentials of Magnetism II scale

Framework analysis of registered nurses' perceptions and experiences of autonomy in England, using short structured interviews

Assessment of the nursing work environment using the Essentials of Magnetism II (EOMII) scale: A systematic review

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The Impact of Nursing Work Environment on Patient's Evaluation of Care

We would like to invite you to participate in a research study which investigates the extent to which nurses' work environment supports or hinders nurses in providing high quality patient care. You are being invited to participate because you are a registered nurse working in an in-patient ward. We feel your views, based on your experiences, are important to our understanding of the nursing work environment, which we believe are in turn crucial for quality patient care. Findings from this study will provide information about the implication of the effects of organisational attributes on nurses' professional practice and retention, and patient care. All information, which is collected about your views during the course of the study, will be kept strictly confidential. There is no chance that your colleagues or your employer could have access to your data unless you discuss your responses with them. The questionnaire is completely anonymous, and you are not asked to put your name on it to identify yourself in any way. We therefore hope that you will feel comfortable about giving your honest opinions.

Please assist us by completing the enclosed two-part questionnaire. Your opinions and experiences are very important to us. There is no obligation for you to participate in this research. If you prefer not to complete this questionnaire simply return it unanswered.

The principal researcher of the project is Miss Titilayo O. Oshodi, a research student of the University of Greenwich. She is conducting this research under the supervision of Professor Elizabeth West (E.West@greenwich.ac.uk) and Dr. Ben Bruneau (B.S.Bruneau@greenwich.ac.uk) who are both nurses, and have PhDs in sociology and psychology respectively. If you have any query regarding any aspect of the study, please contact Titilayo O. Oshodi on t.oshodi@greenwich.ac.uk, or any of her supervisors who will do their best to answer your questions.

Thank you very much for your cooperation and assistance in this endeavour.

PART 1

Please read the following items and then indicate the extent to which each statement is descriptive of your ward/ work environment by ticking (✓) in the appropriate boxes.

		True for most Drs, most of the time	True for some Drs, some of the time	True for 1 or 2 Drs on occasion	Not true for any Drs
1	Nurse- doctor relationships on my ward are that of a 'student-teacher' with doctors willing to explain and teach the nurses.				
2	Nurse- doctor relationships consist of willing cooperation based on <i>mutual</i> power, trust, and respect.				
3	Relationships between nurses and doctors are frustrating, hostile and characterised by 'power plays,' antagonism or resentment.				
4	Relationships with doctors are that of 'student-teacher' with RNs influencing doctors in their prescribing care for patients.				
5	Our nurse-doctor relationships are rather formal and characterised mainly by the nurse responding to the doctor's questions.				
6	Doctors treat nurses on this ward as <i>equals</i> . Drs need RNs' assessments/observations and RNs need Drs medical knowledge if together we are				

	going to help the patient.				
		Strongly Agree	Agree	Disagree	Strongly Disagree
7	Other professionals (therapists, doctors) indicate they value nurses pursuing their education, extending their knowledge, and increasing their competence				
8	Our ward manager makes it possible for nurses on the ward to attend continuing education, outside courses and/or degree completion programmes.				
9	In this organisation, there are few rewards such as salary increases or promotion for pursuing one's education.				
10	This organisation provides financial assistance and/or paid time off for nurses to attend educational programmes.				
		Strongly Agree	Agree	Disagree	Strongly Disagree
11	Nurses here fear 'getting into trouble' or 'taking big risks' if they make independent, autonomous decisions.				
12	Autonomous nursing practice is facilitated because nurses 'feel' or know that ward managers will support them.				
13	Staff nurses must obtain orders or consent from an authority source before making independent or interdependent decisions.				
14	On this ward, nurses make				

	independent decisions within the nursing sphere of practice and interdependent decisions in those spheres where nursing overlaps with other disciplines.				
15	Our evidence-based practice activities provide us with the knowledge base needed to make sound clinical decisions.				
16	This organisation has many rules and regulations that prevent nurses from making independent or interdependent decisions.				
17	In this hospital, nurses have to do things that, in our professional judgment, may not be in the best interests of the patient.				
18	Nurses are held accountable in a positive, constructive, learning way for the outcomes of autonomous clinical nursing practice.				
19	There is a general understanding among nurses on my ward that our ward manager supports our independent decision-making.				
20	We have a Council or committee structure through which nurses on our ward and in this hospital control nursing practice.				
21	Staff nurses have input and make decisions with respect to <i>practice</i> issues and policies such as selection of equipment, how frequently to change IV line dressings, etc.				
22	Doctors, administrators, nurses and other professionals (e.g. physical therapists) recognise				

	that nursing in this hospital controls its own practice.				
23	Shared decision-making is more talk than action here; clinical (staff) nurses don't take part in decision-making.				
		Strongly Agree	Agree	Disagree	Strongly Disagree
24	Representatives from other departments and disciplines such as transportation, pharmacy, respiratory therapy, participate in our shared decision-making activities on a regular basis.				
25	Nurses in this organisation have input and make decisions related to <i>personnel</i> issues and policies that directly affect them such as floating, schedules, care delivery system.				
26	Nurses on my ward can describe decisions made and outcomes achieved as a result of our shared decision-making process.				
27	Nursing practice, policies, issues and standards are determined by nursing management, administration or people outside of nursing. Staff nurses do not have control.				
28	The nurses on my ward judge that, most of the time, we are adequately staffed to give <i>quality patient care</i> .				

29	We don't have enough competent and experienced nurses who 'know' the ward, patients and doctors to provide <i>safe</i> care.				
30	We modify our patient care delivery system (e.g. team) on the basis of the number and experience of RNs available.				
31	We work as a team on our ward. We need one another and need to work together if patients are to receive high quality care.				
32	Our group cohesiveness enables us to give quality care with our current level of staffing.				
33	Our ward is not consistently budgeted sufficient RN positions for the acuity of our patients. This makes it difficult to give quality patient care even when all budgeted positions are filled.				
34	Nurses on my ward demonstrate a proficiency level of competence.				
35	Nurses' competent performances are recognised and rewarded both on my ward and in this organisation.				
36	Continuing education toward a nursing degree is recognised as a way in which nurses can increase their nursing competence.				
37	National certification is recognised as evidence of proficient clinical competence.				
		Strongly Agree	Agree	Disagree	Strongly Disagree

38	Our ward manager represents the positions and interests of the staff and of our ward to other departments and to administration. He/she “watches our back”.				
39	If we need resources such as equipment or supplies, our ward manager sees to it that we get these.				
40	Our manager is diplomatic, fair and honest in resolving conflicts between nurses, doctors or other departments.				
41	Our ward manager supports and encourages interdisciplinary—doctors, nurses, and other disciplines—planning and action.				
42	The ward manager on our ward sees to it that we have adequate numbers of competent staff to get the job done.				
43	Our ward manager cites specific examples, both positive and negative, when he/she provides us feedback.				
44	The ward manager of our ward promotes staff cohesion and is a positive force in getting us to work together.				
45	Our manager is visible, available, approachable and ‘safe’.				
46	Our manager instils & “lives” the organisation’s values regarding patient care. He/she “walks the talk”.				
47	Our manager fosters sound decision-making by asking for ‘best practice’ evidence for the				

	decisions we are making				
48	This hospital is willing to try new things.				
49	Concern for the patient is paramount on my ward and in this hospital.				
50	Problems are solved by swift action; people are not afraid to take risks.				
51	People on my ward are enthusiastic about their work				
52	High performance and productivity are expected of everyone.				
53	We work together as a team, both within nursing and with medicine and other disciplines.				
54	Cost (money) is important, but quality patient care comes first in this organisation.				
		Strongly Agree	Agree	Disagree	Strongly Disagree
55	The contributions of all members of the staff(RNs, nurse assistants, technicians) are important and are valued.				
56	Our administration anticipates organisational changes that need to be made because of changes in the health care system, and sees to it that we are out in front.				
57	This is a value driven organisation. Values are known, understood, shared, and frequently talked about.				

58	We make a conscious effort to transmit our cultural values to incoming nurses, doctors, technicians and nurse assistants.				
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59. To conclude this part of the questionnaire, please circle a number on the line below that indicates the **usual quality of care provided to patients** on your ward.

0 1 2 3 4 5 6 7 8 9 **10**

**Dangerously Low
quality**

Safe, but not much more

Very high quality

PART 2

Please answer the following questions about yourself by ticking (✓) or filling the appropriate boxes.

1. What is your designation?

- staff nurse
- sister
- Charge Nurse

2. What is your gender?

- Male
- Female

3. Please state the age group you belong to:

- 18 – 20 years
- 21– 24 years
- 25 – 29 years
- 30 – 34 years
- 35 – 39 years
- 40 – 44 years
- 45 – 49 years
- 50 – 54 years
- 55 – 59 years
- More than 60 years

4. Please state your highest level of nursing education (please tick the appropriate box or boxes)

- Diploma
- B.Sc.

5. What is your work mode?

- Full-time
- Part-time

6. If **part-time**, how many hours do you work in **a week**?

7. How many shifts do you work **per week**?

8. How long have you worked as a registered nurse?

years months

9. How long have you worked on your present ward?

years months

10. Are you a permanent member of staff?

- Yes
- No

11. Are you

- A bank nurse?
- An agency nurse?
- Not applicable

12. How often do you get your skills updated?

13. Finally, please add any comments you may have about your ward/work environment.

Please return completed questionnaires to:

Miss Titilayo O. Oshodi
Research student/ Principal researcher of the study
Room 316, Mary Seacole Building
School of Health and Social Care
Southwood Site
University of Greenwich
London SE9 2UG

Appendix 2: Psychometric Properties of the EOM© and EOMII© Scales

Author Year, Location	Purpose	Design and method	Sample	Statistical analysis	Number of extracted Factors	Comments
Kramer M, Schmalenberg (2004a) EOM Original scale USA	Staff Nurses to identify attributes associated with the original concept of Magnetism as essential to their ability to give quality care	1) Grounded theory: Participant observation and interviews with nurses in 289 Magnet hospitals. 2) Quantitative study involving 3602 staff nurses in 16 Magnet and 10 non-Magnet hospitals	1) Participant observation & interviews (n=289 Magnet hospitals staff nurses) 2) Establishment of psychometric properties (n=3602 staff nurses in 16 Magnet and 10 non-Magnet hospitals)	Validity test through Principal Component Factor Analysis, using Varimax rotation with Kaiser normalisation. Cronbach's alpha reliability test Content validity Criterion validity	Items with a loading of .31 and above were included on the subscale. The initial 65-item EOM generated 10 factors. Finally, 8-factor, 58-item extracted: 1. <i>Support for education</i> : Items 7, 8, 9, 10 2. <i>Working with other nurses who are clinically competent</i> : Items 34, 35, 36, 37, 38, 39 3. <i>Positive nurse/physician relationships</i> : Items 1, 2, 3, 4, 5, 6 4. <i>Autonomous nursing practice</i> : Items 11, 12, 13, 14, 15, 16, 17, 18, 19 5. <i>A culture that values concern for the patient</i> : Items 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 6. <i>Control of and over nursing practice</i> : Item 20, 21, 22, 23, 24, 25, 26, 27 7. <i>Perceived adequacy of staffing</i> : Items 28, 29, 30, 31, 32, 33	The first 8 factors contained the clusters of items constituting the 8 EOMs but not completely as designed. All items on the <i>Clinically Competent</i> and <i>Support for Education</i> scales loaded together on the same factor, instead of on 2 different factors. The nurse manager support items loaded on 2 adjacent factors, with leadership activities clustering on one subscale and managerial activities clustering on one subscale. One value item (keeping physicians happy) did not load on any factor and was eliminated. Factors 9 and 19, related to clusters of items relative to different kinds of nursing care delivery systems, will be reported elsewhere. Reliability estimated using test-retest with all scales, ranging between .689 - .937

					8. <i>Nurse-manager support</i> : Items 40, 41, 42, 43, 46, 47, 54	
Kramer M, Schmalenberg (2005b)	Revision of the <i>Perception of Adequate Staffing</i> subscale of the EOM scale	Quantitative study	1) panel of 32 judges 2) N=729 staff nurses in 7 Magnet hospitals	Validity test through Principal Component Analysis (PCA), using Varimax rotation with Kaiser normalisation.	A multi-item scale incorporating the results of a delivery system survey as well as other factors known to affect Perception of Adequate Staffing was constructed (15 items). The 32 judges dialogued with the authors the extent to which the items affected the perception of adequate staff and the content of the items and the scale. Finally, 11- item scale was constructed PCA indicated the presence of only 2 factors: <ul style="list-style-type: none"> Factor 1: labelled <i>Perception of Adequate Staffing</i>, consisted of 6 items - enough budgeted positions, teamwork, delivery system, staffing adequate for quality care, safe care, and nurse job satisfaction (accounted for 59.376% of the variance). Factor 2: contained 5 items – ancillary services, support services, paid time off, inexperienced nurses, and reinforce other’s performance (accounted for 9.634% of the variance). All items loading on Factor 2 were eliminated from the <i>Perception of Adequate Staffing</i> scale due to 9.6% of explained variance Chronbach’s alpha for the 6-item on the final Perception of Adequate Staffing ranged from 0.841 to 0.862, and the total scale alpha was 0.873. 	The six-item PAS scale is valid and reliable and is a more accurate measure of PAS.
EOM						
USA						
Kramer <i>et al.</i> (2007a)	Revision of the <i>Nurse Manager Support</i>	Mixed-method study	1) survey using staff nurses (n=2382) working on 199	Principal Component Analysis (PCA), using Varimax	<ul style="list-style-type: none"> In Four factors were generated from the 30-item investigator-developed Nurse Manager Support scale that accounted for 55.49% of the variance: 	Findings from the interviews were incorporated into the <i>Nurse Manager Support</i> subscale of the EOMII scale

EOM USA	subscale of the EOM scale		clinical units in 8 Magnet hospitals 2) semi-structured interviews with experts containing staff nurses, physicians and Nurse Managers (n=446) from 2 non-study Magnet and 2 non-Magnet hospitals	rotation with Kaiser normalisation	<p>1) Leadership, 2) Managing Work Group, Resources and Practice, 3) Career Development, 4) Managing the Unit</p> <ul style="list-style-type: none"> Nurse Manager supportive role behaviours identified by interviewees in all 8 hospitals listed in order of frequency were: <p>1) is available, approachable, safe, and responsive, 2) demonstrates that he/she cares, 3) walks the talk, 4) motivates us to develop our self-confidence, self-reliance, and self-esteem, 5) gives genuine feedback, 6) provides adequate and competent staffing, 7) watches our backs, 8) promotes group cohesion and teamwork, 9) resolves conflicts constructively.</p>	
Schmalenberg & Kramer (2008a) EOMII (Original scale) USA	Establishing the psychometric properties of the EOMII scale	Analysis of secondary data	Secondary analysis of aggregated data from 10,514 staff nurses in 34 hospitals	Confirmatory factor analysis was used to test the structural integrity of the EOMII subscales	<p>Eight factor 58-items:</p> <ul style="list-style-type: none"> Cultural values: items 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 Nurse Manager Support: items 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 Control over Nursing Practice: Items 20, 21, 22, 23, 24, 25, 26, 27 Clinical Autonomy: items 11, 12, 13, 14, 15, 16, 17, 18, 19 Adequacy of Nursing Staff: items 28, 29, 30, 31, 32, 33 Nurse-physician relationship: items 1, 2, 3, 4, 5, 6 Clinical Competent Peers and Support for Education: items 7, 8, 9, 10, 34, 35, 36, 37 	<ul style="list-style-type: none"> Principal Component Analysis confirmed the factor analytic structure for seven of the eight essential work processes – all Support for Education and Clinically Competent Peers items loaded on the same factor. Although seven factors were extracted (with items from two factors loading on same factor), it is being described as “eight factor EOMII”

Appendix 3: The variables and corresponding item numbers on the EOMII ©

Variables	Item numbers
RNMD Relationships	1 through 6
Support for Education	7 through 10
Clinical Autonomy	11 through 19
Control over Nursing Practice	20 through 27
Perception that Staffing is Adequate	28 through 33
Working with Clinically Competent Peers	34 through 37
Nurse Manager Support Index	8, 18, 38 through 47
Cultural Values	48 through 58

Appendix 4: Search Terms Employed

Index Term	Synonyms	Related Terms
1. Essentials of Magnetism II	1a) EOMII *	1b) Essentials of Magnetism* 1c) EOM*
2. Scale	2a) tool*	2b) weight* 2c) measur*
3. Nurse	3a) Midwif*	3b) Nurs*
4. Work environment	4a) Work* environment 4b) Professional Work* Environment 4c) Practice environment 4d) Professional Practice Environment	4e) work place* 4f) work location* 4g) work site* 4h) job site*

Appendix 5: Search Strategy

Date	Search terms used e.g. 1[OR]1a [AND] 2[OR]2a[AND] 2e-k [AND] 3[OR] 3a [OR]3b	No. of papers	After duplicate removal	Abstract reviewed	Full text accessed for eligibility	Studies included
18/06/16	1 [AND] 2[AND] 3 [AND] 4	8	4	4	4	4
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [OR] 2a [OR] 2b [OR] 2c [AND] 3 [OR] 3a [OR] 3b [AND] 4 [OR] 4a [OR] 4b [OR] 4c [OR] 4d [OR] 4e [OR] 4f [OR] 4g [OR] 4h	24	10	9	9	2
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4	13	7	7	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4a	15	8	8	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4b	0	0	0	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4c	1	1	1	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4d	1	1	1	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4e	3	3	3	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4f	0	0	0	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4g	0	0	0	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b [AND] 4h	0	0	0	0	0
18/06/16	1 [OR] 1a [OR] 1b [OR] 1c [AND] 2 [AND] 3 [OR] 3a [OR] 3b	23	16	8	0	0
18/06/16	PubMed	25	25	15	9	3
18/06/16	Google Scholar	1	1	1	1	1
18/06/16	British Library EThoS	0	0	0	0	0
18/06/16	Hand searched	0	0	0	0	0
	TOTAL	114	76	57	23	10

Appendix 6: NOS quality assessment tool for Cohort Studies

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE COHORT STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability

Selection

- 1) Representativeness of the exposed cohort
 - a) truly representative of the average _____ (describe) in the community *
 - b) somewhat representative of the average _____ in the community *
 - c) selected group of users eg nurses, volunteers
 - d) no description of the derivation of the cohort
- 2) Selection of the non exposed cohort
 - a) drawn from the same community as the exposed cohort *
 - b) drawn from a different source
 - c) no description of the derivation of the non exposed cohort
- 3) Ascertainment of exposure
 - a) secure record (eg surgical records) *
 - b) structured interview *
 - c) written self report
 - d) no description
- 4) Demonstration that outcome of interest was not present at start of study
 - a) yes *
 - b) no

Comparability

- 1) Comparability of cohorts on the basis of the design or analysis
 - a) study controls for _____ (select the most important factor) *
 - b) study controls for any additional factor * (This criteria could be modified to indicate specific control for a second important factor.)

Outcome

- 1) Assessment of outcome
 - a) independent blind assessment *
 - b) record linkage *
 - c) self report
 - d) no description
- 2) Was follow-up long enough for outcomes to occur
 - a) yes (select an adequate follow up period for outcome of interest) *
 - b) no
- 3) Adequacy of follow up of cohorts
 - a) complete follow up - all subjects accounted for *
 - b) subjects lost to follow up unlikely to introduce bias - small number lost - > ____ % (select an adequate %) follow up, or description provided of those lost) *
 - c) follow up rate < ____% (select an adequate %) and no description of those lost
 - d) no statement

Appendix 7 - Newcastle-Ottawa Scale adapted for cross-sectional studies

Selection: (Maximum 5 stars)

1) Representativeness of the sample:

- a) Truly representative of the average in the target population. * (all subjects or random sampling)
- b) Somewhat representative of the average in the target population. * (non-random sampling)
- c) Selected group of users.
- d) No description of the sampling strategy.

2) Sample size:

- a) Justified and satisfactory. *
- b) Not justified.

3) Non-respondents:

- a) Comparability between respondents and non-respondents characteristics is established, and the response rate is satisfactory. *
- b) The response rate is unsatisfactory, or the comparability between respondents and non-respondents is unsatisfactory.
- c) No description of the response rate or the characteristics of the responders and the non-responders.

4) Ascertainment of the exposure (risk factor):

- a) Validated measurement tool. **
- b) Non-validated measurement tool, but the tool is available or described. *
- c) No description of the measurement tool.

Comparability: (Maximum 2 stars)

1) The subjects in different outcome groups are comparable, based on the study design or analysis. Confounding factors are controlled.

- a) The study controls for the most important factor (select one). *
- b) The study control for any additional factor. *

Outcome: (Maximum 3 stars)

1) Assessment of the outcome:

- a) Independent blind assessment. **
- b) Record linkage. **
- c) Self report. *
- d) No description.

2) Statistical test:

- a) The statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association is presented, including confidence intervals and the probability level (p value). *
- b) The statistical test is not appropriate, not described or incomplete.

This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale for cohort studies to perform a quality assessment of cross-sectional studies for the systematic review, "Are Healthcare Workers' Intentions to Vaccinate Related to their Knowledge, Beliefs and Attitudes? A Systematic Review".

We have not selected one factor that is the most important for comparability, because the variables are not the same in each study. Thus, the principal factor should be identified for each study.

In our scale, we have specifically assigned one star for self-reported outcomes, because our study measures the intention to vaccinate. Two stars are given to the studies that assess the outcome with independent blind observers or with vaccination records, because these methods measure the practice of vaccination, which is the result of true intention.

<http://www.biomedcentral.com/content/supplementary/1471-2458-13-154-S3.doc>.

Appendix 8: Table of excluded papers

No.	Author	Year	Title	Reason for exclusion
1	Albarran JW	2015	What's in this Issue? Nursing in Critical Care. Vol. 20, no. 3, pp. 111 – 112	The editor of Nursing in Critical discusses topics within the issue, including the discussion of an article validating the Essentials of Magnetism II tool for Chinese nurses in intensive care settings.
2	Al-Ateeq E.	2008	<i>The Relationship Between Registered Nurses' Perceptions Of Their Work Environment And Their Perceptions Of Patient Safety Culture</i> [e-book]. George Mason University	EOM scale was utilised
3	Filose S	2008	A Nurse Agency Model Effect on Registered Nurse Retention and Patient Satisfaction. University of Oklahoma, PhD, 211 pages (Doctoral Dissertation – research) ISBN: 9780549499350	EOM scale was utilised
4	Kramer M, Schmalenberg C.	2008	Confirmation of a Healthy Work Environment. <i>Critical Care Nurse</i> 28(2):56-64.	The article discusses the criteria for achieving a healthy work environment for nurses working in ICUs; and also discusses the use of Essentials of Magnetism
5	Kramer M, Schmalenberg C, Maguire P, Brewer BB, Burke R, Chmielewski L, Cox K, Kishner J, Krugman M, Meeks-Sjostrom D, Waldo M	2008	Structures and Practices Enabling Staff Nurses to Control Their Practice. <i>Western Journal of Nursing Research</i> , vol. 30, no. 5, pp. 539 - 559	EOM scale was utilised
6	Kramer M, Schmalenberg C, Maguire P	2010	Nine Structures and Leadership Practices Essential for a Magnetic (Healthy) Work Environment. <i>Nursing Administration Quarterly</i> , Vol. 34, No. 1, pp. 4–17	EOM scales was utilised. Meta-analyses of 2 sets of publications were used to identify organizational structures and best leadership practices essential to a healthy work environment
7	Kramer M, Brewer B, Halfer D, Hnatiuk C, MacPhee M, Schmalenberg C	2016	The Evolution and Development of an Instrument to Measure Essential Professional Nursing Practices. <i>Journal Of Nursing Administration</i> . November 2014;44(11):569-576	The article describes the development of an updated Essentials of Magnetism process measurement instrument for clinical nurses practising on inpatient units in hospitals
8	Lattavo K,	2013	Essentials of Magnetism (EOM) III Research Program. <i>Med-Surg Matters</i> , vol. 22, no. 2, pp. 2-6	The article is a discussion paper

9	Newhouse R, Morlock L, Pronovost P, Colantuoni E, Johantgen M.	2009	Rural hospital nursing: better environments = shared vision and quality/safety engagement. <i>Journal Of Nursing Administration</i> . 2009;39(4):189-195	EOM scale was utilised
10	Newhouse RP, Morlock L, Pronovost P, Sproat SB.	2011	Rural hospital nursing: results of a national survey of nurse executives. <i>Journal of Nursing Adm</i> . 41(3):129-37. doi:	EOM scale was utilised
11	Sharkey K, Meeks-Sjostrom D, Baird M	2009	Challenges in Sustaining Excellence over Time. <i>Nursing Administration Quarterly</i> , vol. 33, no. 2, pp. 142 - 147	The study discussed the implementation of the Forces of Magnetism in a hospital in Georgia
12	Stalpers D, Kieft RA, van der Linden D, Kaljouw MJ, Schuurmans MJ.	2016	Concordance between nurse-reported quality of care and quality of care as publicly reported by nurse-sensitive indicators. <i>BMC Health Serv Res</i> . 2016 Apr 6;16(1):120. doi: 10.1186/s12913-016-1372-z.	EOMII was not utilised, only the nurse-assessed care quality data in de Brouwer <i>et al.</i> (2013) was used to examine the concordance between objective nurse-sensitive screening indicators and the subjective nurse-assessed quality of care.
13	Lin LC, Lee HF, Yen M	2017	Establishing a measuring tool for a nursing work environment in Taiwan. <i>Research and Theory for Nursing Practice: An International Journal</i> , vol. 31, no. 1, pp. 75-88	In the study, the Nursing Work Index Revised (NWI-R) was combined with the <i>Support for Education subscale</i> of the EOMII scale to form the Taiwan Nursing Work Environment Index (TNWEI) tool.

Appendix 9: Evaluation of the psychometric properties of the EOMII© scale

Author Year, Location	Purpose	Design	Sample	Statistical analysis	Number of extracted Factors	Reliability	Comments
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	Cross sectional	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	PCA together with varimax rotation & Kaiser Normalisation to test construct validity. Scree plot. Cronbach's α to test the internal consistency.	Seven-factor, 55-items were named according to the US-EOMII (with clinical competency and support for education being combined as one factor).	Cronbach's alpha coefficient for the scale was 0.91	<ul style="list-style-type: none"> • Items 18 & 33 were excluded from the scale because they had been included under two separate factors. • Item 15 was also excluded because its load was under 0.30. • Items 19, 23, 27, 30, 41, 42, 44 and 53 were located under different factors, different from the factor structure of the US-EOMII scale. • Clinical Autonomy subscale: items 23 & 27 belong to the US Control over Nursing Practice scale. • Control Over Nursing Practice: item 19 belong to the US Clinical Autonomy subscale
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool.	Cross sectional	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	Content Validity Index to assess content validity, and Confirmatory Factor Analysis to assess construct validity Scree plot Cronbach's α to assess reliability	Nine factors, 45-items: Factors 1 (nine items) and 5 (six items) were respectively labelled as Nurse Manager Support and Patient-Centred Values, similarly as the original EOMII. Factor 2 (four items) was labelled as Restrictions of Decision-making. Factor 3 (six items) was labelled as working with	The total internal consistency coefficient Cronbach's alpha coefficient of the scale was 0.92	<ul style="list-style-type: none"> • Autonomous Control over Nursing Practice subscale: items 12, 14, 15, & 19 belong to the US Clinical Autonomy subscale, while items 20, 21, & 22 belong to the US Control over Nursing Practice. • Even with lower factor loadings, items 10, 31, and 32 were kept in the C-EOMII because they contained important information of

					<p>Competent Peers. Factor 4 (three items) and 8 (two items) were respectively labelled as Collaborative Nurse-physician Relationships and Traditional Nurse-physician Relationships. Factor 6 (seven items) was labelled as Autonomous Control over Nursing Practice. Factor 7 (three items) from the original scale was labelled as Support for Education. Factor 9 (five items) was labelled as Perceived Adequate Staffing. It included items 48 & 49 which were originally developed to measure Patient-Centre Values.</p>		<p>healthy work environment.</p> <ul style="list-style-type: none"> Thirteen items were deleted from the final solution (items 5, 11, 13, 17, 18, 29, 30, 34, 35, 43, 50, 51, 54).
<p>de Brouwer <i>et al.</i> (2014) Netherlands</p>	<p>To assess the psychometric properties of the EOMII in a culture different from its origin</p>	<p>Descriptive & correlational design</p>	<p>2542 nurses (response rate 52.1%) from six top clinical teaching hospitals</p>	<p>Confirmatory Factor Analysis using varimax rotation, item-total statistics. Cronbach's α for internal consistency</p>	<p>Eight factors, 58 items (were in line with the US-EOMII, and were named accordingly)</p>	<p>Cronbach's alpha for the entire scale was 0.92 and ranged from 0.58 – 0.92 for eight subscales.</p>	<ul style="list-style-type: none"> Authors proposed the removal of item 52 (from cultural values) CFA indicated that five of the eight subscales formed clear factors and were in line with the US EOMII subscales (and named accordingly). However, for three subscales (i.e. clinical autonomy, clinically competent peers, and patient-centred culture), the items loaded on two separate factors. Scree plot not employed

de Brouwer <i>et al.</i> (2017a) Netherlands	To develop and psychometrically test the Essentials of Magnetism II in nursing homes.	Cross-sectional, correlational study design.	Response rate 60.5% (n = 276) working at 44 units of three nursing homes were included.	Confirmatory Factor Analysis using varimax rotation Cronbach's α for internal consistency	Confirmatory Factor Analysis indicated that three subscales formed clear factors, as in the original EOMII (Perceived Adequacy of Staffing, Clinically Competent Peers and Nurse Manager Support). Two subscales (Nurse-Physician Relationships and Support for Education) were spread over two factors, and three subscales (Clinical Autonomy, Control over Nursing Practice and Patient Centered Culture) were spread over three factors.	Cronbach's α for the entire scale was 0.92, alphas of six subscales were above 0.70, while α was below 0.70 for two subscales (Support for Education and Clinically Competent Peers).	<ul style="list-style-type: none"> • Cronbach's α of different subscales increased by separately deleting seven items (items 5, 9, 14, 24, 30, 35, 52). • Four items violated ≥ 2 criteria (items 9, 14, 35 and 52), and three subscales violated ≥ 2 criteria (subscales Support for Education, Nurse-Physician Relationships and Control over Nursing Practice).
de Brouwer <i>et al.</i> (2017b) Netherlands	to determine construct validity of the Dutch EOMII with hypotheses testing by relating the Dutch EOMII to the Dutch Practice Environment scale of the Nursing Work Index (PES-NWI)	Cross-sectional, correlational study design.	Response rate was 47% (n = 121).	Pearson correlation coefficients, r, by using individual respondent scores on both instruments, and checking for potential clustering of nurse data at the level of wards by calculating Spearman's correlation coefficient, q, on ward averages. For hypothesis 10, ward mean scores derived from individual scores	Ten of the 15 hypotheses were formulated with regards to convergent validity between the two scales. For example, the first concerned the degree to which the measures total D-EOMII score and the total PES-NWI scores are correlated. It was revealed that the total scores of both instruments are strongly correlated (r = 0.88). In total, 12 of 15 hypotheses (80%) were confirmed and three were rejected.	The results imply that an organisation scoring high on one or two instruments will also score high on the other.	<ul style="list-style-type: none"> • Cronbach's alpha was not calculated.

				were rank ordered on the total D-EOMII score and the total PES-NWI score and tested the hypothesis by calculating Spearman's correlation coefficient, ρ .			
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Appendix 10: Associations between the factors of the EOMII©

Study	Purpose of the study	Sample	Associations between the subscales
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	<ul style="list-style-type: none"> All the factors were significantly correlated with correlations ranging from 0.22 –0.61 ($p<0.001$), out of which correlations between clinical competency/support for education and nurse manager support ($r=0.61$, $p<0.001$), clinical autonomy and nurse manager support ($r=0.61$, $p<0.001$), clinical competency/support for education and nurse-physician relationship ($r=.51$, $p<0.001$), clinical competency/support for education and adequacy of nursing staff ($r=.56$, $p<0.001$), clinical competency/support for education and cultural values ($r=.51$, $p<0.001$) had the highest correlations.
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> The EOMII had acceptable construct validity with significantly positive correlations between the subscales ($p<0.01$). The highest correlations were found between the nurse manager support and patient-centred care ($r=.65$, $p<0.01$); and patient-centred values and perceived adequate staffing ($r=.60$, $p<0.01$).
Bai <i>et al.</i> (2015) China	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> The EOMII had acceptable construct validity with significantly positive correlations between the subscales ($p<0.01$). The highest correlations were found between the nurse manager support and patient-centred care ($r=.65$, $p<0.01$); and patient-centred values and perceived adequate staffing ($r=.60$, $p<0.01$).

Appendix 11: Associations between each of the EOMII© factor, professional job satisfaction (i.e. the total score of the EOMII©), and overall job satisfaction

Study	Purpose of the study	Sample	Impact of Factors on professional job satisfaction and overall job satisfaction
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Total score of the EOMII ranged from .57 – .82 ($p<0.01$), as well as between the subscales of the EOMII. Professional job satisfaction has the highest correlation with control over nursing practice ($r=.82$, $p<0.01$), patient-centred care ($r=.73$, $p<0.01$), clinical autonomy ($r=.72$, $p<0.01$), perceived adequate staffing ($r=.65$, $p<0.01$), and support for education ($r=.65$, $p<0.01$). Each of the factors had significantly positive correlation with overall job satisfaction ranging from 0.30 – 0.51 ($p<0.01$), with patient-centred values having the highest correlation ($r=.51$, $p<0.01$).
Bai <i>et al.</i> (2015) China	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Total score of the EOMII ranged from .57 – .82 ($p<0.01$), as well as between the subscales of the EOMII. Professional job satisfaction has the highest correlation with control over nursing practice ($r=.82$, $p<0.01$), patient-centred care ($r=.73$, $p<0.01$), clinical autonomy ($r=.72$, $p<0.01$), perceived adequate staffing ($r=.65$, $p<0.01$), and support for education ($r=.65$, $p<0.01$). Each of the factors had significantly positive correlation with overall job satisfaction ranging from 0.30 – 0.51 ($p<0.01$), with patient-centred values having the highest correlation ($r=.51$, $p<0.01$).
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	Each of the factors had significantly positive correlation with overall job satisfaction ranging from 0.19 – 0.53 ($p<0.001$), with nurse manager support ($r=.53$, $p<0.001$), patient-centred cultural values ($r=.51$, $p<0.001$), and clinical autonomy ($r=.49$, $p<0.001$) having the highest correlations.
Stalpers <i>et al.</i> (2017) The Netherlands	To examine nurse-perceived quality of care, controlling for overall job satisfaction among critical care nurses and to explore associations with work environment characteristics.	A multicentre survey in three Dutch intensive care units. 45% ($n=126$)	<ul style="list-style-type: none"> Overall job satisfaction was positively associated with all included factors ($p<0.001$). Patient-centeredness and autonomy explaining approximately 30% of the total variance.

<p>de Brouwer <i>et al.</i> (2017a)</p> <p>Netherlands</p>	<p>To develop and psychometrically test the Essentials of Magnetism II in nursing homes.</p>	<p>Response rate 60.5% (n = 276) working at 44 units of three nursing homes were included.</p>	<ul style="list-style-type: none"> • All correlation is significant at the $p < .01$ level (two-tailed). The total D-EOMII-score ($r = .45$) and five subscales (Clinical Autonomy $r = .32$; Perceived Adequacy of Staffing $r = .35$; Clinically Competent Peers $r = .31$; Nurse Manager Support $r = .35$ and Patient Centered Culture $r = .48$) correlated moderately to strongly ($r > .30$) with Overall Job Satisfaction. • However, three subscales correlated weakly with Overall Job Satisfaction (Nurse–Physician Relationships $r = .12$, Support for Education $r = .28$ and Control over Nursing Practice $r = .22$)
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Appendix 12: Associations between each EOMII© factor and nurse-assessed quality of care

Study	Purpose of the study	Sample	Impact of factors on nurse-assessed quality of care
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	<ul style="list-style-type: none"> Each of the factors had significantly positive correlation with the quality of care ranging from 0.13 – 0.37 ($p < 0.001$), with the perceived adequate staffing ($r = .37$, $p < 0.001$), and control over nursing practice ($r = .32$, $p < 0.001$) having the highest correlations.
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Each of the factors had significantly positive correlation with the quality of care ranging from 0.20 – 0.40 ($p < 0.01$), with the perceived adequate staffing ($r = .40$, $p < 0.01$), patient-centred values ($r = .37$; $p < 0.01$), and nurse manager support ($r = .35$, $p < 0.01$) having the highest correlation.
Bai <i>et al.</i> (2015) China	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Each of the factors had significantly positive correlation with the quality of care ranging from 0.20 – 0.40 ($p < 0.01$), with the perceived adequate staffing ($r = .40$, $p < 0.01$), patient-centred values ($r = .37$; $p < 0.01$), and nurse manager support ($r = .35$, $p < 0.01$) having the highest correlation.
Stalpers <i>et al.</i> (2017) The Netherlands	To examine nurse-perceived quality of care, controlling for overall job satisfaction among critical care nurses and to explore associations with work environment characteristics.	A multicentre survey in three Dutch intensive care units. 45% ($n = 126$)	<ul style="list-style-type: none"> After controlling for job satisfaction, nurse-perceived quality was positively associated with the work environment characteristics: adequacy of staffing, patient-centeredness, competent peers and support for education, with support for education patient centred values explaining approximately 31% of the total variance.

Appendix 13: Associations between nurse-assessed quality of care, professional job satisfaction (i.e. total score on the EOMII©), and overall job satisfaction

Study	Purpose of the study	Sample	Impact of Factors on Patient Outcomes
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Professional job satisfaction had a significantly positive correlation with nurse-assessed quality of care ($r=0.37$; $p<0.01$). Overall job satisfaction had a significantly high correlation with nurse-assessed quality of care ranging ($r=.52$, $p<0.01$).
Bai <i>et al.</i> (2015) China	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Professional job satisfaction had a significantly positive correlation with nurse-assessed quality of care ($r=0.37$; $p<0.01$). Overall job satisfaction had a significantly high correlation with nurse-assessed quality of care ranging ($r=.52$, $p<0.01$).
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	<ul style="list-style-type: none"> Overall job satisfaction had a significantly high correlation between quality of care ($r=.39$, $p<0.001$).
Stalpers <i>et al.</i> (2017) The Netherlands	To examine nurse-perceived quality of care, controlling for overall job satisfaction among critical care nurses and to explore associations with work environment characteristics.	A multicentre survey in three Dutch intensive care units. 45% (n=126)	<ul style="list-style-type: none"> A relatively strong correlation was found between job satisfaction and nurse-perceived quality ($r = 0.448$, $P < 0.001$). The mean scores for the single-item outcome indicators were 7.58 (SD = 0.70) for nurse-perceived quality and 7.75 (SD = 0.82) for overall job satisfaction. The proportion of nurses that were 'very satisfied' (mean score ≥ 8) ranged from 55% for nurse-perceived quality of care to 66% for overall job satisfaction. The proportion of dissatisfied nurses mean score < 6) was low for nurse-perceived quality and overall job satisfaction respectively 0% and 1%.

Appendix 14: Associations between overall job satisfaction and professional job satisfaction (i.e. the total score on EOMII©)

Study	Purpose of the study	Sample	Impact of Factors on Patient Outcomes
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Overall job satisfaction had a significantly high correlation with professional job satisfaction ($r=.53$, $p<0.01$).
Bai <i>et al.</i> (2015) China	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Overall job satisfaction had a significantly high correlation with professional job satisfaction ($r=.53$, $p<0.01$).

Appendix 15: Differences in the healthy work environment, overall job satisfaction and nurse-assessed quality of care by care units

Study	Purpose of the study	Sample	Differences in the healthy work environment
Bai <i>et al.</i> (2015) USA	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> Through the mean scores of healthy work environment, nurses from medical ICUs had the healthiest work environment including the healthiest professional job satisfaction and highest scores all factors of the scale (except nurse-physician relationships, and perceived adequate staffing), as well as the highest overall job satisfaction and quality of care. Surgical ICUs had the least healthy work environment and the lowest overall job satisfaction and quality of care. MANOVA was used to explore the differences in C-EOMII, the healthy work environment and, overall job satisfaction and quality of care by care units.
Weatherford (2011) USA Doctoral dissertation	To determine the effects of staff nurses' perceptions of safety priorities in their organisation (safety climate) and their work ownership climate (Magnet hospital designation) on safety citizenship behaviours	Available population of staff nurses (n=1153). A total of 386 responses were downloaded. The final study sample was determined to be 92 usable responses for an 8% response rate overall (does not add up).	<ul style="list-style-type: none"> The total scores for EOMII (mean=312; median=318; SD=41.20) were used to indicate work-ownership climate. Pearson product-moment correlation coefficient was selected to analyse the relationship between work ownership climate (EOMII) and safety climate. Results indicated a significant positive correlation between EOMII and safety climate scores, $r(90)=.542$, $n=92$, $p<.001$. This result indicates a 27% shared variance or overlap between safety climate and work ownership climate scores. The Spearman Rho correlation statistic was also calculated for the relationship between EOMII and ZSCQ, This was done as the non-transformed ZSCQ scores initially violated the assumption of normality and then was transformed. Results again showed a significantly positive correlation between work ownership climate and safety climate; $r_s=.492$, $n=92$, $p<.000$ Results indicated a significant result only for the effect of work environment (EOMII) on safety citizenship, $F(1,86)=8.425$, $p=.005$. This result indicated that EOMII scores had a moderate effect on safety citizenship behaviour.
Kramer <i>et al.</i> (2011) Scale: EOMII USA	investigated the extent to which experienced nurses in magnet hospital confirm healthy work environments	12,233 experienced nurses from 717 clinical units from 34 magnet hospitals completed the EOMII scale	<ul style="list-style-type: none"> There were highly significant differences ($F=79.173$; $p\leq 0.000$) in nurse-assessed quality of patient care outcome scores by VHWE, HWE and Work Environments Needing Improvements (WENI) units. Nurses on VHWE units rated quality of care on their units significantly higher than did nurses on HWE and on WENI units. The mean score on the 10-point quality of care rating scale (10 is highest) was 8.61 for VHWE, 7.95 for HWE units, and 7.43 for WENI units.
Kramer <i>et al.</i> (2013)	To examine the impact of healthy work environments on new	The EOMII was administered to experienced nurses	<ul style="list-style-type: none"> Most ($n=88$) of the 191 units were confirmed by experienced nurses as having VHWE, 58 were confirmed as units with HWEs, and 45 as WENI. Nurses working on units with WENI reported the highest environmental reality shock

EOMII USA	graduate nurses' environmental reality	(n=4,639), and to all new graduates (n=468)	<p>scores i.e. new graduates on these units experienced the greatest fall from the very high initial expectations of the environment. These nurses were followed by new graduates working on HWE units and then by nurses working on VHWE units. The comparison between VHWE and HWE units at 12 months was not significant.</p> <ul style="list-style-type: none"> • For all types of HWE unit, quality of patient care ratings started out high at 4 months, decreased at 8 months, and increased markedly at 12 months. • New graduates having their first professional work experience on units on which seasoned nurses confirmed that they had excellent unit work environments, rated the quality of patient care on their unit higher than their peers on other units (i.e. HWE, and WENI)
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Appendix 16: Differences in the healthy work environment, overall job satisfaction and nurse-assessed quality of care by demographics variables

Study	Purpose of the study	Sample	Differences in the healthy work environment
Bai <i>et al.</i> (2015) USA	Investigated the work environment, levels of job satisfaction, and quality of patient care using the translated version of the EOMII	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<ul style="list-style-type: none"> • MANOVA was used to explore the differences in C-EOMII, the healthy work environment and, overall job satisfaction and quality of care by type of ICU, controlling the education level, years of work experience, type of hospital, gender and professional title. • Compared with those with 5-10 or 10-15 years of work experience, nurses with 3 years or less experience reported significantly higher scores of C-EOMII, as well as higher scores in the professional job satisfaction ($p<0.001$) and overall job satisfaction ($p<0.01$). • Compared with those with 15-20 years of experience, nurses with 3 years or less of experience reported higher scores in support for education ($p<0.01$), perceived adequacy of staffing ($p<0.02$) and professional job satisfaction ($p<0.02$). • In terms of quality of care, nurses with 3 years or less of experience reported significantly higher scores than nurses with 10-15 ($p<0.001$) and 20 or more years of experience ($p<0.04$). • In terms of education level, nurses with associate degrees scored higher in nurse-physician relationships ($p<0.01$) and clinical autonomy ($p<0.05$) than those with bachelor degrees
Kramer <i>et al.</i> (2011) Scale: EOMII USA	investigated the extent to which experienced nurses in magnet hospital confirm healthy work environments	12,233 experienced nurses from 717 clinical units from 34 magnet hospitals completed the EOMII scale	<ul style="list-style-type: none"> • A larger percentage of nurses in the WENI group worked 12-hour days than did nurses in the other two groups • A larger percentage of nurses in the HWE group worked 12-hour nights than did nurses in the other two groups. Significantly ($p<0.000$) more ADN (Associate Degree in Nursing) nurses and fewer BSN nurses worked in WENI than on VHWE or HWE units, while significantly more BSN nurses worked in VHWE. • Twenty-five percent of the respondents had 3 years or less of experience; an equal percentage had more than 20 years of experience. The spread of experience in the sample was virtually the same among the HWE groups • BSN nurses scored higher on all work processes except nurse-physician relationships. • The 'over 30-year nurse' group scored the highest on most variables except control over nursing practice where the '3 years or less nurses' scored the highest.
Kramer <i>et al.</i> (2013) EOMII USA	To examine the impact of healthy work environments on new graduate nurses' environmental reality	The EOMII was administered to experienced nurses ($n=4,639$), and to all new graduates ($n=468$)	<ul style="list-style-type: none"> • New graduates employed in academic-teaching hospitals anticipated significantly higher quality work environments (i.e. unit conditions enabling them to engage in the eight work processes essential to quality patient care) than did new graduates in community hospitals – particularly with regard to better nurse-physician relationships ($F= 4.121, p=.003$), higher perceived adequacy of staffing ($F=10.923, p <.001$), and more control over nursing practice ($F=4.827, p=.008$). There were no differences in anticipations by type of hospital for supportive nurse manager and patient centered cultural values.

Appendix 17: Quality assessment for the Cross-Sectional Studies

Study	Study design	Selection				comparability	Outcome		Total score
		Representativeness of the sample	Sample size	Non-respondents	Ascertainment of exposure	Based on design and analysis	Assessment of outcome	Statistical test	
Yildirim <i>et al.</i> (2012) Turkey	Cross-sectional study	*	*	*	**		*	*	7/10
Bai <i>et al.</i> (2013) China	Cross-sectional study	*	*	*	**		*	*	7/10
de Brouwer <i>et al.</i> (2014) The Netherlands	Cross-sectional study	*	*	*	**		*	*	7/10
Bai <i>et al.</i> (2015) China	Cross-sectional study	*	*	*	**	**	*	*	9/10
Weatherford (2011) USA Doctoral Dissertation	Cross-sectional study				**		*	*	4/10
Kramer <i>et al.</i> (2011)	Cross-sectional study	*	*	*	**	**	*	*	9/10
Stalpers <i>et al.</i> (2017) The Netherlands	Cross-sectional study	*	*	*	**	*	*	*	8/10
de Brouwer <i>et al.</i> (2017a) The Netherlands	Cross-sectional	*	*	*	**		*	*	7/10
de Brouwer <i>et al.</i> (2017b) The Netherlands	Cross-sectional	*	*	*	**		*	*	7/10
TOTAL									65/90 (Mean = 7.22; SD=1.48)

Appendix 18: Quality Assessment for the Cohort Study

study	Study design	Selection				Comparability	Outcome			Total score
		Representativeness of exposed cohort	Selection of the non-exposed cohort	Ascertainment of exposure	Demonstration that outcome of interest was not present at start of study		Assessment of outcome	Follow up long enough for outcome to occur	Adequacy of follow up of cohorts	
Kramer <i>et al.</i> (2013) USA	Cohort study	*	*	*	*	*	*	*	*	8/9

Appendix 19: Permission to use the EOMII© scale

EOMII

marlene f kramer <mcairzona@juno.com>

Wed 26/01/2011 21:05

To: Titilayo Oshodi </O=EXCHANGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Ot231>;

📎 3 attachments

EOMII(c) - 2009.doc; EOMII(C) HSRA Conditions of Use - 2009.doc; Confirmation article.pdf;

Dear Ms Oshodi,

Thank you for your letter and your analysis of the NWI. You are absolutely correct. Even though we developed the instrument, the NWI is no longer suitable for measuring nurses' work environments. Much has happened since we developed that tool in 1984. First of all, Nursing has joined the other professions in looking at work environments from Donabedian's Structure--Process--Outcome perspective. The NWI measured clinical nurses' perceptions of the characteristics--the structures--of the work environment. But, as Donabedian points out in his theory, you can have the structures in place, but that doesn't necessarily mean that the desired processes and outcomes will result. (This is analogous to the idiom, "You can lead a horse to water but you can't make him drink"). You really have to measure the entire S--P--O paradigm. (If I am using too many idioms and colloquial expressions, don't hesitate to write and I will explain further.)

The Essentials of MagnetismII measures the extent to which the work environment enables clinical nurses to engage in the 8 work processes and relationships that have been identified as essential to nurses' being able to provide quality patient care. In other words, it is the P in the S-P-O paradigm. There are many studies which indicate that an environment measured by the EOMII does, in fact, result in better patient care outcomes as well as in the "Nurse-assessed Quality of Patient Care" outcome.

Attached is a copy of the EOMII and its Conditions for Use. It also provides you with some references regarding the validity and reliability of the EOMII. The *Nursing Research*, 2008 article is the latest on the psychometrics. I've also attached a copy of one of our latest publications--about two weeks ago. It describes how we used results from the EOMII to designate Very Healthy, Healthy, and Work Environments Needing Improvement in 34 Magnet Hospitals. (P.S. remember, that we Yankees use the word clinical unit for what you term "wards".)

If there is anything you don't understand, don't hesitate to write and ask. The EOMII has been translated into 9 languages but that shouldn't be a problem with you folks. (Even though you have some "odd" pronunciations of words, we still speak the same language, right??) If there is anything else I can do to be of further assistance, please do not hesitate to let me know.

Marlene Kramer, RN, PhD, FAAN
Health Science Research Associates

On Tue, 25 Jan 2011 14:47:54 +0000 Titilayo Oshodi <T.Oshodi@greenwich.ac.uk> writes:

Please find letter attached for the attention of Professor Kramer regarding the Essential of Magnetism (EOMII).

Thank you.

Titilayo O. Oshodi
Research Student
University of Greenwich
Avery Hill Campus
London

<https://owa.gre.ac.uk/owa/>

26/07/2017

Appendix 20: Letter of Access into Hospital A



NHS Trust

Date: 24th February 2012

Dear Miss Oshodi

Letter of access for research

This letter confirms your right of access to conduct research through [redacted] NHS Trust for the purpose and on the terms and conditions set out below. This right of access commences on 1st March 2012 and ends on 31st December 2014] unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at [redacted] NHS Trust has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to [redacted] NHS Trust premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through [redacted] NHS Trust, you will remain accountable to your employer **University of Greenwich** but you are required to follow the reasonable instructions of [redacted] **Director of Nursing** in this NHS organisation or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with [redacted] NHS Trust policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with [redacted] NHS Trust in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on [redacted] NHS Trust premises. You must observe

the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (<http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf>) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.


You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. Where required by law, your HEI employer will initiate your Independent Safeguarding Authority (ISA) registration, and thereafter, will continue to monitor your ISA registration status via the on-line ISA service. Should you cease to be ISA-registered, this letter of access is immediately terminated. Your employer will immediately withdraw you from undertaking this or any other regulated activity. You MUST stop undertaking any regulated activity.

Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

HS Trust will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.


Governance Manager

cc: **R&D office at _____
HR department of the substantive employer
Professor Elizabeth West, Director of Research, University of Greenwich**

Appendix 21: Letter of access to Hospital B



Miss T Oshodi
Room 316 Mary Seacole Building
School of Health and Social Care
University of Greenwich
London
SE9 2UG

Date: 2nd March 2012.

Dear Titilayo.

Letter of access for research

This letter confirms your right of access to conduct research through [redacted] NHS Foundation Trust for the purpose and on the terms and conditions set out below. This right of access commences on 19th March 2012 and ends on 30th July 2013 unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at [redacted] NHS Foundation Trust has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to [redacted] NHS Foundation Trust premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through [redacted] NHS Foundation Trust, you will remain accountable to your employer, The [redacted] Greenwich, but you are required to follow the reasonable instructions of Dr [redacted] in this NHS organisation or those given on her behalf in relation to the terms of this right of access.

Cl [redacted]

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with NHS Foundation Trust policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with NHS Foundation Trust in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on NHS Foundation Trust premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (<http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf>) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

NHS Foundation Trust will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely

Dr

R&D manager

NHS Foundation Trust

cc

HR Department of the NHS Foundation Trust
Elizabeth Webb, Director of Research at Greenwich University.

Appendix 22: NHS Ethics Approval



MEDICAL DIRECTOR'S OFFICE

NHS Foundation Trust

Direct Line

4th January 2012

Miss Titilayo O Oshodi
PhD Student
Room 316 Mary Seacole Building
School of Health and Social Care
University of Greenwich
Southwood Site
Avery Hill
London

PROJECT TITLE: The Impact of Nursing Work Environment on Patient's Evaluation of Care
R&D Reference:
REC Reference: 11/LO/1329
Sponsor: Greenwich
Host site: Hospital
Principal Investigator (PI): Miss Titilayo O Oshodi

Notification of host site approval

Dear Titilayo

I am writing to inform you that the research approval process for the above named project has been completed successfully. This approval includes the amendments listed at the end of this letter. The documents reviewed this proposal, and approved for use, are shown at the end of this letter.

The conditions for host site approval are as follows:

- The PI must ensure compliance with protocol and advise the host of any change(s) to the protocol. Failure of notification may affect host approval status.
- Under the terms of the Research Governance Framework, the PI is obliged to report any Serious Adverse Events to the Sponsor and the Trust, in line with the protocol and Sponsor requirements. Adverse events must also be reported in accordance with the Trust Policy & Procedures.
- The PI must ensure appropriate procedures are in place to action urgent safety measures.
- The PI must ensure the maintenance of a Trial Master File (TMF) as described in the tables at the end of this document.
- The PI must undergo regular, monitoring, audit and review.
- The PI must ensure that all named staff are compliant with the Data Protection Act, Human Tissue Act 2005, Mental Capacity Act 2005 and all other statutory guidance and legislation (where applicable).
- The PI must report any cases of suspected research misconduct and fraud.
- The PI must provide an annual report to the relevant authorities for all research.
- The PI must give notice of clinical trial closure.
- If there are any changes to the study then please inform the R&D office as these may require R&D approval before they are implemented.

All research carried out a [redacted] lation Trust must be in accordance with the principles set out in the Research Governance Framework for Health and Social Care (2005, second edition, Department of Health).

Failure to comply with the above conditions and regulations will result in the suspension of the research project.

Should you require any further guidance or information on any matter mentioned above, please contact Research & Development Manager, Dr [redacted]

We wish you every success in your research.

Yours sincerely

Professor Elizabeth West (Sponsor contact and Academic Supervisor 1) Dr Benjamin Bruneau (Academic Supervisor 2)

Medical Director

Documents reviewed and approved for use

Name	Version	Date
Protocol		11/8/11
Letter of invitation to participant	3.5	11/8/11
Letter of invitation to participant (pilot)		Undated
Reminder letter		11/8/11
Adapted Essentials of Magnetism II Questionnaire		Undated
Questionnaire – Ward Manager		Undated
Participant Consent Form – Interview	3.5	11/8/11
Participant Consent Form - Survey	3.5	11/8/11
Participant Information Sheet – Interview	3.5	20/10/11
Participant Information Sheet – Survey	3.5	20/10/11

For the purposes of audit and monitoring it is strongly recommended that you maintain a file of study documentation relating to your research. The list below is designed to help you put together your trial master file.

Before the clinical conduct of the trial

Topic	Located in Investigator file	Located in file of sponsor
Signed protocol and amendments, if any, and sample case report form	X	X
Information given to trial subject including Informed consent form, any other written information and advertisement for subject recruitment (if used)	X	X
Financial aspects of the trial (financial agreement between investigator/institution and sponsor)	X	X
Insurance statement (for non NHS sponsored studies)	X	X
Signed agreement between involved parties (if applicable)	X	X

Dated, documented approval of Research Ethics Committee listing documents approved for use	X	X
Other relevant regulatory approvals	X	X
CVs for research team	X	X
Decoding procedures for blinded trials	X	X
Master Randomisation List		X
Pre-trial monitoring report		X
Trial initiation monitoring report	X	X

During the clinical conduct of the trial

In addition to having on file the above documents, the following should be added to the files during the trial as evidence that all new relevant information is documented as it becomes available.

Topic	Located in Investigator file	Located in file of sponsor
Any revision to and ethical committee approval to the following documents: <ul style="list-style-type: none"> • Protocol/amendment(s) • CRF • Informed consent form • Any other written information provided to subjects • Advertisement for subject recruitment (if used) • Any other documents given approval 	X	X
MHRA and other relevant regulatory approvals for amendments	X	X
Curriculum vitae for new investigator(s) and sub-investigator(s)	X	X
Updates to normal values/ranges for medical/lab tests included in the protocol	X	X
Updates of medical/lab/technical procedures/tests, certification or accreditation, established quality control or other validation	X	X
Documentation of investigational product and trial related materials shipment	X	X
Monitoring visit reports		X
Relevant communication other than site visits including letters, printed emails, meeting reports, notes of telephone calls	X	X
Signed informed consent forms	X	
Source documents	X	
Signed, dated and completed case report forms	X copy	X original
Documentation of CRF corrections	X copy	X original
Notification by originating investigator to sponsor of serious adverse events and related reports	X	X
Notification by sponsor to investigators of safety information	X	X
Interim or annual reports to independent ethics committees	X	X where required
Subject screening log	X	X where required
Subject identification code list	X	
Subject enrolment log	X	
Signature sheet	X	X
Record of retained body fluids/tissue samples (if any)	X	X

Continuation hint

After completion or termination of trial

After completion or termination of the trial, all of the documents identified above should be in the file together with the following:

Topic	Located in Investigator file	Located in file of sponsor
Completed subject identification code list	X	
Audit certificate (if available)		X
Final trial close-out monitoring report		X
Treatment allocation and decoding documentation		X
Final report by investigator to Independent ethics committee where required and regulatory authorities if applicable	X	
Clinical study report	X if applicable	X

Appendix 23: Full Ethics Approval from Research Ethics Committee, London-Surrey Borders



National Research Ethics Service

NRES Committee London - Surrey Borders

St Georges University of London
South London REC Office 1
Corridor 1 - Room 1.13
1st Floor, Jenner Wing
Tooting
London
SW17 0RE

Telephone: 0208 725 0262
Facsimile: 0208 725 1897

Date: 21st November 2011

Miss Titilayo Olufunke Oshodi, PHD Bursary Student
University of Greenwich
Room 316 Mary Seacole Building
Southwood Site
London, SE9 2UG

Dear Miss Oshodi

Study title: The Impact of Nursing Work Environment on Patient's Evaluation of Care
REC reference: 11/LO/1329

Thank you for your letter of the 20th October 2011, responding to the Committee's request for further information on the above research and for submitting revised documentation.

The further information was considered by a sub-committee of the REC at a meeting held on the 9th November 2011. A list of the sub-committee members is attached.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Covering Letter		13 th October 2011
Evidence of insurance or indemnity		1 st August 2011
Evidence of insurance or indemnity		1 st August 2011
Investigator CV		29 th July 2011
Letter from Sponsor		27 th July 2011
Letter from Statistician		21 st September 2011
Letter of invitation to participant	3.5	11 th August 2011
Letter of invitation to participant	(Pilot)	
Other: Supervisor CV: Dr Ben Bruneau		1 st August 2011
Other: Supervisor CV: Professor Elizabeth West		1 st August 2011
Other: Reminder Letter		11 th August 2011
Other: Table 1: Studies Reviewed in the Research Protocol		11 th August 2011
Other: Flowchart - Figure 2		
Other: Power Calculation		
Other: Adapted Essentials of Magnetism II (Questionnaires)		
Participant Consent Form: Interview	3.5	11 th August 2011
Participant Consent Form: Survey	3.5	11 th August 2011
Participant Information Sheet: Interview (February 2009)	3.5	20 th October 2011
Participant Information Sheet: Survey (February 2009)	3.5	20 th October 2011
Protocol		11 th August 2011
Questionnaire: Health Sciences Research: Essentials of a Healthy, Magnetic Work Environment		
Questionnaire: Adapted Essentials of Magnetism II (Non Validated)		
Questionnaire: Ward Manager		
REC application	3.2	
Response to Request for Further Information		20 th October 2011

This Research Ethics Committee is an advisory committee to London Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England

Summary/Synopsis	Conceptual Framework	11 th August 2011
Summary/Synopsis	Piloting & Distribution of Essentials of Magnetism II	11 th August 2011

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

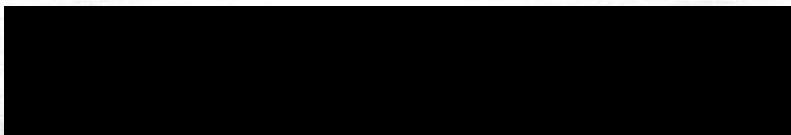
You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

11/LO/1329

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project



Dr Hervey Wilcox
Chair

Email: lsbrec@stgeorges.nhs.uk

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

"After ethical review – guidance for researchers"
This Research Ethics Committee is an advisory committee to London Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England

Copy to:

Professor Elizabeth West
School of Health & Social Care
Southwood Site
Eltham
London SE9 2UG

This Research Ethics Committee is an advisory committee to London Strategic Health Authority
*The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England*

NRES Committee London - Surrey Borders

Attendance at Sub-Committee of the REC meeting held on the 9th November 2011

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Mrs Wendy Brooks	Stroke Nurse Consultant	Yes	
Canon Christopher Vallins	Regional Chaplaincy Adviser	Yes	
Dr Hervey Wilcox	Consultant Chemical Pathologist	No	

Appendix 24: Participant Information Sheet (Survey)



Study Title: “*The Impact of Nursing Work Environment on Patient’s Evaluation of Care*”

We would like to invite you to participate in a research study. Before deciding to participate, it is important that you understand why the research is being done and what it involves. This leaflet provides you with information about the study and is for you to keep for future reference.

What is the purpose of the research?

The study seeks to measure the extent to which the work environment enables clinical nurses to engage in the eight work processes and relationships that have been identified as being essential to providing quality patient care. The work processes are: *clinically competent peers, collaborative nurse-physician relationships, clinical autonomy, support for education, perception of adequate staffing, nurse manager support, control of nursing practice, patient-centred cultural values*. This research will seek to identify the presence of these eight attributes in your work environment. This survey will also assess the level of registered nurses’ work engagement.

A questionnaire survey is being conducted to examine the impact of the nursing work environment on patient evaluation of care they have received.

Who is organising and funding this study?

The study is part of my research degree programme and the research is sponsored by and conducted under the University of Greenwich, School of Health and Social Care, Southwood Site, University of Greenwich, London SE9 2UG.

Who is supervising this study?

This study is under the supervision of Professor Elizabeth West and Dr. Ben Bruneau, who are both nurses, and have PhDs in sociology and psychology respectively.

Who has reviewed the study?

This study has been looked at by an independent group of people called Research Ethics Committee to protect your interest. This study has been reviewed and given favourable opinion by the London – Surrey Borders (Reference number: 11/LO/1329)

Why have I been chosen?

You are being invited to participate because you are a registered nurse working in an in-patient ward. We feel your views, based on your experiences, are vital for the measurement of the presence of the above listed features in the nurses' work environment, which are also very crucial for quality patient care.

What will happen to me if I take part?

You will be required to complete a questionnaire which will take approximately 20 minutes to complete, at your leisure time. This questionnaire is being administered to elicit information about how the nursing work environment hinders or supports clinical nurses in providing high quality patient care.

You will also be given a consent form to sign, and a copy of the signed consent form will be given to you to keep.

What do I have to do?

Please take time to consider your participation. Once you have decided, simply sign the consent form and return to me.

How long will it take to complete the questionnaire?

It would take approximately 20 minutes to complete the questionnaire.

What are the possible benefits of taking part?

Your participation in this study will assist in identifying factors that may hinder or promote nurses' ability to provide quality care to patients. It will also assist better understanding of the strengths and the weaknesses of the NHS work environment. Findings from this study will also provide information about the implication of the effects of organisational attributes on nurses' job satisfaction and retention, and patient care.

What do I do if I am affected by the study?

A risk assessment has been carried out before the commencement of this study. Untoward effects to participants are perceived to be very low. However, should you become affected by taking part in this interview I am an experienced nurse and would help you manage your feelings. Ultimately I would recommend a visit to your General Practitioner.

What happens when the research study finishes?

At your request, we will send you a summary of the findings when the research study finishes. The results of this study will be disseminated through a thesis, journal publications, presentations at research seminars, and conferences.

What if I have any concern about the study?

If you have any concern about any aspect of the study, please email (t.oshodi@greenwich.ac.uk) the principal researcher Miss Titilayo Oshodi, who will endeavour to answer your questions. You may also contact her supervisors Professor Liz West (E.West@greenwich.ac.uk) and Dr. Ben Bruneau (B.S.Bruneau@greenwich.ac.uk).

Will my taking part in the study be kept confidential?

Yes. All the information collected about you during the course of the study, will be kept strictly confidential. The questionnaire is completely anonymous. So you are not asked to put your name on it to identify yourself in any way. Furthermore, all returned questionnaires will be destroyed between 3 to 6 months after the completion of this study.

Please assist us in this study by completing the attached questionnaire. Your opinions and experiences are very important to us.

Thank you very much for your cooperation and assistance in this endeavour.

Miss Titilayo O. Oshodi
Principal Researcher
Room 316 Mary Seacole Building
School of Health and Social Care
University of Greenwich
London
SE9 2UG
Tel. 020 8331 9470
t.oshodi@gre.ac.uk

Professor Elizabeth West
Director of Research
Professor in Applied Social Science
Director, Centre for Nursing Research and Policy
School of Health and Social Care
University of Greenwich
London SE9 2UG
E.West@greenwich.ac.uk

Dr. Benjamin Bruneau CPsychology
Senior Lecturer and Programme Leader
Complementary Therapies Programmes,
School of Health and Social Care
University of Greenwich
Avery Hill
London SE9 2UG
t.oshodi@gre.ac.uk

Appendix 25: CONSENT FORM (SURVEY)

Title of Study: The Impact of the Nursing Work Environment on Patient Evaluation of Care



Centre Number:

Name of Principal Researcher: Miss Titilayo O. Oshodi

Name of Supervisor 1: Professor Elizabeth West

Name of Supervisor 2: Dr. Benjamin Bruneau

Please initial
box

- I confirm that I have read and understood the participant information sheet dated February 2009 (version 3.5) given to me for the above study, and that I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

- I understand the nature and purpose of the questionnaire.

- I understand that relevant section of my data collected during the study may be looked at by individuals from the University of Greenwich, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to access my records.

- I understand that my participation is voluntary and that I am free to withdraw from the study at any time without consequences.

- I agree to participate in this study.

Name of the participant _____ Signature _____ Date _____

Name of the person taking consent _____ Signature _____ Date _____

Name of the researcher _____ Signature _____ Date _____

When completed, 1 copy for participant; 1 copy for the researcher



What will happen to me if I take part?

You will be required to complete a questionnaire which will take approximately 20 minutes to complete, at your leisure time. This questionnaire is being administered to elicit information about how the nursing work environment hinders or supports clinical nurses in providing high quality patient care. You will also be given a consent form to sign, and a copy of the signed consent form will be given to you to keep.

What are the possible benefits of taking part?

Your participation in this study will assist in identifying factors that may hinder or promote nurses' ability to provide quality care to patients. It will also assist better understanding of the strengths and the weaknesses of the NHS work environment. Findings from this study will also provide information about the implication of the effects of organisational attributes on nurses' job satisfaction and retention, and patient care.

Research Poster

What is the purpose of the research?

We would like to invite you to take part in a research study. This study is being conducted to examine the impact of the nursing work environment on patient evaluation of care they have received. The study seeks to measure the extent to which the work environment enables clinical nurses to engage in the eight work processes and relationships that have been identified as being essential to providing quality patient care. The work processes are: *clinically competent peers, collaborative nurse-physician relationships, clinical autonomy, support for education, perception of adequate staffing, nurse manager support, control of nursing practice, patient-centred cultural values*. This research will also seek to identify the presence of staff engagement in your work environment.

Who is organising and funding this study?

The study is part of my research degree programme and the research is sponsored by and conducted under the University of Greenwich, School of Health and Social Care, Southwood Site, London SE9 2UG.

Who is supervising this study?

This study is under the supervision of Professor Elizabeth West (E.West@greenwich.ac.uk) and Dr. Ben Bruneau (B.S.Bruneau@greenwich.ac.uk), who are both nurses, and have PhDs in sociology and psychology respectively.

Who has reviewed the study?

This study has been looked at by an independent group of people called Research Ethics Committee to protect your interest. This study has been reviewed and given favourable opinion by the London – Surrey Borders (Reference number: 11/LO/1329)

Why have I been chosen?

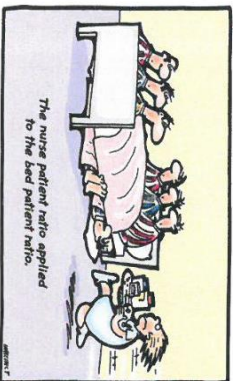
You are being invited to participate because you are a registered nurse working in an in-patient ward. We feel your views, based on your experiences, are vital for the measurement of the presence of the above listed features in the nurses' work environment, which are also very crucial for quality patient care.

Will my taking part in the study be kept confidential?

Yes. All the information collected about you during the course of the study, will be kept strictly confidential. The questionnaire is completely anonymous.

What happens when the research study finishes?

At your request, we will send you a summary of the findings when the research study finishes.



RESEARCHER
Miss Titilayo O. Oshodi
ot23@gre.ac.uk
toshodi@greenwich.ac.uk

12th January 2012

APPENDIX 27: LETTER OF INVITATION/COVERING LETTER



Title of Study: The Impact of Nursing Work Environment on Patient's Evaluation of Care

Dear Colleague,

Letter of Invitation to participate in a Research Study

As you have been identified as a registered nurse on this ward, I would like to invite you to participate in a research project currently being undertaken as part of my PhD at the University of Greenwich, School of Health and Social Care, Southwood Site, London, SE9 2UG. I am supervised by Professor Elizabeth West and Dr Benjamin Bruneau (contact details given below).

This research study will examine the extent to which the nurses' work environment supports or hinders the provision of quality patient care.

I have enclosed an information sheet detailing the research and giving further information on how you can get involved, a consent form to sign, and a questionnaire for you to complete and return to me.

Thank you.

Yours sincerely,

Miss Titilayo O. Oshodi
Research student/ Principal investigator of the study
Room 316, Mary Seacole Building
School of Health and Social Care
Southwood Site, University of Greenwich
London SE9 2UG
t.oshodi@greenwich.ac.uk

Professor Elizabeth West (Supervisor 1)
Director of Research
School of Health and Social Care
University of Greenwich
London SE9 2UG
E.West@gre.ac.uk

Dr. Benjamin Bruneau (Supervisor 2)
Head of Complementary Therapy
School of Health and Social Care
University of Greenwich
London SE9 2UG
b.s.bruneau@gre.ac.uk

**The Impact of Nursing Work Environment on Patient's
Evaluation of Care**

Dear

Ward Manager's questionnaire

My name is Titilayo Oshodi and I am a PhD student of the University of Greenwich. I am embarking on a study of the relationship between nursing work environment (leadership, clinical autonomy, inter-professional relationship etc) and patients' evaluation of care in acute NHS hospitals. My supervisors are Professor Elizabeth West and Dr. Ben Bruneau both of whom have background in nursing and have PhDs in sociology and psychology respectively. This study has received ethical approval from the London – Surrey Borders (Reference number: 11/LO/1329).

This study measures the extent to which nursing work environment supports or hinders clinical nurses in providing quality patient care. In order to enable me to develop strategies that may improve patients' experiences in acute NHS hospital settings, I should be grateful if you would provide me with some information that would help with this study.

Please assist me by answering the following questions. Your answers are very important to this study.

- What is the full time equivalent (FTE) of registered nurses in your ward?

- What is the full time equivalent (FTE) of health care assistants in your ward?

- What is the specialty of this ward (e.g. medical, surgical etc)? _____
- How many beds does your ward have? _____
- How many admissions do you have in a week on average? _____
- What is the bed occupancy on average, as a percentage? _____
- On average, how many patients are assigned to an individual registered nurse on
Early shift? _____
Late shift? _____
Night shift? _____

Thank you very much for your cooperation and assistance in this endeavour.

Miss Titilayo O. Oshodi
Research Student/Principal Investigator
Room 316, MarySeacoleBuilding
School of Health and Social Care
Southwood Site
University of Greenwich
London SE9 2UG
t.oshodi@greenwich.ac.uk

Professor Elizabeth West
Director of Research
Professor in Applied Social Science
Director, Centre for Nursing Research and Policy
School of Health and Social Care
Avery Hill Campus
University of Greenwich
London SE9 2UG
E.West@greenwich.ac.uk

Dr. Benjamin Bruneau CPsychology
Senior Lecturer and Programme Leader
Complementary Therapies Programmes,
School of Health and Social Care
University of Greenwich
Avery Hill
London SE9 2UG
t.oshodi@gre.ac.uk

Appendix 29: Reminder Letter



REMINDER LETTER

Dear

Re: Research Study: The Impact of Nursing Work Environment on Patient's Evaluation of Care

We would like to remind you of the above study.

If you have already responded, please ignore this letter. Thank you so much for your participation. If you have not responded, please forward the completed questionnaire as soon as you can. Your opinions and experiences are very important to us.

Thank you very much for your cooperation and assistance in this endeavour.

Yours sincerely,

Titilayo Oshodi (Miss)
Research Student/Principal Researcher
School of Health and Social Care
University of Greenwich
London
SE9 2UG
t.oshodi@greenwich.ac.uk

Professor Elizabeth West (Supervisor 1)
Director of Research
School of Health and Social Care
University of Greenwich
London SE9 2UG
E.West@gre.ac.uk

Dr. Benjamin Bruneau (Supervisor 2)
Head of Complementary Therapy
School of Health and Social Care
University of Greenwich
London SE9 2UG
b.s.bruneau@gre.ac.uk

Appendix 30: Participants' characteristics (free text)

Ref	Hospital	Ward specialty	Designation	Gender	Age	Education	RN experience	Current Ward experience
1003SN	A	Medical	Staff Nurse	Female	35-39	Diploma	8yr 8mth	1 month
1007SR	A	Orthopaedic	Sister	Female	50-54	Diploma	32yr	1yr 10mth
1012SR	A	Orthopaedic	Sister	Female	55-59	Diploma	40yr	4yr
1015SN	A	Orthopaedic	Staff Nurse	Female	35-39	Degree	14yr	2yr
1019CN	A	Cardiology	Charge Nurse	Male	40-44	Diploma	18yr	8yr
1021SN	A	Cardiology	Staff Nurse	Female	25-29	Diploma	3yr 11mth	3yr 9mth
1026SN	A	Elderly Medical	Staff Nurse	Female	50-54	Diploma	25yr 6mth	2yr
1027SR	A	Elderly Medical	Sister	Female	45-49	Degree	21yr 3mth	4yr 3mth
1028SR	A	Elderly Medical	Sister	Female	45-49	Diploma	24yr 4mth	1yr 6mth
1033SN	A	Surgical	Staff Nurse	Female	40-44	Degree	20yr	7yr 1mth
1034SN	A	Surgical	Staff Nurse	Female	40-44	Degree	21yr 4mth	7yr 1mth
1035SR	A	Surgical	Sister	Female	35-39	Diploma	14yr	3yr 4mth
1036SN	A	Surgical	Staff Nurse	Female	40-44	Diploma	6yr	7mth
1038SN	A	Surgical	Staff Nurse	Female	35-39	Degree	10yr	10yr
1045SR	A	Medical Respiratory & Endocrinology	Sister	Female	45-49	Diploma	4yr 3mth	4yr 3mth
1046SR	A	Medical Respiratory & Endocrinology	Sister	Female	30-34	Degree	11yr 8mth	2yr 5mth
1052SN	A	Orthopaedic Trauma	Staff Nurse	Male	40-44	Diploma	9yr	1yr 2mth
1055SN	A	Gynaecology	Staff Nurse	Female	35-39	Diploma	2yr 3mth	2yr 3mth
1059SN	A	Gynaecology	Staff Nurse	Female	55-59	Diploma	8yr 6mth	5yr 6mth
1064SN	A	Gynaecology	Staff Nurse	Female	25-29	Degree	4yr 3mth	4yr 3mth
1067SN	A	Gastro/General Medicine	Staff Nurse	Female	35-39	Degree	10yr	10yr
1068SN	A	Gastro/General Medicine	Staff Nurse	Female	40-44	Diploma	6yr	2yr 2mth
1070SR	A	Respiratory	Sister	Female	50-54	Diploma	5yr 9mth	5yr 3mth
1071SN	A	Respiratory	Staff Nurse	Female	25-29	Degree	3yr 9mth	9mth
1074SN	A	Respiratory	Staff Nurse	Male	55-59	Diploma	27yr	2yr 6mth
1078SN	A	Surgical	Staff Nurse	Female	50-54	Degree	31yr 9mth	1yr 2mth
1080SN	A	Stroke	Staff Nurse	Female	35-39	Diploma	16yr 6mth	1mth
1086SN	A	Stroke	Staff Nurse	Female	50-54	Diploma	30yr 3mth	4yr 6mth
1091SN	A	Respiratory	Staff Nurse	Female	35-39	Diploma	3yr 10mth	3yr 10mth
1094SN	A	Orthopaedic Trauma	Staff Nurse	Female	35-39	Diploma	4mth	4mth
1100SR	A	Surgical	Sister	Female	50-54	Diploma	9yr	15yr
1101SN	A	Surgical	Staff Nurse	Female	50-54	Degree	31yr	12yr
1102SN	A	Elderly Medical	Staff Nurse	Female	35-39	Degree	11yr 1mth	1yr 9mth
1104SN	A	Orthopaedic Trauma	Staff Nurse	Female	55-59	Degree	22yr 4mth	1yr 8mth
1106SN	A	Medical Respiratory & Endocrinology	Staff Nurse	Female	50-54	Diploma	31yr 6mth	2yr
1109SN	A	Surgical	Staff Nurse	Female	45-49	Diploma	1mth	1mth
1110SN	A	Surgical	Staff Nurse	Female	55-59	Degree	37yr	12yr
2003SR	B	Medicine for Older People	Sister	Female	40-44	Degree	20yrs	8yr
2014SN	B	Orthopaedics	Staff Nurse	Female	20-24	Degree	3mth	3mth
2015SR	B	Orthopaedics	Sister	Female	35-39	Degree	18yr 6mth	7mth
2018SN	B	Orthopaedics	Staff Nurse	Female	35-39	Diploma	1yr	1yr
2025SN	B	Surgical/Gynaecological	Staff Nurse	Female	21-24	Degree	6mth	6mth
2026SN	B	Surgical/Gynaecological	Staff Nurse	Female	55-59	Diploma	37yr 10mth	33yr 10mth
2036SN	B	Haematological Medicine	Staff Nurse	Female	45-49	Diploma	5yr	5yr
2037SN	B	Haematological	Staff Nurse	Female	30-34	Degree	8yr 3mth	7yr 9mth

		Medicine						
2038SR	B	Haematological Medicine	Sister	Female	30-34	Diploma	11yr 2mth	10yr 2mth
2040SN	B	Haematological Medicine	Staff Nurse	Female	21-24	Degree	10mth	10mth
2042SN	B	Haematological Medicine	Staff Nurse	Female	21-24	Diploma	1yr 9mth	1yr 9mth
2047SR	B	Acute Respiratory (Short Stay)	Sister	Female	30-34	Diploma	11yr	7yr 2mth
2048SN	B	Acute Respiratory (Short Stay)	Staff Nurse	Female	40-44	Diploma	5yr	7mth
2049SN	B	Acute Respiratory (Short Stay)	Staff Nurse	Female	35-39	Diploma	4yr 10mth	1yr
2054SN	B	Medical Gastro/Endocrinology	Staff Nurse	Female	35-39	Diploma	2yr 9mth	2yr 9mth
2055SN	B	Medical Gastro/Endocrinology	Staff Nurse	Female	50-54	Diploma	2yr 9mth	2yr 9mth
2057SN	B	Medical	Staff Nurse	Female	30-34	Diploma	0	3mth
2067SN	B	Medical Male Cardiology	Staff Nurse	Female	25-29	Diploma	11mth	11mth
2070SR	B	Elderly Medicine	Sister	Female	35-39	Degree	15yr	12yr
2072SR	B	Elderly Medicine	Sister	Female	35-39	Degree	18yr	7yr
2077SN	B	Medical Acute Stroke	Staff Nurse	Female	45-49	Diploma	10yr	10yr
2085SN	B	Day Surgery	Staff Nurse	Female	≥60	Diploma	18yr	10yr
2094SN	B	Day Surgery	Staff Nurse	Female	35-39	Degree	17yr 1mth	4yr 3mth
2100SN	B	Medical	Staff Nurse	Female	45-49	Degree	5mth	4mth
2103SN	B	Medical Acute Stroke	Staff Nurse	Female	35-39	Diploma	7yr 6mth	7yr 5mth
2107SN	B	Male Surgical	Staff Nurse	Female	30-34	Diploma	4mth	4mth
2108SR	B	Male Surgical	Sister	Female	40-44	Degree	19yr	8yr 1mth
2111SR	B	Male Surgical	Sister	Female	50-54	Diploma	11yr 11mth	11yr 11mth
2112SN	B	General Surgery	Staff Nurse	Female	30-34	Diploma	5yr	5yr
2113SR	B	General Surgery	Sister	Female	40-44	Diploma	7yr 11yr	1yr 6mth
2116SR	B	Orthopaedics	Sister	Female	55-59	Degree	23yr	2mth
2119SN	B	Male Surgical	Staff Nurse	Female	30-34	Diploma	2yr	1yr 6mth
2123SN	B	Medical Gastro/Endocrinology	Staff Nurse	Female	30-34	Diploma	1yr	1yr
2125SN	B	Medical Gastro/Endocrinology	Staff Nurse	Male	25-29	Diploma	6yr	1yr
2128SN	B	Medical Gastro/Endocrinology	Staff Nurse	Female	21-24	Degree	1yr	11mth
2133SN	B	Surgical/Gynaecological	Staff Nurse	Female	55-59	Diploma	38yr 2mth	34yr 5mth
2134SN	B	Missing	Staff Nurse	Female	40-44	Diploma	7yr 3mth	2yr 2mth
2135SN	B	Missing	Staff Nurse	Male	45-49	Diploma	1yr	1yr

Appendix 31: Full Ethics Approval from Research Ethics Committee, London-Surrey Borders for short structured interviews



Health Research Authority

NRES Committee London - Surrey Borders

HRA
Research Ethics Committee (REC) London Centre
Ground Floor
Skipton House
80 London Road
London
SE1 6LH

Tel: 020 797 22580

12 July 2013

Miss Titilayo Olufunke Oshodi
PHD Bursary Student
University of Greenwich
Room 316 Mary Seacole Building
Southwood Site
London
SE9 2UG

Dear Miss Oshodi

Study title: The Impact of Nursing Work Environment on Patient's Evaluation of Care
REC reference: 11/LO/1329
Amendment number: Substantial Amendment 2- Proposed Cognitive Interviews
Amendment date: 21 June 2013
IRAS project ID: 80334

The above amendment was reviewed at the meeting of the Sub-Committee held on 10 July 2013.

Ethical opinion

No ethical issues.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Participant Consent Form: Interview	3.5 Feb 2009	29 May 2013
Participant Information Sheet: Interview	3.5 Feb 2009	29 May 2013
Protocol	Amendment 2	29 May 2013
Notice of Substantial Amendment (non-CTIMPs)	Substantial Amendment 2- Proposed Cognitive Interviews	21 June 2013
Covering Letter	Letter from Titilayo Olufunke	21 June 2013

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

*This Research Ethics Committee is an advisory committee to London Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England*

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

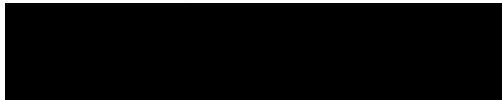
Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

11/LO/1329:**Please quote this number on all correspondence**

Yours sincerely

**Canon Christopher Vallins
Chair**E-mail: NRESCommittee.London-SurreyBorders@nhs.net*Enclosures: List of names and professions of members who took part in the review**Copy to: Professor Elizabeth West*

NRES Committee London - Surrey Borders

Attendance at Sub-Committee of the REC meeting on 10 July 2013

<i>Name</i>	<i>Profession</i>	<i>Capacity</i>
Mrs Wendy Brooks	Stroke Nurse Consultant	Expert
Mr Derek Cock	Chief Pharmacist	Expert
Canon Christopher Vallins	Regional Chaplaincy Adviser	Lay Plus

Also in attendance:

<i>Name</i>	<i>Position (or reason for attending)</i>
Mrs Alka Bhayani	Committee Coordinator

This Research Ethics Committee is an advisory committee to London Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England

Appendix 32 Participant Information Sheet – Interview



Study Title:

“The Impact of Nursing Work Environment on Patient’s Evaluation of Care”

We would like to invite you to take part in a research study. Before deciding to be a part of this research, it is important that you understand why the research is being done and what it involves. This information sheet is for you to keep in case you want to refer to it in future.

What is the purpose of the research?

This interview is being conducted to explore the possibility of adapting in the UK a questionnaire called the Essentials of Magnetism II (EOMII), which was given out by me (principal researcher) during the Registered Nurses’ survey last year. The EOMII was designed in the USA and it measures the extent to which the professional work environment enables clinical nurses to engage in some work processes and relationships that have been identified as essential to providing quality patient care. The work processes are: *clinically competent peers, collaborative nurse-physician relationships, clinical autonomy, support for education, perception of adequate staffing, nurse manager support, control of nursing practice, patient-centred cultural values*. This interview will enable me to assess the suitability of this questionnaire for the UK nursing work environment, before being used in a survey.

Who is organising and funding this study?

The study is part of my research degree programme and the research is sponsored by and conducted under the University of Greenwich, School of Health and Social Care, Southwood Site, University of Greenwich, London SE9 2UG.

Who is supervising this study?

This study is under the supervision of Professor Elizabeth West and Dr. Ben Bruneau, who are both nurses, and have PhDs in sociology and psychology respectively.

Who has reviewed the study?

This study has been looked at by an independent group of people called Research Ethics Committee to protect your interest. This study has been reviewed and given favourable opinion by the London – Surrey Borders (Reference number: 11/LO/1329).

Why have I been chosen?

You are being invited to participate because you are a registered nurse. We feel your views, based on your experiences, are vital for the adaptation of this instrument in the UK nursing work environment.

What will happen to me if I take part?

You will be one of ten participants, who are all registered nurses and you will be invited to participate in a one-to-one interview, which will take approximately 15 minutes in a quiet office within the premises. This interview will focus on you sharing your views about the clarity of two of the items in the Essentials of Magnetism II questionnaire, and your perception of the relevance of same questionnaire to current clinical practice. The interview will be audio recorded. Some field notes may also be taken. The recorded interview will later be transcribed and the tape kept in a secure place to maintain confidentiality.

You will also be given a consent form to sign, and a copy of the signed consent form will be given to you to keep.

What do I have to do?

Please take time to consider your participation. Once you have decided, simply sign the consent form and return to me.

How long will the interview take?

This interview which will focus on adapting the Essentials of Magnetism II questionnaire in the UK will take approximately 15 minutes.

What are the possible benefits of taking part?

Your input would help me adapt this American questionnaire to make it useful for research in the NHS. Your participation will also assist me to decide whether the questionnaire is easy to understand, valid, and to some extent reliable.

What do I do if I am affected by the study?

A risk assessment has been carried out before the commencement of this study. Untoward effects to participants are perceived to be very low. However, should you become affected by taking part in this interview I am an experienced nurse and would help you manage your feelings. Ultimately I would recommend a visit to your General Practitioner.

What happens when the research study finishes?

At your request, we will send you a summary of the findings when the research study finishes. The results of this study will be disseminated through a thesis, journal publications, presentations at research seminars, and conferences.

What if I have any concern about the study?

If you have any concern about any aspect of the study, please email (t.oshodi@greenwich.ac.uk) the principal researcher Miss Titilayo Oshodi, who will endeavour to answer your questions. You may also contact her supervisors Professor Liz West (E.West@greenwich.ac.uk) and Dr. Ben Bruneau (B.S.Bruneau@greenwich.ac.uk).

Will my taking part in the study be kept confidential?

Yes. All the information collected about you during the course of the study, will be kept strictly confidential. Names will not be included which means that anyone taking part cannot be identified. Furthermore, the transcribed interview and the recorded interview will be kept in a secure place to maintain confidentiality and will be destroyed three (3) months after the completion of the study

Thank you very much for your cooperation and assistance in this endeavour.

Miss Titilayo O. Oshodi
Principal Researcher
Room 316 Mary Seacole Building
School of Health and Social Care
University of Greenwich
London
SE9 2UG
Tel. 020 8331 9470
t.oshodi@gre.ac.uk

Professor Elizabeth West
Director of Research
Professor in Applied Social Science
Director, Centre for Nursing Research and Policy
School of Health and Social Care
Avery Hill Campus
University of Greenwich
London SE9 2UG
E.West@greenwich.ac.uk

Dr. Benjamin Bruneau CPsychology
Senior Lecturer and Programme Leader
Complementary Therapies Programmes,
School of Health and Social Care
University of Greenwich
Avery Hill
London SE9 2UG
t.oshodi@gre.ac.uk

Appendix 33: CONSENT FORM (Interview)



Title of Study: The Impact of Nursing Work Environment on Patient's Evaluation of Care

Centre Number:

Name of Principal Researcher: Miss Titilayo O. Oshodi

Name of Supervisor 1: Professor Elizabeth West

Name of Supervisor 2: Dr. Benjamin Bruneau

Please initial
box

- I confirm that I have read and understood the participant information sheet dated 22/05/13 (version 3.5) given to me for the above study, and that I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I agree to the interview being audio-taped, and the researcher taking notes during the interview.
- I understand that relevant section of my data collected during the study may be looked at by individuals from the University of Greenwich, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to access my records.
- I understand that my participation is voluntary and that I am free to withdraw from the study at any time without consequences.
- I agree to participate in this study.

Name of the participant _____ Signature _____ Date _____

Name of the person taking consent _____ Signature _____ Date _____

Name of the researcher _____ Signature _____ Date _____

When completed, 1 copy for participant; 1 copy for the researcher

Appendix 34: Confidentiality agreement with professional secretary



6 Links View Road
Hampton Hill
Middlesex
TW12 1LA
Tel: 020 8977 2649
Fax: 020 8977 5342
Mobile: 077313 91987
fstarsec@aol.com

3rd June 2013

Dear Titilayo Oshodi

RE: Your PhD Nursing Environment Autonomy Interviews

Regarding the transcripts connected with your PhD above, I confirm to you that:

- I will be the only person working on this project and,
- Everything will be kept completely private and confidential.

I wish you every success with your interviews and look forward to receiving the files at your convenience.

With best wishes

Doreen Kingston
Proprietor

Appendix 35: Summary of participants' characteristics (short structured interviews)

Participant & Hospital	Ward specialty	Designation	Years of Nursing Experience	Age or Age group	Gender	Ethnic Group or Country of Origin
P1A(SN)	Surgical	Staff Nurse	14 years	37	Female	Filipino
P2A(SN)	Surgical	Staff Nurse	5½ years	30	Female	White British
P3A(SR)	Surgical	Ward Sister	33 years	Did not say	Female	Indian
P4A(SN)	Surgical	Staff Nurse	9 years	32	Female	Nepalese
P5A(WM)	Surgical	Ward Manager	43 years	59	Female	White British
P6A(SN)	Surgical	Staff Nurse	3½ years	35-40	Female	White British
P7A(WM)	Surgical	Ward Manager	33 years	51	Female	White British
P8A(SN)	Surgical	Staff Nurse	34 years	Did not say	Female	Filipino
P9A(SN)	Surgical	Staff Nurse	23 years	56	Female	White Irish/British
P10A(SN)	Medical	Staff Nurse	8 months	22	Female	White British
P11A(SN)	Medical	Staff Nurse	2 years	29	Female	White Australian
P12A(SN)	Surgical	Staff Nurse	2 years	30-35	Female	Black African
P13A(WM)	Surgical	Ward Manager	29 years	50	Male	White Dutch
P14A(SR)	Surgical	Ward Sister	41 years	59	Female	White British
P15A(SR)	Medical	Ward Sister	5 years	26	Female	White British
P16A(SR)	Medical	Ward Sister	4 years	30	Female	White British
P17A(SN)	Medical	Staff Nurse	3 years	40	Female	Black African
P18A(WM)	Surgical	Ward Manager	18 years	59	Female	White British
P19A(WM)	Medical	Ward Manager	8 years	34	Female	Black African
P20A(SR)	Medical	Ward Sister	24 years	42	Female	Romanian
P21A(SN)	Surgical	Staff Nurse	2 years, 9 months	24	Female	White British
P22A(SN)	Surgical	Staff Nurse	5 years	50	Female	White British
P23A(WM)	Medical	Ward Manager	28 years	45-49	Female	White British
P24A(SR)	Medical	Ward Sister	22 years	45-47	Female	Filipino
P25A(SN)	Medical	Staff Nurse	20 years	42	Female	Black African
P26A(SN)	Medical	Staff Nurse	26 years	51	Female	White British
P27B(CN)	Surgical	Ward Charge Nurse	15 years	Early 40s	Male	Filipino
P28B(WM)	Surgical	Ward Manager	17 years	52	Female	White British
P29B(SN)	Surgical	Staff Nurse	9 years	30	Female	White British
P30B(CN)	Surgical	Ward Charge Nurse	34 years	57	Male	Filipino
P31B(SN)	Surgical	Staff Nurse	8 years	41	Female	White British
P32B(SR)	Medical	Ward Sister	3 years	32	Female	White British
P33B(SN)	Medical	Staff Nurse	3½ years	56	Female	White British
P34B(WM)	Medical	Ward Manager	11 years	37	Female	White British
P35B(WM)	Medical	Ward Manager	15 years	37	Female	White British
P36B(SN)	Medical	Staff Nurse	19 years	43	Female	Filipino
P37B(SR)	Medical	Ward Sister	22 years	43	Female	White British
P38B(WM)	Medical	Ward Manager	16 years	38	Female	White British
P39B(WM)	Medical	Ward Manager	25 years	60	Female	White British

P40B(WM)	Surgical	Ward Manager	7 years	28	Female	White British
P41B(SN)	Surgical	Staff Nurse	20 years	40-50	Female	Filipino
P42B(SN)	Surgical	Staff Nurse	6 months	30	Female	British/Indian
P43B(WM)	Medical	Ward Manager	10 years	34	Male	White British
P44B(SR)	Medical	Ward Sister	18 years	43	Female	White British
P45B(SN)	Medical	Staff Nurse	1 month	30-40	Female	Black African
P46B(SR)	Medical	Ward Sister	10 years	33	Female	White British
P47B(SN)	Medical	Staff Nurse	10 years	47	Female	White British
P48B(SR)	Medical	Ward Sister	17 years	39	Female	Filipino

Appendix 36: Factor structure and loadings after Principle Components Analysis with varimax rotation of the EOMII© scale

Ward Manager Support Eigenvalue = 14.486		Working as a Team Eigenvalue = 2.853		Concern for patients Eigenvalue = 2.771		Organisational autonomy Eigenvalue = 1.886		Constraints on nursing practice Eigenvalue = 1.740	
Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading
45. Our manager is visible, available, approachable and 'safe'.	.84	52. High performance and productivity are expected of everyone.	.71	57. This is a value driven organisation.	.76	18. Nurses are held accountable in a positive way for the outcomes of autonomous clinical nursing practice.	.69	16. This organisation has many rules that prevent nurses from making independent decisions.	.80
44. The ward manager of our ward promotes staff cohesion.	.81	31. We work as a team on our ward.	.71	56. Our administration anticipates organisational changes.	.75	20. We have a committee structure through which nurses <i>control</i> nursing practice.	.63	11. Nurses here fear 'getting into trouble' if they make independent decisions.	.71
43. Our ward manager cites specific examples when providing feedback.	.80	53. We work together as a team, both within nursing and other disciplines.	.62	58. We transmit our cultural values to in-coming staff	.62	22. Doctors, administrators, and other professionals recognise that nursing <i>controls</i> its own practice.	.62	17. Nurses have to do things that, in our professional judgment, may not be in the best interests of the patient.	.63
40. Our manager is diplomatic, fair and honest	.79	34. Nurses on my ward demonstrate a proficiency level of competence.	.59	55. Contributions of all members of the staff are valued.	.53	15. Our evidence-based practice activities provide us with the knowledge base needed to make sound clinical decisions	.57	27. Nursing practice, policies and standards are determined by nursing management, or people outside of nursing.	.48
41 Our ward manager supports	.78	32. Our group cohesiveness	.59	48. This hospital is willing to try new	.48	21. Staff nurses have input and	.52	23. Shared decision-making	.40

and encourages interdisciplinary.		enables us to give quality care with our current level of staffing.		things.		make decisions with respect to practice issues and policies.		is more talk than action here.	
46. Our manager instils & "lives" the organisation's values regarding patient care.	.78	51. People on my ward are enthusiastic about their work	.55	54. Quality patient care comes first in this organisation.	.46	26. Nurses on my ward can describe decisions made and outcomes achieved as a result of our shared decision-making process	.31	13. Staff nurses must obtain orders from an authority source before making independent decisions.	.50
47. Our manager fosters sound decision-making.	.72	49. Concern for the patient is paramount on my ward and in this hospital.	.44	50. Problems are solved by swift action; people are not afraid to take risks.	.39				
38. Our ward manager represents the positions and interests of the staff.	.70	36. Continuing education toward a nursing degree is recognised as a way in which nurses can increase their nursing competence	.40						
39. If we need resources, our ward manager sees to it that we get these.	.66								
42. The ward manager sees to it that we have adequate numbers of competent staff.	.60								
19. Our ward manager supports	.53								

our independent decision-making.									
8. Our ward manager makes it possible to attend continuing education	.46								
12. Autonomous nursing practice is facilitated because nurses know that ward managers will support them.	.39								
Alpha .94 Mean (SD)= 3.13(.37)		Alpha .85 Mean (SD)= 3.15(.37)		Alpha .85 Mean (SD)= 2.91(.40)		Alpha .77 Mean (SD)= 2.91(.38)		Alpha .76 Mean (SD)= 2.60(.52)	

Appendix 37: Comparison of the factor structures of the EOMII© scale across different cultures

Author Year, Location	Purpose	Design and method	Sample	Statistical analysis	Number of extracted Factors	Reliability	Comments
Schmalenberg & Kramer (2008) (Original scale) US	Establishing the psychometric properties of the EOMII scale	Analysis of secondary data	Secondary analysis of aggregated data from 10,514 staff nurses in 34 hospitals	Confirmatory factor analysis was used to test the structural integrity of the EOMII subscales	Eight factor 58-items: <ul style="list-style-type: none"> • Cultural values: items 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 • Nurse Manager Support: items 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 • Control over Nursing Practice: Items 20, 21, 22, 23, 24, 25, 26, 27 • Clinical Autonomy: items 11, 12, 13, 14, 15, 16, 17, 18, 19 • Adequacy of Nursing Staff: items 28, 29, 30, 31, 32, 33 • Nurse-physician relationship: items 1, 2, 3, 4, 5, 6 • Clinical Competent Peers and Support for Education: items 7, 8, 9, 10, 34, 35, 36, 37 	Cronbach's alpha coefficient for the scale ranges from 0.83 – 0.97	<ul style="list-style-type: none"> • Principal Component Analysis confirmed the factor analytic structure for seven of the eight essential work processes – all Support for Education and Clinically Competent Peers items loaded on the same factor. • Although seven factors were extracted (with items from two factors loading on same factor), it is being described as “eight factor EOMII”
Yildirim <i>et al.</i> (2012) Turkey	To test the validity & reliability of the Turkish version of the EOMII scale	Cross sectional	385 nurses from 4 joint commissions internationally accredited hospitals completed EOMII scale. Response rate 61%	PCA together with varimax rotation & Kaiser Normalisation to test construct validity. Scree plot.	<ul style="list-style-type: none"> • Seven-factor, 55-items were named according to the US-EOMII (with clinical competency and support for education being combined as one factor). 	Cronbach's alpha coefficient for the scale was 0.91	<ul style="list-style-type: none"> • Items 18 & 33 were excluded from the scale because they had been included under two separate factors. • Item 15 was also excluded because its load was under 0.30. • Items 19, 23, 27, 30, 41, 42, 44 and 53 were located under different factors, different from

				Cronbach's α to test the internal consistency.			<p>the factor structure of the US-EOMII scale.</p> <ul style="list-style-type: none"> • Clinical Autonomy subscale: items 23 & 27 belong to the US Control over Nursing Practice scale. • Control Over Nursing Practice: item 19 belong to the US Clinical Autonomy subscale
Bai <i>et al.</i> (2013) China	To translate and evaluate the psychometric properties of the EOMII tool.	Cross sectional	706 nurses from 28 ICUs affiliated with 14 tertiary hospitals. Response rate 94%	<p>Content Validity Index to assess content validity, and Confirmatory Factor Analysis to assess construct validity</p> <p>Scree plot</p> <p>Cronbach's α to assess reliability</p>	<p>Nine factors, 45-items:</p> <ul style="list-style-type: none"> • Factors 1 (nine items) and 5 (six items) were respectively labelled as Nurse Manager Support and Patient-Centred Values, similarly as the original EOMII. • Factor 2 (four items) was labelled as Restrictions of Decision-making. • Factor 3 (six items) was labelled as working with Competent Peers. • Factor 4 (three items) and 8 (two items) were respectively labelled as Collaborative Nurse-physician Relationships and Traditional Nurse-physician Relationships. • Factor 6 (seven items) was labelled as Autonomous Control over Nursing Practice. • Factor 7 (three items) from the original scale was labelled as Support for Education. • Factor 9 (five items) was 	<p>The total internal consistency coefficient Cronbach's alpha coefficient of the scale was 0.92</p>	<ul style="list-style-type: none"> • Autonomous Control over Nursing Practice subscale: items 12, 14, 15, & 19 belong to the US Clinical Autonomy subscale, while items 20, 21, & 22 belong to the US Control over Nursing Practice. • Even with lower factor loadings, items 10, 31, and 32 were kept in the C-EOMII because they contained important information of healthy work environment. • Thirteen items were deleted from the final solution (items 5,11,13,17,18,29,30,34,35,43, 50, 51, 54).

					labelled as Perceived Adequate Staffing. It included items 48 & 49 which were originally developed to measure Patient-Centre Values.		
de Brouwer <i>et al.</i> (2014) Netherlands	To assess the psychometric properties of the EOMII in a culture different from its origin	Descriptive & correlational design	2542 nurses (response rate 52.1%) from six top clinical teaching hospitals	Confirmatory Factor Analysis using varimax rotation, item-total statistics. Cronbach's α for internal consistency	<ul style="list-style-type: none"> Eight factors, 58 items (were in line with the US-EOMII, and were named accordingly) 	Cronbach's alpha for the entire scale was 0.92 and ranged from 0.58 – 0.92 for eight subscales.	<ul style="list-style-type: none"> Authors proposed the removal of item 52 (from cultural values) CFA indicated that five of the eight subscales formed clear factors and were in line with the US EOMII subscales (and named accordingly). However, for three subscales (i.e. clinical autonomy, clinically competent peers, and patient-centred culture), the items loaded on two separate factors. Scree plot not employed
de Brouwer <i>et al.</i> (2017a) Netherlands	To develop and psychometrically test the Essentials of Magnetism II in nursing homes.	Cross-sectional, correlational study design.	Response rate 60.5% (n = 276) working at 44 units of three nursing homes were included.	Confirmatory Factor Analysis using varimax rotation Cronbach's α for internal consistency	Confirmatory Factor Analysis indicated that three subscales formed clear factors, as in the original EOMII (Perceived Adequacy of Staffing, Clinically Competent Peers and Nurse Manager Support). Two subscales (Nurse–Physician Relationships and Support for Education) were spread over two factors, and three subscales (Clinical Autonomy, Control over Nursing Practice and Patient Centered Culture) were spread over three factors.	Cronbach's α for the entire scale was 0.92, alphas of six subscales were above 0.70, while α was below 0.70 for two subscales (Support for Education and Clinically Competent Peers).	<ul style="list-style-type: none"> Cronbach's α of different subscales increased by separately deleting seven items (items 5, 9, 14, 24, 30, 35, 52). Four items violated ≥ 2 criteria (items 9, 14, 35 and 52), and three subscales violated ≥ 2 criteria (subscales Support for Education, Nurse–Physician Relationships and Control over Nursing Practice).
de Brouwer <i>et al.</i> (2017b)	to determine	Cross-sectional, correlatio	Response rate was 47% (n = 121).	Pearson correlation coefficients, r,	Ten of the 15 hypotheses were formulated with regards to convergent validity between the	The results imply that an organisation	<ul style="list-style-type: none"> Cronbach's alpha was not calculated.

Netherlands	construct validity of the Dutch EOMII with hypotheses testing by relating the Dutch EOMII to the Dutch Practice Environment scale of the Nursing Work Index (PES-NWI)	qualitative study design.		by using individual respondent scores on both instruments, and checking for potential clustering of nurse data at the level of wards by calculating Spearman's correlation coefficient, ρ , on ward averages. For hypothesis 10, ward mean scores derived from individual scores were rank ordered on the total D-EOMII score and the total PES-NWI score and tested the hypothesis by calculating Spearman's correlation coefficient, ρ .	two scales. For example, the first concerned the degree to which the measures total D-EOMII score and the total PES-NWI scores are correlated. It was revealed that the total scores of both instruments are strongly correlated ($r = 0.88$). In total, 12 of 15 hypotheses (80%) were confirmed and three were rejected.	scoring high on one or two instruments will also score high on the other.	
Oshodi et al. (2017) England	To explore the factor	A prospective cross-sectional	247 nurses from 29 inpatient wards in Two	Principal Components Analysis was used to assess	Five factors, 40-items <ul style="list-style-type: none"> • Factor 1: Ward Manager Support • Factor 2: Organisational 	Cronbach's alpha ranged from 0.76 – 0.94 for the	<ul style="list-style-type: none"> • Control of Professional Nursing Practice subscale: items 18 & 15 belong to the US-EOMII Clinical Autonomy subscale,

	structure of the EOMII scale in the UK	study	National Health Service hospitals (response rate 56.39%.	the structural validity of the scale Cronbach's α for internal consistency	Values <ul style="list-style-type: none"> • Factor 3: Working as a Team • Factor 4: Control of Professional Nursing Practice • Factor 5: Constraints on Nursing Practice 	factors	while the remaining four items (20, 22, 21, & 26) belong to the US Control Over Nursing Practice subscale. <ul style="list-style-type: none"> • Constraints to Nursing Practice subscale: items 16, 11, 17, 13 belong to the US Clinical Autonomy subscale, while items 27 & 23 belong to US Control Over Nursing Practice subscale.
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Appendix 38: Published paper based on the survey study in Chapter 6 (Oshodi et al., 2017)

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ORIGINAL ARTICLE

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The nursing work environment and quality of care: A cross-sectional study using the Essentials of Magnetism II Scale in England

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Aims and objectives: To explore the structure of the Essentials of Magnetism II (EOMII) scale using data from nurses working in England; and to describe the impact of different aspects of the nursing work environment on nurse-assessed care quality (NACQ).

Background: The EOMII Scale was developed in the United States to measure nursing work environments. It has been widely used in the United States and in a number of other countries, but has not yet been used in the UK.

Design: Cross-sectional study.

Methods: Registered nurses ($n = 247$) providing direct patient care in two National Health Service hospitals in England completed the EOMII scale and a single-item measuring NACQ. Principal components analysis was used to assess the structure of the scale. Correlation and regression analyses were used to describe the relationships between factors and NACQ.

Results: A solution with explanatory variance of 45.25% was identified. Forty items loaded on five factors, with satisfactory consistency: (i) *ward manager support*; (ii) *working as a team*; (iii) *concern for patients*; (iv) *organisational autonomy*; and (v) *constraints on nursing practice*. While in univariate analyses, each of the factors was significantly associated with NACQ, in multivariate analyses, the relationship between *organisational autonomy* and NACQ no longer reached significance. However, a multiple mediation model indicated that the effect of *organisational autonomy* on NACQ was mediated by *nurse manager support*, *working as a team* and *concern for patients* but not *constraints on nursing practice*.

Conclusions: Subscales of the EOMII identified in an English sample of nurses measured important aspects of the nursing work environment, each of which is related to NACQ.

Relevance to clinical practice: The EOMII could be a very useful tool for measuring aspects of the nursing work environment in the English Trusts particularly in relation to the quality of care.

KEYWORDS

autonomy, Essentials of Magnetism II Scale, nursing care quality, nursing work environment

1 | INTRODUCTION

Nurses are the largest group of healthcare professionals in the UK, and thus, understanding their impact on effective healthcare delivery is a pressing concern. There is a long tradition of research on how adequate numbers of nurses affects the quality and safety of health care. However, research has also shown that there are organisational factors above and beyond the number of nurses that also affect patient outcomes. These factors are often summarised in the concept of the “nursing work environment.” Different researchers use varying terms and definitions to conceptualise the organisational features that have an impact on nursing practice. A recent definition of the nursing work environment specifies both the key elements of a positive nursing work environment and the impact of these elements on nursing practice:

“...a system that supports and promotes effective communication, control over the contextual system in which nursing is practiced, delivery of nursing care, collaborative relationships with physician, and increased opportunities for autonomous decision making”. Kramer et al. (2013, p.350)

The importance of the nursing work environment was recognised nationally in England during the inquiry into failures of care at Mid Staffordshire NHS Trust. The Francis report (2013) linked poor clinical outcomes and experiences in the hospital to low staffing and poor nursing work environments. The report states: “The culture at the Trust was not conducive to providing good care for patients or providing a supportive working environment for staff; there was an atmosphere of adverse repercussions...”. (Page 13, no 24) and further: “As a result of poor leadership and staffing policies, a completely inadequate standard of nursing was offered on some wards in Stafford. The complaints... testified not only to inadequate staffing levels, but poor leadership, recruitment and training. This led in turn to a declining professionalism and a tolerance of poor standards” (Page 45, 1.14). These recent, raw experiences in the NHS highlight the centrality of the nursing work environment to the provision of safe, effective and compassionate care.

Improvements in healthcare delivery require that national and local policies support the development of healthy and productive nursing work environments. The design and evaluation of any interventions to improve the nursing work environment depends on the use of a sound measurement instrument. The Essentials of Magnetism II (EOMII) scale (Schmalenberg & Kramer, 2008), which was developed to assess the characteristics of Magnet hospitals in the United States, is one potential candidate for this role.

2 | BACKGROUND

2.1 | What are Magnet hospitals?

In the early 1980s, the United States was struggling with a serious nursing shortage, and yet this shortage of nursing staff did not affect certain hospitals. The nursing shortage prompted a formal

What does this paper contribute to the wider global clinical community?

- As nurses' work is increasing in an internationalised world with movement between different cultures, this research makes evident the need to understand how nursing practice and particularly conceptions of autonomous nursing practice may vary culturally.
- In this study, the relationship of organisational autonomy to nurse-assessed care quality is mediated by ward manager support, concern for patients and working as a team indicating that these three constructs act as facilitators of organisational autonomy.
- There is only a weak relationship between *organisational autonomy* and *constraints on nursing practice* implying that these two factors are largely independent of each other. This suggests that improving the nursing work environment and consequent patient outcomes requires that factors that both support and hinder nursing practice are addressed by policy makers and nurse managers.

investigation by a task force of researchers from the American Academy of Nursing in 1982–1983 (McClure, Poulin, Sovie, & Wandelt, 2002). The task force was charged with examining hospital nursing practice, and it was discovered that nurses were attracted and retained in hospitals settings for reasons that had never been fully explored or understood (McClure et al., 2002). This study by the task force was designed to collect data from a sample of the hospitals that had a successful track records in attracting and retaining professional nurses. The purpose was to investigate the key factors responsible for their success and to explain such factors in such a way that those hospitals might be emulated (McClure et al., 2002). Forty-one hospitals, which had demonstrated high rates of nurse satisfaction and low employee turnover rates, were selected as sample (McClure et al., 2002). These hospitals were identified as “Magnet hospitals” on account of having features that attracted and retained highly skilled professional nurses (Kramer & Schmalenberg, 2002: 25). It was found that the professional practice environment and quality nursing care were important contributing variables to the hospitals' “magnetism,” that is, a hospital's ability to attract and retain nursing staff (Sovie, 1984).

The commitment to quality patient care and excellence in nursing was a shared value throughout nursing organisations that had this quality (McClure et al., 2002; Sovie, 1984). Features they appeared to have in common included the fact that they sought and valued staff opinions, were decentralised and had a participatory management structure and style that assured staff involvement in decision-making (McClure et al., 2002; Sovie, 1984). Head nurses were recognised as key managers in the hospital, and they shared with the clinical directors and the directors of nursing the responsibility for assuring that the required complement of well-qualified,

clinically competent nurses was available to give care to patients (McClure et al., 2002; Sovie, 1984). Salaries were competitive, and differentials were paid for education, experience and clinical advancement (Sovie, 1984). Good nurse–physician relationships were based on mutual respect for each discipline's knowledge and competence, and on mutual concern for quality patient care.

Based on the above research, 14 distinguishing features that were peculiar to “Magnet” hospitals were identified, and remain known as the American Nurses Credentialing Centre (ANCC) Forces of Magnetism that provide the conceptual framework for the Magnet appraisal process (American Nurses Credentialing Centre, 2016a). The presence of these features in a hospital is required to achieve Magnet designation (ANCC, 2016a).

However, a recent systematic review conducted by Odessa and Regnaud (2015) provided equivocal evidence as to the beneficial effects of Magnet accreditation on objective nurse and patient outcomes. Of the of the seven studies examining patient outcomes, only three found statistically significant improvements related to lower pressure ulcers, patient falls, failure to rescue and 30-day inpatient mortality in Magnet hospitals compared with non-Magnet hospitals. In the four studies examining nurse outcomes, three found statistically significant improvements related to higher job satisfaction and lower intent to leave and turnover rates in Magnet compared to non-Magnet hospitals. Odessa and Regnaud (2015) concluded that while accreditation continues to be generally accepted as an important driver to improve quality and safety in healthcare organisations, there is still limited evidence to indicate that the pursuit of Magnet accreditation is the best use of resources. The limitations in the current evidence base suggest that further research is required not just to understand whether or not Magnet accreditation improves outcomes for patients and staff, but the conditions under which it is most likely to be effective.

2.2 | The UK experience and the Magnet connection

There are currently 448 accredited Magnet hospitals in the world: three in Australia, one in Canada, one in Lebanon, two in Saudi Arabia and the remainder are in the United States (ANCC, 2016b). Currently, in China, some hospitals have begun constructing a Magnet nursing work environment by introducing Magnet evaluation standards, and using them to evaluate the effectiveness of producing a productive nursing work environment (Gu & Zhang, 2014). Although there are currently no Magnet Hospitals in the UK, there are plans for a Magnet type accreditation in England (Health Education England, 2016a). Health Education England's (HEE) has made excellence in nursing practice one of its priority areas to ensure that the education and training of registered nurses and care assistants is suitable to support them in delivering high-quality care over the next 10–15 years (Health Education England, 2015, 2016a). To promote learning and excellence in health and care practice, HEE is currently working with the Florence Nightingale Foundation to explore how the nursing excellence standards developed by the American Nurses

Credentialing Centre can be applied in England (Health Education England, 2016a).

The Oxford University Hospital Trust in England has been working towards its application for a Magnet status (Merrifield, 2016). Oxford University Hospital has been making improvements in the areas of nurse education and training as part of its application, which may take up to 5 years to complete. These improvements have attracted interest from some other UK organisations, including Heart of England NHS Foundation Trust and Nottingham University Hospitals NHS Trust (Merrifield, 2016), leading to the creation of the UK Magnet Alliance in 2016, a group to support others considering Magnet accreditation (Merrifield, 2016; Weir-Hughes & Jackson, 2016). Rochdale Infirmary in Lancashire was the only UK hospital to have previously been accredited Magnet status (Aiken, Buchan, Ball, & Rafferty, 2008; Lomas, 2010; Merrifield, 2016), and it was recognised as the first Magnet hospital outside the USA (Aiken et al., 2008). To examine the impact of Magnet status on the Rochdale Infirmary, Aiken et al. (2008) drew primarily from the findings of two surveys of nurses working at Rochdale in 2000 and 2002 as well as comparisons with nurses employed in a national sample of NHS acute trusts. This study aimed to assess changes in the nurse work environment during the period that Rochdale was preparing for, and the period the Magnet designation was achieved (2000–2002). It was found that the implementation of the Magnet hospital intervention was associated with a significantly improved nursing work environment as well as improved job-related outcomes for nurses and markers for quality of patient care (Aiken et al., 2008). However, Rochdale Infirmary, Lancashire failed to renew its Magnet Status when the trust became part of Pennine Acute Hospitals Trust (Lomas, 2010; Merrifield, 2016).

To achieve accreditation, an organisation has to demonstrate it is meeting a series of Magnet standards, which include those of national safe staffing policies, minimum training levels and around nurse-sensitive clinical indicators (Merrifield, 2016). Magnet standards are consistent with Care Quality Commission standards, the World Health Organisation safety priorities and the Nursing & Midwifery Council Code of Conduct (Weir-Hughes & Jackson, 2016).

2.3 | The Magnet hospitals and the EOMII

The first attempt to measure the nursing work environment based on the characteristics of Magnet hospitals was made by Kramer and Hafner (1989). Their 65-item scale, called the Nursing Work Index (NWI), was developed to measure nurse job satisfaction and productivity of quality patient care. In completing the NWI, the respondent makes three judgements for each of the items: (i) how important the factor is for job satisfaction; (ii) how important the factor is for producing quality nursing care; and (iii) the extent to which the factor is present in their current job (Kramer & Hafner, 1989). Four additional scales have been derived from the NWI. Aiken and Patrician (2000) constructed the 57-item four subscale Revised Nursing Work Index (NWI-R) from the original NWI by analysing the data at unit or hospital level rather than at nurse level; Lake (2002) constructed the

31-item five subscale Practice Environment Scale of the Nursing Work Index (PES-NWI); Estabrooks et al. (2002) constructed the Practice Environment Index (PEI), using 49 items from Aiken and Patrician's (2000) NWI-R scale, and adding two items to reflect the Canadian context; and Choi, Bakken, Larson, Du, and Stone (2004) constructed the Perceived Nursing Work Environment Scale (PNWE) also from the NWI-R.

However, Kramer and Schmalenberg (2005a) cautioned that the NWI only measures the structural characteristics of hospital units, and not nursing work processes. In addition, Kramer and Schmalenberg (2004) suggest that the NWI is now outdated, and many of its items lack a commonly shared and understood definition. They also maintained that the revisions made in the NWI by Aiken and Patrician do not solve the NWI's problems of out-datedness, and that the revised NWI no longer measures job satisfaction or productivity of quality care. The Essentials of Magnetism (EOM) tool was developed by Kramer and Schmalenberg (2004) partly to address these concerns. The scale was found to have eight subscales, which are as follows: (i) *building and maintaining good nurse-physician relationships*; (ii) *clinical autonomy*; (iii) *a culture in which concern for the patient is paramount*; (iv) *working with clinically competent co-workers*; (v) *control of nursing practice*; (vi) *perceived adequacy of staffing*; (vii) *support for education*; and (viii) *nurse manager support*. Substantive changes were made to the "Perceived adequacy of staffing" (Kramer & Schmalenberg, 2005b) and "Nurse Manager Support" (Kramer et al., 2007) subscales of the EOM, and the tool was re-named the Essentials of Magnetism II Scale (Schmalenberg & Kramer, 2008). The EOMII is a 58-item four-point, Likert-type tool designed to measure healthy, magnetic and productive clinical work environments and can facilitate investigation of the extent to which the work environment supports or hinders nurses in providing high-quality patient care.

Although there is interest in the UK in the concept of Magnet hospitals and plans to make Magnet characteristics more common in English Trusts, the English nursing work environment has not, as yet, been assessed using the EOMII.

2.4 | International studies using the EOMII

The EOMII has been widely used in studies in the United States (e.g., Kramer, Brewer, & Maguire, 2013; Kramer, Maguire, & Brewer, 2011; Weatherford, 2011). Over the last few years, there has been increasing international interest in measuring and assessing the nursing work environment and several studies have used the EOMII in very different healthcare settings. A systematic search of electronic databases identified three studies which explored the psychometric properties of the EOMII scale in countries outside the United States. The first was conducted in Turkey (Yildirim, Kisa, & Hisar, 2012). A seven-factor solution was identified largely reflecting the original eight-factor solution described by Schmalenberg and Kramer (2008), although three items were excluded and a number of included items loaded on different factors in this sample. Of note were three items that moved between the *clinical autonomy* and *control over nursing practice* factors. Similarly, a Chinese study found that seven items

moved between the *clinical autonomy* and *control over nursing practice* factors and their solution differed from the original scale with nine factors identified (Bai, Hsu, & Zhang, 2013). Finally, a study of Dutch nurses identified five factors that replicated factors in the original solution. However, the remaining items from the factors *clinical autonomy*, *clinically competent peers* and *patient-centred culture* loaded onto two novel factors (De Brouwer, Kaljouw, Kramer, Schmalenberg, & van Achterberg, 2013). Overall, this evidence suggests that while the scale is very useful in different settings, the structure of the scale may differ in significant ways across different healthcare systems. In particular, the results suggest that nurses' experience and/or conceptualisation of nursing autonomy and control over practice may vary depending on the organisation and management of nursing work which may vary from country to country.

3 | THE STUDY

3.1 | Aims and research questions

The main aim of this study was to investigate whether the EOMII is a useful way of measuring the nursing work environment in England. The research questions are as follows:

1. What is the factor structure of the Essentials of Magnetism II Scale in data gathered from a sample of hospital nurses in England?
2. What are the associations, if any, between the factors measuring the nursing work environment and nurse-assessed care quality in England?

3.2 | Method

3.2.1 | Study design

A cross-sectional survey study.

3.2.2 | Setting

The study was conducted in two local district general hospitals in the South East of England. All the general medical and surgical wards in the two hospitals were included in the study.

3.2.3 | Participants

Registered nurses providing direct adult patient care on 29 wards across the two hospitals were recruited. Nurses eligible to participate were those who had worked on their present ward for a minimum of 1 month.

3.2.4 | Procedure

Initial contacts were made with the ward manager of each target ward to discuss the aims and the purpose of the research. With their agreement, nurses on the ward were made aware of the study at

ward meetings and a large poster about the study was displayed on the notice board. Survey packs containing a cover letter, the survey questionnaire and consent forms were distributed to the registered nurses. As some of the questions were potentially sensitive, particularly those concerning relationships with the ward manager, we were concerned to protect the anonymity of participants and the confidentiality of the data. Questionnaires were returned anonymously via a secure box on each ward. By ensuring anonymity and confidentiality, we were seeking to protect participants and to decrease the pressures to give socially desirable responses. The researcher visited each ward twice a week over the course of the study, to answer any questions about the study and collect completed questionnaires. The survey was conducted in the period 2 May to 31 October 2012.

3.2.5 | Ethics approval

The study received ethics approval from London-Surrey Borders NHS Research Ethics Committee, study reference number: 11/LO/1329.

3.2.6 | Measures

The Essentials of Magnetism Scale II

Responses to each of the 58 items are assessed on 4-point rating scales. Six of the items assessing the relationships between nurses and medical staff are rated on scales anchored at 1 (not true for any doctors) and 4 (true for most doctors most of the time). The remaining items are rated on scales anchored at 1 (strongly disagree) and 4 (strongly agree). Negative items are reverse scored. Following discussion with the scale authors and the Ethics Committee, minor changes were made to the wording of some items to adapt them to use in a UK sample. For example, "Techs" (an abbreviation) was changed to technicians; "unit" was changed to ward; and "Physician" was changed to Doctor (further information available from the authors).

Nurse-assessed quality of care

One item asking participants to rate the quality of care on their ward on an 11-point scale anchored at 0 (dangerously low quality) and 10 (very high quality).

Demographic and occupational characteristics of individual nurses:

1. Gender: male or female
2. Age: Participants were asked to indicate their age within one of nine categories, specifically (i) 21–24, (ii) 25–29, (iii) 30–34, (iv) 35–39, (v) 40–44, (vi) 45–49, (vii) 50–54, (viii) 55–59 and (ix) 60 or over.
3. Education: Less than degree level (diploma) or a bachelor's degree or higher.
4. Years of nursing work experience.
5. Length of time working on current ward.
6. Job role: Staff nurse or Sister/Charge Nurse

3.2.7 | Data analysis

Analyses were conducted using the Statistical Package for the Social Sciences (spss) version 20.0 (International Business Machines Corporation 2011). Descriptive statistics were used to describe the characteristics of the sample. Principal components analysis (PCA) with varimax rotation was used to assess the factor structure of the EOMII in the UK sample. Associations between the extracted factors and nurse-assessed quality of care were assessed using Pearson's correlation. To explore further the relationships between the extracted factors and nurse-assessed care quality, a hierarchical multiple regression was conducted with nurse-assessed care quality as the dependent variable, with the predictor variables being added in four steps. In the first step, the demographic variables, age, gender and education were entered as *control* variables; in the second step, job role was entered, followed by a dummy variable identifying the hospital, and in the final step, the extracted factors of the EOMII were entered. To best understand the results of the multiple regression, a multiple mediation model was tested using the spss add-on "Process" (Hayes, 2014), which allows a bootstrapped estimate of indirect effects to be calculated, providing a robust assessment of the size of these effects.

4 | RESULTS

4.1 | Overview of the sample

Four hundred and thirty-eight registered nurses were sent questionnaires and 247 returned a completed questionnaire, giving an overall response rate of 56.39%. The demographic characteristics of the sample are shown in Table 1. Most of the respondents were female, around a quarter were aged between 35–39 years old and around a third of the sample was educated to degree level. This is a much smaller proportion than appears in most studies conducted in the United States where around 50% will have an undergraduate degree and a small percentage will have a Master's degree or a PhD. It is notable that the sample had relatively high levels of nursing experience (mean = 11.11 years; *SD* = 9.52 years) and length of service on their current ward (mean = 4.72 years; *SD* = 5.14 years).

4.2 | Research Question 1: what is the factor structure of the Essentials of Magnetism II Scale in a UK sample of hospital nurses?

The data were assessed to evaluate whether PCA was an appropriate procedure to use to explore the structure of the EOMII. The Kaiser-Meyer-Olkin test result was .92, indicating a sufficiently large sample, and Bartlett's test of sphericity was significant, indicating that there were sufficient correlations between variables to make it appropriate to conduct PCA. An initial solution of five components with eigenvalues greater than one and explaining 45.25% of the variance was found. The solution was rotated using .03 as the cut-off for the inclusion of items on a factor. This resulted in a solution

TABLE 1 Description of demographic and occupational characteristics of study participants (N = 247)

Characteristic	Percentage (frequency)
Gender (n = 246)	
Male	9 (n = 22)
Female	91 (n = 224)
Age (n = 244)	
21–24	6 (n = 14)
25–29	10 (n = 23)
30–34	14 (n = 35)
35–39	24 (n = 59)
40–44	16 (n = 38)
45–49	12 (n = 30)
50–54	10 (n = 24)
55–59	7 (n = 18)
≥60	1 (n = 3)
Education (N = 247)	
Diploma	63 (n = 154)
B.Sc.	37 (n = 93)
Job role (N = 241)	
Staff Nurse	77 (n = 188)
Sister/Charge Nurse	23 (n = 53)
	Mean (standard deviation)
Years of work experience (n = 239)	11.11 (9.52)
Years of experience on present ward (n = 242)	4.72 (5.14)

comprising 40 items loading on to one of the final five components or factors, with their Cronbach's alpha coefficients ranging between .76–.94, indicating good reliability.

4.2.1 | Ward manager support

Thirteen items comprised this factor, with loadings between .39–.84 which, taken together, explained 16.82% of the variance. Although there are some differences, this is essentially the same as the "Nurse Manager Support" factor in the EOMII eight-factor solution which we have renamed to reflect the terminology used in the UK. The items reflect the role of the ward manager in supporting the work of individual nurses, for example, by building team cohesion and facilitating effective management by being seen as diplomatic, fair and honest.

4.2.2 | Working as a team

Eight items with loadings between .40–.72 comprised the second subscale, with an explanatory variance of 8.88%. This factor has items from three different EOMII subscales, which are "perceived adequacy of staffing," "working with clinically competent peers" and "a culture in which concern for the patient is paramount." The items are indicative of team working both within nursing and with other

disciplines present on the ward. Items also indicate expectations of high performance and productivity from everyone.

4.2.3 | Concern for patients

Seven items comprised the third factor, with loadings between .39–.76, explaining 7.91% of the variance. This component included items that represent the core beliefs, shared feelings and ethos of the organisation. It also includes items that are indicative of quality patient care being the priority in the organisation. There is a strong similarity to the "culture in which concern for the patient is paramount" subscale of the US EOMII with 7 of the 11 items loading on this factor.

4.2.4 | Organisational autonomy

Six items comprised the fourth factor, with loadings between .31–.70 and explaining 5.99% of the variance. This has two items from the "clinical autonomy" and four items from the "control over nursing practice" subscales of the EOMII original eight-factor solution. The items were concerned with the extent to which nurses perceived that they have *control* over their professional practice, make decisions relating to patient care and are recognised by other disciplines as being responsible for autonomous nursing practice. This factor explicitly focuses on nurses' autonomy at the level of the organisation and the extent to which they have control over nursing practice and policy, rather than clinical autonomy which would be demonstrated in their work with patients.

4.2.5 | Constraints on nursing practice

The final factor comprised six items with loadings between .50–.80, explaining 5.66% of the variance. This has four items from "clinical autonomy" and two from "control over nursing practice" in the original EOMII eight-factor solution. Included items concerned the barriers that nurses encountered in their work hindering their professional practice and to the exercise of clinical autonomy in relationship with patients. For example, it included items indicating that nurses have to do things that, in their professional judgement, may not be in the best interests of the patient, or that they are limited in their independent decision-making. Constraints on nursing practice seem to indicate restrictions on clinical autonomy (Table 2).

4.3 | Research Question 2: what are the associations between the factors measuring the UK nursing work environment and nurse-assessed care quality?

The five factors identified in the principal components analysis were used to explore the relationships between aspects of the nursing work environment and nurse-assessed quality of care. Correlations between the factors and nurse-assessed care quality are shown in Table 3. The correlations between *ward manager support*, *working as*

TABLE 2 Factor structure and loadings after principle components analysis with varimax rotation of the EOMII

Ward manager support Eigenvalue = 14.486		Working as a team Eigenvalue = 2.853		Concern for patients Eigenvalue = 2.771		Organisational autonomy Eigenvalue = 1.886		Constraints on nursing practice Eigenvalue = 1.740	
Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading
45. Our manager is visible, available, approachable and "safe."	.84	52. High performance and productivity are expected of everyone	.71	57. This is a value driven organisation	.76	18. Nurses are held accountable in a positive way for the outcomes of autonomous clinical nursing practice	.69	16. This organisation has many rules that prevent nurses from making independent decisions	.80
44. The ward manager of our ward promotes staff cohesion	.81	31. We work as a team on our ward	.71	56. Our administration anticipates organisational changes	.75	20. We have a committee structure through which nurses control nursing practice	.63	11. Nurses here fear "getting into trouble" if they make independent decisions	.71
43. Our ward manager cites specific examples when providing feedback	.80	53. We work together as a team, both within nursing and other disciplines	.62	58. We transmit our cultural values to incoming staff	.62	22. Doctors, administrators, and other professionals recognise that nursing controls its own practice	.62	17. Nurses have to do things that, in our professional judgement, may not be in the best interests of the patient	.63
40. Our manager is diplomatic, fair and honest	.79	34. Nurses on my ward demonstrate a proficiency level of competence	.59	55. Contributions of all members of the staff are valued	.53	15. Our evidence-based practice activities provide us with the knowledge base needed to make sound clinical decisions	.57	27. Nursing practice, policies and standards are determined by nursing management, or people outside of nursing	.48
41. Our ward manager supports and encourages interdisciplinary	.78	32. Our group cohesiveness enables us to give quality care with our current level of staffing	.59	48. This hospital is willing to try new things	.48	21. Staff nurses have input and make decisions with respect to practice issues and policies	.52	23. Shared decision-making is more talk than action here	.40
46. Our manager instils & "lives" the organisation's values regarding patient care	.78	51. People on my ward are enthusiastic about their work	.55	54. Quality patient care comes first in this organisation	.46	26. Nurses on my ward can describe decisions made and outcomes achieved as a result of our shared decision-making process	.31	13. Staff nurses must obtain orders from an authority source before making independent decisions	.50

(Continues)

TABLE 2 (Continued)

Ward manager support Eigenvalue = 14.486		Working as a team Eigenvalue = 2.853		Concern for patients Eigenvalue = 2.771		Organisational autonomy Eigenvalue = 1.886		Constraints on nursing practice Eigenvalue = 1.740	
Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading	Item	Factor loading
47. Our manager fosters sound decision-making	.72	49. Concern for the patient is paramount on my ward and in this hospital	.44	50. Problems are solved by swift action; people are not afraid to take risks	.39				
38. Our ward manager represents the positions and interests of the staff	.70	36. Continuing education towards a nursing degree is recognised as a way in which nurses can increase their nursing competence	.40						
39. If we need resources, our ward manager sees to it that we get these	.66								
42. The ward manager sees to it that we have adequate numbers of competent staff	.60								
19. Our ward manager supports our independent decision-making	.53								
8. Our ward manager makes it possible to attend continuing education	.46								
12. Autonomous nursing practice is facilitated because nurses know that ward managers will support them	.39								
Alpha .94 Mean (SD) = 3.13(.37)		Alpha .85 Mean (SD) = 3.15 (.37)		Alpha .85 Mean (SD) = 2.91 (.40)		Alpha .77 Mean (SD) = 2.91 (.38)		Alpha .76 Mean (SD) = 2.60 (.52)	

TABLE 3 Pearson's correlations between the five factors measuring the nursing work environment in England and the nurse-assessed quality of care

	Ward manager	Teamwork	Concern for patients	Organisational autonomy	Constraints on nursing practice
Nurse-assessed care quality	.52***	.57***	.54***	.42***	-.27***
Ward manager support		.63***	.61***	.50***	-.29***
Teamwork			.69***	.54***	-.26***
Concern for patients				.59***	-.23***
Organisational autonomy					-.17**

** $p \leq .01$, *** $p \leq .001$.**TABLE 4** Regression analysis on the effects of the five factors EOMII on Nurse-Assessed Quality of Care

	Step 1			Step 2			Step 3			Step 4		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Age	.15	.23	.05	.14	.23	.04	.12	.23	.04	.20	.18	.06
Gender	.34	.40	.06	.34	.40	.06	.36	.40	.06	.39	.31	.07
Education	.26	.24	.08	.26	.24	.07	.26	.24	.08	.10	.19	.03
R^2	-.004											
Designation				.06	.25	.02	.08	.26	.02	-.11	.20	-.03
$R^2 (\Delta R^2)$	-.009											
Hospital							-.25	.23	-.07	-.03	.18	-.01
$R^2 (\Delta R^2)$	-.008											
Ward manager support										.79	.28	.22**
Concern for patients										.63	.29	.18*
Working as a team										1.04	.31	.27**
Organisational autonomy										.07	.28	.02
Constraints on nursing practice										-.38	.19	-.11*
$R^2 (\Delta R^2)$.382***											

* $p < .05$, ** $p < .01$, *** $p < .001$.

a team, concern for patients and organisational autonomy are all positive, significant at the $p < .001$, and relatively large, varying between .50–.69. In contrast, associations between these factors and constraints to practice are negative, and while still significant, they are substantially smaller with the weakest association being between organisational autonomy and constraints on nursing practice. The correlations between nurse-assessed care quality and the three factors, ward manager support, working as a team and concern for patients, were all positive and substantial, while the association between care quality and organisational autonomy was also positive but of a more moderate size, while the correlation with constraints to practice was small and in a negative direction, as might be anticipated.

A hierarchical multiple regression model used to explore further the relationships between the factors assessing the nursing work environment and nurse-assessed care quality revealed that each of the control variables (i.e., age, gender and education) entered in the first step had very small, nonsignificant regression coefficients (Table 4). The R^2 of -.004 indicates that this model explains very little of the variance in nurse-assessed care quality. Job role and hospital which were then entered in the second and third steps, respectively, were also nonsignificant predictors accounting for very

little additional variance. In the final step, the five factors extracted from the EOMII gave a significant model (adjusted $R^2 = .38$, $F = 14.30$, $p < .001$). Ward manager support ($\beta = .22$, $t = 2.86$, $p < .01$), concern for patients ($\beta = .18$, $t = 2.16$, $p < .05$) and working as a team ($\beta < .27$, $t < 3.35$, $p < .01$) were all significant predictors of nurse-assessed care quality. Constraints on nursing practice was also a significant, but negative, predictor of nurse-assessed care quality ($\beta = -.11$, $t = -2.00$, $p < .05$). However, organisational autonomy was not a significant predictor in this multivariate analysis ($\beta = .02$, $t = .24$, ns).

4.4 | Post hoc analysis

The planned analyses showed that although there was a significant association of organisational autonomy and nurse-assessed care quality, when the association of organisational autonomy with other aspects of the nursing work environment was controlled in the multiple regression analysis, the association was reduced to nonsignificance. This suggested that the effect of organisational autonomy on nurse-assessed care quality might be mediated by the other four dimensions of the nursing work environment. Mediation occurs

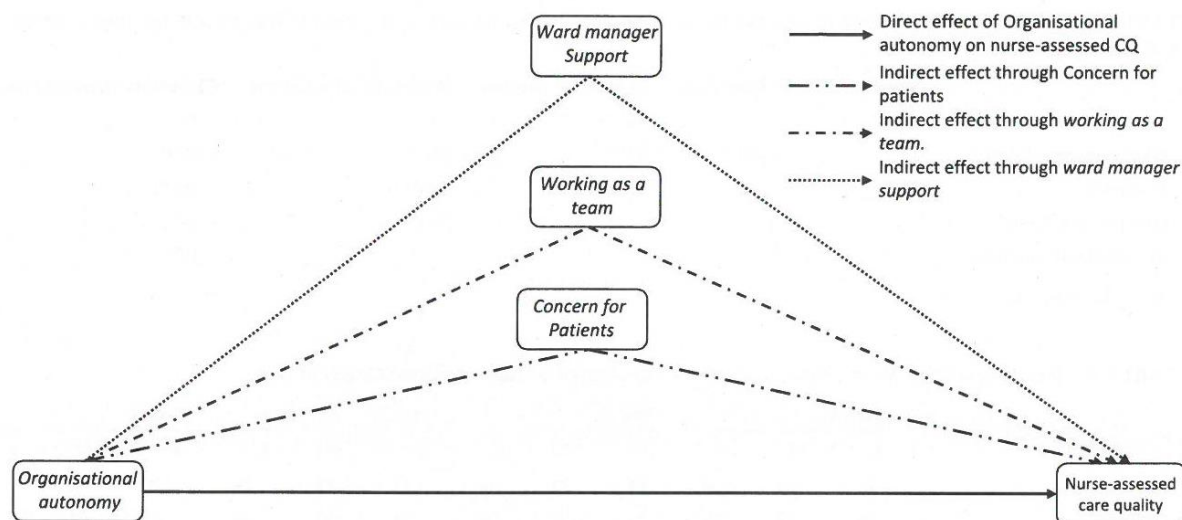


FIGURE 1 Diagram showing the direct and indirect effects of organisational autonomy on nurse-assessed quality of care

when there is an indirect effect of an explanatory variable on an outcome variable through one or more mediator variables. To test this supposition, a multiple mediation analysis was conducted using *organisational autonomy* as the independent variable, nurse-assessed care quality as the dependent variable and the other four factors as the mediating variables.

This analysis showed that the combined indirect effect of *organisational autonomy* on nurse-assessed care quality through the other four factors was significant with a bootstrapped estimate for the effect of 1.46 (95% CI 1.0750, 1.9051). *Ward manager support* (effect estimate = .37, 95% CI .07, .76), *working as a team* (effect estimate = .58, 95% CI .19, .95) and *concern for patients* (effect estimate = .46, 95% CI .11, .81) were significant individual mediators of the effect of *nurse autonomy* on nurse-assessed care quality, but *constraints on nursing practice* was not a significant mediator (Figure 1).

5 | DISCUSSION

5.1 | Summary

This is the first research to our knowledge to explore the structure of the EOMII Scale using data gathered from nurses working in England. A five-factor, 40-item solution for the EOMII was found to best fit the English data. The five factors were significantly associated with one another and with *nurse-assessed care quality* in univariate analyses. In the multivariate model, while four of the five factors assessing the nurse working environment were significant predictors of *nurse-assessed quality of care*, *organisational autonomy* was not a significant predictor of *nurse-assessed quality of care*. A multiple mediation model indicates that *organisational autonomy* does not have a significant independent effect on *nurse-assessed quality of care* but is rather mediated by, or works through the other factors that are important in the nursing work environment. This indicates that these three factors act as facilitators of *organisational autonomy*.

5.2 | The EOMII and the nursing work environment

The factor structure of the EOMII in the English sample was found to differ substantially from that found in the United States. Principal component analysis extracted a 40-item five-factor solution, in contrast to the eight-factor solution in the US sample. None of the five factors wholly reflected the original solution, but two factors were substantially similar. The first of these was "ward manager support." This is not surprising because the pivotal role played by ward managers (in the UK) or nurse managers (in the United States) has been recognised for decades. In the United States, the role of the nurse manager has been the subject of much research (e.g., Kramer et al., 2007). In the UK, the importance of the role has been recognised in reports on the organisation and management of acute health services since the Salmon Report (1966), in research on ward sisters (Pembrey, 1980) and has again been highlighted in the Francis report (2013) on failures of care in Mid Staffordshire NHS Trust. A study of nurses in acute hospitals in London found that the quality of relationships between staff and the ward manager was key to their decision to stay in their jobs (Barron, West, & Reeves, 2007).

There was also a great deal of overlap between the "concern for patients" factor in England and the "culture of concern for patients" in the United States. In both countries, nurses are profoundly affected by the values and ethos of the hospital in relation to patient-centred care. Eighteen items from the original EOMII were excluded from the English solution. All six items in the *nurse-doctor relationship* (items 1–6) in the original EOMII did not appear in the English solution. This may reflect differences in the organisation of medical work in the two countries. In the United States, patients retain their own physician when they are admitted to hospitals, whereas the ward medical team takes over care in England. This might warrant further study to understand how the interactions of the two professional groups are shaped by the way that work is organised.

Several, but not all, items from the US factors *perceptions of adequacy of staffing, working with clinically competent peers and culture of concern for patients* loaded onto the "working as a team" factor in England. These differences may suggest either that the dimensions of the nursing work environment measured by some factors found within US populations may not be relevant to nurses in England or, alternatively, that these dimensions are important to nurses in England, but the items do not capture their experiences. The differences in the structure of the scale in the two populations also raise the possibility that there may be dimensions of the US nursing work environment, which are not apparent in a description of the English nursing work environment using the EOMII.

Items that load on two factors in the eight-factor solution, "clinical autonomy" and "control over nursing practice," were distributed across two factors that we are calling "organisational autonomy" and "constraints to nursing practice." We interpret the former as referring to the extent to which nurses' control nursing practice and policy at the organisational level and the latter as organisational barriers that make it difficult to exercise clinical autonomy in their relationships with patients. The boundaries that exist around nursing practice and the extent to which nurses' can exercise agency in the context of the hospital organisation are clearly relevant and important in both the United States and England.

Clinical autonomy is recognised internationally as central to nursing practice and the delivery of high-quality patient care (Skar, 2009; Stewart, Stansfield, & Tapp, 2004). It is therefore of particular interest that in this English sample *organisational autonomy* was not an independent predictor of *nurse-assessed care quality* but was rather mediated by the *ward manager support, concern for patients* and *working as a team*. This may indicate that in this sample *organisational autonomy* is not perceived as lying only with the individual, but is constructed as arising also from the more collective aspects of the ward and hospital organisation. Future research may seek to explore whether conceptualisations of organisational autonomy across different healthcare systems vary. In an increasingly globalised world, with a highly mobile workforce, a culturally shared understanding of autonomy will support high-quality nurse education and practice internationally.

5.3 | Exploration of recent changes in the NHS and nurse education

As the data for this study were collected in 2012, there have been a number of changes in the NHS that may have an impact on the nursing work environment. Some of the most significant include the move to an all-graduate professional qualification, the introduction of the NMC Code, the implementation of NMC Revalidation and the increasing pressure on Trusts, post-Francis (2013), to ensure safe staffing levels.

On the 12th of November 2009, the then Health Minister Ann Keen announced that the minimum level for preregistration courses for nurses would be raised from diploma to degree level and that all courses should meet the new standards developed by the Nursing

and the Midwifery Council (DoH, 2009). All new nurses were educated to degree level from 2013, making them better equipped to improve the quality of patient care (DoH, 2009).

The minority of nurses who participated in this study were graduates, but over time, the population of registered nurses will gradually change so that eventually all will be educated to degree level. This could have a profound impact on nurses' perceptions of key concepts in this study, including, importantly, clinical and organisational autonomy.

In future, the role of the registered nurse is also likely to change as they assume responsibility for staff who have entered the profession as apprentices or associates. The apprenticeship route into nursing will enable students to train directly towards becoming a nurse (Department of Health 2014) and will provide an opportunity for talented care support workers to progress into nursing, giving them a route to advance their careers and a chance to use their vocational experience to enter the nursing profession (Department of Health 2014).

In 2015, the government announced a plan to create a new nursing support role, called nursing associates (HEE 2016b) who will work alongside care assistants and registered nurses to deliver hand-on care. This role, recommended by The Shape of Caring Review (HEE 2015), could also be a new route for those wishing to become a registered nurse. Again, on the 12 October 2016, the government announced that over 2,000 Nursing Associates will begin training before the end of 2016, and run over a two-year period. Eleven sites have been chosen to deliver the first wave of training that will start in December 2016 (HEE 2016c). Taken together, these changes in nursing education, including the move towards graduate preparation and the development of new roles, are likely to have a profound impact on the nursing work environment and consequently the key concepts in this study, particularly team work and autonomy.

In the light of the recommendations in the Francis report, the new NMC Code was launched in January 2015 and came into force in April 2015 (NMC, 2013, 2015). The Code has a particular focus on issues relating to fundamental standards, to ensure that the needs of patients are always put first (NMC, 2013, 2015). A fundamental aspect of the Code is the requirement that nurses and midwives to be open and honest (NMC, 2015, 2016). They need to have the support of a working culture where they are able to learn from mistakes and feel comfortable reporting incidents that have led to harm (NMC, 2015, 2016). The NMC Joint Guidance with the General Medical Council on the professional "duty of candour" for doctors, nurses and midwives was published in June 2015 and provides practical advice on the common duty to be transparent and truthful with patients (NMC, 2016).

Central to the new NMC Code is the NMC revalidation (NMC, 2013, 2016), which was part of the NMC's response to the Francis Report into the failings at Mid Staffordshire NHS Foundation Trust (Francis, 2013). The revalidation process was launched in April 2016 and is a new process that all nurses and midwives will need to go through in order to renew their registration with the NMC (NMC, 2016). It was introduced to raise awareness of the Code and

professional standards expected of nurses and midwives. Revalidation requires that every nurse and midwife on the register demonstrate on a regular basis that they are able to deliver care in a safe, effective and professional way. This puts public protection at the heart of the nursing and midwifery professions and supports nurses and midwives to continually develop and reflect on their practice throughout their careers (NMC, 2016). Future research on the nursing work environment will need to consider the statements in the code which set out what good nursing practice looks like.

Reports into the failings at Mid Staffordshire NHS Foundation Trust revealed that inadequate staffing levels were related in an important way to the poor quality of care (Francis, 2013). Post-Francis, there has been a sharp increase in the demand for nursing staff. Trusts have spent more on staffing, including temporary and agency staff, to provide safe and compassionate care. However, levels of staffing remain one of the most critical issues that challenge the NHS.

Concerns about staffing led to the proposal in the Francis report that the National Institute for Health and Care Excellence (NICE) develop an evidence-based guideline for the NHS on staffing levels across a variety of settings in 2014 (NICE, 2014; RCN, 2016). In that year, the minimum staffing for adult nursing was published, and the report concluded that there was no single nurse-to-patient ratio that could be applied across all acute adult inpatient wards (NICE, 2014). It noted, however, that there was evidence of increased risk of harm associated with a registered nurse caring for more than eight patients during daytime shifts (NICE, 2014:22). This guideline is regularly cited as an underlying factor for the rise in agency bills and the shortage of nurses in England (RCN, 2016).

In June 2015, NICE announced it was abandoning the safe staffing programme and did not publish the finished A & E guideline (RCN, 2016). It has been claimed (RCN, 2016) that the decision to decommission NICE was linked to concerns that the cost of implementing the guideline would be too great. The NHS Improvement has since taken over the safe staffing project (RCN, 2016). A report published by the National Audit Office (2016) highlighted that all major clinical staff groups with data available had shortages in 2014, with particularly high levels for nurses, midwives and health visitors. There was a shortfall of 7.2% between the number of nursing, midwifery and health visiting staff that the staff providers said they needed and had budgeted for (386,200) and the number of staff in post (358,220).

In summary, there have been some very significant changes in the NHS as the data for this study were collected. The profession has been refocused on the provision of compassionate and safe care as stated in the NMC code, and nursing education has moved towards graduate level, supplemented by new routes into nursing, such as apprenticeships and new roles such as nursing associates. At the same time, the NHS is caught in an increasingly difficult dilemma which is that while compassionate and safe care demands high levels of nurse staffing, the financial situation and the availability of suitably trained staff makes it increasingly difficult to provide adequate numbers of nurses to meet the demands for care.

5.4 | What nurse leaders should do to implement these findings in practice

Nurse leaders could use the five-factor EOMII scale identified in this study to give a baseline measurement of the nursing work environment in the clinical areas for which they are responsible. If interventions to improve the nursing work environment could be devised and implemented, the EOMII could then be used to measure their effectiveness. In addition, it is imperative that systems are in place to regularly audit and monitor quality of care to maintain improvements in the nursing work environments. This is to ensure high-quality patient care, foster staff retention and monitor the effect of ongoing changes to the nursing profession.

This study has highlighted the important role played by the ward manager in fostering a positive work environment, good team work and achieving high standards in the care of the patients. It is therefore important that Directors of Nursing and other nurse leaders make appropriate training in nurse leadership available and accessible to the ward managers in order to strengthen leadership in the nursing profession as well as contributing to the priorities of the organisation. This research highlights differences in the interpretation or experience of clinical autonomy among English nurses as well as the importance of ward managers in supporting autonomous nursing practice. Thus, education and support to develop clinical autonomy among nurses might effectively be delivered by ward managers themselves.

The EOMII originated in the identification of Magnet hospitals in the USA. Magnet accreditation currently provides the only system for benchmarking nursing internationally, without an equivalent alternative. It has taken many years to develop. The recently launched initiative by the Florence Nightingale Foundation to explore how the nursing excellence standards developed by the ANCC can be applied in England is an exciting development. This study indicates a number of key areas on which nurse leaders might want to focus in the drive to improve the nursing work environment. Given the importance of the role of ward managers in the nursing work environment, giving ward managers support and resources to facilitate their work in supporting autonomous nursing practice is a step towards achieving excellence in nursing.

5.5 | Implication for practice

As nursing has become an all-graduate profession, and the first set of the all-graduate nurses have recently qualified, ward teams will also include new roles in nursing, that is, nursing associate and apprenticeship roles; registered nurses will be expected to practise more autonomously. The implication for registered nurses is that they will be expected to be in charge of the wards and delegate tasks to care support workers, nursing associates and the nursing apprentices. Responsibilities for managing less highly qualified staff may have implications for registered nurses' conception and experience of autonomy.

5.6 | Limitations

This study was conducted in two district general hospitals in the South East of England. They both had a stable workforce, and it is difficult to say how typical they are of acute trusts in England, which may limit the generalisability of the study. It would be beneficial to replicate this study using a wider range of National Health Service (NHS) hospitals. Finally, the main outcome, *nurse-assessed quality of care*, was measured on a single item which may not be adequate to capture a range of perceptions and ratings of nursing. However, there was justification for the use of the single item given widespread use in other research using the EOMII (Bai et al., 2013, 2015; Kramer et al., 2011, 2013; Yildirim et al., 2012). Furthermore, a recent study by Stalpers, Kieft, van der Linden, Kaljouw, and Schuurmans (2016) examined the concordance between objective nurse-sensitive screening indicators (screening of delirium, screening of malnutrition and pain measures) and the single-item subjective nurse-assessed care quality using Spearman's Rho correlation and found a significant positive correlation ($r_s = .943$, $p .005$) between the two quality measures, indicating corresponding quality ranking. However, it would be interesting to use a more complex measure, or to replace *nurse-assessed quality of care* with data on patients' experiences and outcomes.

6 | CONCLUSION

This study suggests that a five-factor solution to the EOMII may provide a useful scale to measure how healthy and productive nurses' work environments are in England. Although the data for this study were collected in 2012, this research makes an important and timely contribution to how the nursing work environment in England can be improved. In this England sample, the use of the EOMII highlights the importance of nurses' perceptions of their work environment in understanding the variables that hinder or assist nurses in practicing autonomously and thus providing high-quality patient care. Developing new and improved measures of the nursing work environment may become increasingly important given the policy directions indicated by the HEE.

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DISCLOSURE

The authors have confirmed that all authors meet the ICMJE criteria of authorship credit (www.icmje.org/ethical_1author.html), as

follows: (1) substantial contributions to conception and design of, or acquisition of data or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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