University based manual handling and moving training how effective is it in assisting student nurses to comply with safe practice?

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University Based Manual Handling And Moving Training: How Effective Is It In Assisting Student Nurses To Comply With Safe Practice?

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Abstract

Project Title

University Based Manual Handling And Moving Training: How Effective Is It In Assisting Student Nurses To Comply With Safe Practice?

Purpose of the Study

To explore whether current approaches to manual handling education at Coventry University adequately prepare student nurses, aged 25 years and under and who have no previous experience of health care, to practice safely in the clinical setting.

Background

Current legislation, together with professional guidelines no longer supports the routine manual lifting of patients. Heavy manual labour, awkward postures and a previous history of injury are all risk factors in the development of musculoskeletal disorders. Handling and moving incidents account for 40% of all sickness absences in the NHS, the financial cost of which is in the region of £400 million a year (HSE 2004). It has also been identified that some manual lifting techniques can harm patients. Despite the recommendations, anecdotal reports from student nurses, together with recent evidence from the literature indicate that evidence based manual handling is not always implemented in clinical practice.

Research Design and Findings

This is an exploratory, phenomenological study conducted within the Faculty of Health and Life Sciences at Coventry University. Semi-structured interviews were used to gather the data from a purposive sample of 11 Adult Branch student nurses. The results highlight how limitations within the educational provision for manual handling, together with inadequate communication of learning outcomes into clinical practice expose this particular group of student nurses to back injury. The findings also indicate the widespread use of bed sheets, together with the ‘drag lift’ for the in lying repositioning of patients.

Conclusions

Manual handling education should be tailored to meet the specific learning needs of younger, inexperienced student nurses. More opportunities for practice are required during training sessions, together with more systematic follow up during clinical placements. The development of online learning, together with audio visual resources is advocated to promote flexible learning and to enhance skills laboratory training.

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CHAPTER ONE

INTRODUCTION

1.1. Statement of the Problem

Universities have a legal responsibility to ensure that student nurses are adequately prepared for the challenges of patient handling activities prior to starting their clinical placements. Preliminary handling and moving (H&M) training is conducted in the university but the ongoing education and assessment of this topic is a shared responsibility between universities and placement providers. Patient handling is a core component of nursing practice which has traditionally been performed using manual lifting techniques. It is well documented that heavy manual labour, awkward postures and a previous history of injury are all risk factors in the development of musculoskeletal disorders (MSDs), including lower back pain (HSE 2004).

Current legislation, together with guidelines from the Royal College of Nursing (RCN) / National Back Exchange (NBE) (1987) no longer support the routine manual lifting of patients. It has also been identified that some manual lifting techniques can harm patients and are now condemned by the professional bodies. The Nursing and Midwifery Council (NMC) (2002) define the inappropriate application of manual handling techniques as ‘physical abuse’. Despite these recommendations, anecdotal reports from student nurses, together with recent

evidence from the literature (Cornish and Jones 2010) indicate that evidence based H&M is not always implemented in clinical practice. Failure to comply with taught methods not only increases the risk of injury to student nurses but also exposes them to potential disciplinary action and litigation if patients are harmed. It is unacceptable that student nurses at the outset of their career should be placed in such an invidious position. Each of these factors provides justification for the study.

1.2. Positionality of the Researcher

The researcher is a registered general nurse and an accredited manual handling trainer who has been teaching the topic to undergraduate Health Care Professionals within the Faculty of Health and Life Sciences at Coventry University (CU) for approximately 10 years. Competence to teach manual handling is maintained by regular attendance at accredited training courses and through sharing best practices in a team of inter a professional trainer that includes a practising physiotherapist, an occupational therapist and qualified nurses who have been seconded from clinical practice.

1.3. Rationale for the Study

Previous studies suggest that between 26% -34% of student nurses have experienced back pain during their clinical placements, a number of whom attribute their pain to an H&M incident in clinical practice (Barnes 2009, Kneafsey and Haigh 2007). It is suggested that student nurses aged 25 years and under, together with students who have no previous health care experience are at greater

risk of involvement in unsafe H&M practices (Green 2002, Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 2003) but there are no specific studies that support this assertion.

An individual's physical capability varies with age, typically increasing until the early twenties and then declining (HSE2004). The risk of injury from manual handling tasks is therefore likely to be higher for those in their teens who may be working close to their maximum capacity (HSE 2004). The consequence of poor H&M practice may not be immediately apparent. Back pain can evolve slowly and go unnoticed for months or years at which point the damage is irreversible (Chell 2003). Particular care is therefore needed when considering manual handling tasks with younger student nurses so they can be protected from developing MSDs.

The absence of any specific evidence that documents the H&M experiences of younger, inexperienced student nurses provides validation for this study. The phenomenon therefore needs to be explored holistically and in its entirety using qualitative methods. From the findings of the study, emergent themes will be identified to inform the development of H&M education, together with support strategies that allow student nurses to comply with evidence based practice that helps to reduce the risk of injury.

1.4. Background

1.4.1. Back Pain Statistics

It is reported that 1:4 nurses (25%) have taken time off work with a back injury sustained at work (HSE 2004, Seccombe and Ball 1992) and that 3,600 nurses have to retire each year because of back injuries (Seccombe and Smith 1996). The risk of back injury appears to increase with length of time in nursing, possibly because a long career involving lifting and handling increases the number of opportunities for injuries to occur (Seccombe and Ball 1992).

The incidence of MSDs resulting from manual handling tasks is reported to be higher amongst health care workers than those in other occupations, with manual handling incidents accounting for 52% of all reported accidents in the health services each year (DOH 2002). Handling and moving incidents account for approximately 40% of all sickness absences in the NHS, the financial cost of which is in the region of £400 million a year (HSE 2004). The foremost consideration however, is the human cost in terms of pain and disability experienced by nurses and also patients who may be injured as a result of poor handling practices (Green 2002, HSE 2004)

1.4.2. Current Legislation

The Manual Handling Operations Regulations (MHOR) 1992 (as amended) (HSE 2004) were implemented in 1993 to comply with European Directive 90/269/EEC which acts to raise the minimum standards of health and safety for workers (Hignett 2005, Holmes 1994). The main purpose of the regulations is to prevent

injuries specifically arising from H&M by directing employers to ensure that hazardous manual handling tasks are avoided as far as is reasonably practicable. Where hazardous H&M cannot be avoided, then risk reduction measures should be implemented through the provision of suitable equipment. A clear duty is imposed upon employers to ensure that any risk reduction measures they have put in place are having the desired effect. It is not sufficient to make changes and then hope that the problem has been dealt with (HSE 2004).

The regulations do not prohibit all manual handling and recent case law suggests that an employee whose job involves lifting people may be asked to accept a greater risk of injury than someone who is employed to lift inanimate objects (HSE 2004). However, a balanced approach is required to ensure that neither care workers nor their patients are being exposed to unreasonable risks but while still taking into account patient choice and the human rights of both parties (HSE 2002). Further guidance is provided by the RCN (2003) who specify that handling aids must be used whenever possible and that manual handling of patients should only continue if it does not involve lifting most or all of the patient's weight or if the situation is a life threatening emergency.

The effects of MHOR 1992 (HSE 2004) are difficult to evaluate because no further surveys have been published that report the incidence of back pain amongst nurses. There is also a lack of evidence that evaluates the advantages of using H&M equipment. It is therefore a priority for both Higher Education Institutes

(HEIs) and clinical placement providers to supervise student nurses in their manual handling practice and monitor their performance.

1.4.3. Training and Assessment

The MHOR 1992 (HSE 2004) require employers to provide adequate training and supervision for workers in order to protect them from injury. This obligation also extends to people who are not directly employed but who may be affected if exposed to risks, for example student nurses on clinical placements. Guidance on training for the manual handling of people has gradually become less prescriptive and more flexible over the last 20 years with no specific requirements about the content, length or duration of training sessions. However, there is a legal requirement to ensure that employees are competent to perform H&M tasks and therefore training should be long enough to provide sufficient time for explanation, demonstration and practice in both the classroom and the workplace and sufficiently flexible to accommodate individual needs (HSAC 1992 cited in Rose 2011: 75).

Following the results of a mixed methodology study which investigated training approaches, HSE (2007) suggest initial training of between half to one day followed by an annual update. EDGE Services (2010) more specifically advocate six and a half hours training for those with no previous experiences of people handling. The RCN (2003) further add that student nurses on placement must achieve the required competencies before handling patients and there should be a

clear agreement regarding who is responsible for the assessment, supervision and support of students or working in clinical practice.

1.5. Provision of Manual Handling Education at Coventry University

1.5.1. University Training Sessions

Current manual handling education at Coventry University comprises of both practical training, together with the theoretical underpinning, including an overview of relevant legislation. Basic H&M training is provided by both academic staff employed by the University and nursing staff seconded from clinical practice. However, it is expected that basic skills will be further developed during the students' clinical placements under the direction of a qualified mentor.

Prior to commencing their first clinical placement, the students undertake 2 practical training sessions, each lasting approximately 4 hours. In previous year, H&M legislations and theory at CU was addressed during 2 lead lectures. However, a new nursing curriculum with the competing pressures of additional essential content resulted in some existing topics being abandoned or abridged. At CU, one of the casualties was the lead lectures for H&M. The theoretical component is now addressed through a pre recorded lecture which the students can access via the University intranet. An H&M workbook containing a quiz to check the students' theoretical knowledge is also issued in advance of their first

practical session. The quiz is a self directed activity and other than a cursory check that it has been completed, there is no formal assessment of H&M theory.

H&M training sessions begin with a brief overview of the underpinning theory and legislation in order to introduce and contextualise the topic. A range of techniques are then demonstrated which the students practice under close supervision. It is expected that the clinical mentor will supervise and assess the student's competence to perform H&M during clinical placement.

Initial H&M training is followed by a four hour update during each year of the three year course which builds upon previous teaching and practical experience. The updates commence with a quiz that checks the student understands and also assists with the consolidation of previous learning. This activity is followed by small group activities based on problem solving scenarios which further aids the consolidation of theory with practice. A practical session then follows during which the students are supervised in performing the techniques arising from the scenarios.

1.5.2. Role of the Clinical Mentor

A mentor is a registered nurse who has met the NMC standards (2010) to facilitate learning, supervision and assessment of student nurses in the practice setting. Clinical mentorship is a formal arrangement to provide educational and personal support to a student throughout the period of the placement (Quinn and Hughes 2007). It is a

mandatory requirement that student nurses are allocated to an identified mentor during each clinical placement and that the mentor is available to the student for at least 40 percent of the time during periods of practice (NMC 2010). A formal programme of preparation is required that aims to develop the knowledge and competence required for this role. At Coventry University, this is addressed in a single module course that covers a range of topics, including: establishing effective working relationships and facilitation of an environment for learning. In addition, mentors are required to update every year in order to keep abreast of new developments regarding teaching, learning and the assessment of students. Additional support is provided for the students during their clinical placements by Practice Facilitators who are registered nurses teachers responsible for co-ordinating the practice component of learning. Their role involves liaison between the University and clinical mentors in order to enhance student learning.

The mentor is responsible for the overall assessment of the student's performance of clinical practice. Two documents are issued to the student for this purpose. Firstly, the 'Practice Grid', which is an extensive document from which the mentor and the student can work together to identify the student's learning needs and the learning opportunities available during the placement. Secondly, the 'Essential Skills Inventory' that consists of a definitive list of core nursing skills specified by the NMC which the student must be competent to perform prior to achieving the qualification of Registered Nurse.

The nursing curriculum comprises of equal proportions of both theory and practice modules and there are normally 2 of each per academic year. Each clinical

placement aims to build upon skills, acquired in the university clinical skills laboratories and those from previous clinical placement. These skills include H&M

1.5.3. Educational Audit of Clinical Placements

A further requirement of the NMC (2008) is that a regular, formal assessment of each placement area is conducted to ensure that it is a suitable learning environment for student nurses. In Coventry and Warwickshire a 23 page document entitled the 'Learning Environment Profile' (LEP) is used for this purpose and specifies a series of standards that the placement needs to achieve or show they are making steps towards achieving (Coventry University 2010). The audit is conducted every two years. General information is collected and recorded about the placement. Integral to this process is supporting evidence that all staff have attended mandatory training sessions including manual handling. Records of regular Health and Safety risk assessments, together with completed action plans are also required.

Table 1

Contents of the Learning Environment Profile

- General placement information.
- A profile of registered staff to assist with the maintenance of the local and/or University mentor registers and identification of staff developmental needs.
- A profile of learning opportunities.
- A series of standards which meet the quality assurance requirements of the Professional Regulatory Bodies, Skills for Health and Quality Assurance Agency (QAA).
- An action plan to enhance the quality of the learning environment.

1.6. Research Question

University based manual handling and moving training: how effective is it in assisting student nurses to comply with safe practice?

1.6.1. Nature of the Study

The research question will be answered using qualitative methods based on inductive logic. This is an exploratory, phenomenological study conducted within the Faculty of Health and Life Sciences at Coventry University. The purpose is to obtain a holistic and complete account of the student H&M experience. Qualitative methods have been adopted using semi-structured interviews as the method of data collection. The interviews will allow the students to provide rich, detailed and individual accounts of their H&M experiences from their own subjective perspective (Vivar 2007, Flick 2009, Smith et al 2009). The researcher has undertaken a 'person-centred' counselling course in order to further develop the interpersonal skills required for conducting interviews.

1.6.2. Definition of Terms

Manual handling and moving will be defined as;

> "any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof by hand or by bodily force. 'Load' includes any person or animal" (HSE 2004:6).

Safe practice is defined as H&M activities that:

- Begins with a risk assessment.
- Makes appropriate use of equipment/mechanical aids.
- Does not involve exceeding the individual capabilities of the student nurse.

Unsafe or ‘Poor’ Practice is defined as H&M activities:

1. Where there is no evidence of risk assessment.
2. That involve condemned or controversial techniques.

1.6.3. Aim of the Study

To determine if current approaches to H&M education at Coventry University adequately prepare student nurses for clinical practice.

1.6.4. Objectives

1. To explore if student nurses are at risk of muscular skeletal injury when performing H&M tasks during clinical placements.
2. To determine if H&M equipment is appropriately used by student nurses when they are sent out on clinical placements from CU.
3. To ascertain if student nurses feel confident to perform H&M tasks following their training sessions at CU.

1.7. Organisation of the Remainder of the Study

Chapter 2 A review of the literature associated with manual handling education for pre-registration nurses.

Chapter 3 A discussion of the research methodology with particular reference to phenomenological approaches and interview techniques. Details of the ethical approval process are also provided.

Chapter 4 Two main themes are presented and supported by verbatim extracts from the raw data.

Chapter 5 The results are discussed and interpreted in relation to the 2 main themes: (1) Theory Practice Gap in Manual Handling and Moving, (2) Vulnerability of Student Nurses.

Chapter 6 Conclusions are drawn and the limitations of the study are discussed. Recommendations are made for educational changes and where questions remain unanswered, further investigations are suggested.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The following chapter provides a synthesis of the available literature relating to manual handling education since 2000 with specific reference to student nurses in Britain. The aim is to establish whether current approaches to manual handling education adequately support student nurses to comply with safe practice. A detailed search revealed a limited body of evidence. Studies to date relate to single institutes from which direct comparisons are difficult due to differences in methodology, sample size and student cohorts.

2.1. Literature Search

See Appendix 2 for details of the search strategy. The following databases were searched:

1. Academic Search Complete
2. AMED *Allied and Complementary Medicine Database*
3. CINAHL *Cumulative Index to Nursing and Allied Health Literature*
4. MEDLINE *National Library of Medicine*

The above databases provide access to citations from all nursing journals, as well as primary journals in occupational therapy and physiotherapy, biomedical sciences (Portney and Watkins 2009), all of whom have an interest in H&M. AMED was used because osteopaths and chiropractors may have an interest in back pain arising from handling and moving activities.

A key word search was adopted, using related synonyms and antonyms of the following terms: ‘handling and moving’, ‘student nurses’. Truncations of key words were used to broaden the results. Databases were searched individually, using the search tools within each to improve the results. The search was further extended by both hand searching relevant journals, together with electronic searching of the article reference lists. This approach ensures complete and comprehensive coverage of literature which is not always accessible through full text journal databases (Jesson et al 2011).

2.1.1. Inclusion and Exclusion Criteria

Literature published prior to the year 2000 was excluded on the grounds that in the years immediately following implementation of Manual Handling Operations Regulations 1992 (HSE 2004), there is an expectation of discrepancies between recommended and actual practice while employers and staff adjust to new guidance. However, after eight years, it is reasonable to assume that the transition will be complete. All articles relating to manual handling training in the context of nursing or which document the H&M experiences of student nurses in either the

educational or practice context were included. See Appendix 3 *'Summary of Literature Included in the Review'.*

2.1.2. Introducing the Main Themes

Four key themes arose from the literature. The theory practice gap is the overarching theme and explores ways of promoting collaborative working between universities and placement providers in order to enhance manual handling education. Theme 2 evaluates the handling and moving (H&M) experiences of student nurses when they are in clinical placement, including: the effects of occupational socialisation; availability of equipment; staffing levels and assessment of placement learning. Theme 3 appraises University based approaches to manual handling education. The final theme explores risk assessment which is the foundations of all manual handling activities. Back injury and harm to patients are also addressed in this final section.

2.2. Theory Practice Gap

Patient handling is a skilled activity combining theoretical knowledge with practical experience and poor techniques can lead to musculo skeletal injuries (Wanless and Wanless 2011). Universities have a legal duty to prepare student nurses for patient handling activities prior to clinical practice (HSE 2004) and initial H&M teaching is usually undertaken by academic staff within the university. Thereafter, the ongoing responsibility in the UK is shared between universities and placement

providers. However, there is often no continuity into clinical placement (Wanless and Wanless 2011) and the absence of any clearly defined framework has led to a lack of clarity over who is responsible for which aspects of the teaching and assessment of this subject (Kneafsey, Baker and Robinson 2003, Felstead and Angrave 2005, Wanless and Page 2007).

This issue was highlighted by Kneafsey (2007) following a qualitative study that explored how 15 clinical mentors viewed their role in supporting student nurses to develop safe patient handling skills. The results indicate that some mentors believe that as H&M training is provided in the university, there is no need for them to address the topic any further with their students. This means that the burden of responsibility to practice safely is often placed with the students (Kneafsey, Baker and Robinson 2003) who frequently participate in dangerous manoeuvres to maintain good relations with practitioners (Kneafsey and Smallwood 2010). The small sample may not be representative of the wider mentor population but the findings highlight the need for a more cohesive approach to manual handling education and for further research into the teaching and assessment of H&M in clinical placements.

Manual handling learned entirely within the clinical skills laboratories often consists of prescriptive techniques (Wanless and Wanless 2011), an approach which has been criticised for its failure to meet the complexities of real life practice (Kneafsey and Smallwood 2010). Swain, Pufahl and Williamson (2003) suggest that the theory practice gap can be addressed through utilising ward based

trainers in the classroom. However, it is acknowledged that clinical staff are already overworked (Kneafsey, Baker and Robinson 2003) and that universities should be taking greater responsibility for collaborative working with placement providers (Felstead and Angrave 2005, Kneafsey and Haigh 2007) to ensure that appropriate safe systems of work are in place to protect student nurses. A more holistic approach is suggested that includes occupational health involvement, incident and malpractice reporting, together with improved preparation for the complexities associated with 'real life' practice (Kneafsey and Smallwood. (2010).

2.2.1. Communication

Felstead and Angrave (2005) describe a policy for H&M education within their own institute that emphasises collaborative working with placement providers in order to enhance the student experience. The policy centres on a reporting system whereby any poor student performance identified during training sessions is communicated to clinical mentors so that progress can be monitored with the aim of providing any additional training and supervision during clinical placement. At the time of publication, there appeared to have been no formal evaluation of the effectiveness of the policy but anecdotal evidence from both students and staff suggests that the changes have increased the quality and consistency of the student experience.

Improved link liaison support in the clinical setting has been identified as a further means of enhancing communication relating to H&M education between HEIs and

clinical staff (Cornish and Jones 2010). However, high student intakes have increased the workload of academic staff meaning that clinical liaison is often *ad hoc* and infrequent. Alternative suggestions to ensure a more holistic approach to H&M education include regular meetings between the teaching team and practice facilitators in order to discuss and disseminate any new developments, together with any variability of practice in student placements (Felstead and Angrave 2005, Kneafsey, Baker and Robinson 2003). However, there is no evidence to date that evaluates the effectiveness of this approach.

2.2.2. Change Management

Green (2002) asserts that knowledge and skills alone will not elicit a change in practice as many people feel threatened by change and will try to resist it. A manual handling culture that emphasises safety and compliance with legislation can only be implemented through a series of policies and organisational structures based on change management (Felstead and Angrave 2005, Hignett and Crumpton 2007). Changes to H&M practice require a commitment from faculty management teams, together with strong leadership by senior nursing staff to promote awareness that safer H&M practices can help to reduce the risk of back injury (Kneafsey, Baker and Robinson 2003, Swain, Pufahl and Williamson 2003). Change cannot be achieved without financial investment in appropriate equipment, human resources, and staff development in order that students can be adequately supported and supervised during training sessions **(**Cornish and Jones 2007).

2.2.3. Professional Development in Manual Handling

Many academic lecturers lack the knowledge and preparation to teach manual handling (Kneafsey, Baker and Robinson 2003). It is therefore recommended that funding is available to enable trainers to undertake further academic qualifications in H&M and back care management (Felstead and Angrave 2005). Further suggestions include mandatory membership for trainers to the National Back Exchange which is an interprofessional forum for the exchange of information about back care and the development of common standards for manual handling training (Felstead and Angrave 2005, Wanless and Wanless 2011). Additionally, Felstead and Angrave (2005) advocate the appointment of a manual handling co-ordinator who can lead a team of trainers in order to promote an inter professional approach to manual handling education.

The literature suggests that a fragmented approach to manual handling education, together with a lack of investment in training resources has led to a mismatch between taught theory and clinical practice. The conclusions indicate that HEIs should act as the drivers for change in promoting more effective working relationships with placement providers. There are no studies to date that evaluate the effectiveness of a more collaborative approach to the teaching and assessment of manual handling activities.

2.3. Placement Experience

Despite legislation which recommends an end to all hazardous manual lifting in the workplace (HSE 2004), there is evidence that this practice continues in healthcare settings. It is reported, following the results of a survey of 106 second year student nurses that 74% of respondents have been asked to lift patients without the aid of equipment even when in some cases it was available (Cornish and Jones 2007). A poor response rate of 34% means the findings may not be representative of the accessible population and the authors acknowledge that students may report themselves as practicing safely and others as not. However, Smallwood (2006) provides evidence from a survey of 51 final year adult branch student nurses that 39% report themselves as frequently participating in unsafe techniques. The small sample size makes generalisation difficult but the triangulation of methodologies helps to clarify ambiguities in the student responses, indicating that the incidence of unsafe practice may be higher than reported in the questionnaire.

The findings of two independent surveys provide confirmation that student nurses experience difficulties in applying taught manual handling when they are in clinical placement for the following reasons: the influences of other staff; a lack of space; lack of time and lack of equipment (Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 2003). Differences in sample sizes and characteristics, together with variations in response rates do not permit direct comparisons.

2.3.1. Influences of Other Staff

Swain, Pufahl and Williamson (2003) identified that 40% (n = 55) of student nurses report being unable to implement safe H&M practice because they are influenced by other nurses. Qualitative data from 3 studies (Cornish and Jones 2010, Green 2002, Swain, Pufahl and Williamson 2003) indicate that student nurses conform to unsafe manual handling practices because they fear that confrontation with clinical staff may lead to them being ostracised and alienated for the remainder of the placement. Other reasons include concerns of being labelled as 'lazy' or 'made to feel 'inferior' (Swain, Pufahl and Williamson 2003). It is suggested that in areas where a traditional culture of nursing prevails with an emphasis on routines, hard physical work and getting through the workload as quickly as possible that this encourages student nurses to believe that rushing their work is essential to being valued by the clinical staff (Kneafsey 2000, Swain, Pufahl and Williamson 2003). Ultimately, rushing can impact negatively on their patient handling experiences, leaving insufficient time for planning or for promoting independent movement in patients which often takes more time (Kneafsey 2000).

'Fitting in' and being accepted are seen as essential to achieving a favourable end of placement assessment and this may increase the likelihood of participating in unsafe H&M practice (Cornish and Jones 2010, Kneafsey 2000). It is also noted that some students find it easier to conform to poor practice because they lack the confidence to challenge clinical staff and feel their student status does not give them the authority to initiate change in handling and moving (Green 2002, Jootun and MacInnes 2007).

There is some evidence that students aged 25 and under are more likely to conform to unsafe practice, particularly if the request comes from health care assistants (HCAs). While students often respect HCAs for their knowledge and experience but they may be perceived as powerful figures who can make life difficult for students (Swain, Pufahl and Williamson 2003). It is also suggested that some qualified staff are unable to resist group pressure and will conform to poor practice if they are outnumbered (Cornish and Jones 2010).

The only quantitative data that provides any indication of the scale of the problem relates to a survey of 10 third-year student nurses, 8 of whom reported that they were prepared to be involved in unsafe practice rather than risk being unpopular with the ward staff (Jootun and MacInnes (2005). The limited sample means the results cannot be generalised to the wider population and that further research is required to ascertain the prevalence of the problem and to establish which students are most at risk in order to improve the available support.

Manual methods of handling patients have been developed over time as a matter of necessity and many practitioners do not see any need to change methods that are perceived to work well (Kneafsey 2000). Kneafsey and Haig (2007) suggest that some students (20 -25%) copy other staff, the reasons for which are not stated. Cash (2004) asserts that in some situations the only way to raise awareness and to promote a change in practice is through shock tactics e.g. highlighting injuries and compensation claims.

,A number of studies refer to the perceived powerlessness and low status of student nurses which does not grant them the authority to initiate change in handling and moving (Green 2002, Jootun and MacInnes 2005, Swain, Pufahl and Williamson 2003). This is compounded by a lack of clarity about ward protocols and a lack of confidence to tell ward staff how to handle patients (Jootun and MacInnes 2005). Kneafsey (2000) suggests that student nurses who are repeatedly exposed to unsafe patient handling techniques, may be more likely to perpetuate this practice on registration because that it what they feel most comfortable with. Further research is needed to support this assertion which if proven, may offer further explanation for the continued application of unsafe practices.

It is apparent that for some student nurses, being accepted by the clinical staff is regarded as a higher priority than safe practice. Further research into this phenomenon is needed. Firstly, to establish the characteristics of students who are more susceptible to the influences of occupational socialisation. Secondly, to measure the extent of the problem.

2.3.2. Lack of space

A lack of space was reported by 39% (n = 168) of the respondents surveyed by Kneafsey and Haigh (2007) as the main barrier to implanting taught H&M practice. Lack of space was not identified by Swain, Pufahl and Williamson (2003) which suggests either that the working environment may differ between organisations or that the questionnaire failed to address the issue. Jootun and MacInnes (2005)

suggest that in areas where recent re-designing or ergonomic changes have been made, then correct principles are more likely to be applied and nurses are keener to facilitate movement in patients.

Kneafsey and Haigh (2007) report 30% of students (n =128)) are unable to adopt safe postures when performing manual handling tasks in clinical practice and this is frequently a consequence of inadequate space. Environmental constraints are exacerbated when owing to pressure of work, staff fail to clear a space around a patient's bed or chair (Jootun and MacInnes 2005, Smallwood 2006). There is an association between back symptoms and poor posture (Hignett and Crumpton 2007). Many students become socialised into adopting 'poor' posture as a result of their life style and as a consequence may be unable to either recognise safe posture or find safe posture comfortable (Wanless and Wanless 2007). It appears that the working environment differs between organisations and lack of space prevents staff from adopting safe postures. Further investigation is needed to establish whether the incidence of back pain is lower amongst staff working in more spacious environments.

2.3.3. Lack of Time

Lack of time was identified as a major constraint to safe practice (Swain, Pufahl and Williamson 2003, Kneafsey and Haigh 2007). A slightly higher figure of 32% is cited by Kneafsey and Haigh (2007) as opposed to 30% by Swain, Pufahl and Williamson (2003). The use of equipment, particularly hoists, is time consuming and is a commonly cited reason not to use it (Smallwood 2006, Swain, Pufahl and

Williamson 2003). Although some manoeuvres can be performed more quickly using manual techniques; for example assisted sit to stand, the postural risk is more than doubled without the use of equipment, resulting in a greater risk of injury. It takes on average one minute to perform this task using manual techniques whereas the use of a handling belt increases the time by approximately 20 seconds (Hignett and Crumpton 2007). This is an important finding which dispels the myth that the use of equipment is always time consuming. However, it is acknowledged that the urgency of some situations in clinical practice requires them to be completed quickly and patient need is the overarching priority (Cornish and Jones 2007, Jootun and MacInnes 2005). It is apparent that further observational studies are needed to establish time factors and benefits in the use of other items of H&M equipment, for example sliding sheets.

2.3.4. Lack of Staff

Insufficient staffing levels were also identified as a major barrier to safe practice by Swain, Pufahl and Williamson (2003) and Kneafsey and Haigh (2007), 10% (n = 13) and 32% (n = 136) respectively). The reasons for the disparity between the statistics are unclear. Possible explanations include: staffing variations between organisations; or the larger sample in the later study may be more reliable. Further research is required to determine the influence of staffing levels on safe H&M practice.

2.3.5. Availability of Equipment

Kneafsey and Haigh (2007) reported that 30% (n = 129) of their respondents cited lack of equipment as a barrier to safe practice. Similar statistics 29% (n = 40) were reported by Swain, Pufahl and Williamson (2003). Despite differences in sample sizes that make direct comparison between the 2 studies difficult, the results indicate that over a period of 4 years there were no improvements in the availability of equipment. Lack of equipment was also reported as a barrier to safe practice by Jootun and MacInnes (2005), although there are no statistics to support their findings.

Although availability of equipment is a commonly cited reason for not using recommended techniques, there appears to be wide variations, together with limited quantitative data to determine the precise nature and scale of the problem. Small pieces of equipment that promote independent movement, for example; stand aid hoists, hand blocks, banana boards and handling belts are often not available (Cornish and Jones 2007, Swain, Pufahl and Williamson 2003). Cornish and Jones (2007) reported these items as only being available 15-24% of the time and 45% for stand aid hoists. A lack of this type of equipment is associated with nurses performing unnecessary H&M on patients who could otherwise help themselves (Jootun and MacInnes 2005). Encouraging patient dependence increases the nursing workload and leads to fatigue which is a recognised risk factor for back injury (HSE 2004).

Cornish and Jones (2007) provide the only quantitative data relating to availability of major items of equipment, for example, sliding sheets 91% (n = 85) ,profiling beds 78% (n = 73) and hoists 89% (n = 83). Similar numbers of students reporting that they had used the equipment although slightly fewer than 75% had used a hoist. These statistics indicate that larger items of equipment are generally available but this is a small scale survey of one institute and the results may not be representative of other organisations. Although 92% (n = 86) of the respondents had reported moving patients up the bed, it was not stated whether slide sheets had been used (Cornish and Jones 2007).

Lack of H&M equipment has been cited as a risk factor for musculo skeletal injuries amongst student nurses (Kneafsey and Haigh 2007) However, Cash (2004) asserts that equipment is not the only safe option for all situations. While equipment may help to reduce the risk of injury, it will not eliminate the risks completely (Cash 2004). The use of equipment in some situations prolongs the time taken to perform a manoeuvre, a factor which is associated with increased spinal loading that leads to lower back pain (LBP) (HSE 2007, Hignett and Crumpton 2007). It is also noted that if equipment were more user friendly then staff may be more inclined to use it (Barnes 2009, Cornish and Jones 2010). Further comparative studies are needed to establish the circumstances in which equipment does not help to reduce the risk of injury.

2.3.6. Methods of Avoiding Unsafe Practice

Students develop strategies to avoid conforming to poor practice, including: excuses of a history of back pain even in the absence of any previous history (Swain, Pufahl and Williamson 2003). However, according to Cornish and Jones (2007) actual experience of back pain is more likely to encourage the development of avoidance strategies. Other students diplomatically persuade clinical staff to use appropriate equipment in a manner that suggests they are assisting to meet the student's learning needs (Cornish and Jones, Smallwood 2006, Swain, Pufahl and Williamson 2003). Students described some of these strategies as being humiliating and others reported experiencing psychological stress in managing such situations (Cornish and Jones 2007). Green (2002) describes such strategies as mere survival techniques. Challenging poor practice is more difficult especially if the student has initially set a precedent by complying, (Green 2002). However, the indications are that confidence in refusing to conform to unsafe practice increases with progression through the course (Smallwood 2006).

2.3.7. Reflection

The value of reflection is increasingly being recognised as a mechanism for encouraging students to change unsafe practices (Felstead and Angrave 2005, Wanless and Wanless 2011). Reflection promotes greater self awareness that encourages a more questioning approach to manual handling practice and helps students to make links between theory and practice (Green 2002, Wanless and Wanless 2011). By questioning their practice, the students develop the

foundations of assertiveness skills which are essential to challenging poor practice and facilitating change (Green 2002).

This process can be initiated by encouraging the students to maintain a reflective diary in which they consider how taught and practiced techniques comply with safe principles (Kneafsey 2007). The diary entries then form the basis of group discussions with peers in order to share experiences and provide mutual support. Problem solving strategies can then be developed for dealing with challenging situations (Green 2002, Wanless and Wanless 2011). While reflection may be a useful vehicle for student nurses to challenge unsafe H&M practices, it does not address the underlying causes. If academic staff are aware that students are being exposed to unsafe practice then a more proactive approach needs to be adopted (Green 2002).

2.3.8. Assessment of Placement Learning

Wide variations are reported by mentors in the extent to which they establish students' existing knowledge and skill of H&M at the outset of the placement, with some staff members unable to recognise that individual students may need additional support (Green 2002, Kneafsey 2007). Some mentors believe that if H&M training is provided in the university, there is no need for them to address this any further. Some clinical areas give H&M a higher priority depending on the nature of the patients (Kneafsey 2007). It is apparent that the absence of a

structured learning pathway for H&M can expose inexperienced students and the patients they care for to increased risk of injury.

In contrast with the above findings, Cornish and Jones (2007) found that 70% (n = 74) of student nurses had received additional H&M in the clinical setting of either a formal nature or centred on specific bed side activities. It was equally encouraging that 80% (n = 85) felt they had been well supported by the qualified staff during their placement (Cornish and Jones 2007). Direct comparison between the two studies cannot be made due to differences in both approach and sample populations but they each provide evidence of the inconsistent nature of manual handling support that students receive in clinical practice.

Assessment of students' H&M practice is often informal without any direct observation or discussion, with exposure to specific techniques and equipment not necessarily documented (Kneafsey 2007). Mentors tend to focus on the practical aspects of manual handling with little emphasis on problem solving or on assessing student competence to perform tasks (Kneafsey

2.4. Meaningful Training and Education

Traditional approaches to manual handling training and education have come under increasing criticism for their failure to elicit changes in clinical practice that significantly reduce the incidence of work related back pain (HSE 2007). It is

argued that the prescriptive nature of techniques based training falls short in promoting the development of problem solving skills that are essential for effective decision making associated with the complexities of patient care (Cash 2004, HSE 2007, Kneafsey, Baker and Robinson 2003, Smallwood 2006, Wanless and Wanless 2011). The limitations of dogmatic regulations is highlighted by a number of high profile litigation cases resulting from the blanket 'no lifting' ban prescribed by the Royal College of Nursing (RCN) (1996) that failed to consider the balance required between risk to the nurse and maintaining the human rights and dignity of the patient (Swain, Pufahl and Williamson 2003). The ensuing furore left many HEIs and health care providers uncertain about how to proceed.

In 2003 the RCN published guidance for standards in manual handling which recommends a more holistic approach to training based upon: (1) education for core competencies; (2) supervision of daily practice; and (3) facilitation of problem solving (Hignett and Crumpton 2007). Further guidance is offered by HSE (Health and Safety Executive) (2007) following a review of 84 articles which report the following strategies are successful in reducing manual handling injuries: risk assessment, observation of workers in their working environment, tailoring of H&M training to suit individual needs, together with the redesign of equipment and manual handling tasks. Some evidence was also found that strength and flexibility training for the lower back, may help to reduce injuries but further research is needed into the long term effects on injury reduction (HSE 2007).

Guidelines for manual handling are largely based on professional recommendations rather than research evidence. However, Hignett and Crumpton (2007) concluded from the results of a mixed methodology study that organisations who demonstrate a high compliance with Royal College of Nursing (2003) (RCN) competencies have a safer manual handling culture with increased problem solving skills. The ability to problem-solve is an indicator that training and education is effectively transferred into practice, with staff using the information provided to guide their manual handling decisions. It is concluded that a culture of safe manual handling requires both strong managerial commitment and that training should focus on developing workers' understanding of risk assessment and helping them to apply these principles rather than concentrating on specific techniques (HSE 2007).

The principles of safe manual handling include; stable base; bend the knees, lead with the head and do not twist. Wanless and Page (2009) assert that training based on these principles is more likely to encourage nurses in applying techniques to meet individual circumstances. Wanless and Wanless (2011) further discuss a range of simulation exercises that promote student understanding of safe postures during manual handling tasks**.** One example describes how students are asked to demonstrate their usual posture, following which they receive corrective feedback from the trainers**.** Although there is no evidence that evaluates this strategy, it has been identified in earlier studies that students are more likely to remember techniques which they have actually practiced rather than those which are just observed (Cornish and Jones 2007).

Further research is therefore needed to evaluate the effectiveness of this strategy in promoting safe posture.

2.4.1. Lack of 'Realism' in Training Sessions

There are a limited number of studies that provide quantitative data indicating the extent to which student nurses apply taught manual handling in clinical practice. Smallwood (2006) reports that 55% of the 51 students surveyed had experienced difficulties with applying taught techniques to heavily dependent patients. The tradition of practicing techniques on fellow students has been criticised for its failure to prepare students adequately for working with sick patients who may be uncooperative, have limb deformities, impaired levels of consciousness, or problems with balance and coordination (Cornish and Jones, HSE 2007). It is concluded that training would be more meaningful if undertaken on real patients while in clinical placement (Cornish and Jones 2007). It is unclear how this recommendation should be interpreted as classroom teaching is only intended to provide an introduction to the topic which is then consolidated under supervision in the workplace (HSE 2004).

Other difficulties which students experience include; the use of techniques and equipment that are inconsistent with those observed in clinical practice (Cash 2004, Cornish and Jones 2007, Felstead and Angrave 2005, Smallwood 2006, Wanless and Page 2009, Wanless and Wanless 2011). However, the opportunity to practice with equipment is valued by the students, together with learning the

principles of safe H&M, and awareness of unsafe techniques (Cornish and Jones 2007, Kneafsey and Haigh 2007).

2.4.2. Simulation in Manual Handling Education

Reforms to both health care and higher education have resulted in an increase in student numbers which can be a challenge when trying to supervise and support student nurses during H&M training sessions (Felstead and Angrave 2005). Learning can be enhanced through sharing collective knowledge during group work with students of varied experience. Manual handling training should be tailored to meet the needs of individual students (Cash 2004, HSE 2007, Kneafsey and Haigh 2007, Wanless 2007). It is essential that systems are in place to address the learning needs of students with no prior health care experience and those who have difficulty grasping the main principles of safe patient handling (Felstead and Angrave 2005, Kneafsey and Haigh 2007, Wanless and Wanless 2011).

In order to meet the increased demands, HEIs are obliged to develop more innovative approaches that promote independent learning. It is suggested that simulation and e-learning packages may offer a solution by promoting independent learning that frees lecturers to focus on students who require more support (Felstead and Angrave 2005, Moule et al 2008, Wanless and Page 2009, Wanless and Wanless 2011).

In a two phased mixed methodology study of 69 student nurses, (Moule et al. 2008) used a range of scenarios to promote the development of problem solving skills and to assess student ability to apply theoretical knowledge to best practice. The scenarios were developed in collaboration with clinical staff, who also monitored the students' progress in clinical practice. Theoretical knowledge was assessed by multiple choice questions and the acquisition of skills by Objective Structured Clinical Examinations. Mentors reported that the participating students appeared to develop knowledge and self assurance during the study. It was concluded that simulation has the potential to bridge the theory practice gap through collaborative working with mentors which helps to ensure that taught theory is consistent with current practice (Moule et al. 2008). However, this is a resource intensive approach and its success is dependent upon the continued commitment of all parties.

2.4.3. Student Knowledge and Confidence

All of the students (n = 10) surveyed by Jootun and MacInnes (2005) claimed to feel confident to practice H&M safely at the end of their university training. However, the limited sample may not be representative of the wider student nurse population and generalisations cannot be made beyond the study. Kneafsey and Haigh (2007) surveyed a larger sample of student nurses who reported lower levels of confidence which may be more representative. It was reported that 73% (n = 315) of the respondents in this study believed themselves to have received adequate manual handling training and felt either 'confident' or 'very confident' to practice safely at the end of their university training sessions. The satisfaction

levels were higher amongst students who had previous health care experience. However, the authors highlight that some students may have overestimated their competence as only 29% of the sample reported carrying out a risk assessment, prior to performing H&M tasks (Kneafsey and Haigh 2007).

Many students do not feel confident in H&M following university training due to insufficient opportunity for practice during the training sessions. This applied to 27% of respondents (n = 116) surveyed by Kneafsey and Haigh (2007) but Cornish and Jones cited significantly higher statistics of 84.6% (n = 99). The reasons for this disparity are unclear and no data is supplied about class sizes or duration of the training sessions. However, Kneafsey and Haigh (2007) add that further reasons for lack of confidence include the inability to remember and the large size of training groups.

Other barriers to safe practice include student perceptions that the use of correct techniques would compromise the patient (Smallwood (2006). Some of these reasons are more valid than others, for example emergency situations where increased staff numbers substantially reduce the risk of injury. Less valid reasons include patients being too heavy, 'difficult' or in pain (Swain, Pufahl and Williamson 2003). Constraints on safe practice are compounded by both lack of knowledge of patient risk assessments and a lack of confidence in asking for help (Green 2002). This results in students taking unnecessary risks that expose both themselves and patients to actual and potential harm.

2.4.4. Recall of Taught Principles

Cornish and Jones (2007) report that 80% (n = 84) of students are able to recall all of the techniques taught during the training sessions. Similarly, Swain, Pufahl and Williamson (2003) cite that 86% (n =119) of their respondents identified correct responses to four of the five questions on recommended techniques. However, 70% (n=98) wrongly believed the 'through arm slide' to be a recommended technique. No explanation is offered for this discrepancy which can only be surmised as a lack of clarity during training sessions or that the manoeuvre is widely used in the placement settings served by the host HEI.

2.5. Risk Assessment

Circumstances in the health care setting can change quickly, with each patient presenting unique challenges. In order not to be caught unprepared and to reduce the risk of injury, a personal risk assessment must be conducted prior to each manual handling procedure (Wanless and Wanless 2011). Essential components of an ergonomic risk assessment should incorporate the following: the task to be performed; the individual handler; the load itself and the environment where the manoeuvre is to take place (Wanless and Wanless 2011).

Risk assessment is fundamental to safe manual handling. Despite this fact, Kneafsey and Haigh (2007) cite that only 29% (n = 126) of students conduct a

risk assessment prior to performing H&M tasks. Similarly, Cornish and Jones (2007) report that only 32% (n = 34) of respondents had participated in a risk assessment, suggesting that either risk assessments are not being conducted or if they are, then students are not being made aware of the need to do this. Furthermore, only 24% (n = 25) of students consistently observed safety checks being performed on equipment prior to use (Cornish and Jones 2007). Conducting safety checks on equipment was only cited by 55% (n= 58) of the students as an important aspect of safe practice which provides further evidence of a mismatch between students' knowledge and confidence in their own abilities.

Kneafsey and Haigh (2007) found the majority of students (73%) (n = 315) are aware of patient H&M needs either through verbal information from clinical staff, or because they had consulted the patient's care plans. However, Jootun and MacInnes (2005) indicate that written risk assessments were not available, meaning that students need to rely on ward staff to guide them. This does not promote independent working or facilitate the development of problem solving skills by the students. In some cases, the pressure to complete tasks quickly mean that staff do not take time to plan manoeuvres or re-arrange furniture to make the most effective use of working space. Students comment that many problems could be overcome by risk assessment and planning (Jootun and MacInnes 2005).

2.5.1. Risk of Injury

A multitude of factors are associated with the development of musculoskeletal disorders (MSDs) arising from manual handling, including: high student intakes, demographic changes in the student population, lack of equipment in clinical practice and failure to adopt the principles of safe practice (Barnes 2009, Cornish and Jones 2007, HSE 2007, Wanless and Wanless 2011).

Increases in student numbers means there is sometimes insufficient time during training sessions to adequately supervise students or for them to practice all techniques (Felstead and Angrave 2005). Students at each end of the age spectrum are particularly at risk (HSE 2004, HSE 2007). Many students are now older resulting in an increased likelihood of pre-existing MSDs, which may put them at greater risk of future problems. Age may also be compounded by previous health care experience which means that unlearning poor practice can present a challenge (Kneafsey, Baker and Robinson 2003, Kneafsey and Smallwood 2010). Overweight students are at greater risk of sustaining both back problems and hernias as a result of manual handling tasks (Kneafsey and Smallwood 2010). However, increased demands by the National Health Service to adopt more flexible approaches to recruitment (UKCC 2001), together with obligations under the Equality Act (EHRC 2010) mean that occupational health services may be reluctant to identify obese students (Kneafsey and Smallwood 2010).

The findings of two unrelated surveys (Barnes 2009, Kneafsey and Haigh 2007) suggest that between 26% -34% of student nurses have experienced back pain during their clinical placements. Kneafsey and Haigh (2007) further add that of the cited 26% (n=110), 48 of the student nurses attributed their back pain to an incident which had occurred in clinical practice, which equates to approximately 9% of the total sample. Fifteen of this number had taken time off sick as a result. The higher statistics cited by Barnes (2009) may be explained by the fact that 26% (n=27) of the respondents had pre-existing back problems prior to the survey which put them at greater risk and of injury. Additionally, direct comparison between the studies cannot be made due to differences in sampling, questionnaire design and response rate. However, despite minor limitations each study provides independent evidence that student nurses are at risk of injury during their clinical placements.

Cornish and Jones (2007) also provide evidence that 27% (n = 28) of their participating students reported that clinical staff had sustained musculoskeletal injuries as a result of manual handling. There were also reports of students being injured but the details are unclear. However, caution needs to be exercised in linking the students' subjective reports of their back pain and that of others as being work related without appropriate medical corroboration.

2.5.2. Harm to Patients

Unsafe H&M practice can also cause injuries to patients. The results of a survey conducted by Cornish and Jones (2007) cite 24 respondents reporting injuries to patients as a result of unsafe manoeuvres, including: shearing of pressure areas, axilla pain as a result of the 'drag lift' which is a condemned manoeuvre, and in one case, dislocation of a total hip replacement. The Nursing and Midwifery Council (2002) describe inappropriate manual handling as 'physical abuse, the potential consequence of which is disciplinary proceedings for professional misconduct and also criminal prosecution.

Although the use of the 'drag' or underarm lift has been contraindicated by professional guidelines for many years, there is widespread evidence of its continued use (Cash 2004, Cornish and Jones 2010, Green 2002, Swain, Pufahl and Williamson 2003). Swain, Pufahl and Williamson (2003) further add that 97% of the students they surveyed knew the drag lift to be a condemned manoeuvre but 63% admitted to using it. Furthermore, Cornish and Jones (2007) cite that 71% of their respondents reported being asked to participate in manoeuvres which they believed to be incorrect. This includes the use of bed sheets instead of a slide sheets for repositioning patients in bed, which is the most commonly mentioned example of poor practice. Using bed sheets instead of slide sheets can cause harm to patients through the shearing forces applied and also increases the risk to staff through moving a load against resistance (Cornish and Jones 2010). The continued use of manual lifting techniques leads to physical exhaustion which further aggravates back pain (Cash 2004).

2.6. Summary

This chapter has argued the reasons why student nurses should comply with professionally recommended H&M practice. The selected studies each demonstrate that university based H&M training may not sufficiently meet the learning needs of all student nurses or support them to comply with safe practice when they are in clinical placements. Key areas for development include: tailoring training to suit the individual needs of students and increased collaboration with practitioners (Cornish and Jones 2007, Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 1003).

The paucity of available literature highlights a lack of evidence in support of either the use of H&M equipment or of current training methods as risk reduction measures associated with H&M tasks. Further empirical research is needed to establish the benefits of specific items of H&M equipment, for example sliding sheets in reducing the incidence of back pain. More research is also needed to evaluate the effectiveness of competency based training in terms of sick days lost through MSDs (HIgnett and Crumpton 2007)**.** Further studies are also required to investigate the reasons for some clinical areas facilitating compliance with recommended guidelines more effectively than others (Smallwood 2006). Equally, there are no studies to date that evaluate the effectiveness of collaborative working between HEIs and placement providers.

Previous studies (Green 2002, Kneafsey & Haigh 2007) identify that younger, less experienced student nurses may be more susceptible to compliance with poor H&M practice. Unsafe H&M practice increases the risk of developing MSDs that can have a negative impact on the careers and everyday lives of nurses (HSE 2004). To date there are no studies that specifically explore the experiences of younger student nurses who have no previous experience of health care. The absence of evidence is the justification for this study. The research question seeks to address whether university based handling and moving training is effective in supporting younger student nurses with no previous experience of health care to adopt safe patient handling techniques. The methods used to achieve this are outlined in the next chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The following section will discuss issues surrounding the collection and analysis of data in phenomenological studies. Semi structured interviews were used to support a detailed and holistic exploration of handling and moving as it is experienced by the participants. The ethical considerations are also addressed.

3.2. Choice of Method

The study was conducted within in the Faculty of Health and Life Sciences at Coventry University. A qualitative approach was adopted using semi-structured interviews as the method of data collection. The literature identified that younger, less experienced student nurses may be more compliant with poor H&M practice (Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 2003) but there are no published studies of British origin that document the manual handling experiences of this particular group. In the absence of any evidence to generate hypotheses or provide explanations of this phenomenon, qualitative methods will support a more complete and holistic exploration of the problem (Bowling 2009, Sim and Wright 2000). Objective, quantitative methods to investigate a hitherto unexplored phenomenon may only provide superficial data without understanding the

underlying mechanisms or their meanings to the participants (Bowling 2009, Cerbone 2006, Giorgi 1997, Sim and Wright 2000).

3.3. Phenomenology

The study was conducted from the perspective of descriptive (transcendental) phenomenology which is a branch of philosophy founded by Edmund Husserl in the early 20th Century (Macann 1993). Phenomenology is an inductive method of inquiry that offers a means of accessing human experience or 'life world' which includes: what is seen, heard, felt and remembered by the participants from their own perspectives (Moule and Goodman 2009). The approach is particularly suited to exploratory studies where there is an insufficient body of evidence to generate hypotheses or test theories.

Descriptive phenomenology is a method of human scientific investigations that returns to things as they actually appear, free from supposition (Moustakas 1994). Meanings and truth are sought from the everyday life experiences of the participants, exactly as described and experienced by them (Moule and Goodman 2009). A truthful, holistic and accurate account of the students experience was regarded as essential in gathering the evidence to influence any necessary changes to manual handling education in this institute. In order to achieve this goal, it was necessary to bracket or set aside prejudgments relating to manual handling that had been acquired either from student comments or through reading the literature. This process allowed the researcher to launch the study as free as

possible from any prejudices which could have led to only searching for what was already known (Creswell 2007, Moule and Goodman 2009, Moustakas 1994). Once the phenomenon had been rigorously examined, the researcher was able to draw upon subject specific knowledge of H&M, together with that of nursing practice and education to differentiate between the plausible and anomalies that require further investigation.

Semi- structured interviews are the standard method of data collection in phenomenological studies (Kvale and Brinkman 2009). This method allowed the researcher to access the participants lived experiences through the medium of language and linguistic expression (Vivar 2007, Flick 2009, Giorgi 1997, Smith et al 2009).

3.3.1. Bracketing

Bracketing or 'epoche' is a fundamental principle of descriptive phenomenology and requires that all prior knowledge and presuppositions are temporarily suspended to allow the topic to be explored in a new and fresh way (Cerbone 2006, Creswell 2007, Finlay 2009, Giorgi 1997, Hamill and Sinclair 2010). This approach allowed the researcher to acquire an unprejudiced description of the student experience. Since the research question arose from student reports of discrepancies between taught manual handling techniques and practices observed during clinical placements, caution was needed in not assuming that unsafe practice was universal. The potential of introducing preconceptions was

further compounded by early engagement with literature that suggested similar problems in other institutes. The use of broad open questions during the interviews reduced the risk of leading the participants or suggesting they had witnessed unsafe practices.

Epoche requires full concentration, which it is acknowledged can rarely be perfectly achieved, particularly in the case of severe or ingrained experiences held by the researcher (Moustakas 1994). Advocates of hermeneutic phenomenology assert that it is impossible to set aside the background of understandings that led the researcher to consider the topic worthy of investigation and therefore believe it is more congruent to acknowledge and remain conscious of prior assumptions (Finlay 2009, Flood 2010). In this way the researcher's expert knowledge is used collaboratively with that of the participants in the co-construction of new insights (Bradbury-Jones, Irvine and Sambrook 2010, Finlay 2009, Flood 2010, Hamill and Sinclair 2010). In contrast, the transcendental approach advocates that the influence of preconception and bias can be significantly reduced through the process of self reflection and intention that underlies bracketing (Moustakas 1994).

A reflective diary was maintained in order to assist the researcher in remaining open to any presuppositions which arose from experience of teaching H&M. This also helped to avoid inadvertently leading participants to a particular standpoint based upon such suppositions (See Appendix 10). The notes were revisited throughout the project in order to remind the researcher of preconceptions. Other issues of concern were also documented to be discussed at a later time during

supervision meetings or with relevant subject experts in the faculty (Sim and Wright 2000). The diary helped to maintain the neutral and detached position required in exploring the essential meanings of the students' experiences (Finlay 2009, Flood 2010, Giorgi 1997).

3.3.2. 'Reality' in Phenomenological Research

Phenomenology is based on the paradigm that natural sciences cannot provide a complete or exhaustive account of 'reality'. 'Reality' is regarded as being a subjective concept, exactly as described by the participants rather than based on explanations offered by the researcher which may detract from the original meaning or misrepresent what was quoted (Giorgi 1997).

A fundamental principle of phenomenology is the notion of multiple realities as opposed to the positivist stance of one objective 'reality' (Bowling 2009, Finlay 2009). Viewed from this standpoint, H&M will have different meanings for each student nurse according to the context of the experience and the relationship with others involved. Each account will contribute towards a deeper and more holistic picture of the student experience, actively looking for both commonalities and divergences. It is unlikely that any one participant will have experienced the entire spectrum of H&M and therefore it is vital to obtain a number of accounts until data saturation is achieved.

It is acknowledged that what is described may not be an objective account of what actually happened but it is important initially to describe all experiences exactly as they appear to the consciousness of the participant in order that they may be understood in their given modalities and contexts (Cerbone 2006, Giorgi 1997, Moran 2000). Descriptive phenomenology does not deny the world of nature which presupposes that objects existing in time and space are real (Moran 2000, Moustakas 1994). Instead it takes the view of there being no evidence of objects being real other than our subjective experience of them (Moustakas 1994). Subjective and objective realities are intertwined. An object possesses objective reality in so far as it exists by representation in thought. Objective reality is therefore subjective and depends on how it is perceived by the participant (Moustakas 1994). One of the challenges was to bring the two domains together by comparing and contrasting the student accounts with what is already unequivocally known about H&M education in order to revise, widen and deepen understanding of the salient issues (Cerbone 2006, Flood 2010, Giorgi 1997).

Phenomenology is not concerned with seeking causal explanations and as a result it is widely misunderstood as a form of irrational mysticism (Cerbone 2006, Moran 2000). The phenomenological focus is to reveal meanings that may prove relevant to other people and settings rather than making generalisations to the wider population (Flood 2010, Giorgi 1997, Sim and Wright 2000). No claims are made that what is discovered will be of complete certainty (Cerbone 2006).

3.3.3. Time consciousness

Tim**e** consciousness is a critical domain of descriptive phenomenology and recognises that memories of particular events can become modified or vague with the passage of time due to either inaccurate reproduction, or fusion with other experiences (Macann 1993). If an experience was perceived as painful or uncomfortable at the time, then it may be reproduced by the memory as a more favourable version that sits more comfortably with the participant. The researcher was conscious that student perceptions of their H&M experiences may have altered in the light of increased knowledge and experience with progression through their programme of study. A skilful and sensitive interview technique enabled the researcher to uncover all modalities of an experience in the quest to obtain new meanings, together with a more complete understanding, rather than looking for what is already known (Cerbone 2006, Giorgi 1997).

Experience comprises of a number of structures and structural relations but frequently participants are not aware of their experience in its entirety, viewing only specific aspects or as 'adumbrations' (Cerbone 2006). It is incumbent upon the researcher to be reflective during the interviews in order to probe deeply into the participants' consciousness and help them see their experiences in a new way. Knowledge is therefore mutually constructed but the researcher maintains a neutral position to avoid influencing the participants. This approach will facilitate the development of a more holistic and complete body of knowledge about H&M education based on the uniqueness of each participant's experiences (Cerbone 2006, Finlay 2009, Sim and Wright 2000).

3.4. Research Design

3.4.1. Sample

A purposive (judgemental) sample of student nurses was recruited who had relevant manual handling experiences which they were willing to share (Moule and Goodman 2009, Sim and Wright 2000). Purposive sampling is a deliberately non-randomised method adopted in qualitative research designs whereby respondents are selected because they have knowledge that is valuable to the research process (Bowling 2009, Creswell 2007, Moule and Goodman 2009). A total of 11 participants volunteered. Recruitment ceased at this point as no new information was emerging. Some students were recruited through a system of snowball sampling whereby they were referred by other students who they knew fulfilled the study criteria (Sim and Wright 2000).

The sample size was sufficient to explore the chosen phenomenon from more than one perspective but small enough to capture the deep and detailed engagement required of a phenomenological investigation (Smith et al 2009). The accessible population comprised of 497 2nd and 3rd year adult branch students across four cohorts.

Student nurses aged 25 years and under, with no health care experience prior to commencing their programme of study were invited to participate (see Table 3 below). The sample was restricted to second and third year adult branch students

in an attempt to maintain the homogeneity of experience which assists with theoretical transferability to other contexts (Smith et al 2009).

Table 2

Summary of the Sample

Number of Participants	Cohort	Year of Study	Age Range (Years)	Qualification Aim
2	9/2008	3	20-21	DipH
4	1/2009	3	20-24	DipH
2	9/2009	2	19-20	BSc
3	1/2010	2	19-21	DipH

Table 3

Sample Characteristics

Participant Number	Cohort	Year of Study	Age	Qualification Aim
P2	9/2008	3	21	DipH
P3	9/2008	3	20	DipH
P6	1/2009	3	24	DipH
P8	1/2009	3	22	DipH
P9	1/2009	3	22	DipH
P10	1/2009	3	20	DipH
P1	9/2009	2	19	BSc
P4	9/2009	2	20	BSc
P5	1/2010	2	19	DipH
P7	1/2010	2	21	DipH
P11	1/2010	2	21	DipH

A decision was made to exclude first year students because their exposure to H&M is sometimes limited, depending on the type of placements they will have experienced and therefore their insight into the phenomenon may be insufficient to provide credible data. Similarly, students from other branches of nursing are not included because H&M is not a significant priority of their clinical practice, particularly in mental health and child nursing. .

There are two intakes of student nurses annually, in both January and September. The September intake is larger and because it coincides closely with the end of school year, generally comprises more school leavers than the January cohort. Consequently there were more students in the September intake who fulfilled the sampling criteria and therefore statistical representativeness was not achievable (Sim and Wright 2000).

3.5. Data Collection

3.5.1. Structure of the Interview Schedule

Semi-structured interviews were chosen as the data collection method. This type of interview is conducted 'face-to-face' and is structured around a list of provisional topics essential to answering the research question (See Appendix 4), (Coffey and Atkinson 1996, Sim and Wright 2000, Smith et al 2009). A flexible interview guide of open questions served as an 'aide memoire' ensuring that all relevant aspects of the topic were explored (Portney and Watkins 2009, Smith et al 2009). A rigidly structured interview schedule can limit data collection by not only restricting the

creativity and intuition of the interviewer but also by constraining the spontaneous and complete disclosure of information by the participant (Sim and Wright 2000, Kvale and Brinkman 2009). It is however essential to have some structure to maintain a focus that will achieve the intended outcome (Sim and Wright 2000) and later provide a framework for coding and organisation of the data (Coffey and Atkinson 1996). The interview schedule was based around six themes. A series of possible prompts was included to guide the interviewer during any uncomfortable silences and in the case of less forthcoming participants (Smith et al 2009).

3.5.2. Planning the Interviews

A period of one hour was allocated for each interview on the assumption that this would be sufficient time to establish a rapport and facilitate detailed disclosures of the participants' experiences (Kvale and Brinkman 2009, Smith et al 2009). The first interview, although extremely productive was completed in 25 minutes. It was therefore deemed that the allocated time would be more than sufficient. The student was articulate and succinct, meaning that the time was used efficiently to fully explore the interview questions without excessive extraneous distractions.

The duration of each interview was between 25 -55 minutes and was entirely governed by the participant and how much they wished to disclose. Some participants were more forthcoming than others but needed to be redirected back to the issues under discussion. This extended the length of some interviews but each participant provided valuable insights into the phenomenon, some by raising

issues that were hitherto unexplored and others by providing confirmation of previous accounts. The interview was concluded when all possible aspects of the experience had been explored and there were no other issues that the participant wished to discuss.

3.5.3. Qualitative Interviews

Each interview commenced with questions of a general nature that confirmed the student fitted the inclusion criteria. This approach helped to establish a rapport that would encourage complete and uninhibited disclosures (Ryan, Coughlan and Cronin 2009). Questions of a more probing nature then followed in an attempt to uncover multiple aspects of the student's H&M experiences. Broad, open questions allowed insights into how manual handling education was evaluated without directing the student to any specific deficiencies in the educational provision or suggesting that any particular techniques was appropriate or otherwise.. Clarification and requests for further information were sought as required (Portney and Watkins 2009, Rubin and Rubin 1995, Smith et al 2009). From the responses, insights could be gained into the student's knowledge of safe manual handling practice.

A pilot interview was conducted to assess the validity of the proposed topics in gaining access to the complete range of student experiences. The researcher also used this opportunity to check the quality and reliability of the recording equipment and as a rehearsal of timing and fluency. It was also essential at this

point to determine if an appropriate balance was being achieved between the congruence and empathy essential for developing a rapport with that of neutral detachment needed to avoid leading the participant.

The neutrality which is essential to phenomenological investigations was achieved by utilising empathic listening skills similar to a counselling interview. This approach requires active listening without interruption, together with an acceptance of what the interviewee is saying (Hamill and Sinclair 2010, Sanders 2002, Sim and Wright 2000). This reflective approach helped the researcher to be open and curious by asking probing questions that helped to uncover the meanings attached to the experience rather than making incorrect assumptions which may have flawed the investigation (Macann 1993). Empathic listening encouraged the development of a rapport with the participant and also redressed any imbalance of power that may have inhibited complete disclosure of information (Giorgi 1997, Rubin and Rubin 1995; Ryan, Coughlan and Cronin 2009). This approach also served in promoting the disclosure of rich, detailed and individual accounts of the students' H&M experiences from their own subjective perspectives (Vivar 2007, Flick 2009, Giorgi 1997, Smith et al 2009).

Some participants required more prompting than others but by allowing a comfortable period of time for them to consider their responses and following up any incomplete responses even the most reticent students began to relax. At the conclusion of each interview, verbal feedback was sought from the participant about the manner in which the interview was conducted. The students

unanimously agreed that the interviews were a liberating experience during which they felt comfortable in unburdening their stories. The volumes of data, together with the nature of some of the revelations, which are presented in the following chapter, provide confirmation of the students' trust in the researcher.

The interviews were recorded using a digital Dictaphone in order to capture a full and accurate record of the conversations (Creswell 2007, Peräkylä (2011). Audio recording freed the interviewer from the burden of copious note taking, which allowed a more concentrated focus on the conversation that helped to promote interaction and the flow of dialogue (Kvale and Brinkman 2009). The audio recordings are a key element of the audit trail that helps to enhance the objectivity of qualitative studies by providing a verifiable record of the interview, together with evidence that the participant was not directed to any particular standpoint (Sim and Wright 2009).

The main disadvantage of audio recording is the sanitisation and inhibition of disclosures by participants due to concerns about the confidentiality and anonymity (Polgar & Thomas 2000). This issue can be partially overcome through a robust informed consent process and the advantages outweigh the disadvantages. Brief notes were made of any issues that needed further exploration to be followed up during any natural breaks in the conversation (Sim and Wright 2000, Smith et al 2009). Any queries of this nature were an integral component of the interview and as such were audio recorded. The handwritten notes were therefore superfluous and subsequently destroyed.

At the conclusion of each interview, the participant was offered the opportunity of retracting any disclosures they were uncomfortable with or to clarify statements they believed that misrepresented their actual experience (Oliver 2003). All of the participants appeared to regard the interview as cathartic and did not wish to amend their audio recording.

3.5.4. Potential Interview Contaminants

Unintentional bias can potentially be introduced from both the interviewer and the interviewee. The Interviewer can influence every stage of the data collection from the method of sampling through to interpretation of what the participant has said and also by choosing to follow up or ignore specific responses (Kvale and Brinkman 2009). Unrecognised or unacknowledged prejudices can invalidate results by directing the participant to a particular stand point or answer (Bowling 2009, Hamill. and Sinclair 2010, Kvale and Brinkman 2009, Portney and Watkins 2009, Smith et al 2009). The judicious use of direct questions can enhance the reliability of data collection by allowing the researcher to seek clarification which may expose contradictions in the participant's statements (Kvale and Brinkman 2009).

Interviews in a phenomenological study involve the co-construction of experiential reality but the interviewer's involvement should be minimal to avoid leading the participant (Holstein and Gubrium 2011, Kvale and Brinkman 2009). On the other hand, the quality of data derived from a research interview is entirely dependent

upon the interrelationship of the interviewer and interviewee, with emphasis on an effective rapport which is pivotal to obtaining full disclosure of the participant's 'life world' experiences (Kvale and Brinkman 2009).

During interviews, experiences are reported retrospectively and the passage of time can alter perceptions of what actually happened. Attentive listening is therefore required, together with skill and sensitivity in posing the questions that will uncover and clarify contradictions or ambiguities (Kvale and Brinkman 2009; Ryan, Coughlan and Cronin 2009).

3.6. Transcription of Interviews

Data analysis began with the transcription of each interview which allowed the researcher to become immersed in the data. The audio taped interviews were transcribed verbatim to retain the original meaning of the spoken content (Braun and Clarke 2006, Creswell 2007). Descriptive phenomenology does not require the same level of language detail in comparison with hermeneutic approaches and therefore rigorous adherence to a transcription convention retains all linguistic characteristics was unnecessary (Braun and Clarke 2006). This helped to speed up the laborious task of transcription. The uniqueness of the data was preserved by making annotations from the hand written interview notes of any significant non-verbal behaviour or discrepancies that required follow up (Kvale and Brinkman 2009, Silverman 2011, Sim and Wright 2000). Transcription is never an

entirely accurate reflection of the conversation because the associated body language is more difficult to communicate (Gibbs 2007).

Although verbatim transcription was performed in each case, some interviews were easier to transcribe than others. One of the participants had a broad, regional dialect and some linguistic features made it necessary to listen several times in order to gain a clear understanding of what was being conveyed. The linguistic difficulties of this particular interview were compounded by numerous idiomatic expressions peculiar to that region (Kvale and Brinkman 2009). The transcription process was therefore lengthy and time consuming. However, it was a vital phase of becoming emerged in the data.

Oral language can also become confused and incoherent during verbatim transcription, particularly in the case of participants whose first language is not English. Some extracts presented in the results section were therefore converted into a literary style to communicate the meaning more effectively (Kvale and Brinkman 2009). Sympathetically conducted, this strategy is acceptable for a descriptive analysis but the loss of detail could restrict analysis of an interpretative study. The verbatim transcripts were sent to the participants for member checking. To avoid any perceived offense or embarrassment by the participant, a note of reassurance was included, explaining that oral and written language does not always correspond.

Each transcript was line numbered to assist with information retrieval. Line numbering is also integral to the audit trail which demonstrates authenticity of the data by facilitating the cross checking of extracts used in the results sections to illustrate significant themes and topics (Gibbs 2007).

3.7. Data Analysis

Data analysis in phenomenological research involves the convergence of understanding from the perspective of the researcher and the participant (Bradbury-Jones, Irvine and Sambrook 2010). Data analysis was an iterative process whereby the analysed data provided direction for the next interview. Following each interview, an examination of its content was performed to determine what was already known and what still needed to be answered. Data collection continued until data saturation was achieved. Data saturation occurs when the researcher is no longer hearing or seeing new information. Saturation was achieved at the conclusion of the tenth interview. However, as an eleventh interview was already arranged, it was decided to proceed anyway. Although no new information emerged from the final interview, it revealed some poignant illustrations of the vulnerability of younger, less experienced student nurses and it was therefore included in the final report.

Following careful deliberation it was decided not to use Computer-Aided Qualitative Data Analysis Software (CAQDAS) to assist with data analysis. Although there are arguments that software programs can reduce the amount of

time spent on retrieval of category information (Rubin and Rubin 2005) there was insufficient time to acquire proficiency in the use of such a package and it has also been suggested that the analysis of data using software can result in loss of meaning and context (Beck 2003). Furthermore, manual data analysis offered a more effective mechanism for the data immersion which is essential to phenomenological studies (Beck 2003, Flick 2009, Sim and Wright 2000, Vivar 2007). Data immersion is the process of gaining familiarity and understanding of the raw data through repeated listening to the recordings and reading of the transcripts, preparatory to analysis and interpretation.

3.7.1. Thematic Analysis

Thematic analysis was selected to analyse the data because it is flexible across a range of methodologies and is not bound to a specific theoretical framework in the same way as other approaches such as IPA or grounded theory (Braun and Clarke 2006, Sim and Wright 2000). Thematic analysis is also a relatively straightforward approach for novice researchers. In common with other methods of qualitative analysis, patterns are sought within the data to produce explanations but without the requirement for linguistic interpretation or quantification associated with more theoretically bounded and interpretative approaches (Braun and Clarke 2006, Gibbs 2009, Sim and Wright 2000).

Theoretical freedom and a lack of interpretation have led to criticisms of thematic analysis as an approach lacking in rigour (Braun and Clarke 2006, Flood 2010,

Gibbs 2009). This is compounded by the absence of any consensus of what thematic analysis is or how it should be used. In the absence of any clear guidelines, a framework identified by Giorgi (1997) has been adopted in an attempt to provide a structure that will enhance rigour.

3.7.2. Coding

Qualitative data analysis begins with segmenting and condensing the inevitable bulk of data through a process known as 'coding' (Coffey and Atkinson 1997). Coding allows efficient organisation of the transcribed data by searching for meaningful patterns and themes prior to analysis or interpretation (Coffey and Atkinson 1997, Smith et al 2009). Prior to coding, each transcript was read through several times to gain a sense of the interview in its entirety (Flood 2010, Giorgi 1997, Smith et al 2009). All of the data collected was included in the data set to ensure full patterning of responses and that all participants' views were represented (Braun and Clarke 2006).

A process of horizontalization was adopted whereby every expression relevant to the student experience of H&M was listed from each transcript. The coding was performed manually whereby handwritten labels were assigned to relevant statements in the right hand margin of the transcript (see Appendix 11A). For ease of retrieval all examples of a particular activity or phenomenon were coded with the same label (Gibbs 2009). Labels which would later be grouped into themes were assigned to chunks of data of varying sizes (Coffey and Atkinson 1997).

Every statement relevant to the topic or research question was included (Moustakas1994).

Initially, coding was structured around the interview guide, looking for interesting features, including: particular events, for example; injuries, together with procedures and use of equipment, while actively seeking commonalities and contrasts. Initially, many of the codes repeated those from the literature review. Later, as the researcher became more confident, a more inductive approach was adopted by raising questions about the data which then provided some provisional answers about the relationship between some of the labels (Coffey and Atkinson 1997). By trying to bracket what was already known from the literature, a more intuitive approach was taken, seeking answers directly from the data. Each transcript was broken down in this way. The codes were then collated into potential themes but coding continued to be developed and refined throughout the entire analysis.

Notes were made in the left hand margin alongside each relevant passage of the transcript, which then formed the basis of identifying codes and the subsequent emergent themes (See Appendix 11A). Initially, the notes were of a descriptive nature but as engagement with the texts increased, deeper and more meaningful insights developed (Smith et al 2009). Analysis of the data involved establishing linkages between the codes (Coffey and Atkinson 1996). Information loss associated with the coding process was minimised by copying the codes, together with the data extracts from which they originated into separate word documents in

order to cross reference each code with the original interview (See Appendix 11B). At the end of this process a series of key words and phrases was collated, still expressed in the participant's own everyday language, and then grouped into themes (Giorgi 1997). This system allowed for efficient organisation and retrieval of similar codes from other transcripts and additionally provided an audit trail for the supervision team to understand and evaluate how data was coded and categorised (Hewitt-Taylor 2001).

As coding progressed, common themes began to emerge that conveyed how H&M can be understood from the perspective of student nurses which were then further condensed into sub themes. During coding, the researcher continued to bracket 'a priori' assumptions from the literature in order to remain open to unexpected meanings. However, codes do not exist in the descriptions by themselves and the subject specific knowledge of the researcher relevant to both nurse education and H&M were now drawn upon in order to determine what was important to answering the research question (Braun and Clarke 2006, Gibbs 2009, Giorgi 1997, Sim and Wright 2000.

The validity of coding can be enhanced by utilising more than one coder and aiming for inter-coder reliability (Hak and Bernts1996). However, the financial cost, together with the collaboration of others was prohibitive in a dissertation study.

3.7.3. Interpretation of the Findings

Frequent reference was made to the raw data and subsequent notes to ensure that the researcher's interpretations represented a truthful reflection of the actual data (Sim and Wright 2000, Smith et al 2009). Constant interplay with the raw data revealed additional codes throughout the data analysis process (Creswell 2007) (See Appendix 11A and 11B). This approach served as a check that coding was based upon ideas extracted from the transcripts rather from 'a priori' codes and themes identified from existing theories or from the literature (Creswell 2007, Gibbs 2007).

Interpretation of the findings involved reflecting upon the various manifestations within each theme from a number of perspectives in order to distinguish the essential features from those which were more incidental or particular to individuals (Finlay 2009, Giorgi 1997). The most poignant feature that continued to emerge from the data was the vulnerability of younger, inexperienced student nurses as a consequence of failures in the educational provision for H&M. As a consequence interpretation of the findings centred on these two key issues. (1) the theory practice gap in manual handling and (2) the vulnerability of student nurses. Inter relationships between the two themes were sought. This process was aided by creating a visual map using coloured stickers to represent the coded data. Codes which appeared to have similar relevance were grouped together in order to provide a richer and more holistic overview of the phenomenon. The collective codes were then revised to form sub themes. Similarly, any variants have been included that offer alternative perspectives of an experience.

This process was further enhanced by relating the coded extracts and emergent themes to relevant literature that underpins both H&M and theories of nurse education to the coded extracts. To revise, widen and deepen understanding of the findings, the coded extracts and emergent themes were related to relevant literature that underpins both H&M and theories of nurse education (Flood 2010, Giorgi 1997). Eventually the thematic map represented in Appendix 12 was produced which illustrates the linkages between the codes and helped to structure the discussion.

All the themes were then summarised and reflected on in relation to the research question and the context of the study (Flood 2010, Giorgi 1997). Multiple instances of each theme were sought across the data set but contradictions were also included. Interpretation was therefore a co-construction of both the participant's descriptions within each segment of the text and by the activity and attitude of the researcher (Kvale and Brinkman 2009, Giorgi 1997).

3.8. Ethical Issues

Ethical approval to conduct the interviews was obtained in accordance with the University Research Ethical Approval process (See Appendix 5). There was no risk of potential harm to the students during the study. Written permission to interview the student nurses was obtained from the Head of Nursing, Midwifery and Health Care Studies prior to data collection (See Appendix 6).

The participants were aware of there being no personal benefits from being interviewed because their programme of study would end before any necessary changes could be implemented. However, they may have derived personal satisfaction from contributing to the educational provision of future student nurses. Although qualitative interviews are not intended to be therapeutic, by being afforded the opportunity to unburden and discuss sensitive or distressing issues, participants may feel this is helpful or healing.(Brinkman and Kvale 2009). The interview may also provide an opportunity for reflection from which new insights can be gained into their own experiences (Oliver 2003).

3.8.1. Ethical Approval Process

1. The participant information sheets were distributed by a lecturer other than the researcher to eliminate any potential coercion. Informed consent was obtained at least 48 hours prior to the interviews and confirmed prior to commencing the interview (See Appendices 7 and 8).
2. Written confirmation of the time, date and venue was sent by post.
3. Confidentiality was guaranteed and the content of the interview was not shared with anyone outside of the research team without permission from the participant. Any inadvertent references to named individuals or placement areas were deleted.
4. Only the research team had access to the raw data.
5. All the consent forms were stored in a separate, secure (locked) location from the data itself.

6. Once the data was entered into a computer file, the interview recording and transcript were only associated by a code number and access will be password protected.
7. Participants were only identifiable by their participant code number.
8. Raw data from the project will be retained only until the final mark for the dissertation has been given, following which it will be destroyed.
9. No distress was experienced by any of the students as a consequence of revisiting the issues under discussion. In the event of this happening, the interview would have been immediately suspended to allow for reflection and discussion.
10. In the event of issues of concern arising in the course of the interviews, there was a mechanism for referral, with the participant's consent, to either their personal tutor or the University link liaison tutor. There was also provision for referral to the student counselling services if the participant wished.
11. A thank you letter, acknowledging the value of the participant's contribution was sent following the interviews (See Appendix 9). An appropriate acknowledgement will be made in the final published findings.
12. A copy of the research report abstract will be sent to each participant on completion of the study.

CHAPTER FOUR

PRESENTATION OF RESULTS

Introduction

In this section, the 2 key themes that arose from the data are presented: 1) the theory practice gap in manual handling and (2) vulnerability of student nurses. Verbatim extracts from the transcripts are used to illustrate salient issues of the students' experiences (see Appendix 12).

Theme One: Theory Practice Gap in Handling and Moving

4.1. Training in the Clinical Skills Laboratory

Handling and moving (H&M) training in the University provides a useful introduction but student nurses with no previous health care experience, may have difficulty in applying some taught principles in clinical practice,

> *"The training is really good. It is step by step, especially in the first year. I really learned a lot and I was really happy but it is difficult because when you get out there, a lot of your motivations gets hampered especially if you are not in a very good environment". P1/ 184-186*

> *"University H&M helpful but is generally not applied in practice and this makes it feel like a waste of time". P2/258-260, 282-286*

"... I'd no experience of ...moving a patient. .. or helping a patient out of bed or transferring from a wheelchair to a toilet and I wouldn't have been able to do that if I hadn't have been taught on how to handle and move...I wouldn't have known how to do that". P4/298-312

The experience of being handled from the perspective of a patient was considered as vital to the development of sensitive and compassionate care,

"I think having a go...with the equipment and like when I was using the hoist you were there [SC] and saying, 'Don't forget to do this. Don't forget to do that'. So it makes you feel a lot more confident because you know that they [the simulated patient] are not going to drop because you have got somebody supervising you. So I feel a lot more confident now to use a hoist in placement... it does help having a go yourself because then you can put yourself in the patient's position and then you can feel how they feel." P7/ 260-283

"Because the Uni [University} teach you a whole load of ways with different types of equipment and it is really good because we get to go up in hoists to see what the patients feel like but when you are actually out on placement they don't have that idea". P3/38-42

The opportunity to practice on each other before exposure to actual patients is welcome. However, there are limitations to this approach,

"I have had the training but I've never actually done it'. If that makes sense? But obviously here you would do it with a partner or your colleague whereas in placement you're doing it to actual patients. So, because we've got to practice first at Uni [University], I think that helped because at least I then kind of knew what I was doing but obviously when I was on placement it was just a bit of a shock seeing the actual patients". P11/243-251

"Because I had no experience what so ever, I found it quite overwhelming. I have never done a bed wash before or anything like that. So it was quite overwhelming but I think it helped me when I went into the ward". P5/13-17

4.1.1. Limitations of Simulated Learning

Practice within the security of the clinical skills laboratory is a valuable introduction for novice students but they may experience difficulties in relating this to 'real life' situations,

> *"I felt...lost in a way because I was being taught all of these different manoeuvres and I couldn't get in my head a patient scenario of when I would be using this kind of technique or how I could use it. So in a way I wasn't kind of connecting with it. So that when I went out in placement, I had sort of forgotten some of it and couldn't remember a lot of it". P7/ 142-151*

> *"Maybe...you know when we are demonstrating it, that everyone gets a go at being the patient and feels the difference for themselves...and therefore they will know how it feels for the patient. So they may be less likely to do it". P8/164-170*

> *"I personally think that having outside patients would really help and you go in as if it is your patient and say, 'Hello! I am student nurse******and we are just going to move you up the bed. Is that O.K.?' Yes! Gain consent, 'We are just going to use these slide sheets'. And I think then ... you won't be ... messing around as silly students....and then when you go into practice you can think,'Oh! My patient in the clinical skills lab, this is how I did it'. I think it would help you remember it more". P7/ 348-366*

The overall content of the H&M teaching sessions is regarded as valid and useful but it is felt there is insufficient time to practice,

> *"I think we have been taught really well but maybe...we need more opportunities to practice handling and moving". P1/337-341*

Additional support may be required by students with no previous health care experience to help them understand the contexts in which they will practice manual handling.

"..and it's not very long and it's a lot to take in all at once because you talk all about the different legislation and the 'LITE OF' and all that stuff is taking up the time as well and then you practice the skill a couple of times and that's it and then you go into placement and people might not be using it". P9/.259-264

4.1.2. Time Factors and Training

Excessive coverage of a topic can result in information overload,

"*Just concentrate on specific moving and handling techniques for let us say...about half an hour and saying why you are doing it this way and then just moving on ....we do that already but sometimes it feels like it is rushed but just to do it a little slower because it is a lot of information to take in... Or maybe split it and have one half day and then come in a week later and do another half day". P3/332-338*

Delays between undertaking training and starting placement can lead to poor recall of taught principles,

"...maybe there's too much of a gap between you having your training and you putting it into practice in your placement and it makes you unclear really about what might be right and what might be wrong" P4/ 250-255

Some students would welcome additional H&M training,

"I think it would be a helpful to have a recap session every term before placement -or a couple of weeks before placement would be a better time to have it because it is then fresh in our minds". P1/333-336

"*I think maybe if during people's placements they came back for a morning just to update it maybe that might help because obviously you forget things quickly. You have one a year and then if you are going to go out into placement... and then if people are going to start you into bad habits then maybe if you went back for a morning half way through your placement and then you'd be,'Oh actually that it wrong'." P4/238-247*

“ I think there should be an open lab where we could revisit it again and again because there is that gap between your theory and your placement and you sort of tend to forget it and go through your notes...it is helpful but not as helpful as doing the actual physical side of the manual handling”. P5/138-143

It appears that a different approach is required for the delivery of H&M theory,

“ *... in the first year we had a booklet. To be honest I just got my A&P book and wrote the answers in and I didn’t feel like that was very effective. I felt it was a lot more effective today. We were doing the quiz and alongside the quiz she had a PowerPoint up and she was explaining it as we went along the quiz. I thought that was a lot better than the booklet. To be honest I filled that booklet in and I couldn’t tell you what was in it. P7/314-324*

4.2. Placement Supervision, Mentorship and Learning

4.2.1. Mentorship and Role Models

Novice student nurses are reliant upon mentors and other clinical staff to teach and reinforce techniques that are consistent with their university training,

“...compared to my first placement when everything was all new to me and I was just quite overwhelmed by everything and you just sort of do what you are told because you didn’t really know anything else other than what these people are teaching you but I now know how sometimes it can be done well and sometimes it can be done bad”. P9/ 294-302

Relationships with mentors were seen as critical in acquiring patient handling skill, particularly on Placement One,

“On my last ward my mentor was really, really fantastic and everyone was really great on that ward. They also ask how we are taught at the university”. P6/ 360-367

"...We did use the slide sheets. The ward sister made sure that people used them because she had a lot of injuries from ... I think she had a crumbling disc in her back because of bad moving and handling". P3/ 165-170

Some clinical mentors are poor role models,

"...if I was in the room - if my mentor was there, then she would mention, 'Oh! We should be using slide sheets but this time it doesn't matter. We will just do it quickly'. But that was like all the time". P11/ 57-62,

Unsatisfactory relationships with mentors can be a barrier to students questioning or challenging issues that arise in clinical practice,

"I was really shocked but because my mentor was so unsupportive I didn't feel that I could go to anyone at the hospital because I thought she was quite a senior person. I thought she would make my life hell so I decided that ... I went home crying most shifts because she was the only person there that made my life hell really. That did make me think, 'Am I doing the job that I want to do'?" P3/23-29

Wide variations were reported in relation to the teaching and supervision of H&M during clinical placements. All additional support of this nature was reported as being helpful in consolidating the students' previous learning.

"They weren't very good at teaching me. I was told to do things that I didn't have a clue what I was doing and I didn't know why. In the second placement, I was taught the underpinning rationale for what I was doing .and this helped to reinforced what I had been taught in the university". P1/110-117

"...the practice facilitator....she seemed very helpful and she sort of gave us hints and tips and we had a training session every Wednesday and one of them was a manual handling one as well". P5/154-159

"I remember they [physiotherapists] did training about different sorts of chairs, like the different heights and things, which was

quite good and they did quite a detailed session on that". P9/ 75-79.

"The first time I had to log roll I couldn't remember how to do it and I had to do it in placement because I had learnt it here at Uni and got to do it a couple of times and then when I got there I couldn't remember quite where I needed to put my hands and I had to be shown again". P9/265-270

"When I saw the hoisting in the skills session, I thought 'Oh my goodness, what is that?' But on the placement they showed me. They said it was nothing to be afraid of. They really reassured me and by the second time under supervision I had really mastered the skill. So that was really good". P5/ 106-112.

"Because it was my first placement and the staff knew as well. I think they all supported me in that way. It contradicts what I said before but I don't know how to explain it...It depended on the staff". P5/241-244

Health Care Assistants (HCAs) can be instrumental in the provision of informal teaching,

"There was an HCA who took me under her wing for the first two weeks while I was learning what was going on in the ward... She was a manual handling cascade trainer. The new people would spend time with her. They would have had their moving and handling training but they were putting it into practice under her supervision and they had to be signed off..." P1/ 142-149

Some HCAs may lack appropriate knowledge of risk assessment,

"... there was one incident on the same ward where a lady hadn't been out of bed since February and it was now November time and they had given her an enema and wanted her to get out on the rotunda and go on the commode... I said that I was not happy to get her out of bed for the first time. She needed a physio [physiotherapist] to come and assess her. It was me and another support worker and at first she was trying to get her out of the bed and as soon as I said, 'I want to know a bit of background information first, whether she has seen the physio today, whether they have said that she had got to get out using a rotunda'. Then the health care support worker put the blankets back on and said, 'Oh yes. You are right. We need to check'. P7/449-472

4.3. Assessment of Manual Handling

Practice and constructive feedback are essential to effective learning. The introduction of an Objective Structured Clinical Examination (OSCE) was suggested as method of assessing manual handling,

> *"If it was assessed as an OSCE exam..... I am actually shocked that it is not. It is one of you main skills in nursing, especially when you are starting off first. You learn your basic skills; moving patients and their hygiene and you're going to be helping them with their mobility...and I was pretty shocked that it's not being assessed". P4/480-483, 257-270*

4.3.1. Assessment of Placement Learning

Inconsistencies were reported in how mentors assess students' entry level of knowledge and how they perceive their responsibility in assessing competence of this aspect of clinical practice,

> *"On my last ward my mentor was really, really fantastic and everyone was really great on that ward. They also ask how we are taught at the university". P6/ 360-367*

Some mentors are under the illusion that by undertaking manual handling training in the university, the student should be competent to perform it in placement,

> *"...when I was in practice nobody actually said to me, 'Oh! This is how you do it'. Because there was a couple of times when I stood back and thought, 'I am not sure how to do this', and my mentor has actually said to me, 'Have you not had any training?'... Obviously I have been taught but it's different. You are not with patients at Uni [university]. You are with your colleagues... people that are able bodied". P11/ 239-244, 575-579*

Theme Two: Vulnerability of Student Nurses

4.4. Student Ownership of Knowledge

4.4.1. Knowledge of Risk Assessment

Although the need to conduct a risk assessment (See Appendix 13) prior to H&M activities was recognised by all of the students, this is sometimes performed in an incomplete and haphazard manner,

> *"I just do it quickly in my head. 'Is she in a fit state to move around?' Is the area O.K.? What is the best aid that we have to help this patient do what they want to do"? P1/. 286-291*
>
> *"...you carry out a visual assessment of the patient and compare your height against their height, the height of the bed to minimise the risk to both the patient and yourself. You would need to assess the patient and their needs. Then you would need to assess their ability, including their upper body strength and assess how far they can walk. You would then need to get help and decide on the appropriate equipment..." P2/192-205*
>
> *"Yes. It is like the height of the bed because I am probable one of the shortest people on placement. So if it is too low or too high for me, I will say. They actually ask you as well. They say, 'Are you O.K?' They ask everyone, 'Are you O.K. with the height?' If you are not, at least it gives you a chance to actually say. P3/361-368*
>
> *"I have always tried to maintain the basics of the manual handling which is first. I always consider the load. I always consider are they too heavy for you to handle? What is their mobility like? And how do they walk? Do they need assistance? Do they need a wheelchair – the basics...the level of the bed...?" P6/345-350*
>
> *"Have they got pain while moving? Are they anxious about getting up'? 'Why are they anxious getting up? Is it because they know that they are going to fall or have they done it before and I has gone wrong?...Yes. I think the patient tells you more than anything just be their facial expressions and what they say and how they move as well. If they are very stiff or if they are very slow or very fast or confident or not confident. I think you can tell a lot from them how the manoeuvre is going to go by what they do as you start to do it. If you think that what they're doing perhaps*

isn't what you think that they should be doing then you should probably stop doing it" P7/541-557

"I check how they did it earlier, if they had and then how they feel now and what's around and how they feel mainly can affect how they perform...type of thing....and ask them what they want as well...if it's what they want and it's safe enough to do it, go with it" P8/251-263

"If I've got a patient who is not very mobile and they need the toilet, I think, 'Well, they can't walk to the toilet. What can I do to help them? Should I get them a bed pan? Should I get them the commode and wheel them to the toilet and then transfer them?' You have to plan because obviously you want the patient's dignity...it's best not to just not to make them go to the toilet behind their curtains. I don't think anyone would choose to do that. Yes and you need to think about what they are attached to as well and the environment around them" P9/207-215, 223-225

"I always ask a trained nurse what their capabilities are and then I look at them myself and then make sure that I feel comfortable to transfer them or assist them with whatever they need assisting with really. So I always ensure that I know in my head if it's safe or no" P10/229-234.

"Now, I actually stop and think about the size of the patient, the problem that the patient is having. Like which side of the body and things and then I would obviously check if they are incontinent or not and then I'd decide if I could do it with another person, on my own or more than two of us"...P11/ 371-378

The following accounts indicate that an awareness of their own physical capabilities (See Appendix 13), promotes the students' confidence to request appropriate assistance,

"I noticed that some of the HCAs [Health Care Assistants] they were doing things on their own but that's because they are used to it and they know what they are doing whereas I would go in and I'd try, I won't be able to do it, I'd get someone else to come and help me and I've kind of picked up on what I can do and what I can't do because of that." P11/ 378- 386

"...there was just two of us and because he was quite a big man, it was really difficult to get him to move round because he couldn't move himself but it was hard as in the woman that was helping me, we were both the same size [very petite stature] so it didn't really make a difference with our body strength. So then at one

point I just said, 'I can't do this', and I walked out and I called somebody else to come in so there was three of us doing it". P11/159-169

"... because I am smaller, it's harder and I always get people to help me to do it – just to make sure I am doing it right. Obviously I don't want to be responsible for anyone hurting themselves. So if I am unsure I will ask even if it does take me longer and that might make me look that I am less confident but all I want is to make sure that my patient is safe when I am doing it". P4/397-404

4.4.2. Knowledge of Safe Principles

The following two accounts indicate a lack of knowledge relating to the principles of safe handling. This student mistakenly believed that by using slide sheets a manoeuvre can be safely performed in one movement.

"We have had an instance where we tried to move a patient and it just hasn't worked. So it takes more than one attempt to try it. If you change one little thing like the slide sheet, it would have worked a whole lot better". P8/ 315-318.

The following statement reflects a lack of understanding of shearing forces associated with the use of bed sheets,

"I think it was better using the bed sheets because there was more grip on it whereas the slide sheets sometimes would go too fast and the patient would be like...too far up the bed..." P11/ 75-78

This student participated in a 'drag lift' during her first year because she did not recognise it as unsafe practice,

"It's sort of like a drag lift. Yes! I saw an awful lot of that... and a lot of people in my class coming back as second year students, we all kind of, 'Oh! We are a bit shocked that we weren't supposed to do that'! P4/ 223-228.

4.4.3. Lack of Confidence to Demand Safe Practice

Students may lack the confidence to challenge or report unsafe practice and instead adopt strategies that avoid direct involvement,

> *"If you know it's got to be done, you get the slide sheet first and say, Can we use this? It won' take too long, honest'...type thing...and hope they say, 'Yes'... P8/ 235-238*

However, this may be ineffective due to the time taken to locate the slide sheets and then insert them,

> *"...by the time someone like me goes and looked for it they have done all the procedure and tried to slide the patient. They have done it with the sheet and get the patient comfortable and move on to the next one". P6/ 299-307*

> *"...they said that they didn't want you to use the slide sheets because one of the staff had an accident ....she slipped over. I had a word with one of the tissue viability nurses and she said that she would have a word with them and she managed to sort it out". P5/198-202*

> *"...I said, 'No'. They just said, 'Oh fine! I'll get someone else then'. P8/288-292*

It appears that confidence to challenge unacceptable practice and to suggest safer alternatives increase as the students' progress through their programme of study,

> *"I feel much more confident now in my third year. I have had a bit of experience with it now on my placements and I also feel more confident to ask for things like...'Oh! Should we use the slide*

sheets?' and things like that. I feel much more confident about...compared to my first placement when everything was all new to me and I was just quite overwhelmed by everything and you just sort of do what you are told...well I did anyway... and because you didn't really know anything else other than what these people are teaching you but now sort of seeing different things in different places I know how...sometimes it can be done well and sometimes it can be done bad". P9/289-302

4.5. Clinical Culture: Is Safe Practice Promoted?

Although often aware that some manual handling techniques are hazardous,

novice students may experience difficulty in challenging an established culture,

"I think most students when they first go out, go out with the best intentions and then some of them do then go along with what is happening". P1/369-371

"...you know it's wrong but that's the way that everyone does it so you do it. And there was quite a lot of them...but coming straight from doing my A Levels, I wasn't very confident at all and had no experience and I not going to stand up to someone who is older than me and say, 'It's wrong!'. P10/ 36-38, 43-46

Students are sometimes faced with the dilemma of complying with unsafe practice

in order secure the conditions they need to survive the placement,

"It's a difficult one when you are in placement because you try so hard to fit in and you try so hard to get people to like you because you want to pass and I always have a lot of problems with child care and I always feel like I will be looked upon as the student that had problems with child care and I always try and get past that but I think a lot of the time I think the support workers have a lot more power than you" P7/ 372-379

Students often find it easier to comply with unsafe practice than to challenge it,

"In placement if you speak up then you find yourself in an awkward situation. You would probably be disliked because you

are following the correct rules. You just want to fit in and get on well and pass your placement". P2/37-41

"I didn't feel that I could question anything because I thought she would be down on me like a ton of bricks or anyone else on that placement would be. Ultimately, I didn't want anyone to fail me. I didn't want to disagree with people" P3/222-226.

"It's not so bad when there's one because you can normally convince them but when there's more than one against you...they kind of gang up together" P8/230-232

"I think with me I used to go with what the HCAs were doing or whatever the nurses were doing because I just thought, 'O.K. I don't really want to make a fuss'." P11/310-312

The following 2 accounts indicate that although the students were aware that equipment should have been used, the desire to fit in was a higher priority than challenging incorrect practice,

"...when you are in university you hear all these bad dramas about people being sued for doing things incorrectly. Then again you hear stories from other people on placement who have challenged poor practice and then they have had a terrible placement. So you have to realistically weigh up what you have to do and what is expected of you. It is not a nice feeling". P1/ 163-170

"I felt really guilty...because you know it is wrong but I am not going to stand up to them; and really sorry for the patient l...because I wouldn't really want to hurt anyone, ever. So, a little bit angry that it's just laziness half the time". P10/ 99-105.

This student preferred to risk performing a manoeuvre alone rather than feel belittled by the clinical staff,

"Sometimes you have to get things done and trying to ask for help as a first year is really, really difficult. A lot of them just ignore you and say, 'Oh God!'..." P6/ 53-56

Even when equipment is available, some staff will find excuses not to use it,

> *"It depends on which staff you were with. On my second placement they didn't use the slide sheets to pull someone up the bed. I think I saw it in my first week and I thought, 'Shouldn't we use the slide sheets?' and the HCA, says, 'No! Because he is quite light' and I did think about the shearing and the friction because with a placement I am afraid to conflict the staff and create tension."P5/63-71*

> *"...they said that they didn't want you to use the slide sheets because one of the staff had an accident ....she slipped over. I had a word with one of the tissue viability nurses and she said that she would have a word with them and she managed to sort it out". P5/ 198-202.*

> *"There was someone on there and she did used to go round saying, 'Oh! You should use the slide sheet', but they would say the patient is too ill to put the slide sheet in so they would just use the sheet". P10/143-148*

> *"There were slide sheets because they had them for different floors and there were hoists on every floor. So really there was no excuse for it". P/10125-128*

The next statement suggests disregard by some staff members for both their own and the students' well being,

> *"Some people think, 'Oh, it's never harmed me before or the patient. So why should I change now'..." P10/ 235-239*

Students feel let down when unable to practice taught techniques.

> *"It just made me think about the stuff you learn in university. Really what's the point if it's not going to be used out in practice? You can't really do anything about it". P4/ 187-190.*

All of the participants have either witnessed or participated in controversial or condemned patient handling techniques. The following account describes the Australian Lift, which is a condemned manoeuvre,

"... sometimes lifting patients and their hands behind your back and a quick move up the bed... I have seen that. I have never done it because I can't do it. Most of the time I am too short for their height. I just don't want to do it. I am not qualified yet and I don't want to take any risks". P6/ 428-433

The next account describes the Orthodox Lift which involves the carers supporting the patient's entire body weight,

"...Like a 'drag lift' but it was really bad for your back. I did it the once because everybody was doing it and it seemed that was the way it was done but you put your arm under their armpit and one arm under their knees or under the buttocks. There are three of you and you physically lift the person up the bed but it's not safe and it really is quite painful. It was painful for me because I didn't have my feet in the right place and heard my back click and it is not the most comfortable experience for the patient, I guess". P1/ 66-77.

"It's sort of like a drag lift, yes. I saw an awful lot of that... and a lot of people in my class coming back as second year students... we are a bit shocked that we weren't supposed to do that...I remember showing my manual handling instructor. Then she reminded me and taught me what to do". P4/ 223-232.

4.5.1. Availability of Equipment

The following extract cites financial cost as a reason why slide sheets are not universally available,

"I asked one of the people that I was working with, I think she was a sister or a ward manager, why slide sheets weren't being used actively and it was because they said, 'We do not have the money to use slide sheets on everybody".P1/ 21-27

Slide sheets need to be laundered between individual patients unless they are the disposable type, intended for single patient use.

"They didn't have the disposable slide sheets at all. They were the type which needed washing but they did not get washed because people had put them in the wash previously and they had just not come back to the ward and new ones then had to be purchased".P1/ 28, 33-37

"Well sometimes on the ward they [slide sheets] aren't there anyway. You have some, they go out to be washed and never come back or they just really don't want to use them...too much time to put them in and take them out again."P8/ 28-29.

None of the students interviewed had ever seen any of the smaller pieces of equipment, for example: bed blocks, bed ladders or bed levers which help to promote patient independence. Only, one student had used a handling belt.

4.5.2. Staffing Issues

Inadequate staffing levels expose both student nurses and patients to the risk of injury. The second example also highlights inappropriate prioritisation of care,

"...having to roll such a heavy patient by myself and considering my height {small stature} ... it is quite painful on the back, especially if the patient keeps pushing back against you while you are trying to hold them in position. Anything could happen. For example, if the patient has, like a spasm or lashes out, or just lets go they could just hit themselves or hit their head on the rail or anything like that". P6/ 25-55

"If it was a meal time and everybody needed the toilet, the patient who needed the most help would probably be last and by the time you got there, they probably would have gone anyway".P2/ 220-223.

Time constraints are perceived to be the main reason for not using slide sheets when repositioning up the bed,

"I think it was mainly because it was a busy ward and it was convenient to just quickly come in and use the bed sheets because with the slide sheets you have to get them into place and

pull the slide sheets in and pull them back out again. I think it was because you had more than one patient at a time that needed to be moved around and things...so it was just easier." P11/ 217-223.

"They have the disposable type which is cut from a roll... they say it's easier and quicker to just quickly lift them up than going to cut the slide sheet, roll them (patients) over and roll them back". P2/ 118-126

Perceptions that tasks need to be performed quickly sometimes result in speed taking precedence over safety,

"...rather than trying to raise the bed to a personal level, they shove it high or...rather than raising the bed they just leave it like that, bend over and get the patient. I try to raise the bed up as soon as I can...but they are already doing it and trying to move the patient but I try as much as I can." P6/ 390-396.

4.6. Injuries Arising From Manual Handling

Five of the participants have experienced at least one episode of back pain since becoming a student nurse, all of which were attributed to an identified patient handling activity. One third year student cited three separate patient handling incidents which resulted in back pain.

Table 4

Reasons Why Student Nurses Experience Back Pain	Incidence
Manual lifting	1
Assisted Patient transfers with insufficient staff	3
Repositioning patients up the bed without slides sheets	2
Repeated H&M tasks with insufficient assistance	1

Staff shortages combined with inadequate assessment can expose both nurses and patients to the risk of injury. It also highlights a lack of support and supervision,

> *"Once I was left on my own to take a patient to the toilet who had suffered a left sided stroke and I hurt my back. I pulled my back because he put all of his weight onto me. I asked for assistance and nobody came to help me. I had only started the placement a couple of days previously and the only information I had been given was to be careful because the patient was weaker on one side. I asked the patient how he was and he advised me that he was O.K. transferring from the chair to the toilet but it was it was obvious that he was not O.K. that is why I asked for help but nobody came to help me". P2/ 53-68*

The only student to complete an accident form, experienced resistance from the ward manager,

> *"I did an incident form. I did an incident form on the ward and ****** (name of Year One Tutor) knew about it as well and my personal tutor knows about it as well and then the incident form that I had to do on the ward....they weren't really helpful with it because they didn't want the ward to be blamed". P11/21-26*

Further pressure was put on the student to consider the implications for future employment of having a known back problem,

> *"So everybody's going to know that you have got back problems. Do you really want to have something like that on your records?" P11/619-621*

4.7. Patient Injuries

Incidents were cited in which patients were either injured or exposed to unacceptable risks by the use of techniques which are not recommended in professional guidelines,

> *"People were being lifted up with the sheets. One man, they literally tilted the bed. He was quite a large man and really advanced dementia and they wacked his head on top of the bedrail..." P3/30-33*

The use of slide sheets may have prevented the above incident because less physical effort is required than with bed sheets. A number of incidents relating to the misuse of hoisting equipment have been identified by students, including the application of brakes during raising or lowering. The following statement highlights the potential risks of leaving patients unattended while suspended in a hoist,

> *"The one patient was lying on the bed and they got the hoist and the sling underneath her. Then lifted her up so that she was above the bed and they put the bed pan underneath her but made sure obviously that her clothes were not in the way but left her there [unattended] probably for about 10 minutes and she was prone to falling but sitting in the hoist she was less likely to. I think next door to her was another dementia patient that wandered around. So she could easily have gone in and pressed a few buttons and then she could have ended up flat on the floor". P3/ 80-92*

Vigilance is required during hoisting manoeuvres and two handlers should always be in attendance, one to operate the hoist and the other to ensure the patient's safety,

> *"...as you go up on the hoist, their feet would get trapped on the lever going up and they would shriek; understandably because it was painful". P3/ 57-60*

Summary

This chapter presents a précis of the students' experiences in their own words and as experienced by them. The following chapter will discuss the results and attempt

to interpret what is happening in relation to both H&M literature and nurse education theory.

CHAPTER FIVE

DISCUSSION

Introduction

The main findings of this study indicate that student nurses aged 25 years and under with no previous health care experience are extremely vulnerable to back injury during clinical placements as a consequence of inappropriate manual handling. It appears that current educational approaches to H&M in this institute do not adequately prepare this particular group of students to practice H&M safely, particularly during the first year of training. Delays between training and starting clinical placement, together with insufficient opportunity for practice mean that taught principles are not retained. These factors are compounded by inadequate support during early clinical placements, together with a lack of confidence to challenge unsafe practice. The overall consequence is that 5 of the 11 participants have experienced at least one episode of back pain since becoming a student nurse, all of which are attributed to an identified patient handling incident. Many of the findings confirm those of earlier studies but the most poignant aspect is the vulnerability of this group of student nurses.

Theme One: **Theory Practice Gap in Handling and Moving**

5.1. Training in the Clinical Skills Laboratory

Although it was the unanimous view that H&M education at CU is comprehensive and of value, some comments revealed there are aspects which do not adequately address the learning needs of younger, inexperienced student nurses. The power imbalance between the students and the researcher may have been an impediment to honest appraisal of training sessions. Therefore the researcher has been cautious in relying on the interview data as a positive evaluation of H&M education in this institute.

The approach adopted of demonstrating individual techniques prior to practicing provides a visual definition that allows students to see the procedure performed correctly and in its entirety. The accompanying verbal explanation provides an opportunity to check the students' understanding and facilitates the integration of theory with practice and (Greenwood 1993, Quinn and Hughes 2007). Although techniques based H&M is criticised for its failure to replicate reality (Kneafsey and Smallwood 2010, Wanless and Wanless 2011), students with no prior experience find the step by step nature of this approach beneficial (see pg. 73 *P1/ 184-186*). Learning one component at a time is an effective strategy for younger students who often have shorter attention spans and also for those with no previous experience of the topic. While the simplistic nature of techniques based training may not adequately prepare students for the challenge of H&M 'real' patients with

complex care needs, it is advocated that classroom training should be consolidated in the workplace (HSE 2004).

Benner (1984) described 5 levels of nursing skill, from novice level with eventual progression to expert. As the student moves through each level of learning and their confidence increases, there is less reliance upon procedures and more on practical experience. The consolidation of theory and practice facilitates the development of problem solving skills which are essential to making effective clinical judgments. To facilitate this process, a range of problem solving scenarios are introduced during the second and third year H&M updates for which the students are required to explore solutions based on the available evidence (Biggs 2003, Dean and Kenworthy 2000). More complex scenarios are presented during the Year Three update when the students are undergoing preparation for professional practice.

Similar to the findings of earlier studies, (Cornish and Jones 2007, Kneafsey and Haigh 2007), the respondents of this study reported that H&M training undertaken prior to clinical placement is beneficial. Supervision and practice within the safety and security of the clinical skills laboratory allows for the correction of any errors to which actual patients have not been directly exposed. Feedback can be given without undermining either student or patient confidence (Hope, Garside and Prescott 2011). Nevertheless, practicing H&M techniques on fellow students received mixed reviews from the participants. Adopting the role of the patient allows students to appreciate the anxiety and fear experienced by patients during

manual handling activities, particularly if equipment is involved. However, several students reported feeling overwhelmed and ill prepared on initial exposure to ‘real’ patients.

5.1.1. Limitations of Simulated Learning

Simulation is performed under artificial conditions and it can be difficult during training sessions to replicate the dynamic nature of the health care environment (Cornish and Jones 2007, HSE 2007, Smallwood 2006). One student suggested the external recruitment of simulated patients as a means of providing more realistic H&M scenarios. However, during preliminary H&M training with novice students there is a potential for injury to both students and simulated patients. It is therefore important in the early stages of learning for students to gain confidence in the use of techniques and equipment without any additional complications that could undermine their confidence.

One student was unable to contextualise the procedures performed within the clinical skills laboratory (See pg 73 *P7/ 142-151)*. Patient handling is not an isolated activity and is generally performed to facilitate other complex care needs, for example; bathing or toileting. Attempts to simulate entire care scenarios would further reduce the content of the training sessions and may also exhaust the shorter attention span of younger students. Simulation combined with a range of audio visual teaching aids could assist with providing the necessary visual imagery for those students with no previous exposure to health care.

5.1.2. Time Factors and Training

Similar to earlier studies (Cornish and Jones 2007, Felstead and Angrave 2005, Kneafsey and Haigh 2007), students in this institute report that H&M training sessions provide limited opportunities for practice. This is partially attributed to the theoretical component of the annual updates disproportionately encroaching upon the time available for practice. The length of the sessions and the amount of content also appear to cause information overload. Coverage of a topic at the expense of depth often means there is insufficient time to engage with the tasks, resulting in surface learning, limited understanding and poor long term recall (Biggs 2003). Interestingly, the issue of large class sizes cited by Kneafsey and Haigh (2007) did not arise. The development of electronic learning packages that address both the delivery and assessment H&M theory may provide a more flexible and stimulating strategy that also allows students to pace their learning and revisit material as required.

In concurrence with earlier studies (Cornish and Jones 2007, Kneafsey and Haigh 2007), poor recall of taught material has been cited as a reason for not adopting safe practice. Delays between undertaking H&M training and applying the principles into practice were blamed for poor recall. Competing pressures for the use of clinical skills laboratories, equipment and trainers mean that some students undertake H&M training at the beginning of a theory module but may not start placement for a further eight weeks. Short term memory (STM) has a limited capacity for storage. In order to facilitate effective transfer of information into the LTM, repetition and rehearsal of the practical elements of H&M are essential,

together with early consolidation in the practice setting (Quinn and Hughes 2007). However, some placements may offer only limited H&M opportunities, depending on the needs of the particular patient group.

It is not surprising that students with no previous health care experience have difficulty in remembering what they have been taught. Several students have suggested the introduction of a refresher update at mid point during clinical placement. Other suggestions included more practical sessions, together with the provision of open laboratory sessions where students can 'drop in' at designated times for additional practice. Open laboratory sessions are offered to practice other clinical skills and this disparity provides further evidence of the low priority assigned to H&M as a topic. Each of these options has implications for already overstretched resources and provides further justification for the development of more effective online resources that would allow teaching time to be diverted to where it is most needed.

It is apparent from the comments of one student (*P7/314-324* see pg 76) that the absence of any structured theoretical underpinning prior to the initial H&M practical sessions may lead to only surface learning which is neither retained or capable of being applied to other contexts. It is essential for practical activities to be clearly and specifically linked to the declarative knowledge to which they relate (Biggs 2993).

Students in higher education are encouraged to be self directed learners but it is essential, particularly in the early stages for them to be clearly signposted to what they need to know. The self directed quiz and H&M resource book given to the students at the outset of their course, although useful learning adjuncts may not be an adequate preparation for those students who have no previous knowledge of the topic. It is apparent from the student's comments that learning was more effective in Year 2 update when the update commences with a quiz which reviews the underlying principles, followed by group work and a discussion. Encouraging students in this way to become active learners, is more likely to stimulate the higher order thinking essential for promoting a deep approach to learning (Biggs 2003). Clearly, for students with no prior experience of H&M, a more pedagogic approach is required to support the consolidation of theoretical and practical components.

5.2. Placement Supervision, Mentorship and Learning

The student mentor relationship is the most influential aspect the student's learning experience (Wilkes 2006). Feeling welcome and being accepted are critical elements of this process. One of the most revealing and poignant aspects of this study is the complete dependence of young, inexperienced student nurses on both their mentors and other clinical staff for direction, guidance and support. Mentors are required to be positive role models for student nurses and lead by example. The citations in Section 5.3.2 provide evidence that some clinical mentors are poor role models who flagrantly demonstrate unsafe practices to their students. Student nurses learn the craft of nursing practice by observing and

emulating respected practitioners who demonstrate appropriate attitudes and behaviours (Price and Price). Bad habits acquired at this critical stage of learning may become the automatic response are difficult to unlearn. Unsafe practice then becomes a cycle of perpetuity.

Motor skills taught in a simulated environment require consolidation during clinical placements (Greenwood 1993). Learning a skill requires time and individual students differ in the amount of time they require. Inconsistencies between what is taught in the University and that in clinical practice lead students to believe that safe H&M practice is unimportant and undermines their motivation to learn. Similar to the findings of earlier studies (Green 2002, Kneafsey 2007), wide variations were reported in the standard of support given by mentors with regard to H&M practice. One student's comments echo the findings of earlier studies of a failure to establish entry knowledge and experience (Green 2002, Kneafsey 2007). Furthermore, some mentors appear resentful of providing any additional support for H&M, believing that competence should be achieved during University training sessions. However, any additional H&M teaching during clinical practice appears to enhance the overall placement experience. The nurturing relationship that develops during teaching appears to promote students' confidence to question practice and which is essential for the development of critical thinking.

The responsibilities of the care environment, coupled with the added pressure of supporting novice students who require more attention, may cause some mentors to react negatively to the learner. A further explanation of the less than supportive

attitudes of some mentors may lie in their motivations for accepting this role. In the quest for career progression, there are a number of additional responsibilities which registered nurses are expected to assume, including the mentorship and assessment of student nurses. Unless the role is undertaken for altruistic reasons, the mentor is unlikely to invest the necessary effort or time into supporting students. However, having undertaken this responsibility, the mentor has a moral and professional obligation to support their students (NMC 2006, NMC2010). Further research is required into the motivation of mentors before any conclusions can be made in relation to this issue.

The NMC (2010: 31) recognises that nurse mentors are primarily employed to provide care for patients and clients and therefore cannot be available to students all of the time. However, students in the practice setting must be directly or indirectly supervised at all times and the mentor is accountable for their decisions in allowing the student work independently or with others. Student nurses often learn their patient handling skills from Health Care Assistants (HCAs) who have a pivotal role in the delivery of 'hands on' care. An experienced and knowledgeable HCA can be both a source of support and a positive role model for novice students. However, some HCAs lack the appropriate knowledge of H&M risk assessment which can compromise their own, the student's and the patient's safety. HCAs are seen as influential figures (Swain, Pufahl and Williamson 2003) and it can be difficult for younger, inexperienced students to challenge them. From the students' comments it appears that some mentors may not recognise their responsibilities to ensure that this particular group of students receive a higher level of support and supervision. .

5.3. Assessment of Learning

Although manual handling is a core nursing activity, it is not formally assessed in this institute. One student suggested that an Objective Structured Clinical Examination (OSCE) could help to raise the profile of H&M and consolidate learning. OSCEs are a performance based method of assessing students' transfer of classroom and laboratory learning into simulated clinical practice. The traditional OSCE format involves the students rotating around a number of workstations that simulate different health care scenarios (McWilliam and Botwinski 2010). 'Assisted walking' is listed as a component of the Year One OSCE schedule which could potentially be assessed. However, it rarely features in any of the workstations because proficiency in other clinical skills is deemed to be of a higher priority in preparation for clinical practice. Manual handling does not feature in either the Year Two or Year Three OSCEs. The introduction of a manual handling OSCE could promote competence in the procedural aspects of each technique and in addition understanding of the underlying principles to be assessed.

It is assumed that H&M proficiency is assessed during clinical placement by the student's mentor. Although the clinical placement assessment documentation (see appendix 1A and 1B) clearly articulates that the student should utilise appropriate manual handling techniques, it does not direct either the student or mentor that competence should be achieved in the use of individual items of H&M equipment or techniques. Although greater emphasis is now placed on problem solving as opposed to prescriptive approaches to H&M training, reference to the potential range of available equipment may serve to direct both students and mentors to

make more appropriate use of it. This oversight further reinforces the impression that manual handling is not as important as other aspects of clinical practice.

It is acknowledged that opportunities to use the full range of H&M equipment or specific techniques will not arise in every placement setting. However, as a minimum safety requirement, competence in the use of slide sheets and hoists should be assessed at some point during the programme. It is therefore recommended that these two skills should be specifically listed in the Essential Skills Inventories.

Although guidance notes in the practice grids cannot provide exhaustive examples, the paucity of references to manual handling fails to emphasise the importance of the topic to placement learning. Greater clarity in the documentation would help to raise the profile of H&M and also direct mentors more effectively to the student's learning needs during placements.

Theme Two: Vulnerability of Student Nurses

A recurrent theme emerging throughout the data is the vulnerability of student nurses when they are in clinical practice. It appears that poor recall of taught principles, coupled with limited understanding of the underlying rationale for H&M tasks can make novice student nurses more vulnerable to injury. These issues highlight deficiencies in the educational provision of H&M theory and suggest that theoretical underpinning needs to be addressed in a more effective way.

5.4. Student Ownership of Knowledge

5.4.1. Knowledge of Risk Assessment

On the surface, it is encouraging that all of the students were aware of the need to conduct a risk assessment prior to H&M tasks (See Appendix 13). However, knowledge of the process of risk assessment was incomplete and is not conducted in a systematic manner. Raising the issue of risk assessment during the interviews may have led some students to report themselves as performing this process when in fact they do not. Further assessment of the students' knowledge is required using a combination of written assessment, OSCEs and problem solving activities to ascertain the full extent of their knowledge.

A number of participants refer to their small stature and those students appear to be more aware of their own individual capabilities and the need to request assistance particularly when handling heavier or larger patients. Unfortunately for one student, the catalyst for this action was a back injury sustained during her second placement. This supports the findings of Smallwood (2006) that with progression through their programme of study students become more assertive in demanding safe practice. However, one extract indicates that even third year students may still lack the confidence and expertise to assess patients' capabilities. The student nevertheless recognised her limitations and seeks appropriate advice prior to moving patients.

5.4.2. Knowledge of Safe Principles

The findings confirm those of earlier studies that younger student nurses are at risk of being socialised into unsafe H&M practice (Green 2002, Kneafsey, Baker and Robinson 2003, Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 2003). However, the current study indicates that sometimes students are unaware that techniques they are being asked to perform are not recommended practice. This provides confirmation of their reported poor recall of taught principles discussed in section 5.2. and suggests that unsafe practice should be addressed in more detail during training sessions.

5.4.3. Lack of Confidence to Demand Safe Practice

A lack of confidence in newly acquired knowledge may cause some novice students to be more reticent in challenging or questioning discrepancies between taught principles and those observed in clinical placements. If students are introduced to short cuts and unsafe methods at this early stage, this is the practice which becomes embedded with the end result of unsafe practice becoming a cycle of perpetuity.

All of the students in this study wanted to do the ‘right thing’ for patients but found it difficult to challenge some of the out dated practices which they witnessed and were often asked to participate in. Group pressure from clinical staff compounds the problem and the students are completely powerless in those situations to make a stand. Young and inexperienced student nurses are completely reliant on

the clinical staff to support them and to be appropriate role models. Sadly they were let down in this respect on a number of occasions and only discovered they had been participating in unsafe practices after later revisiting their notes or on returning to the university for handling and moving update sessions.

5.5. Clinical Culture: Is Safe Practice Promoted?

All of the students, except one, admitted to conforming to unsafe H&M practice at some point. Extracts from the original transcripts corroborate earlier studies (Cornish and Jones 2010, Green 2002, Kneafsey 2000) that ‘fitting in’ and being accepted are regarded by students as the most significant determinant of a positive placement experience. Similarly, other reasons were cited, namely negative sanctions that include: an unfavourable end of placement assessment; being ostracised by the clinical staff for the remainder of the placement; lack of co-operation with child friendly hours.

Unsafe H&M practices carry a risk of injury to both patients and student nurses. Some of the staff attitudes described towards the students’ welfare and safety are incongruent with the core values of nursing and indeed mentorship; namely compassion, respect, dignity and caring. Older members of the clinical staff are likely to have children of a similar age to this group of students and it is unimaginable that they are unable to make this analogy when placing them at risk of harm. Environments with poor standards of care have a negative impact on the students’ placement experience and on their job satisfaction (Bellefontaine 2009). If the dignity of student nurses is not valued and respected, this is likely to impact

on their own self worth which may limit their capacity to treat patients in a dignified manner (Greenwood 1993, Pellatt 2005).

A range of spurious reasons are given by staff to justify their failure to use recommended equipment or techniques; for example, ‘the patient is too ill’ or ‘slide sheets constitute a slip hazard’ and are therefore dangerous. Ill patients are a foreseeable eventuality in the health care setting and therefore the situation should be assessed for risk with a view to dealing with the situation safely. Likewise, sheets of any description should not be allowed to come into contact with the floor. It is unclear to what extent the clinical staff believe these excuses to be justifiable or if they are merely attempts to suppress any further questions from the students.

Slide sheets are non mechanical aids made from low friction material, the surfaces of which slide against each other and are used to move and reposition patients in bed without physically lifting. Slide sheets have been shown to reduce the pull and push forces which are responsible for causing maximal physical exertion and back pain in nurses during patient handling activities. There is also evidence that slide sheets improve the comfort and safety of patients (Gallagher, Flynn and Dockrell 2006). Despite this evidence, staff continue to use bed sheets for repositioning patients in bed, even on occasions when slide sheets are available

Some staff may feel that their way is best, particularly if the need for change has not been adequately communicated to them or if appropriate strategies for change have not been put into place (Fray 2005). Training is often a one shot process that

does not allow sufficient time to either acquire the necessary skills and knowledge or to adequately communicate the reasons for change. Similarly, some staff may lack the confidence to implement new systems of work following training sessions and therefore continue with what they are most comfortable with. For this reason training should be followed up with appropriate supervision, monitoring and audit (HSE 2004).

Areas where ward managers recognise the risks associated with continuing outdated practice appear more likely to adopt safe principles. Conversely outdated practice appears to prevail where ward managers are ill informed of new developments in H&M, for example disposable slide sheets

The findings confirm those of previous studies in the reported widespread and continued use of the 'drag lift' (Cash 2004, Cornish and Jones 2010, Green 2002, Swain, Pufahl and Williamson 2003). The students' comments indicate that clinical staff are aware that the 'drag lift' is no longer recommended. The drag lift or underarm lift has been deemed as hazardous to both handlers and patients since 1987 (RCN / NBPA 1987). Risks to the handler include damage to the spine, shoulders, knees and abdominal muscles in the form of hernia. The most common risks from the 'drag' lift to patients are dislocation and bruising of the shoulder. Elderly patients may already have injured and frail limbs which are prone to damage through incorrect moving and handling techniques (Chell 2003).

Other condemned manoeuvres were also reported by the students. The Australian lift is a high risk manoeuvre in which the load is held away from the midline of the body and causes significant strain on the lifter's shoulders (Chell 2003). The Orthodox Lift requires the handler's back to be positioned in flexion while taking the load. This causes strain on the spine and supporting structures (Chell 2003).

All of the above techniques are demonstrated to the students during their initial training sessions with the aid of a detailed DVD recording that clearly explains the reasons why these techniques are no longer recommended. It is apparent from the data that this approach alone is ineffective as a deterrent in students' participation in outdated H&M practice.

5.5.1. Availability of Equipment

The minimum equipment list for any clinical environment where patient handling activities occur on a regular basis, include: hoists, stand aids, sliding sheets, lateral transfer boards, walking belts and height adjustable beds and baths (Hignett 2003).

Akin to earlier studies (Kneafsey and Haigh 2007, Swain, Pufahl and Williamson 2003), the students reported variations in the availability of slide sheets which are often not used even when available (Cornish and Jones 2007). In circumstances where slide sheets were not available it is impossible to know if the staff would use them if they were obtained.

Financial cost has been cited as the main reason for the limited availability of slide sheets. It is a misconception that slide sheets are costly and also a false economy in comparison with the cost of staff replacement in the event of back injuries arising from poor practice. Nursing homes and hospitals often assume that the cost of manual handling equipment is prohibitive and as a consequence expose both staff and patients to risk of injury. It has been estimated that initial outlay of the optimum range of equipment is no more than 0.3% of the annual budget (Richardson 2002 cited in Cash 2004:20). The cost of disposable slide sheets can be as little as £1.75 per patient and from an infection control perspective is a superior alternative that eliminates the problems associated with laundering. Some clinical areas are not as well informed about current best practice which is a further reason why practice development meetings between HEIs and placement providers are essential.

Interestingly, the reported problems associated with slide sheets, i.e. limited availability, together with a reluctance to use them, do not apply to patient hoisting equipment which appears to have been readily accepted and is considerably more time consuming to use than slide sheets are. Further research is needed to ascertain the reasons for this anomaly.

5.5.2. Staffing Issues

Staffing issues and time constraints have been cited as a reason for not using slide sheets to reposition patients in bed. A recurrent example of poor H&M practice reported in this study is the use of bed sheets for this purpose. The use of bed sheets to reposition patients requires more effort and if repeatedly performed

can lead to fatigue which is a risk factor for back pain. Eventually, the bed sheet moves up the bed with the patient, leaving an area of exposed mattress that can be uncomfortable and predispose to pressure ulcers. The patient's bed then requires remaking which defeats the object of being a time and labour saving alternative.

In some instances, it is clear that the problem is inadequate planning as opposed to a lack of staff or time. H&M tasks require forward planning. As soon as a patient is assessed as needing slide sheets they should be placed in readiness at the bedside. This avoids unnecessary delays in trying to locate them when the patient needs moving which then provides staff with the justification for reverting to familiar techniques (Barnes 2009). Failure to prioritise and plan care sets a poor example to students in making effective use of time.

5.6. Injury and Manual Handling

5.6.1. Injuries to Student Nurses

The results of the current study suggest that the incidence of back pain arising from H&M episodes are higher amongst younger, inexperienced student nurses in comparison with the statistics from studies which have surveyed all age groups (Kneafsey and Haigh 2007 *26%,* Barnes 2009 *34%*). Five of the 11 participants had developed back pain since commencing their training, all of whom related the onset to an H&M incident in clinical practice. Differences in methodological

approaches and sample sizes mean that a direct comparison cannot be made. Further research is needed using a larger sample to confirm this assumption.

Reasons for the apparent increased incidence of back pain amongst this group of students could be attributed to a variety of reasons, including: limited knowledge of risk assessment and safe H&M principles; together with a lack of confidence to demand safe practice. Further explanations may relate to the small stature referred to by several students. Additionally, this particular group may not have yet reached full physical maturity or their maximum physical strength which makes them more vulnerable to injury. Student injuries add further weight to the argument for using slide sheets which reduce the physical effort needed to reposition patients in bed.

5.7. Patient Injuries

Several accounts are provided of patients being repositioned up the bed using bed sheets. In order to facilitate the manoeuvre a head down tilt of the bed is applied to assist gravity. If slide sheets are not used a steeper incline is needed to counteract the extra physical effort required. In the case of heavier patients more force is required to move them. One incident is described in which an exaggerated head down tilt, coupled with excessive physical force resulted in the patient's head hitting the back rest of the bed. The use of slide sheets may have prevented this incident as less tilting is needed to assist gravity. It appears that the manoeuvre

was performed in one movement which is more physically demanding and increases the risk of injury to the handlers (HSE 2004).

It is unclear if some instances of poor practice are due to carelessness or a lack of knowledge on the part of the clinical staff. Several potentially dangerous practices were described involving patient hoists. The application of brakes is contraindicated during raising or lowering because the hoist can over balance which potentially could result in patient injuries. Additionally, patients should not be left unattended whilst suspended in a hoist.

5.8. Summary

Although many of the findings concur with those of earlier studies, the results provide evidence that unsafe H&M practices are still prevalent in some of the clinical placements provided by the host institute. Limitations in the current provision for manual handling education at Coventry University, together with a lack of follow up during clinical placement mean that younger, inexperienced student nurses are being unnecessarily exposed to the risk of injury. The inability of some students' to recall taught principles renders them vulnerable during clinical placement to becoming involved in unsafe practices and embedding this as the norm. Their young age and limited capacity to be assertive when confronted with authoritative figures in clinical practice make them unlikely to challenge unsafe practice even when they have an adequate knowledge base about safe principles. Additionally, a lack of guidance in the practice

documentation means that clinical mentors are not directed to the learning needs of this particular group of students who are totally dependent upon the clinical staff to nurture and guide them. The end result being that the student may not receive appropriate support with H&M during clinical placement. The following chapter will bring together the conclusions and recommendations.

CHAPTER SIX

CONCLUSIONS

6.1. Restatement of aims

The aim of this study was to determine if current approaches to H&M education at Coventry University adequately prepare younger, inexperienced student nurses for this aspect of clinical practice.

6.2. Summary of Findings

Many of the findings from this study provide evidence of similar limitations in the current educational provision for manual handling at Coventry University to those cited in earlier studies. However, the present study highlights the vulnerability of younger, less experienced student nurses who appear to be at an increased risk of back injuries arising from H&M activities, particularly during earlier clinical placements. Five of the 11 participants reported experiencing back pain since commencing their nurse education programme, all of whom related the onset to an H&M incident in clinical practice.

Reasons for the apparent increased incidence of back pain amongst this group of students could be attributed to a variety of reasons, including: their limited

knowledge of risk assessment and safe H&M principles; together with a lack of confidence to demand safe practice. Further explanations may relate to the small stature referred to by several students, compounded by possibly not yet having reached full physical maturity or maximum physical strength. All of these factors render the students more vulnerable to injury.

Current H&M training at CU is regarded by the students as a valuable introduction prior to clinical placement. Practice in the safety and security of the clinical skills laboratory was seen as beneficial for correcting errors without risk to patients but the use of fellow students as simulated patients received mixed reviews. Adopting the role of the patient is useful in providing insights into the anxiety and fear experienced by patients but this approach does not convey a realistic view of patients who have complex care needs. These criticisms are acknowledged limitations of skills laboratory training which is why students need early consolidation of learning during clinical placements.

Delays between undertaking training and starting placement, together with insufficient opportunities for practice during training sessions result in poor recall of taught principles. Poor recall of taught principles means that sometimes students are unaware that techniques they are being asked to perform are not recommended practice. Additionally, a lack of confidence in their newly acquired knowledge makes students less likely to challenge or question discrepancies between taught principles and those that they are being asked to perform. Additionally, the limited theoretical introduction to H&M education during year one

conveys the impression that the topic is of minor importance and is further reinforced by the fact there is no formal assessment of H&M theory or practice within the University.

H&M proficiency is assessed during clinical placement. However, the practice assessment documentation is vague in relation to manual handling and does not adequately direct mentors to assess competence in the use of individual items of equipment or specific techniques. This omission has led to inconsistency and misunderstandings by some mentors about their responsibility for the assessment of this topic. Unless the mentor is interested enough to explore entry level experience and knowledge of H&M, the student's learning needs may not be fully met during placement, exposing them to an increased risk of injury..

One of the most poignant aspects of this study is the complete dependence of young, inexperienced student nurses on both their mentors and other clinical staff for direction, guidance and support. The findings revealed that some clinical mentors are poor role models who flagrantly demonstrate unsafe practices. Some mentors appear resentful of providing any additional support for H&M, believing that competence should be achieved during University training sessions. Relationships with mentors are crucial in promoting a positive learning environment. Poor relationships with mentors are detrimental to the students' overall placement experience.

Similar to previous studies, HCAs are seen as influential figures whom it can be difficult for younger students to challenge (Swain, Pufahl and Williamson 2003). However, the current study highlights how an experienced and knowledgeable HCA can be both a source of support and a positive role model for novice students. Nevertheless some HCAs lack the appropriate knowledge of H&M risk assessment which can compromise their own, the student's and the patient's safety.

One of the most significant findings of the current study relates to the 'in lying' repositioning of patients in bed. Although professional guidance (NBE / RCN 1987) recommends the use of slide sheets to facilitate this manoeuvre, the student reports reveal the widespread use of bed sheets, together with the 'drag lift' and other controversial techniques, even on occasions when slide sheets are available. The continued use of outdated practice exposes student nurses, clinical staff and patients to increased risk of injury.

6.3. Significance of the Findings

Evidence from the current study adds to a growing body of literature which documents the manual handling experiences of student nurses. The present study substantiates previous findings of the continued use of techniques that are no longer recommended. Additional evidence suggests that younger, less experienced student nurses are at an increased risk of back injury during clinical

placement due to poor recall of taught principles and a lack of confidence to demand safe practice. .

The evidence suggests that this particular group of student nurses require additional educational support in relation to this topic. The results will form the basis for further descriptive investigations that can be generalised to the wider population of student nurses.

6.4. Strengths and Limitations of the Current Study

This is a small scale study and the convenience purposive sample of students who volunteered for interview had concerns they wished to raise. Their views may not therefore be representative of the wider population of student nurses. Additionally, the research setting comprised of only one higher education institute. The findings may therefore have limited transferability beyond the study sample. Phenomenology accepts that life world, is that which is experienced by an individual but however real it may have appeared to them, may not be an accurate reflection of what actually happened. However, the sample size was sufficient to obtain a number of similar corroborative accounts. Despite these limitations important insights have been obtained into how H&M is perceived by this group of students.

Bracketing was a difficult concept to achieve due to the manner in which the research question arose and early engagement with the literature which provided further evidence of the problem. Due to inexperience on the part of the researcher, themes from the literature did influence the construction of the interview schedule. However, the questions were sufficiently broad and open to allow full exploration of the topic.

A significant weakness in the study relates to a failure to explore in more depth the meaning of the feeling described by some students of being 'overwhelmed' on their initial exposure to clinical practice. The inexperienced interviewer did not appreciate the significance of this remark at the time. Although, subsequent contact has occurred with some participants in the context of the teacher - student relationship, a non response to the opportunity of member checking the researcher's interpretations was taken as an indication of their withdrawal from further involvement. Attempting to pursue the matter under such circumstances would have been an exploitation of the existing power imbalance between the researcher and the participant; and also a violation of the ethical approval process. Further exploration and clarification of this issue was not sought at the time and it is impossible to know from the available data if such feelings are specific to H&M or if initial exposure to clinical practice is generally an overwhelming experience. Further exploratory research is required to clarify this phenomenon.

During the early stages of data analysis and interpretation, recurrent themes from the literature obscured the researcher's ability to look beyond what was already known and to search for new meanings. This was further compounded by prolonged engagement with the vast volume of data that had been collected. Although data immersion is an essential attitude of qualitative analysis, it can equally constrain intuition and reflection during interpretation of the descriptions. Eventually, following multiple readings of the transcripts while continually searching for and revising the themes, 'vulnerability' began to emerge as the key finding. It could however, be argued that the identified themes were subjectively chosen and again due to the inexperience of the researcher provide an incomplete and unrepresentative account of the phenomenon.

Credibility of the study has been compromised by a poor response from the participants (n=4) of member checking their interview transcripts for accuracy and a complete non response to an invitation of checking the interpretations. Some of the students had completed their studies by this point, two of whom could not be contacted, which would account for their non response. Trustworthiness, however, has been demonstrated through digital recording of the interviews, together with verbatim transcription. The data extracts included in the results section and the researcher's interpretations remain faithful to the participants' descriptions (Bradbury-Jones, Irvine and Sambrook 2010, Cresswell 2007, Gelling 2010).

The reasons for the students' apparent withdrawal from the research are unknown. The passage of time allows the participant to reflect on the experience

and with the acquisition of new knowledge; they may now see it in different way. Underlying motivations for volunteering may include communicating dissatisfaction to someone who had the authority to influence the situation and once achieved, they wanted no further involvement.

Member checking does not necessarily achieve complete trustworthiness in qualitative research particularly where there is an imbalance of power between the researcher and participant, for example the teacher- student relationship in this study where there might be a disinclination on the part of the participant to disagree with the researcher (Hewitt-Taylor 2001). However, this reason is not applicable to those students who have now completed their programme of study. Participant withdrawal is a common problem with qualitative research (Bradbury-Jones, Irvine and Sambrook 2010). This dilemma leaves the researcher to draw upon their own knowledge and experience, which it could be argued may introduce bias into the study (Gelling 2010).

Concurrent validity would have been further enhanced through review of the findings by a panel of experts who have been selected for their theoretical knowledge of H&M (Sim and Wright 2000). However, this approach was not feasible for a dissertation study. The dissertation supervision process was however used to verify a selection of the transcripts and corresponding interpretations. Again, it could be argued that the trustworthiness of this approach is questionable because the selection was made by the researcher who could

deliberately or unconsciously avoid topics that were either inadequately explored or poorly understood.

In phenomenological studies, the interviewer has a monopoly of interpretation over what the participant has said and can choose to follow up or ignore specific responses (Kvale and Brinkman 2009). However, constant interplay between the raw data and the interpretations did not reveal any obvious bias or lack of transparency but a more experienced researcher might have a different opinion.

The relationship and power imbalance between participants and the researcher may have influenced some students to withhold information (Kvale and Brinkman 2009), particularly about their own involvement in unsafe practices. It could be argued that the validity of the study is questionable because the findings are based on the highly subjective accounts of inexperienced students with a limited knowledge base who could not be bothered to verify their statements. However, corroboration of inconsistent practice relating to the repositioning of patients in bed is provided in each of the student accounts which increase the plausibility of this finding. Equally, several accounts provide evidence of a lack of opportunity to practice, together with poor recall of taught principles. Multiple instances increase the credibility and confirmability.

6.5. Recommendations for Future Educational Provision

The findings of this study have a number of important implications for future practice. The University needs to take greater responsibility for improving communication with placement providers and ensuring that they are aware of their responsibilities regarding H&M education. Practice documentation should communicate to clinical mentors those students with no previous experience and those who have not grasped the basic principles during training in order that they can be followed up in clinical practice. Explicit practice learning outcomes should be clearly articulated in the practice documentation in order to communicate to mentors their responsibilities in supporting students H&M education (Felstead and Angrave 2005, Kneafsey 2007). If necessary, an individual action plan could accompany the student into placement that would need to be achieved in order for the student to pass the end of placement assessment.

These failures further emphasise the case for using the clinical audit process to monitor both the availability of H&M equipment and the ongoing professional development of clinical staff in relation to H&M practice.

A standard approach to H&M education is currently adopted at CU, but it is apparent that training should be tailored to meet the needs of individual students. Nurses are a valuable commodity and are costly to educate. Apart from the human cost of back injury, it is a waste of resources to expose student nurses to unnecessary risks which may foreshorten their careers. Resources are finite and

therefore innovative approaches are required to maximise the use of available teaching and skills laboratory time. More effective use should be made of online learning resources for the delivery and assessment of H&M theory. This approach will release teaching staff and allow them to provide extra support for those students who are not confident at the end of training sessions and for the development of online resources.

Any additional assessments are likely to be impractical and unwelcome by both students and academics. However, knowledge of H&M could be assessed in other modules, for example the inter professional learning pathway (IPLP) in which students participate in online discussion with other disciplines. Alternatively, H&M issues could also be explored as a component of other assessments, for example: applied anatomy and physiology; or management modules.

A more structured approach is suggested for the assessment of H&M. The introduction of an OSCE in line with other clinical skills may encourage students to treat the topic more seriously and would also enable standards of training to be audited. Additionally, H&M should form an integral component of other modules to help with linkage to existing knowledge. This approach would serve both to raise the profile of the topic and to consolidate learning.

Changes to H&M training are futile unless the issues in clinical practice are addressed. Regular practice development forums are advocated where information can be exchanged about developments in H&M and also to highlight

any concerns. The meetings should include: University H&M trainers practice facilitators, back care advisors from the hospital trusts, senior nurses and clinical mentors. Mentorship programmes should emphasise the vulnerability of younger novice students and ensure that mentors are aware of the extra support and pastoral care required in order to promote optimum conditions for learning. Additionally, mentors need to be made aware of their legal and professional responsibilities in supporting students with their H&M practice.

Regular meetings between the University and clinical areas are essential in order to share information about the latest developments in H&M and to clarify the responsibilities of placement providers in supporting students to achieve safe H&M practice. It is not within the scope of this study to find solutions to the process of change management within NHS Trusts but the University does have a legal responsibility for the safety of students on clinical placement and as such cannot assume that this duty is discharged by the provision of training alone.

A robust system is recommended for reporting poor H&M practice, together with strategies for dealing with difficult situations. Student evaluation should also be introduced to monitor the effectiveness of H&M training sessions and provide feedback on the placement experience. The clinical audit process should be used as a mechanism to monitor the availability of H&M equipment, together with the recency of staff H&M training. The University has a responsibility for student safety and therefore needs to lead the changes.

Finally, the introduction of discussion groups where third year students are invited to discuss and share their H&M experiences with first year students. Possible topics could include: survival strategies during clinical placements, in particular how to diplomatically avoid compliance with unsafe H&M practice.

6.6. Recommendations for Further Research

This research has thrown up many questions in need of further investigation. Empirical research is suggested within clinical practice to explore the manual handling practices of clinical staff with a view to gathering information about barriers to using recommended practices. Further studies are also needed to investigate the incidence of back pain amongst nurses in order to obtain more recent statistics that provide indicators of the effectiveness of risk reduction measures. Further research is needed using a larger sample to confirm that younger student nurses with no previous health care experience are at greater risk of sustaining back injuries during H&M activities.

REFERENCE LIST

Barnes, A. F. (2009) 'Reducing the incidence of back pain: student nurses' recommendations'. *British Journal of Nursing* 18 (21), 1334-1338

Bellefontaine, N. (2009) 'Exploring whether student nurses report poor practice they have witnessed'. *Nursing Times* 105 (33), [online] available from <http://www.nursingtimes.net> [19 January 2012]

Benner, P. (1984) *From Novice to Expert. Excellence and Power in Clinical Nursing Practice.* California: Addison

Biggs, J. (2003) *Teaching for Quality Learning at University*. 2nd edn. Maidenhead: Open University Press

Bowling, A. (2009) *Research Methods in Health. Investigating health and health services*. 3rd edn. Maidenhead: Open University Press

Bradbury-Jones, C., Irvine, F. and Sambrook, S. (2010) 'Phenomenology and participant feedback: convention or contention?' *Nurse Researcher* 17 (2), 25-33

Braun, V. and Clarke, V. (2006) Using 'Thematic Analysis in Psychology', *Qualitative Research in Psychology* 3 (2), 77 -101

Brooks, A. and Orchard, C. (2011) Core Person Handling Skills. in *The Guide to the Handling of People*. 6th edn. ed. by Smith, J. Middlesex: BackCare, 129–168

Brooks, N., Moriarty, A., and Welyczko, N. (2010) 'Implementing simulated practice learning for nursing students'. *Nursing Standard* 24 (20), 41-45

Cash, J. M. (2004) *'Manual handling training: meeting the challenge'. Equipment Services 16 – 21*

Cerbone, D. R. (2006) *Understanding Phenomenology.* Durham, GBR: Acumen

Chadwick, M. and Titcomb, P. (2007) 'Patient handling: Getting the training right'. Nursing and Residential Care 9 (10), 490-2

Chell, P. (2003) 'Moving and handling: implications of bad practice'. *Nursing and Residential Care* 5 (6), 276-279

Coffey+, A. and Atkinson, P. (1996*) Making Sense of Qualitative Data: Complementary Research Strategies*, London: Sage

Cornish, J. and Jones, A. (2007) 'Evaluation of moving and handling training for pre-registration nurses and its application to practice'. *Nurse Education in Practice* (7), 128-134

Cornish, J. and Jones, A. (2010) 'Factors affecting compliance with moving and handling policy: student nurses' views and experiences'. *Nurse Education in Practice* 10 (2), 96–100

Coventry University (2009) *Adult Branch Essential Skills Inventory*. Faculty of Health and Life Sciences, Department of Nursing and Health Studies: 653.1 docs

Coventry University (2010) *Quality Standards to Monitor the Learning Environment for Student Practice Placements*: *The Learning Environment Profile Educational Audit* [online] available from <http://wwwm.coventry.ac.uk/PlacementConnect/genericinfo/Documents/CG_LEP_Completion_Guide.pdf> [7 October 2012]

Coventry University (CU) (2010b) *Information for Mentors of Nursing Students: A Toolkit for Mentors.* [online] available from <http://wwwm.coventry.ac.uk/healthcarementors/resources/docum...> [18 November 2012]

Coventry University (2011) *Adult Common Foundation Essential Skills Inventory*. Faculty of Health and Life Sciences, Department of Nursing and Health Studies: B26.2 doc

Coventry University (2012) *Placement Connect* [online] available from <http://wwwm.coventry.ac.uk/PlacementConnect/professionspecific/Documents/practice%20grids> [12 October 2012]

Creswell, J. W., (2007) *Qualitative Inquiry and Research Design. Choosing Among Five Approaches,* 2nd edn. Thousand Oaks: Sage.

Crookes, P.A., Reis, S. L. and Jones, C. S. (2010) 'The development of a ranking *Data.* 2nd edn. London: Sage Publications

Dean, J. and Kenworthy, N. (2000) The Principles of Learning in *Teaching and Assessing in Nursing Practice. An Experiential Approach*. 3rd edn. ed. by Nicklin, P.J. and Kenworth, N. Edinburgh: Balliere Tindall, 45-67

Department for Education and Skills (DfES) (2003) *The Future of Higher Education*, (Cm5735).London: HMSO

Department of Health (1998) *Widening Access to Nursing and Midwifery Education and Training.* Health Service Circular HSC 1998/182. <www.open.gov.uk/doh/coinh/htm> [26 July 2006]

Department of Health (DOH) (2002) *Back in Work: Everything you need to know about the national Back in Work campaign.* London: DH

EDGE Services (2010) *People Handling and Risk Assessment.* 3rd edn. England: EDGE Services.]

Felstead and Angrave (2005) 'Implementing moving and handling in higher education'. *Nursing Standard*. 19, 33, 46-50

Finlay, L. (2009) 'Exploring live experience: principles and practice of phenomenological research' *International Journal of Therapy and Rehabilitation* 16 (9), 474-481

Flick, U. (2009) An Introduction to Qualitative Research. 4th edn. London: Sage

Flood, A. (2010) 'Understanding Phenomenology' *Nurse Researcher* 17 (27), 7-24

Fray, M. (2005) 'Creating Change' in *The Guide to the Handling of People*. 5th edn. ed. by Smith, J. Middlesex: Backcare, 121-126

Gallagher, P. Flynn, C. and Dockrell, S. (2006) 'Availability and use of patient handling sliding devices'. *International Journal of Therapy and Rehabilitation* 13 (6), 264-272

Gelling, L. (2010) 'Phenomenology: the methodological minefield', *Nurse Researcher* 17 (2), 4-6

Gibbs, G. R. (2007) *Analyzing Qualitative Data*, London: Sage

Giorgi, A. (1997) 'The theory, practice and evaluation of the phenomenological method as a qualitative research procedure', *Journal of Phenomenological Psychology* 28 (2), 235 – 260

Gray, M. (1999) 'The professional socialisation of diploma students of higher education in nursing (P2000): a longitudinal qualitative study'. *Journal of Advanced Nursing* 29: 639 -647

Green C. (2002) 'Reflecting on reflection: students' evaluation of their moving and handling education'. *Nurse Education in Practice* 2: 4-12

Greenwood, J. (1993) 'The apparent desensitization of student nurses during their professional socialization: a cognitive perspective' *Journal of Advanced Nursing* 18: 1471-1479

Hak, T. and Bernts, T. (1996) 'Coder Training: Theoretical Training or Practical Socialization'. *Qualitative Sociology* 19 (2), 235-257

Hamill, C. and Sinclair, H. (2010) 'Bracketing – practical considerations in Husserlian phenomenological research'. *Nurse Researcher* 17 (2), 16 – 24

Health and Safety Executive (HSE) (2002) *Handling home care: Achieving safe, efficient and positive outcomes for care workers and clients* [online] available from <http://www.hse.gov.uk/pubns/priced/hsg225.pdf> [17 May 2011]

Health and Safety Executive (HSE) (2004). *Manual Handling Operations Regulations 1992 (as amended) Guidance on Regulations*. 3rd edn. Sudbury: HSE

Health and Safety Executive (2007 *Manual handling training investigation of current practices and development of guidelines. RR583 Research Report*. Sudbury: HSE Books [online] available from <www.hse.gov.uk/research/rrpdf/rr583.pdfSimilar> [16 December

Hewitt-Taylor, J., (2001) 'Use of constant comparative analysis in qualitative research'. *Nursing Standard.* 15 (42), 39-42

Hignett, S. (2003) 'Systematic review of patient handling activities starting in lying, sitting and standing positions'. *Journal of Advanced Nursing* 41 (6), 545-552

Hignett, S.(2005) *Measuring the effectiveness of competency based education and training programmes in changing the manual handling behaviour of health care staff, Research Report 315,* Health and Safety Executive [online] available from <http://www.hse.gov.uk/research/rrpdf/rr315.pdf> [6 February 2012]

Holmes. D. (1994) 'Implications of the EC Manual Handling of Loads Directive for nurse managers. *British Journal of Nursing* 3 (22), 1173-1178

Human Rights and Equality Commission (EHRC) (2010) *The Equality Act*: *Further and Higher Education providers' guidance* Available online <http://www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/equality-act> [5th January 2012]

Holstein, J. A. and Gubrium .J. F. (2011) 'Animating Interview Narrative'. in *Qualitative Research. Issues of Theory, Method and Practice*. 3rd edn. Ed. by Silverman, D. (2011). London: Sage

Jesson, J. K., Matheson, L. and Lacey, F. (2011) *Doing Your Literature Review. Traditional and Systematic Techniques*. London: Sage

Jootun, D. and MacInnes, A. (2005) 'Examining how well student nurses use corrects handling procedures'. *Nursing Times* 101 (4), 38 – 43

Kneafsey, R. (2000) ‘The effect of occupational socialization on student nurses’ patient handling experiences’. *Journal of Clinical Nursing* 9: 585 – 592

Kneafsey, R. (2007) ‘Developing skills in safe patient handling: Mentors’ views about their role in supporting student nurses’. *Nurse Education in Practice* 7 (6), 365-372

Kneafsey, R. and Haigh, C. (2007) ‘Learning safe patient handling skills: Student nurse experiences of university and practice based education’. *Nurse Education Today* 27 (8), 832-839

Kneafsey, R. and Smallwood, J. (2010) ‘Musculo-skeletal injury – Are Universities doing enough to protect students?’ *Nurse Education Today* 30: 383 -385

Kneafsey, R., Baker, C. and Robinson, J. (2003) ‘Ten years on from the 1992 Manual Handling Operations Regulations: a perspective from higher education in the UK’ Nurse Education in Practice 3: 121-122

Kvale, S. and Brinkman, S. (2009) *Interviews: Learning the Craft of Qualitative Research Interviewing* (2nd edn) London: Sage

Macann, C. E. (1993) *Four Phenomenological Philosophers: Husserl, Heidegger, Sartre, Merleau-Ponty.* Florence, KY, USA: Routledge.

Mackintosh, C. (2006) Caring: ‘The socialisation of pre-registration student nurses: A longitudinal qualitative descriptive study’. *International Journal of Nursing Studies* 43: 953–962

McWilliam, P. L. and Botwinski, C. A. (2010) ‘Developing a Successful Nursing Objective Structured Clinical Examination’. Journal of Nurse Education 49 (1), 36-41

Moran, D. (2000) *Introduction to Phenomenology.* KY, USA: Routledge. <http://site.ebrary.com/lib/coventry/Doc?id=10035294&ppg> [31/10/2011]

Moule, P. and Goodman, M. (2009) *Nursing Research: an introduction.* London: Sage Publications

Moule. P., Wilford, A., Sales, R. and Lockyer, L. (2008) ‘Student experiences and mentor views of the use of simulation for learning’. *Nurse Education Today* 28: 790 -797

Moustakas, C. (1994) *Phenomenological Research Methods*. London: Sage

Nicklin, P. and Kenworthy, N. (1995) *Teaching and Assessing in Nursing Practice: An Experiential Approach*. 2nd edn. Scutari: London

National Audit Office (2003) *A Safer Place to Work: Improving the management of health and safety risks to staff in NHS trusts.* Report by the Comptroller and Auditor General HC 623 Session 2002-2003: 30 April 2003. London: NAO. [online] available from <http://www.nao.org.uk/publications/0203/a_safer_place_to_work_improvi.aspx> [25 May 2011

Nursing and Midwifery Council, (NMC) (2002) *Practitioner-client relationships and the prevention of abuse.* London: NMC Publications

Nursing and Midwifery Council (NMC) (2006) *Standards to Support Learning and Assessment in Practice.* London: NMC

Nursing Midwifery Council (2007) NMC Circular 36/2007. *Supporting direct care through simulated practice learning in the pre-registration nursing programme* [online] available from <http://www.nmc uk.org/Documents/Circulars/2007circulars/NMCcircular36_2007.pdf > [7 *March 2012]*

Nursing Midwifery Council (2008) The Code: Standards of conduct, performance and ethics for nurses and Midwives. London: NMC

Nursing Midwifery Council (2010) Standards for pre-registration nursing education [online] available from <http://www.nmc-uk.org/Documents/Standards/nmcStandardsToSupportLearningAndAssessmentInPractice.pdf > [7 October 2012]

Oliver, P, (2003) *The student's guide to research ethics.* Maidenhead: Open University Press

Pellatt, G. C. (2005) 'The safety and dignity of patients and nurses during patient handling'. *British Journal of Nursing* 14 (21), 1150-1156

Peräkylä, A. (2011) 'Validity in Research on Naturally Occurring Social Interaction'. in *Qualitative Research. Issues of Theory, Method and Practice*. 3rd edn. Ed. by Silverman, D. (2011). London: Sage

Polgar, S. and Thomas, S.A. (2000) *Introduction to Research in the Health Sciences* 4th edn. Edinburgh: Churchill Livingstone

Portney, L. G. and Watkins, M. P. (2009) *Foundations of Clinical Research. Applications to Practice*. 3rd edn. London: Pearson Education

Price, A. and Price, B. (2009) 'Role modelling practice with students on clinical placement'*. Nursing Standard* 24 (11), 51-56

Quinn, F.M. and Hughes, S. (2007) *Quinn's Principles and Practice of Nurse Education.* 5th Ed. Cheltenham: Nelson Thornes.

Richardson, N. (2002) *How to Teach Moving and Handling: Book 1*. Manchester: Disabled Living Centre. Cited in Cash, J. M. (2004) 'Manual handling training: meeting the challenge'. *Equipment Services* 16 – 21

Rose, P. (2011) 'Training Strategies' in The Guide to the Handling of People. 6th edn. Ed. By Smith, J. Middlesex: Backcare, 73 – 86

RCN / NBPA, (Royal College of Nursing / National Back Pain Association) (1987) *The Guide to the Handling of People*. 2nd edn. RCN / NBPA. Cited in Fray, M. (2005) 'Creating Change' in *The Guide to the Handling of People*. 5th edn. ed. by Smith, J. Middlesex: Backcare, 121-126

Royal College of Nursing (1996) *Safer staff, better care RCN manual handling training guidance.* London: RCN

Royal College of Nursing (2000) *Introducing a Safer Patient Handling Policy.* London: RCN

.Royal College of Nursing (2003) *Safer staff, better care: RCN Manual Handling Training Guidance and Competencies* London: RCN

Rubin, H. J. and Rubin, I. S. (2005) *Qualitative Interviewing. The Art of Hearing Data.* 2nd edn. London: Sage Publications

Ryan, Coughlan and Cronin 2009, F., Coughlan, M. and Cronin, P. (2009) 'Interviewing in qualitative research: The one – to - one interview'. *International Journal of Therapy and Rehabilitation* 16 (6), 309-314

Sanders, P. (2002) *First Steps in Counselling. A students' companion for basic introductory counselling courses.* 3rd edn. Ross-on-Wye: PCCS Books

Seccombe, I. and Ball J. (1992) *Back Injured Nurses: A Profile.* Discussion paper for the RCN, Institute of Manpower Studies, London

Seccombe, I. and Smith, G. (1996) 'Voting with their feet'. *Nursing Standard*11 (1), 22-23

Silverman, D. (2011) *Qualitative Research. Issues of Theory, Method and Practice*. 3rd edn. London: Sage

Sim, J. and Wright, C. (2000) *Research in Health Care: concepts, designs and methods*. Cheltenham: Stanley Thornes

Smallwood, J., (2006) 'Patient Handling: student nurses' views'. *Learning in Health and Social Care* 5 (4), 208 – 219

Swain. J., Pufahl, E. and Williamson, G. R. (2003) 'Do they practice what we teach? A survey of manual handling practice amongst student nurses'. Journal of Clinical Nursing 12, 297 – 306.

United Kingdom Central Council for Nursing and Midwifery (UKCC) (2001) *Fitness for Practice and Purpose.* The report of the UKCC 'Post Commission Development Group, London: UKCC

Wanless, S. and Page, A. (2009) 'Moving and handling education in the community: technological innovations to improve practice'. *British Journal of Community Nursing* 14 (12), 530-2

Wanless, S. and Wanless, S.G. (2011) 'Improving Training and Education in Patient handling'. *Nursing Times* 107 (23), 17-19

Wilkes, Z. (2006) 'The student-mentor relationship: a review of the literature'. *Nursing Standard* 20 (37), 42-47

BIBLIOGRAPHY

Swetnam, D. and Swetnam R. (2009) *Writing Your Dissertation*. 3rd edn. Oxford: How-to Books

Appendix 1A

Extracts From 6 Practice Grids

Learning Outcomes Relevant to H&M in Each Placement

P1	▪ Demonstrate an awareness of legislation relevant to nursing practice, such as: - Health and Safety at Work Act (1974). ▪ Recognise the needs of patient /client/service users whose lives are affected by disability e.g. provision of equipment. ▪ Be aware of assessment strategies to guide collection of data for assessing patients and patients and use assessment tools under guidance e.g. manual handling. ▪ Understands health and safety principles. Recognises and reports situations that are potentially unsafe for patient/ clients, oneself and others e.g. contribute to assessment of actual and potential health and safety risks / discuss the meaning of risk management. ▪ Identify the roles of members of the health and social care team. Working with other members of the MDT e.g. physiotherapist.
P2	▪ Identify key issues in relevant legislation relating to mental health, children, data protection, manual handling and health and safety e.g. use manual handling techniques correctly / demonstrate an understanding of data protection/ maintain a safe working environment. ▪ Recognise the needs of patient/client/service users whose lives are affected by disability e.g. provision of equipment. ▪ Understands health and safety principles. Recognises and reports situations that are potentially unsafe for patient/ clients, oneself and others e.g. contribute to assessment of actual and potential health and safety risks / Discuss the meaning of risk management ▪ Accurately utilises assessment tools as appropriate e.g. manual handling
P3	▪ Demonstrates knowledge of legislation and health and social policy relevant to nursing practice. Can give examples of current legislation and health policy relevant to practice area e.g. health and safety, manual handling. ▪ Use of risk assessment tools / pain assessment / pressure assessment / manual handling risk assessment.

P3	▪ Recognises that evidence based knowledge from nursing and related disciplines are used to select and individualise nursing interventionse.eg. Practices health and safety in all care settings (home, community and acute) / Awareness of the Health and Safety at Work Act, RIDDOR. ▪ Understands the need to use appropriate risk assessment tools to identify actual and potential risks. ▪ Is able to indentify environmental hazards. ▪ Communicates safety concerns to a relevant authority e.g. utilises risk assessment tools alongside the use of appropriate equipment.
P4	▪ Provides support and education in the development and/or maintenance of independent living skills. ▪ Uses appropriate risk assessment tools to identify actual and potential risks e.g. knowledge of environmental safety.
P5	▪ Select valid and reliable assessment tools for the required purpose. ▪ The student must show awareness of the resources required to meet the needs of their patient (for example, staffing, equipment. ▪ Generic and individual risk assessment / knowledge of environmental safety.
P6	▪ The student must choose appropriate assessment tools for the patients under their care. ▪ The student must show awareness of the resources required to meet the needs of their patients. ▪ The student should be able to apply key nursing skills to new clinical situations or more complex situations e.g. manual handling. ▪ The student must participate in risk assessment and act upon their findings in their clinical placement.

Coventry University (2012) Placement Connect [online] available from <http://wwwm.coventry.ac.uk/PlacementConnect/professionspecific/Documents/practice%20grids> [12 October 2012]

KEY: P1 = Practice Module or Placement Number One etc.

Appendix 1B

Extracts From Essential Skills Inventories

Common Foundation Programme (CFP)

CARE, COMPASSION AND COMMUNICATION
Communication – Working in Partnership
Positions individual to promote comfort.

ORGANISATIONAL ASPECTS OF CARE
Health and Safety
Utilises appropriate manual handling techniques after completing a risk assessment.
Moves individuals appropriately, using aids where necessary.

Coventry University (2011)

Adult Branch Programme

CARE, COMPASSION AND COMMUNICATION
Communication – Working in Partnership
Promotes and upholds the human rights of the individual.

ORGANISATIONAL ASPECTS OF CARE
Health and Safety
Implements and communicates risk assessment outcomes in relation to manual handling.
Completes a falls risk assessment tool and responds appropriately.
Selects appropriate walking aids for client.
Supports and educates client in the use of walking aids.

Coventry University (2009)

Appendix 1C

Extract from Coventry and Warwickshire Learning Environment Profile

Standard Number	Standard	Compliance (Place an 'x' in the box that applies)			Evidence (Place an 'x' in the box that applies and cite any additional evidence)
7	Up to date Health and Safety Policies and procedures are implemented to maintain service user, student, staff and visitor safety at all times (including mandatory training).	**Green** ☐	Amber ☐	**Red** ☐	☐ No evidence ☐ Training records demonstrate all staff have attended mandatory training sessions ☐ Evidence of regular Health and Safety risk assessments and completed action plans (if required) ☐ Evidence of regular Health and Safety risk checklists within students Practice grids ☐ Other (please specify):
9	Procedures are implemented to manage risk to students in the placement environment and where incidents/accidents occur these are reported to the University via an agreed communication mechanism	**Green** ☐	Amber ☐	**Red** ☐	☐ No evidence ☐ Completed Health and Safety risk assessments and associated action plans where required ☐ Completed individual risk assessments ☐ Completed incident/accident report forms ☐ Evidence within completed student practice documentation ☐ Evidence of email communication between Trust staff and HEI staff ☐ Other (please specify):
12	Students have access to resources to support their learning including: • Physical resources e.g. equipment • Intranet/internet • Journals/books	**Green** ☐	Amber ☐	**Red** ☐	☐ No evidence ☐ Evidence that all students are offered access Information Community Technology (ICT) services whilst on placement ☐ Evidence that students are offered access to the library where appropriate ☐ Students are made aware of learning resources available to them via the student induction/learning pathway package ☐ Other (please specify):

Coventry University (2010)

Appendix 2

Search Strategy

Database	Search Terms	Number of Results	Relevant Results
CINAHL with Full Text, MEDLINE, Academic Search Complete, AMED – The Allied and Complementary Medicine Database Subject database: Nursing +Midwifery Sub category: Databases + Subject Gateway Find all search terms	'Student nurs*' And 'Patient handling' OR 'Manual handling' OR 'Handling and Moving'	55 Including, 32 Not Relevant 11 Non British	1. Barnes (2009) 2. Cornish and Jones (2007) 3. Cornish and Jones (2010) 4. Felstead and Angrave (2005) 5. Green (2002) 6. Jootun and MacInnes (2005) 7. Kneafsey (2007) 8. Kneafsey and Haigh (2007) 9. Moule et al (2008) 10. Smallwood (2006) 11. Swain (2003) 12. Wanless and Wanless (2011)
CINAHL with Full Text, MEDLINE, Academic Search Complete, AMED – The Allied and Complementary Medicine Database Search for related terms	'Patient handling' OR 'Manual handling' OR 'Handling and Moving' And 'Student nurs*' And 'Education' OR 'Training'	22 Other results not relevant	13. Signet and Crumpton (2006)

CINAHL with Full Text, MEDLINE, Academic Search Complete, AMED – The Allied and Complementary Medicine Database Subject database: Nursing +Midwifery Sub category: Databases + Subject Gateway Find all search terms	'Patient handling' OR 'Manual handling' OR 'Handling and Moving' And 'Nurs*' And 'Education' OR 'Training'	130	14. Cash (2004) 15. Kneafsey (2000)
Database	**Search Terms**	**Number of Results**	**Relevant Results**
Electronic Search of Article Reference Lists			No additional references
Subject database: Allied Health Sub category: Databases + Subject Gateway CINAHL with Full Text, MEDLINE, Academic Search Complete, AMED – The Allied and Complementary Medicine	'Patient handling' OR 'Manual handling' OR 'Handling and Moving' And 'Nurs*' And 'Education' OR 'Training'	161	16. Wanless and Page (2009)
Hand Search of Reference Lists		3	17. Health and Safety Executive (2007) 18. Kneafsey, Baker and Robinson (2003) 19. Kneafsey and Smallwood (2010)

Search Limits: English Language
With Full Text
Jan 2000- July 2011

Date of Last Search: 2/12/2011

Appendix 3

Summary of Literature Included in the Review

No.	Title and Author	Sample	Study Design	Data Analysis	Relevance	Limitations
1	Kneafsey, R. (2000) 'The effect of occupational socialization on nurses' patient handling practices'. Journal of Clinical Nursing. 9: 585 – 593.	No rationale for inclusion of exclusion	Literature review reporting the negative effects of occupational socialisation on implementing safe patient handling	Not addressed	Long term improvements to H&M practices cannot be implemented exclusively through education and training. Professional and organisational culture, together with staffing levels, provision of equipment and adaptations to the environment are also needed.	Some key literature was 30 years old at the time of publication which pre-dates MHOR (1992) and therefore may not accurately reflect the current position relating to incidence of back injury or non compliance with recommended techniques.
2	Green, C. (2002) 'Reflecting on reflection: students' evaluation of their moving and handling education'. *Nurse Education in Practice* 2, 4-12.	25 Second Year Students Sampling strategy not indicated.	Qualitative Focus Groups based on entries from reflective diaries	Unclear ?Thematic analysis Selected narratives presented with associated interpretations	Provides further evidence that student nurses are susceptible to socialization into poor manual handling practice. Reflection may offer a vehicle to address this.	Reflection may help in the development of assertiveness skills but more proactive approaches are required to address the underlying problems. No ethical approval? not required at this time
3	Kneafsey, R., Baker, C. and Robinson, J. (2003) 'Ten years on from the 1992 Manual Handling Operations Regulations: a perspective from higher education in the UK' *Nurse Education in Practice* 3: 121-122.	N/A	Discussion Paper	N/A	Highlight that HEIs do not provide adequate support for student nurses in clinical practice in relation to H&M. Emphasises the need for a more collaborative approach to manual handling training shared between HEIs and clinical settings.	Many of the suggestions have been identified in other studies. There is limited supporting evidence that any of the suggested strategies would influence either the incidence of MSDs or safer patient handling.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
4	Swain et al (2003) 'Do they practice what we teach? A survey of manual handling practice amongst student nurses' *Journal of Clinical Nursing 12: 297 – 306.*	139 Adult Students (all years represented) 148 questionnaires distributed. Convenience sample (94% response rate)	Mixed Methodology Survey Design Self report questionnaire designed to answer 3 questions: • Do students know what they should be doing? • Do students report doing what they should be doing? • If not, why not?	SPSS for the quantitative elements. Thematic analysis for qualitative components. Open, closed and dichotomised questions, diagrams and scenarios	Rigorous questionnaire construction enabled a comprehensive assessment of student knowledge, and also highlights inconsistencies between attitude and behaviour. Provides further evidence that lack of equipment and pressure from clinical staff prevent student nurses from adopting taught H&M principles	No ethical approval? Not needed at this time. Statistics cited in the tables are confusing and difficult to relate to the sample. Caution should be exercised in linking what the students report with actual clinical practice.
5	Cash, J. M. (2004) *'Manual handling training: meeting the challenge'.* *Equipment Services 16 - 21*	N/A	A critical review of the purpose of H&M training	N/A	Identifies that for H&M training to be effective, it must relate to the experiences and contexts of the trainees. Additionally, time must be spent exploring attitudes to H&M, together with a focus on legislation.	Mainly of an anecdotal nature.
6	Felstead and Angrave (2005) 'Implementing moving and handling in higher education'. *Nursing Standard*. 19, 33, 46-50.	N/A Subjected to double blind review	Discussion paper Describes the implementation of a policy to enhance the educational provision of H&M in the host HEI.	N/A	Provides a framework to identify and monitor student nurses who do not demonstrate appropriate H&M skills, with an emphasis on collaboration between the HEI and placement areas.	Anecdotal evidence from staff and students suggests that changes to manual handling education have increased the quality and consistency of the student experience but there is no formal evaluation to support this claim.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
7	Jootun, D. and MacInnes, A. (2005) 'Examining how well student nurses use corrects handling procedures'. *Nursing Times* 101, (4), 38 – 43 Aim: To explore the extent to which undergraduates apply taught principles when performing H&M during practice placements and the factors that influence their application.	Ten undergraduate third-year student nurses	Mixed Methodology 7 item questionnaire closed and open-ended questions Followed by a semi-structured interview based on the main themes arising from the questionnaire	No explanation of how the data was analysed	There were many situations where students were unable to apply the principles as taught in the classroom. The constraints imposed by the combined effects of the environment, resources and time limited the application of the safe principles. In areas where handling and moving is seen as an integral part of patient management, students were encouraged to use the correct techniques.	A small scale study involving a limited range of students that makes generalisation difficult 7 item questionnaire provides limited information No explanation of the sampling strategy or how data analysis was performed which makes findings questionable.
8	Smallwood, J., (2006) *'Patient Handling: student nurses' views'.* *Learning in Health and Social Care 5 (4) 208 – 219*	Purposive 3rd year adult branch student nurses 65 questionnaires distributed Response Rate = 51 Mixed Methodology Self report questionnaire (Piloted)	Qualitative and quantitative data 16 questions based on five themes:: Values and beliefs, clinical culture, Conflict between patient and personal well being Transfer of skills Equipment Group discussion based on key findings from questionnaire	Thematic and systematic analysis using Framework Analysis.	Most student nurses believe that safe patient handling is achievable but approximately half did not used recommended techniques Triangulation of methodologies helps to clarify ambiguities and augment data from the survey.	Small sample size means results may not be general sable.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
9	Cornish, J. and Jones, A. (2007) 'Evaluation of moving and handling training for pre-registration nurses and its application to practice'. *Nurse Education in Practice.* 7:128-134.	Convenience sample Size: 106. representing a 34% response rate. Year 2 diploma and degree level student nurses, comprising adult, child and mental health branches.	Mixed methodology survey, Anonymous semi-structured self-report questionnaire, using a combination of fixed response lists, Likert scales and open questions which were subject to thematic analysis. Follow up interviews with four students from the original sample to discuss their experiences in more detail.	Minitab for the numerical data and presented as descriptive statistics Thematic analysis for the open questions. :	Students could distinguish between acceptable and unacceptable practice. Equipment was unavailable or not used and staff demonstrated poor posture or used condemned techniques. 71% had been asked to participate in a manoeuvre that they thought was wrong and a similar number had been asked to physically lift patients.	Poor response rate means that the findings may not be representative of the accessible population. Lack of clarity in the organisation of statistics makes interpretation of the findings difficult. A tendency for respondents to present themselves as following the correct procedure and others as not doing so
10	Health and Safety Executive (2007 *Manual handling training investigation of current practices and development of guidelines.* RR583 Peer reviewed articles, published conference proceedings and reports	**Systematic review** 84 papers H&M training 1980-2006. **Telephone Interviews** 120 reps from British industrial sectors. 30 H&M training agencies	Mixed methodology study o establish what constitutes effective manual handling training 50 intervention studies, 22 surveys H&M training 12 reviews/ reports of the views of expert groups	**Systematic Review** **Telephone Survey** Quantitative Data: SPSS Qualitative Data: Emergent themes using NVivo	**Systematic Review** Limited evidence to support the effectiveness of either techniques / educational based H&M training. Considerable evidence to support that principles taught in training sessions are not applied into practice. An appropriate culture needs to be promoted for safe H&M to be effective. Findings were validated by two expert panels	Large amount of literature prior to MHOR (1992) patient handling involved manual lifting techniques which are now not recommended. Some small sample sizes of systematic review studies make generalisations difficult Generic study that does not sufficiently address the complexities of people handling.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
11	Hignett, S. and Crumpton, E. (2007) 'Competency-based training for patient handling'. Applied Ergonomics 38: 7 -17.	16 Healthcare organisation 60 Back Care Advisors	Mixed Methodology Question set to assess compliance with RCN competencies. Observational data for patient sitting to standing and repositioning in-sitting. Semi structured interviews based on verbal data collected during the tasks.	Analysis of Organisational data was vague**.** Data presented in a table of percentages**.** Use of time intervals for observational data. Thematic analysis for interview	It appears that in organisations where there is a high compliance with RCN manual handling competencies, there is a safer manual handling culture with evidence of complex decision making. Further research is need to evaluate the effectiveness of competency based training in terms of sick days lost through MSDs and manual handling incident reporting before a particular approach or programme content can be recommended	Lack of clarity about analysis of organisational data is misleading and reduces credibility.
12	Kneafsey, R. and Haigh, C. (2007) 'Learning safe patient handling skills: Student nurse experiences of university and practice based education'. *Nurse Education Today* 27 (8), 832-839.	Convenience sample: 432 student nurses from 3 cohorts Response rate 75% Age range: 18-44 years 44% prior experience as HCAs. 90% female	Survey 34 item self report questionnaire comprising of mainly closed questions	SPSS V13 for Windows. Spearman's Rank Correlation Test for non-parametric data	Provides further confirmation that there are barriers in clinical practice to students being able to practice safe patient handling and in addition that universities are sometimes failing in their duty to prepare novice students adequately prior to clinical placement	No exploration of why the students rated incident reporting, use of hoists, problem solving and the H&M OSCE, as 'not useful' or 'useless': Literature review relies on many non British sources that may not be relevant to the U.K. health care or HEI.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
13	Kneafsey, R. (2007) 'Developing skills in safe patient handling: Mentors' views about their role in supporting student nurses'. *Nurse Education in Practice* 7, (6) 365-372.	15 from a potential sample of 430 mentors. 13 attended focus groups 2 attended for interviews	Qualitative Phenomenological	Thematic Analysis	3 key themes identified: Teaching and learning approaches, preparation for teaching and assessment of students' patient handling practice and negative perceptions of the topic of moving and handling Highlights inadequacies in the preparation of clinical mentors for their role of teaching and supporting student nurses to achieve safe H&M practice.	The poor response rate may not be indicative of the views of the wider population of mentors.
14	Moule. P., Wilford, A., Sales, R. and Lockyer, L. (2008) 'Student experiences and mentor views of the use of simulation for learning' Nurse Education Today 28: 790 - 797	Sample One of 13 pilot sites. **Phase 1** 69 year one and year three adult and child branch student nurses. **Phase 2** Six mentors	Two phased mixed methodology study. **Phase 1** Comparative study to assess student's knowledge of a range of skills, inc. H&M before and after simulation activity **Phase 2** Interviews with six mentor who supervising the students.	Marks awarded from MCQs, vignettes and OSCE s- SPSS Comparison of pre and post simulation MCQs.- Paired *t* test Thematic analysis of mentor interviews	Simulation offers scope for collaborative working between educational institutes and clinical areas. Simulation prepares students for practice and has the potential to support achievement of placement learning outcomes, while taking some of the pressure from mentors. 3 key themes identified: increased confidence, student learning and supporting simulation.	Understanding of team working may have developed as a matter of course during the clinical placement regardless of participation in the project. Actual behaviour may differ from that reported during the vignettes. Self selection of the participants may give the impression of a general high standard of pre-test knowledge that is also reflected in the post simulation scores.

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
15	Barnes, A. F. (2009) 'Reducing the incidence of back pain: student nurses' recommendations'. *British Journal of Nursing* 18 (21), 1334-1338.	Convenience sample of 110 third year student nurses from three branches of nursing. In one HEI. ~~Response~~ rate: 94% (n=103)	*Survey* Self report questionnaire	Not stated. No raw data presented.	Highlights that 34% of student nurses (n=35) experience back pain during clinical practice as a result of patient handling	Relies only on back pain statistics prior to implementation of MHOR. Some statistics are misleading and cannot be verified as the raw data has not been presented Literature review includes studies amongst nurses in Japan which may not reflective of British culture, nurse education or health service practices
16	Wanless, S. and Page, A. (2009) 'Moving and handling education in the community: technological innovations to improve practice'. British Journal of Community Nursing 14 (12), 530-2	N/A	Discussion paper that recommends the use of interactive, real time scenarios within a controlled environment for teaching problem solving skills to deal with complex H&M task within the primary care setting.	N/A	Highlights a range of innovative approaches to help health care professionals in problem solving handling and moving issues associated with patients who have complex needs, incorporating physical, communication and legal considerations.	There is no evidence to evaluates the effectiveness of the simulation strategies which have been reviewed,

No.	Title and Author	Sample	Study Design /	Data Analysis	Relevance	Limitations
17	Cornish, J. and Jones, A. (2010) 'Factors affecting compliance with moving and handling policy: student nurses' views and experiences'. *Nurse Education in Practice* 10 (2), 96–100.	17 Second year student nurses. Potential sample 59 Response rate 29%	Qualitative phenomenological 3 Focus Groups using questions from a topic guide informed by themes identified from an eelier study.	Thematic analysis 8 categories of poor practice were identified	Provides further evidence that student nurses are socialised into poor patient handling practices. Sequential triangulation provides an opportunity for further exploration of issues from the earlier survey and interview methods which validates the earlier findings	Sampling strategy not stated (? convenience) but homogeneity of sample ensures group interaction. Poor response rate may not reflect the experiences of the accessible population.
18	Kneafsey, R. and Smallwood, J. (2010) 'Musculoskeletal injury – Are Universities doing enough to protect students?' *Nurse Education Today 30, 383 - 385.*	N/A	Editorial which acknowledges that universities are failing in their duty to prepare student nurses for the challenges of patient handling in clinical practice.	N/A	A more holistic approach to university H&M is suggested, including collaborative working with placement providers, occupational health involvement, incident and malpractice reporting, together with improved preparation for practice.	While interesting issues are raised about failures in the current approach to H&M training, further research is needed to support the effectiveness of the recommendations
19	Wanless, S. and Wanless, S.G. (2011) 'Improving Training and Education in Patient handling'. Nursing Times 107 (23),17-19	N/A	Discussion paper outlining Birmingham City University's approach to patient handling education for pre-registration nurses	N/A	Offers sound pedagogical strategies through the adoption of simulation exercises which help students to better understand the principles of safe H&M. in order to reduce to the risk of injuries.	Claims made that may be correct but are not supported by evidence e.g. demonstrating prescriptive H&M techniques is an ineffective training strategy. Draws conclusions on the strength of anecdotal comments from students that are not supported by evidence e.g. students are not supervised in clinical placement.

Appendix 4

Topic Guide for Research Interviews

Project Title:

University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

Outline of Questions

1. **Demographics**
   - Can you please confirm which cohort you are from?
   - Can I ask your age please?
   - Did you have any previous health care experience when you began your course?

2. **Students' Perceptions of Handling and Moving In Practice**
   - Can you tell me about your first patient handling experience in clinical placement?
   - Can you tell me how you feel about H&M in the clinical situation?
   - Are you generally able to practice the manual handling taught in university based training sessions?
   - Is equipment you have been shown in university based manual handling training generally used? If not, what are the reasons?

3. **Do you feel adequately supported with H&M practice when you are in clinical placement?**
   - Do you know who to approach for support if you experience problems while in clinical placement?
   - Have you any suggestions about how you could be better supported?

4. **Are there any changes that could be made to the University manual handling that would improve the student experience?**

5. **Are you aware of patient's H&M risk assessments before you perform any manoeuvres?**
   - Are risk assessments completed?
   - Do you risk assess the situation yourself?

6. **Is there anything else that you would like to add?**

Debriefing and Closure

Appendix 5

Low Risk Research Ethics Approval Checklist

Applicant Details

Name: Susan Chambers	E-mail: sue_chambers@sky.com
Department: Nursing and Midwifery	Date: 15/10/2010
Course: MSc by Research	Title of Project: University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

Project Details

Summary of the project in jargon-free language and in not more than 120 words: • Research Objectives • Research Design (e.g. Experimental, Desk-based, Theoretical etc) • Methods of Data Collection

Participants in your research

1. Will the project involve human participants?	**Yes**	No

If you answered '**Yes'** to this question, this may **not** be a low risk project.

- If you are a student, please discuss your project with your Supervisor.
- If you are a member of staff, please discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval or NHS or Medical Approval Routes.Risk to Participants

2. Will the project involve human patients/clients, health professionals, and/or patient (client) data and/or health professional data?	Yes	**No**
3. Will any invasive physical procedure, including collecting tissue or other samples, be used in the research?	Yes	**No**
4. Is there a risk of physical discomfort to those taking part?	Yes	**No**
5. Is there a risk of psychological or emotional distress to those taking part?	Yes	**No**
6. Is there a risk of challenging the deeply held beliefs of those taking part?	Yes	**No**
7. Is there a risk that previous, current or proposed criminal or illegal acts will be revealed by those taking part?	Yes	**No**
8. Will the project involve giving any form of professional, medical or legal advice, either directly or indirectly to those taking part?	Yes	**No**

If you answered **Yes** to **any** of these questions, this may **not** be a low risk project.

- If you are a student, please discuss your project with your Supervisor.
- If you are a member of staff, please discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval or NHS or Medical Approval Routes.

Risk to Researcher

9. Will this project put you or others at risk of physical harm, injury or death?	Yes	**No**
10. Will project put you or others at risk of abduction, physical, mental or sexual abuse?	Yes	**No**
11. Will this project involve participating in acts that may cause psychological or emotional distress to you or to others?	Yes	**No**
12. Will this project involve observing acts which may cause psychological or emotional distress to you or to others?	Yes	**No**
13. Will this project involve reading about, listening to or viewing materials that may cause psychological or emotional distress to you or to others?	Yes	**No**
14. Will this project involve you disclosing personal data to the participants other than your name and the University as your contact and e-mail address?	Yes	**No**
15. Will this project involve you in unsupervised private discussion with people who are not already known to you?	Yes	**No**
16. Will this project potentially place you in the situation where you may receive unwelcome media attention?	Yes	**No**
17. Could the topic or results of this project be seen as illegal or attract the attention of the security services or other agencies?	Yes	**No**
18. Could the topic or results of this project be viewed as controversial by anyone?	Yes	**No**

If you answered **Yes** to **any** of these questions, this is **not** a low risk project. Please:

- If you are a student, discuss your project with your Supervisor.
- If you are a member of staff, discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval route.

Informed Consent of the Participant

19. Are any of the participants under the age of 18?	Yes	**No**
20. Are any of the participants unable mentally or physically to give consent?	Yes	**No**
21. Do you intend to observe the activities of individuals or groups without their knowledge and/or informed consent from each participant (or from his or her parent or guardian)?	Yes	**No**

If you answered **Yes** to **any** of these questions, this may **not** be a low risk project. Please:

- If you are a student, discuss your project with your Supervisor.
- If you are a member of staff, discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval route.

Participant Confidentiality and Data Protection

22. Will the project involve collecting data and information from human participants who will be identifiable in the final report?	Yes	**No**
23. Will information not already in the public domain about specific individuals or institutions be identifiable through data published or otherwise made available?	Yes	**No**
24. Do you intend to record, photograph or film individuals or groups without their knowledge or informed consent?	Yes	**No**
25. Do you intend to use the confidential information, knowledge or trade secrets gathered for any purpose other than this research project?	Yes	**No**

If you answered **Yes** to **any** of these questions, this may **not** be a low risk project:

- If you are a student, discuss your project with your Supervisor.
- If you are a member of staff, discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval or NHS or Medical Approval routes.

Gatekeeper Risk

26. Will this project involve collecting data outside University buildings?	Yes	**No**
27. Do you intend to collect data in shopping centres or other public places?	Yes	**No**
28. Do you intend to gather data within nurseries, schools or colleges?	Yes	**No**
29. Do you intend to gather data within National Health Service premises?	Yes	**No**

If you answered **Yes** to **any** of these questions, this is **not** a low risk project. Please:

- If you are a student, discuss your project with your Supervisor.
- If you are a member of staff, discuss your project with your Faculty Research Ethics Leader or use the Medium to High Risk Ethical Approval or NHS or Medical Approval routes.

Other Ethical Issues

30. Is there any other risk or issue not covered above that may pose a risk to you or any of the participants?	Yes	**No**
31. Will any activity associated with this project put you or the participants at an ethical, moral or legal risk?	Yes	**No**

If you answered **Yes** to these questions, this may **not** be a low risk project. Please:

- If you are a student, discuss your project with your Supervisor.
- If you are a member of staff, discuss your project with your Faculty Research Ethics Leader.

Principal Investigator Certification

If you answered **No** to **all** of the above questions, then you have described a low risk project. Please complete the following declaration to certify your project and keep a copy for your record as you may be asked for this at any time.

Agreed restrictions to project to allow Principal Investigator Certification

Please identify any restrictions to the project, agreed with your Supervisor or Faculty Research Ethics Leader to allow you to sign the Principal Investigator Certification declaration.

Participant Information Leaflet attached. Informed Consent Forms attached.

Principal Investigator's Declaration

Please ensure that you:

- Tick all the boxes below and sign this checklist.
- Students must get their Supervisor to countersign this declaration.

I believe that this project **does not require research ethics approval**. I have completed the checklist and kept a copy for my own records. I realise I may be asked to provide a copy of this checklist at any time.	☑
I confirm that I have answered all relevant questions in this checklist honestly.	☑
I confirm that I will carry out the project in the ways described in this checklist. I will immediately suspend research and request a new ethical approval if the project subsequently changes the information I have given in this checklist.	☑ ☑

Signatures

If you submit this checklist and any attachments by e-mail, you should type your name in the signature space. An email attachment sent from your University inbox will be assumed to have been signed electronically.

Principal Investigator

Signed ..... (Principal Investigator or Student)

Date 16/10/2010 .....

Students storing this checklist electronically must append to it an email from your Supervisor confirming that they are prepared to make the declaration above and to countersign this checklist. This-email will be taken as an electronic countersignature.

Student's Supervisor

Countersigned ..... (Supervisor)

Date 1/11/2010 .....

I have read this checklist and confirm that it covers all the ethical issues raised by this project fully and frankly. I also confirm that these issues have been discussed with the student and will continue to be reviewed in the course of supervision.

Appendix 6

Approval to Interview Student Nurses

To: **********
(Head of Nursing, Midwifery and Health Care)

Project Title

University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

Aim:

To determine if student nurses are practising safe handling and moving in their clinical placements following university based training sessions.

Objectives

1. To explore student nurses' perceptions of current university based handling and moving (H&M) training.
2. To identify the H&M techniques performed by the students while they are in clinical placement

Requirements of Students

A purposive sample of approximately 8-10 students will be asked to participate in a one to one interview that will last approximately 1 hour. The sample will comprise of 2nd and 3rd year adult branch student nurses.

Declaration:

I (Name) **********

…… ……..(Signature)
(Head of Nursing, Midwifery and Health Care)

Date ……

Consent to Sue Chambers (Researcher) recruiting and interviewing student nurses for the above project subject to their written informed consent.

Appendix 7

Participant Information Sheet

Study title:

University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

What is the purpose of the study?

To determine if student nurses are practising safe handling and moving techniques in their clinical placements following university based training sessions.

Why have I been approached?

For this study I need to recruit a small number of student nurses who are aged 25 years or under and who have no prior experience of working in health care before entering the pre-registration nursing course.

Do I have to take part?

No. Participation is entirely voluntary. If you do decide to take part you will be asked to sign a consent form

What will happen to me if I take part?

You will be asked to come along to take part in an in a one to one interview that will last approximately 1 hour. The interview will take place at a mutually convenient time and venue. The interview will be audio taped to ensure what you have said is accurately recorded. If there are any issues that you do not wish to be audio taped, then you can stop the recording at any point. At the end of the interview there will be an opportunity to change or delete any of your statements. A written transcript of the interview will be sent to you for confirmation that it is an accurate record of what you said.

What are the possible disadvantages and risks of taking part?

The interview process may revive memories of incidents from practice that you found distressing. If this happens we can stop recording and allow time for discussion.

What are the possible benefits of taking part?

You will have an opportunity, in a non threatening environment, to discuss any concerns that you may have about manual handling and moving training sessions in the university and your experiences of this subject during your time in clinical placement. Hopefully you will derive satisfaction that the Information you provide will be used to develop handling and moving training and support for future students.

It is unlikely you will derive any direct benefits from participating in this study because your course will be finished before any results are published. I will acknowledge the value your contribution in the final written report. I will also send you a copy of the abstract on completion of the study.

Withdrawal options

If you decide to take part, you are free to withdraw at any time without giving a reason. If you decide to withdraw then any information that you have already provided will be destroyed and will not be used in the study. There are no consequences to deciding that you no longer wish to participate in the study.

Will my participation in this study be kept confidential?

- Yes. Only the research team will have access to the information you provide. (The research team comprises of my research supervisors and I).
- Your consent form will be stored in a separate, secure (locked) location from the interview recordings.
- Your name will not appear on the interview recordings or the transcripts.
- You will only be identified by your participant code number.
- Your interview recording will be retained only until the final mark for my dissertation has been given. The recording will then be destroyed.
- Once the data has been entered into a computer file, it can be accessed by a password known only to the researcher.
- Everything that you say during the interview will be treated as confidential. It will not be shared with anyone outside of the research team without your permission. You will be asked not to identify any of your placement areas or the clinical staff by name. Any inadvertent references to named individuals or placement areas will be deleted.

What will happen to the results of the research study?

The results will be written up and presented as part of my Master's by Research dissertation. I hope also to present the results at academic conferences, local practice development forums and / or written up for publication in peer reviewed academic journals.

Who is organising and funding the research?

The research is organised by Sue Chambers], who is a Clinical Skills Instructor at Coventry University, Department of Nursing and Midwifery and also a final year postgraduate student within the faculty. This project is not externally funded.

Who has reviewed the study?

This study has been through the University Peer Review process and been approved by my research supervisors.

Contact for Further Information

Researcher: Sue Chambers

Address: Coventry University Faculty of Health and Life Sciences Room RC346 Richard Crossman Building Jordan Well Coventry CV1 5FB

E-mail: hsx422@coventry.ac.uk

Tel: 024 76 795895

Appendix 8

Participant Code No:

Informed Consent Form

Research Topic: University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

	Please tick
1. I confirm that I have read and understood the participant information sheet for the above study and have had the opportunity to ask questions.	
2. I understand that my participation is voluntary and that I am free to withdraw at anytime without giving a reason.	
3. I understand that all the information I provide will be treated in confidence	
4. I understand that I also have the right to change my mind about participating in the study for a short period after the study has concluded (insert deadline here).	
5. I agree to be /recorded as part of the research project	
6. I agree to take part in the research project	

Name of participant: .....

Signature of participant: .....

Date: .....

Name of Researcher:.....

Signature of researcher: .....

Date:.....

Appendix 9

To be printed on University headed writing paper

Dear _____,

University based manual handling and moving training: How effective is it in assisting student nurses to comply with safe practice?

Thank you again for attending the interview on (date…..) in connection with the above project. The information that you provided will be extremely valuable in identifying aspects of manual handling education that can be developed in order to support student nurses to comply with safe practice. I will acknowledge the value your contribution in the final written report and a copy of the abstract will be sent to you on completion of the study.

As I previously mentioned in the participant information sheet, the raw data from the project will be retained only until the final mark for my dissertation has been given. They will then be destroyed.

If you have any comments or concerns, please do not hesitate to contact me.

Yours sincerely,

Sue Chambers

Researcher

Appendix 10

Reflective Notes

Ethical Issues

I realised from the outset that my postionality in the study might be a barrier to the recruitment of participants. Students may not feel sufficiently confident in the anonymity and confidentiality clause to make disclosures of suboptimal practices due to fear of reprisals or recrimination. Furthermore, the imbalance of power between them as students and me as a researcher who is also a member of the academic staff may lead them to consider that it unwise to enter this situation. In fact I am becoming fearful that after 4 interviews that nobody else will volunteer.

I am constantly badgering my colleagues to make announcements during lectures and re-issue participant information sheets. This approach has yielded a further two participants who will try and recruit others who they know will fulfil the recruitment criteria. At least if prospective volunteers are approached by other students, I cannot be accused of coercion.

As data collection and analysis progresses, I am struck by the vulnerability of this younger group of student nurses while they are in clinical practice. Their limited knowledge base makes them more likely to unwittingly participate in unsafe practice which appears to be widespread. I am deeply troubled to learn the distress experienced by some students when they are allocated to unsupportive

and uncaring mentors. Equally, I am disappointed and saddened by my own lack of insight as a nurse and a teacher into the invidious situation that this group of students are placed.

Discussions frequently arise during training sessions about lack of H&M equipment in placements; together with the continued use of controversial techniques. Previously, I have put the burden of responsibility upon the student to be more assertive about demanding safe practice. I am also ashamed to admit an assumption on my part that the students are to some extent willing accomplices. I have failed to appreciate how youth, lack of life experience and limited knowledge exposes the students to harm when they are in clinical placements. I now incorporated strategies for dealing with unsafe H&M practice into the training sessions.

I have been deeply concerned by some disclosures and following a discussion with my dissertation supervisor, I raised the matter with the senior lecturer responsible for the delivery of clinical skills teaching in the department. It was decided that meetings should be arranged with Back Care Advisors from the Trusts where students are sent on placements in order to establish consistency in manual handling education and practice.

Data Collection

To ensure accuracy of recording a brief test is performed immediately prior to each interview to confirm its reliability. However, I remain anxious until each interview is completed and I can confirm that recording has been successful. I am not entirely comfortable until the recordings are safely downloaded onto my computer.

The participants are not unduly concerned by the Dictaphone. It is essential for it to be nearby, firstly to facilitate good quality sound reproduction and secondly for accessibility should the participant wish to stop the recording. In fact nobody did. I came to the conclusion that in order to overcome these anxieties that more time should be used during the introduction to focus on demographics and general conversation in order to relax both myself and the participants which in turn would help them to recall their experiences. Following this introductory preamble, I was able to check that recording was successful without interrupting the participant's flow of thought during the actual data collection.

While conducting the interviews I was acutely aware of the need to remain open and not to make assumptions that students do not use equipment during clinical placements. I remained alert to the need of avoiding questions that suggested particular answers. This is partially achieved by separating my role as a teacher from that of a researcher. This helps to kerb the impulse of correcting student misunderstandings about H&M practice until the interview is concluded. Giving

corrective feedback during the interview may have flaw the validity of the data by prompting the student to alter the actual version of events. I believe that it is a moral and professional obligation to provide corrective feedback during the debriefing when it could not influence the data collection. This approach also provides a mechanism for the student to derive some benefit from participating in the study. If corrective feedback is needed, I am careful to do this in a sensitive manner that will not undermine the student's self confidence or widen any perceived imbalance of power between us.

Although I do not enter into a counselling relationship with any of the students, I am conscious of acknowledging distressing and uncomfortable experiences to which some students have been exposed. My professional role as a teacher charges me with a duty of care to the students and to brush aside their feelings would be callous and unfeeling. Reassurance is given where necessary if students are concerned that they have not handled situations of suboptimal practice in an effective manner. Additionally, strategies were suggested should the student find themselves in similar situations in the future.

Bracketing

The intense concentration required during the interviews by the epoche process is mentally exhausting. In setting aside my pre-existing knowledge and experience of manual handling, deep and probing questions are required that clarify responses without making assumptions based on my pre-existing knowledge. The

limited use of slide sheets in clinical practice manifested early in the data collection process. The use of bed sheets to move patients up the bed together with other controversial manoeuvres is widespread. However, I am making a conscious effort to ask open questions that do not suggest these practices to the participants. When asking about equipment that students have observed or used, if slide sheets are not mentioned then I seek clarification of how the manoeuvre is performed. This approach often reveals the inappropriate use of bed sheets, together with a range of high risk manoeuvres. A further prompt to elicit this information, includes establishing whether the student has actually gained exposure to moving patients up the bed. If so, then I enquire how the manoeuvre was performed. In this way I am able to obtain comprehensive and uncontaminated accounts of the student's experience and knowledge.

I remain conscious of the temptation of overlooking cues that may lead to revelations of dissatisfaction with the teaching of H&M in the University. I am apprehensive that my own professional reputation as a manual handling instructor may come under attack. However, all of the students are positive about their University H&M education but would like more opportunities to practice. Again I am conscious of the power imbalance in the research relationship which could inhibit students in expressing honest opinions. I remain aware of my moral duty to the students in presenting their accounts and views in an accurate and complete manner without any sanitisation that would protect either the University or me.

In exploring the students' views about the educational provision of manual handling at the University, I am aware of the need to phrase questions in a way that does not deny participants the opportunity of expressing less than favourable opinions. To suppress student dissent would undermine the validity of the data, although I am conscious that students may be reluctant to openly challenge teaching. The module evaluation process does however allow students to provide anonymous feedback in if they wish.

Appendix 11A

Examples of Coding

Participant No.11

Back Pain

P11: I did a lot [H&M] and I actually got back pains because of it and I had to take a week off during my placement.

Began to experience back pain on P2. Repetitive H&M. One week sick leave

S.C. Did you do an incident form?

Lack of Support

P11: I did an incident form. I did an incident form on the ward and ******(name of Year One Tutor) knew about it as well and my personal tutor knows about it as well and then the incident form that I had to do on the ward….they weren't really helpful with it because they didn't want the ward to be blamed.

Staff unwilling to assist with incident form.

Stigma to Ward

S.C. Did you get a copy of it?

P11: I did get a copy of it.

S.C. Good, good. Can you attribute that to any particular incident?

Back pain

Repetitive H&M.

Back Pain
Ward culture

P11: I don't think it was a particular incident. I think it was something that just progressed over the period of time I was working there. *P11/ 17-33.*

Back Pain

Lack of confidence to demand safe practice

S.C. So what do you think the main issues were on that ward that caused you to have this back pain?

P11: I think it was because it was really short staffed and it was really busy. So there wasn't a chance to like to step back and say, 'I don't want to do this today. Can somebody else do it instead?'

Back pain
Repetitive H&M.
Inadequate staffing

S.C. What kind of things would you has liked somebody else to do instead?

P11: With the moving and handling?

S.C. Yes.

Risk Assessment

P11: We had really big patients….obviously I don't have the strength (participant is quite petite in stature) to be pulling and it

would have been easier sometimes if there had been three of us for one patient or somebody else doing the rolling and then I'd do the cleaning…something like that but most times it was just doing the pulling and just a lot of bending and things like that. P11 / Line 116-131

Equipment

Clinical Culture

Unsafe Practice

…..another thing that I picked up on was, it was like…like if I was in the room…if my mentor was there then she would mention, 'Oh! We should be using slide sheets but this time it doesn't matter. We will just do it quickly'. But that was like…all the time.

Mentorship/

Role Models

Occupational Socialisation

S.C. All the time?

P11: Yes.

S.C. So they knew they should be using them…?

P11: …Yes but they had not been using them.

S.C. O.K. So what were you doing then instead of….?

Use of bed sheets

No slide sheets

Risk of shearing/friction

P11: …we were using the sheets…the bed sheets and just pulling them up.

S.C. …the bed sheets?

P11: Yes.

Availability of Equipment

S.C .And did you ever use slide sheets?

P11: I did use it a couple of times. *P11 /57-72*

Slide sheets seldom used

Participant No. 1

S.C. How were they actually being handled?

P1: People were using sheets – just normal sheets instead of slide sheets.

S.C. Bed sheets?

Unsafe Practice/ Patient Harm

P1: Yes. People were being manhandled. Not manhandled in a rough way but I would not like to do that again. I did it once where you put your arm under somebody like this (demonstrated

Use of bed sheets

No slide sheets

Risk of shearing/frictio

the drag lift) and move them up the bed.

S.C. Do you mean a 'drag lift'?

Patient dignity

Unsafe Practice

P1: Like a 'drag lift' but it was really bad for your back. I did it the once because everybody was doing it and it seemed that was the way it was done but you put your arm under their armpit and one arm under their knees or under the buttocks. There are three of you and you physically lift the person up the bed. But it's not safe and it really is quite painful.

Orthodox Lift

Pain

S.C. Painful for you?

Unsafe Practice

P1: It was painful for me because I didn't have my feet in the right place and heard my back click and it is not the most comfortable experience for the patient, I guess.

Poor Role Modelling

Unsafe Posture

Back pain

S.C. Did you feel that it was uncomfortable for the patient or was that just your perceptions?

Patient Safety /Dignity

P1: Well he did not look too happy in all honesty. No, I guess I am being judgmental but I don't think he looked comfortable. He did not look happy and I don't think it was the right thing to do. *P1/56-83*

Patient Discomfort

Appendix 11B

Provisional Formation of Themes

Unsafe Practice THEME

Back Pain (sub theme)

- P1 Orthodox lift Resulted in back pain due to poor posture 74 -76 (No disposable slide sheets). Everybody doing it.
- P11 Began to experience progressive back pain at mid point during P2 due to repeated H&M activities. Had a week off sick 17-19, 31-33, 268-272
- P11 Student attributes back pain to repeatedly supporting and moving heavily dependent patients with insufficient staff to perform the manoeuvres 116-117, 124-131, 159-167, 349-354

Patient Safety/ Dignity (sub theme)

- P1 Student perception that Orthodox lift was not comfortable for patient 76 – 83.
- P1 Student perception that patients are being manhandled. 60-64

Availability of Equipment (sub theme)

- P1 Slide sheets not used L19
- P1 Student advised by the ward sister that the cost of slide sheets made it prohibitive to use them on everybody that needed them 26-27/ 40-41.
- P1 No disposable slide sheets. Only 4 slide sheets to 50 patients 28-31.
- P1 Slide sheets not laundered because of previous losses at the laundry and further purchases 33-37,

Unsafe Practice (sub theme)

- P1 Bed sheets used instead of slide sheets 57 -58
- P11 Bed sheets being routinely used to move patients up the bed 67-68
- P11 Bed sheets used for convenience 212-214

Time Constraints (sub theme)

- Time constraints are a barrier to the use of slide sheets 217-223

Condemned Manoeuvres (sub theme)

- P1 Student participated in an orthodox lift 62-70.

Final Organisation of Themes

THEME TWO Placement Experience

Mentorship and Role Models (sub theme)

- P11 Mentor aware that slide sheets should be used but socialised the student into unsafe practice 57-62
- P11 Clinical staff do not appear to recognise that they have a role in reinforcing and developing upon the H&M training initiated in the university. 286-292, 575-579{

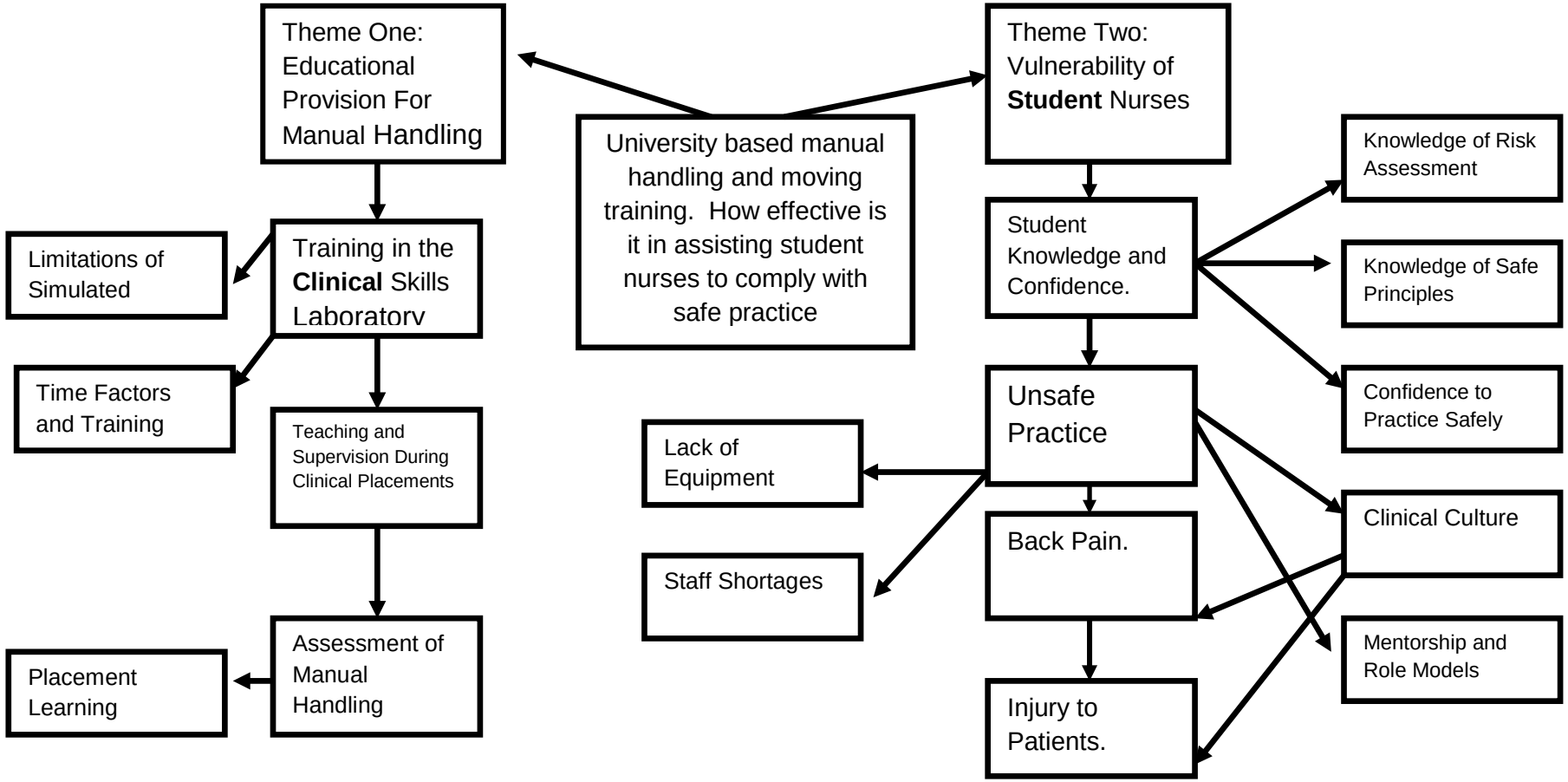
THEME THREE Back Pain and Injuries

- P11 Began to experience progressive back pain at mid point during P2 due to repeated H&M activities. Had a week off sick 17-19, 31-33, 268-272
- P11 Ward manager was reluctant to assist student in completing accident form because of concerns that blame would be attached to the ward 25-26
- P11 Student was encouraged by the link liaison tutor to complete an accident form but the ward manager was reluctant to support t the student in this, encouraging the student to consider that this course of action could affect future employment prospects and it would reflect badly on the ward area 612-678
- The student needed to balance the requirement to complete an accident form and declining to conform to unsafe practice against the long term health risks associated with continuing to participate in unsafe practice and the effects this course of action would have on the end of placement assessment. 709-716
- P11 Student attributes back pain to repeatedly supporting and moving heavily dependent patients with insufficient staff to perform the manoeuvres 116-117, 124-131, 159-167, 349-354

Appendix 12

Thematic Map

Relationship Between Themes



Appendix 13

Ergonomic Risk Assessment