University of Southampton

FACULTY OF HEALTH SCIENCES

ASSESSING THE PREPAREDNESS OF SAUDI NURSING GRADUATES FOR PRACTICE

By

SHAHER ALMUTAIRI

Thesis for the degree of Doctorate in Clinical Practice (DClinP)

July 2016

Author's Declaration

Declaration

I am Shaher Almutairi declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. Either none of this work has been published before submission, or parts of this work have been published as: [please list references below]:

Dedication

To my thoughtful mother for her sincere prayer during the unpredictable difficulties which I have faced, and to my wife Turkiah who give me the time and the encouragement to finish the task. To my children, Saleh, Lama, Deemah, and Wasyef.

Acknowledgements

I gratefully thank Allah for his support and help in completing this research project, as during the process I sometimes felt, it would never be completed. Then, I extend my thanks to my supervisors Dr Julie Wintrup and Professor Peter Griffith for the outstanding assistance and support they have offered me. My sincere appreciation and gratitude go to the study participants for their kind contribution. Finally, I would like to acknowledge the Saudi nursing colleges' faculty members for their valuable facilitation and cooperation in accomplishing this study.

ABSTRACT

Background: The Saudi government is currently pursuing the development of a qualified and appropriate Saudi nursing workforce through higher education preparation programmes. The addition of Bachelor of Science in Nursing (BSN) programmes at new universities throughout the country was part of this strategy. However, it has been speculated that the rapid expansion of the new universities has resulted in inadequate educational and training facilities. However, the products of the new implemented universities not yet robustly investigated. The existing literature suggests that Saudi nurses graduating from both old and new universities are insufficiently prepared for clinical practice, while a number of international studies have argued that graduates' competence can be influenced by high school background, along with education and training facilities. The characteristics of established and new universities differ in terms of the training facilities offered, and the type of students admitted.

Aim: The aim of this research project is to assess the preparedness of Saudi nursing graduates for practice, following the expansion of nursing education in the Saudi higher education sector, with a particular focus on competence and knowledge. This was achieved by pursuing the following objectives: (1) assessing how nursing graduates from Saudi Arabian Universities performed in the knowledge test, and how they self-rated themselves in a self-assessment of competence at the point of graduation. (2) Investigating and comparing the differences between graduates from established and new Saudi Arabian Universities in terms of performance on a knowledge test and self-assessment of competence. (3) Comparing the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence when background is controlled.

Result: The initial results showed that the total mean score for all participants on their self-assessment of competence was 3 out of 4, whereas the total mean score on the knowledge test was just 26.6%. There were no statistically significant differences between the graduates of established universities and new universities in relation to their total mean self-assessment of competence scores. The total mean score for the self-assessment of competence for established universities was (*Mean* = 3.0) and for the new universities (*Mean* = 3.0), p = .405. Graduates of the established universities achieved higher knowledge test scores *(Mean = 28%)* compared with the graduates of new universities *(Mean = 25 %.), p value = 008.*

Secondary analysis was undertaken to validate the knowledge test through means of a knowledge subset score, followed by bivariate and multivariate analysis. Total mean score for all participants for knowledge subset scores increased from 26.6% to 31.8%. Graduates of established universities also have higher knowledge subset scores (*Mean* = 35.4%*)* compared with those from new universities (*M*ean= 28.5%*), P value = 004*. There is no significant correlation between total self-assessment score and total knowledge test score or between total self-assessment score and total knowledge subset score. However, a positive relationship is evident between the self-assessment of competence and the knowledge subset ($r = .312$, $p= .008$, $p<.05$) in the results from the established universities.

There was a little relationship between the student's pre-admission scores and the two assessment scores. A significant and positive weak correlation was identified between aptitude and knowledge subset scores ($r = .266$, $p=.001$, $p < .01$). There was also a significant positive weak correlation found between total self-assessment and high school grade ($r = .184$, $p=.025$, $p<.05$). After controlling for the background factors, the multivariate analysis showed that type of university has no influence on self-assessment scores: $F(1, 146) = .173$, $p = .678$. Graduates from the established universities performed significantly better in the knowledge test: score $F (1, 146) = 4.856$, $p = .029$, although not in the subset score test $F(1, 144) = 2.390$, $p = .124$. Therefore, the established universities scored more highly in the knowledge subset questions, as a result of admitting students with higher pre-admission scores.

Conclusion: this research project was conducted in response to a change in Saudi government strategy, which was intended to improve the quantity and quality of nursing graduates through the expansion of nursing education at the new universities. The results for all participants revealed a good level of self-assessment scores for competence, but comparatively low test scores in relation to knowledge. The results of the graduates from the established universities revealed a weak positive correlation score between the score of self-assessment for competence and knowledge sub set score; however, the results of the graduates from the new universities demonstrated uncorrelated outcomes. The low knowledge score of all the participants, raises concerns regarding graduates' low level of preparedness to embark on nursing practice although the limitation of the knowledge test employed in the study need to be considered.

Evaluation of the current teaching methods is essential; to determine the strengths and weaknesses of current nursing educational programmes. Innovative teaching methods are

required at Saudi nursing colleges in order to increase the level of knowledge and skills acquired, and to improve the quality of nursing graduates. There is also a need for cooperation and collaboration between health service providers and nursing colleges, in order to support training within the health services. Further research also needs to be considered, using reliable and valid observation measures, to assess technical and psychomotor skills, i.e. standardised OSCE, alongside standardised knowledge test and self-assessment method.

Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

Background

This chapter introduces the importance of developing Saudi nursing practitioners, and the current strategies implemented by the Saudi government to nationalise nursing as part of its 'Saudisation' programme. It will explain the history of nursing education and the challenges created by the sudden large-scale implementation of Bachelor of Science in Nursing (BSN) within Saudi higher education. It will also test the assumption that the expansion of Saudi higher education by the establishment of new universities might have affected the quality of new nursing graduates, as they are not well supported by either educational or training facilities.

1.1 Nursing in Saudi Arabia and the need for Saudisation

In the past 30 years, Saudi Arabia has experienced socioeconomic development, with notable progress in health, education and other public services. However, the development of the national healthcare workforce has been slow, particularly nursing. The nursing system has relied heavily on recruiting international nurses from over 52 countries to run healthcare services, which creates religious, cultural, social, moral and language barriers between ex-patriates and patients (Alyami & Watson, 2014). This high dependency on an international workforce has led to an unbalanced nursing workforce, and a global healthcare workforce migration crisis (Stewart et al., 2007). This has been highlighted as an issue in recent years, particularly in relation to healthcare, in reference to the shortage of national healthcare practitioners and the high percentage of international healthcare workers. The WHO (2006) have reported that poor planning and underinvestment in health education and training institutions, particularly in many developing countries, is one of the reasons for the global healthcare workforce crisis. Despite continued efforts to increase the number of Saudi nurses, by 2010 expatriate nurses still constituted 74% of the total nursing workforce in Saudi Arabia (Ministry of Health Annual Report, 2010) (Table 1.1). Rapid population growth (annually approximately 3.2%) and a rise in the number of healthcare services in Saudi Arabia is further increasing the demand for qualified nursing graduates and exacerbating the pressure on the Saudi healthcare system (Alyami and Watson, 2014).

Table 1.1: Saudi Human Resources Trends in the Healthcare Services (Mufti, 2000; Maben, 2009; MOH, 2010)

Human resources	1989	1996	2005	2010
% of Saudi nurses in all healthcare services	10%	16%	31%	31.8%
% of Saudi allied healthcare specialist in MOH	N/A	35%	69.89%	78.3%
% of Saudi doctors	12.8	17.4	18.7%	21.7%

International nurses are employed on short-term contracts and lack sufficient understanding of the Arabic language and Saudi culture. This lowers the quality of care and causes conflict during daily care delivery Ablejaidi (2010). A recent systematic review shows that there is a communication barrier in Saudi healthcare services between the patients and international healthcare workers, preventing good healthcare delivery (Almutairi, 2015). Saudi nurses are better suited to work with local patients, as they know the language, culture and customs and are well versed in the common socioeconomic problems (Abu-Zinadah, 2006; Alamri et al., 2006). Employing more Saudi nurses in the Saudi healthcare services will facilitate the provision of holistic care, based on an understanding of patients' socio cultural context.

Moreover, in relation to quality management, Ablejaidi (2010) argues strongly that one of the most important obstacles to the application of quality management in the Saudi healthcare system is a lack of qualified national healthcare practitioners. This situation has arisen because quality assurance requires a lengthy period of assessment, planning, implementation and evaluation, which cannot be achieved when international nurses are employed on short-term contracts from different countries. Additionally, the adverse effect of the recruiting large number of international nurses has influenced economic growth in the country. The continued dependency on foreign workers, while a considerable proportion of the young indigenous

population is unemployed, is destabilising and a drain on the economy (Maben et al., 2009). These issues were not raised during the early development of the health services due to the unavailability of high level nursing regulatory authority. Despite the fact that the government has made efforts to improve healthcare services, a nursing regulatory authority has not been established to regulate and evaluate nursing practice in parallel with health care development.

However, the Scientific Nursing Board was established in 2002, working under the authority of the Saudi Commission for Healthcare Specialties (SCFHS) which the Commission arguably limits the Board's role in terms of influencing the stability and the development of nursing workforce (Alghamdi et al., 2015). The goals set by the Saudi Nursing Board include the establishment of accountability systems and a credentialing processes, the formulation of criteria for professional practice, the development of educational, ethical and practical competency standards, and the evaluation of hospitals and health centres for the purpose of education (Abu-Zinadah, 2006). The delay in establishing a nursing council with strong effect on the decision making at health council and government council level has reduced the effectiveness of attempts to nationalise the Saudi nursing profession in the past. Now, the Saudi government is implementing a workforce nationalisation strategy for government and private sector jobs, known as Saudisation. Nursing is one of the jobs identified as being in need of Saudisation.

1.2 Saudi strategies for developing the nursing workforce

The current goal in Saudi Arabia is the Saudisation of the healthcare professions, which represents a considerable challenge for the Saudi government. Indeed, Sebai et al. (2001) state that any future nursing education development should focus on both quantity and quality. Maben et al. (2009) describe the current shortage of Saudi healthcare practitioners and workers, in particular highlighting the need to increase the numbers of Saudi nationals working in the profession, who would not only speak Arabic, but would also qualified and reduce the dependency on foreign workers. The Ministry of Health (MOH) thus put in place a national strategy, approved by the Council of Ministers, to meet the challenges facing healthcare services (Almalki et al., 2011). One of the most notable challenges has been the need to increase the number of Saudi nationals within the healthcare workforce, something that must be fulfilled through the new higher education institutions. This issue is of critical importance, as the need

for Saudi healthcare professionals is likely to increase in the future as a result of the expansion of healthcare services across the country (Almalki et al., 2011).

At the present time, the development of the national healthcare workforce is being managed cooperatively by the MOH and the Ministry of Higher Education, under the umbrella of the Council of Ministers (MOH, 2010). Saudi universities are encouraged to establish BSN programmes to produce more qualified registered nurses. The current evidence suggests that better education will improve patient outcomes and patient safety (Agency for Healthcare Research and Quality, 2007). Thus, this step may help the future of Saudi healthcare. Therefore, this research project will explore whether the expansion of nursing education within new universities is delivering competent and well prepared nursing practitioners. It will focus on the nursing workforce for various reasons; first, nurses comprise the largest single group within the healthcare service, and the shortage of national nurses is most evident out of all the healthcare professions (Table 1.1). Saudi nurses make up just 30% of those working in the country, the remainder being international workers (Maben et al., 2009). Second, the focus of Saudisation in nursing is on female Saudi nurses, who face greater social and cultural challenges. Third, nursing education is now one of seven higher educational programmes with learning outcomes and guidelines developed by the National Commission for Academic Accreditation and Assessment (NCAAA, 2011), whereby any assessment undertaken must consider these learning outcomes.

1.3 History of nursing in Saudi higher education

Saudi Arabia formed in 1932, and subsequently oil revenues propelled the economy to prominence as one of the world's highest income countries. However, the history of nursing in the region now known as Kingdom of Saudi Arabia is long; during the time of the Prophet Muhammad, women accompanied soldiers as caretakers in the service of the Muslim armies during periods of war (Tumulty, 2001). Although the health care delivery provided by Muslim women is mentioned in the historical record in 570 AD there is little documentary evidence of nursing and nursing education in Arabian Peninsula between the period 632 AD and the 1950s (Almalki et al., 2011).

The first formal training for nurses in Saudi Arabia was initiated as a one-year programme in 1958, through the collaborative efforts of the Ministry of Health (MoH) and the World Health Organisation (Almalki et al., 2011). In 1961, 2-year nursing schools for women opened in Riyadh and Jeddah and two years later, the first group of 13 Saudi female nursing assistants graduated from these schools (Al Thagafi, 2006; Alhusaini, 2006). Continued economic growth in Saudi Arabia has inspired the development of professional healthcare education. In 1979, three-year health and nursing institutes were established under the supervision of the Department of Health Education and Training; students were admitted after elementary school (Alhusaini, 2006; Miller-Rosser et al., 2006). This period was characterised by rapid growth in the population and health services, and the quantity and quality of health institute graduates did not meet the demands of health services.

Furthermore, health institute graduates did not meet the needs of health services, due to their limited English language skills. Although the universal language in Saudi hospitals is English, the health institutes had been slow to incorporate English into their traditionally Arabic curriculums (Tumulty, 2001). In 1992, a number of these institutes upgraded to become either post-secondary health institutes or junior colleges, and enrolled nursing graduates from the old institutes as well as high school students (Abu-Zinadah, 2004). More recently, new Saudi universities have offered male and female BSN courses (Alyami & Watson, 2014).

The number of public universities has increased from 8 in 2003 to 24 in 2010 (Smith, Abouammoh, 2013). In addition, the institutes and junior colleges have recently shifted from being the responsibility of the Ministry of Health to the Ministry of Higher Education, and have been attached to the new universities. In the UK and other countries, nurse preparation for practice has moved away from hospital-based apprenticeship systems to institutions of Higher Education, with a view to fostering research-based care informed by a more critical, analytical approach to nursing (Watkins, 2000). The NCAAA encouraged competency based curricula in Saudi universities. An example of a Saudi BSN curriculum is presented in Table 1.2.

Table 1.2: The content of nursing curriculum in King Abdulaziz University, which is typical of baccalaureate programmes in Saudi Arabia (Almazwaghia, 2013).

First year	English Language Biology Chemistry Physics	**Second year**	**1st semester** Basic concepts of professional nursing • Psychology of nursing • Anatomy

			• Physiology • Biochemistry • Foundations of professional nursing (I) **2nd semester** Microbiology & Paracytology • Pathology • Nutrition • Development throughout life span • Foundations of professional nursing (II) • Sociology nursing
Third year	**1st year semester** Pharmacology (I) • Maternity nursing • Nursing care for adults (I) **2nd semester** Pharmacology (II) • Nursing care for adults (II) • Child health nursing • Nursing informatics	**Fourth year**	**1st semester** Care of older adults • Psychiatric/mental health nursing • Community health nursing • Applied biostatistics **2nd semester** Nursing leadership/management • Critical care nursing • Research process and evidence-based nursing • Elective (principle of education for nurses, counselling, epidemiology, nursing theory, and genetics for nurses)
Fifth year	Internship programme		

Nursing in Higher Education was introduced Saudi Arabia in parallel with Ministry of Health institutes and colleges under the Ministry of Higher Education, but was expanded after 2003 to be integrated within the new universities. The development of BSN in Saudi universities began in the mid-1970s. At this point, it was realised that there were too few healthcare professionals to meet the needs of the country's citizens. The College of Nursing at King Saud University in Riyadh established the BSN in 1976 as a first response to this issue. In the following year, 1977, a BSN programme was also introduced at King Abdulaziz University in Jeddah, and King Faisal University in Dammam, the largest city in the Eastern Province, which later established a Nursing Bachelor's Degree Programme, in 1987. All of these university programmes were established within teaching hospitals, under the supervision of the universities themselves. King Khaled University Hospital is under the administration of King Saud University, and King Fahd University Hospital under that of Dammam University. Similarly, the administrator of King Abdulaziz University hospital is King Abdulaziz University. The Saudi BSN programmes are taught in English and are designed to impart comprehensive nursing knowledge and a wide range of nursing skills (Gazzaz, 2009). In the past, the situation in Saudi Arabia is slowly

improving (Aldossary et al., 2008), but at present many nursing schools should increase their intake of indigenous applicants (Maben et al., 2010). Today there are over fifteen schools offering BSN programmes in the Kingdom, some of which are located outside teaching hospitals (KFSH & RC, 2011) and the BSN programmes in the Kingdom is expected to increase.

Likewise, all educational organisations under the MOH had been transferred to the Ministry of Health Education (MoHE), in an attempt to improve the quality of nursing education (Jardi et al., 2013). The established universities are older, and situated in big cities with teaching hospitals, whereas the new universities are not affiliated with teaching hospitals, as typically they are in small cities or rural areas. Moreover, it is expected that the students admitted to the new BSNs implemented within new universities will have lower admission criteria applied, due to the smaller populations, compared with the students admitted to BSNs in large cities with larger populations. Therefore, the expansion of nursing education into the realm of higher education has created two groups of graduates with different characteristics. Admission criteria were introduced to improve the quality of the selected students, not only for the health sciences colleges but also for the general admission of students to Saudi universities (Alrukban et al., 2010). Nursing colleges set up within new universities in rural areas may not be able to attract students with higher admission scores, as a result of being located in an area with a low population, along with the negative image of nursing in a rural area.

1.4 Fair admission into Saudi universities and quality assurances

The rapid growth of youth education in Saudi Arabia between 1997 and 2007 has led to a 400% increase in high school students (Alohali, 2009). This rapid growth has led, as previously stated, to an immediate government response through the expansion of higher education, leading to an increasing in the funding of public universities in 2010, from 8 to 24. The high number of high school graduate seeking university admission necessitates the implementation of fair and high quality admission standards, regulated by government. This has led to the establishment of the National Centre for Assessment in Higher Education as a quality assurance strategy to ensure fair admission, and improve the outcomes of Higher Education graduates.

International medical schools and health sciences colleges are required to select students from a growing pool of well qualified applicants. In the past, the admission to Saudi universities

depended on a student's final year grade in high school (Abdulghani, 2009). In 2001, to ensure more reliable, valid criteria, the National Centre for Assessment in Ministry of Higher Education added two nationwide examinations in a multiple-choice questions (MCQ format, the 'aptitude test' and the 'achievement test', which were administered simultaneously at multiple centres across the country under the supervision of the National Centre for Assessment in Higher Education (Alrukban et al., 2010). The aptitude and achievement tests are quality tests, which high school graduates who apply to higher education are required to complete. The National Aptitude Exam is composed of two sections: linguistics and mathematics (Al-alwan, 2009). The student has three attempts at these tests in their final year of high school; the final score, the student's highest score of the three attempts, is used by all health sciences and emerging colleges as part of their admission criteria (not specific to health sciences colleges). The Saudi National Achievement Exam is held once a year, following the final high school exams, and is composed of questions on English language, biology, chemistry, physics and mathematics, specifically required for medical, nursing and health sciences colleges (Albishri et al., 2012). The selection criteria are based on high school, aptitude and achievement scores. Improving the quality of students admitted to the BSN programme is a first step towards producing qualified nurses. However, there remain a number of challenges facing Saudisation in nursing, as well as quality assurance in Higher Education.

Quality assurance is also required for newly implemented universities, in order to ensure balanced Higher Education outcomes. Quality assurance emerged in the late 1980s in a number of well-established universities, including King Saud University, King Abdul-Aziz University and King Fahad University for Mineral and Petroleum (Abulfarj et al., 2006: AlEisa and Shahab, 2006). In 2004, the Saudi government recognised the need for a quality assurance and accreditation system for tertiary education institutes and programmes, leading to the establishment of the National Commission for Academic Accreditation and Assessment (El-Meghraby, 2011).

One of the first actions of the National Commission for Academic Accreditation and Assessment was to establish a national framework consistent with tertiary education, alongside a specific generic standard of learning outcomes for each level of qualification (Dandori et al., 2009), Nursing was one of the targeted qualifications. The specific competencies of the nursing programme were determined by the National Commission for Academic Accreditation and Assessment for Universities, and were designed to ensure quality assurance. Al-Yafi (2008)

suggests that this may not have been successful for a number of factors that can impact negatively on the quality of nursing graduates, and particularly nursing graduates from the new universities. Al-Yafi (2008) and El-Meghraby (2011) state that quality has not yet been integrated into the general planning and administrative process (particularly within many of the newly-established universities) due to a number of factors, including levels of experience, lack of resources, and lack of quality assurance expertise. These factors may have a general impact on graduates from new universities, but there are also a number of specific challenges relating to nursing graduates from both established and new universities.

1.5 Challenges facing the Saudi nursing workforce

Saudi Arabia is a large Islamic country, divided into different regions, each with a different distribution of healthcare services. Initially, strategies for developing nursing education and increasing the number of nursing and other healthcare professionals through higher education in Saudi Arabia faced some cultural, geographical and organisational barriers. Gender segregation, the image of nursing and Saudi female nurses wearing the hijab were among some of the obstacles working against Saudisation of nursing care (Mebrouk, 2008). Despite the long and respected history of nursing tracing back to the period of the Prophet Mohammed, in recent times it has not been considered a respectable profession for women in Saudi Arabia (Phillips, 1989; Mansour, 1994; Al-Mahmoud & Spurgeon, 2012). Many Saudi families discourage their daughters from studying or enrolling in the profession because they believe that the mixing of the sexes and caring for male patients might expose their daughters to moral corruption (Hamdi and AlHaidar, 1996). Saudi female nurses can face difficulties in becoming more competent due to these cultural barriers, which limit the development of essential skills, such as communication. However, realistically, providing healthcare without restrictions may be difficult to achieve, particularly in some regions of Saudi Arabia. Moreover, the inequality in healthcare service distribution throughout the Kingdom of Saudi Arabia, particularly in secondary and tertiary healthcare, may lead to unequal opportunities affecting training and employment (WHO, 2006). The creation of new universities without teaching hospitals, and the conducting of healthcare training in less well-equipped Ministry of Health hospitals, could both result in limitations affecting professional development in education and training, due to lack of specialised centres and qualified staff.

Indeed, developing a qualified and sufficient national nursing workforce represents an enormous challenge for most Arabic Gulf countries, and is recognised as such (Arnold, 2010). The Arab Gulf states includes Kuwait, Bahrain, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE). Solutions have been suggested in Cooperation Council for the Arab States of the Gulf (GCC) meetings and conferences. Concerns include a lack of robust evidence regarding the level of preparedness of new nursing graduates in these countries. In Dubai, Nematollahi and Issac (2012) developed a nursing transition programme for national nursing graduates, and highlight that new graduates have expressed a lack of confidence and a sense of being unprepared to enter the workforce; in addition, qualified nurses have also voiced the opinion that new Arab nursing graduates were inadequately prepared at their time of graduation. A number of qualitative and quantitative Saudi nursing education studies argue that current Saudi nurses graduating from higher education lack both knowledge and skills (Gazzez, 2009; Fielden, 2012 ; Almazwaghi, 2013; Alneami et al., 2014). These studies will be reviewed and appraised in the literature review, below.

The sudden expansion in numbers of courses and graduates may negatively affect the quality of Saudi nursing graduates entering the healthcare system. A paper published by Bajammal et al. (2008) presented the opinions of fourteen participants from different Saudi medical schools, at both new and established universities. It concluded that the sudden expansion in the number of medical schools in Saudi Arabia, over a relatively short period of time, necessitates a clearer mechanism by which to ensure high-quality medical graduates, from both established and new medical schools. Its view of the nursing graduates should therefore be taken in account. Thus, nursing research in Saudi Arabia is needed to map the dramatic changes facing the health service and the profession as a whole, to evaluate existing nursing practice and address the ambition among healthcare decision-makers to implement policies based on evidence-based studies (Al Yami & Watson, 2014).

1.6 Chapter Summary

The number of new universities preparing nurses for the workforce now exceeds the number of established universities. Today, over fifteen schools are offering BSN programmes in the Kingdom, compared with only three established universities with teaching hospitals. The Saudisation plan for nursing aims to replace 70% of the international nursing workforce

currently in place in Saudi healthcare services. There is a fear that producing inadequately qualified nurses, may cause a future reduction in the quality of care throughout the Kingdom. Despite such concerns, there is a lack of studies focusing particularly on assessing Saudi nurses' preparation through the Higher Education (Gazzez, 2009). Therefore, an investigation of how new nurses are prepared to provide care delivery is essential.

The development and training of Saudi healthcare professionals should thus concentrate, not only on curriculum development, but also on the quality of training in healthcare services (Sebai et al., 2001). El-Meghraby (2011) argues that cooperation and feedback should be obtained from future employers concerning the quality of Saudi Higher Education graduates, and it has been noted that many of the new universities lack an effective procedure for tracking their graduates. While coordination between the Ministry of Higher Education and the Ministry of Health may well be efficient at the top level, it is less so at the lower levels of organisations, due to a lack of well-established coordination in training between the Ministry of Health hospitals and the universities. Omer et al (2013) found Saudi nursing students are usually satisfied with preceptors who provide extensive mentoring through close guidance and assistance. The systematic review conducted by Whitehead et al (2013) found there is strong evidence that the newly qualified nurse benefits from a period of supported and structured preceptorship during the transition stage. Graduates from new universities who have trained at universities established without teaching hospitals with less supportive training may lose out by not engaging in teamwork and may have achieved insufficient opportunities for professional development during training.

This lack of specialised medical centres and teaching hospitals is not the only concern; the migration of qualified staff from rural areas in Saudi Arabia to the big cities is another reason for the shortage of qualified and experienced practitioners, who could enhance professional development during training. Most qualified Saudi physicians and nurses are situated in urban areas (WHO, 2006). Therefore, failure to share knowledge and experience across different areas of nursing practice may impair the professional development of nursing graduates from new universities.

Around 80% of nursing students attending Saudi universities are female (MOHE, 2012). They are admitted with lower high school grades and pre-admission scores because Saudi women are not encouraged to enter the nursing workforce as a result of strict religious rules and cultural

barriers, as mentioned above. However, male and female nursing courses in Saudi Arabia tend to have low levels of enrolment in general, due to the poor image of nursing compared with other professions (Alyami & Watson, 2014). It has been observed that some BSN graduates feel it is not worth working hard as nurses with low salaries, when they could make more money working elsewhere, for example in banks, where staff have higher salaries, shorter working hours and less responsibility (Al-Mahmoud & Spurgeon, 2012). Saudi universities therefore have no choice but to accept all applicants, regardless of low grades, particularly the new universities. The literature review carried out by Pitt et al. (2012) explains that several nursing studies indicate correlations between high school grades or pre-admission exam marks and academic performance in nursing programmes. Therefore, it is important to investigate the quality of Saudi nursing graduates and whether current nursing graduates from new and established universities are similarly prepared for clinical practice. A study such as this should also focus on both knowledge and skills when investigating the effect of students' pre-admission and high school backgrounds on the outcomes.

Chapter Two

Literature review

The first section of this chapter will focus on reviewing the concepts of competency and 'competence', which are used in the majority of the literature to represent 'quality', or preparedness and on reviewing the assessment methods commonly used in clinical practice research. The third section will evaluate international studies in which nursing graduates have been assessed, including Saudi studies in this area.

2.1 Introduction

The first step consists of a review of English language literature in relation to competence within the health care setting. In order to meet the aim and objectives of the current research, the review focuses initially on identifying and critiquing a number of relevant publications, defining competence and related terms so as to determine the elements that make up competence. Secondly, the most effective evidence in relation to competence assessment methods will be both reviewed and critiqued. Thirdly, a number of these publications include previous studies (both international studies at the point of graduation and ones from Saudi Arabia) measuring nurses' competence and preparedness for clinical practice.

2.2 Justification for the literature search strategy

As previously noted, the search strategy focussed on three sections, with an emphasis on studies published between January 2000 and January 2014, with the exception of the first section of the search, which concerned the concept of competence, where the search included studies published between 1993 and 2014. Truncated search terms were entered into the electronic databases and combined as follows: competenc*, nurs*, undergraduate* graduat*, student*, knowledg*, assess*, test, method, Saudi Arabi* Higher Education, exam*, universit*, profession**, health, care, prepar*, clinical practic*, comparative stud*, validity, reliability, OSCE*, Objective Structure Clinical Examination, peer assessment, peer review, direct observation, self-assessment, self-reported, portfolio, and patient outcomes.

The following electronic databases were targeted: the Cochrane Library, Allied and Complementary Medicine (AMED), Cumulative Index to Nursing and Allied Health Literature (CINHAL), MEDLINE, International Bibliography of the Social Sciences, and Google Scholar. The search was conducted in English, using the following inclusion and exclusion criteria for each section.

Firstly, the search began by focusing on the concept of competence and competency as professional terms used in nursing education and nursing practice. The aim was to determine the most appropriate assessment method and its integrated elements. The inclusion and exclusion criteria in this section were:

Inclusion criteria:

- Competence or competency analysis papers in nursing and other health professions as a professional term; and
- Any competence assessment papers that include a definition of competence.

Exclusion criteria:

- The concept of competence in general areas, such as cultural competence.

Secondly, after identifying suitable papers a review was made of the best evidence surrounding the assessment methods used in nursing and health professionals education. However, because there were a wide range of assessment tools found in single studies, the search was limited to focusing only on reviews that examined the effectiveness of the different assessment methods used in health professional research in terms of reliability, validity, practicality and cost-effectiveness, fairness, and usefulness. Therefore, the inclusion and exclusion criteria were:

Included:

- Systematic, integrative and non-systematic reviews that evaluated the reliability and validity of the different assessment methods, either for single assessment methods, such as OSCE, or portfolio; and
- The reviews that included and assessed the reliability and validity of a variety of assessment methods.

Excluded:

- Single studies that evaluated the effectiveness of one assessment method.

Thirdly, this section was about identifying and evaluating Saudi and international studies that investigated the competence levels of the nursing graduates in their final year and in the internship programme. With regard to the international studies, the focus was on quantitative studies because a quantitative methodological approach will be employed for the purposes of this research project, due to the ethical considerations of the privacy of Saudi women, which will be explained comprehensively in the methodology chapter. Studies that evaluated the competence levels amongst students were excluded where courses had not been completed. The newly qualified nursing staff were also excluded due to the variation in experience between studies. A further reason for not including them is that the competence or the preparedness, of the newly qualified nurses might be influenced by the hospital environment or their education and training during their first year of qualification, which is not mentioned in the majority of studies. Furthermore, quantitative and qualitative dissertations and theses, focusing on general nursing or specialised areas of practice in relation to Saudi nursing graduates, were included due to the limited body of research concerning Saudi nursing education. The inclusion and exclusion criteria for the international studies were:

Included:

- Quantitative, descriptive, comparative studies that assessed the competence or preparedness of diploma-associated and Bachelor nursing graduate degrees;
- Studies that assessed the differences between the diploma and Bachelor nursing graduate degrees from different universities; and
- Studies that evaluated nursing graduates in their final year, or in the internship programme.

Excluded:

- Studies that focused on specific competencies or skills, such as cultural competence,
- Non-general nursing graduates,
- Studies that focused on one area of nursing practice, such as critical care nursing,

- Nursing students who had not reached the final year, for instance second year students, and
- International studies that employed qualitative methods.

2.3 The search results

Overall, 2,730 records were identified through the database, and 1,320 of these records were screened by title; 265 abstracts were reviewed from the records included after applying the inclusion and exclusion criteria. 47 articles were selected following the removal of any duplication, as illustrated in Table 2.1. The reviewed studies included ten concept clarification papers and four that were concept clarification with reviews of the assessment. There were fifteen reviews of assessment methods in nursing and other health professions. In addition, sixteen quantitative international studies assessed the preparedness and competence of nursing graduates. Four Saudi studies assessed the preparation of the nursing graduates.

Table 2.1: Summary of the search result

Type of papers	Numbers of papers	Types of papers	Papers
Concept clarification	10	Concept analysis	Bradshaw (2000); Cowan et al. (2005); Watkins, (2000); Way, R. (2002); Franklin and Melville (2013); Eraut and du Boulay (2000); McConnell, E. (2001); While (1994); Woodruffe (1993); Girot (1993)
Concept clarification with reviews of assessment methods	4	literature reviews	Redfern et al. (2002); Watson (2002); McMullan et al. (2003); Schroeter (2008)
Reviews of assessment methods in nursing education and nursing practice	6	Literature reviews and Systematic reviews	Evan (2008); Gray (2009); National Nursing Research Unit (2009); Yanhua and Watson (2011); Wu et al. (2014); Licen and Plazer (2014)
Reviews on single assessment methods in nursing and other health professions, such as Objective Structure Clinical Examination (OSCE), peer review, direct observation,	9	Systematic reviews	Rushforth (2007); Walsh et al. (2009); Brannick et al. (2011); Cant et al. (2012); Jennifer et al. (2009); Buckley et al. (2009); Hadfield et al. (2007); McCready (2006); Ridley (2008)

self-assessment, portfolio, and patient outcomes.			
Quantitative nursing graduate assessments	16	Surveys	Bartlett et al. (2000); Clinton et al. (2005); Doody et al. (2012); Löfmark et al. (2006); Kajander-Unkuri et al. (2013); Wangensteen et al. (2012); Berkkow et al. (2008); Raines (2010); Levett-Jones et al. (2010); Hengstberger-Sims et al. (2008); Lima et al. (2013); Morolong and Chabeli (2005); Safadi et al. (2010); Adib-Hajbaghery et al. (2012); Takase et al. (2013)
Saudi studies	4	Two qualitative studies, one portfolio assessment and one survey	Fielden (2012); Almazwaghi (2013); Al-Neami et al. (2014); Gazzaz (2009)

2.4 Defining competence

As explained in Chapter One, the Saudi government is preparing for 'Saudisation' by BSN programme within the Saudi Higher Education system; this is now regulated by the National Commission for Academic Accreditation and Assessment (NCAAA). The National Commission for Academic Accreditation and Assessment stipulate that nursing competencies are being developed as part of a system of quality assurance, to be undertaken at nursing colleges in Saudi universities. The aim is to offer nursing programs to prepare graduates for professional practice (NCAAA, 2011). This represents a shift towards competence-based education (CBE). CBE is a framework for designing and implementing education that concentrates on the desired performance characteristics of health care professionals (Gruppen et al. 2012). The movement towards CBE is becoming more evident and gaining momentum. This does not mean issues for defining and assessing competence are agreed (Yanhue and Watson, 2011). Therefore, as stated, part of the purpose of this literature review is to propose

and establish an appropriate and applicable interpretation of competence and related terms because it is the concept which is widely used in the nursing education literature for the assessment of learning and training outcomes.

The problems surrounding the concept of competence in nursing education, training and nursing practice are controversial and sometimes problematic for both academics and health services wishing to promote and advance the concept of CBE, training and assessment of nurses (Cowan et al. 2005; Watson, 2002). Literature defining nursing competence has long lacked consensus. The term is ambiguous, subject to overuse and at times contradictory and confusing (Girot 1993, While 1994, Goorapah 1997, Milligan 1998, Eraut & du Boulay 1999, Bradshaw 2000, Mustard 2002, Watson 2002, McMullen et al., 2003, Dolan 2003, Cowan et al., 2005).

Thus, we can assert that there remains a lack of agreement about how to define 'competence', 'competency' and other related terms listed below (McMullan et al., 2003; Cowan et al., 2005). Furthermore, international cooperation is still required to reach common agreement about the meaning and definition of competence-based education and assessment (Yanhue and Watson, 2011).

Part of the definition problem is historical; first arising in the United Kingdom (UK) and then reflected in other countries. Nursing competence was first assessed in the UK by observation in clinical settings, in combination with practical and written exams. Schools of nursing were all based in hospitals, and used a standardised syllabus, including the study of biomedical subjects and ensuring the acquisition of practical clinical skills and other attributes such as leadership (Bradshaw, 2000). Patient care was combined with this, and knowledge of theory relevant to clinical practice was essential (Bradshaw, 2000). UK preparation of nurses for practice also involved a strong personal and relational component, intended to promote pride in individual achievements and to ensure required nursing competence was met before granting qualifications (Bradshaw, 2000).

Following a report on new preparation for practice (UKCC, 1986) it was decided that nursing students, in line with those in the United States (US), Canada, Australia and New Zealand, should undergo preparation for practice in institutions of higher education. For example, applying research-based nursing practice to produce graduate nurses capable of using a critical and analytical approach to practice (Watkins, 2000). This transition was driven by the

demands on modern nursing practice, as nurses were increasingly undertaking procedures involving greater responsibilities, requiring a greater knowledge base than that provided by the previous system, and the need for a more highly qualified nursing profession (Chapman, 1999). As noted earlier, this transition has recently taken place in Saudi Arabia, where there is a need to assess the changes in terms of whether they are now producing good quality nursing graduates.

The concept of competence is adjoined by the terms 'competent', 'incompetent', 'competency' 'competences' and 'competencies', with the result that it can be difficult to separate the usage of the term to provide clarity of scope. In addition, analysis of these terms in the literature suggests they do not necessarily have the same meanings, and confusion stems from this (Axley, 2008). Despite some remaining misunderstandings, the terms competent, incompetent, competence, competences, competency and competencies are being widely used in nursing and health care education and training, sometimes being used inappropriately or interchangeably with definitions provided and not agreed universally (McMullan et al. 2003; Cowan et al., 2005, Cowan 2009).

The term 'competent' cannot always deliver a quantifiable meaning (McAllister, 1998; Watson 2002), with the term 'incompetent' creating further confusion. Eraut and du Boulay (2000) claim that being competent can mean a person is capable of doing their job. Meanwhile, being 'incompetent' means they are not capable of doing their job properly (Eraut & du Boulay, 2000). Benner (1984) situated competence on a scale, ranging from novice to competent, to expert. Based on this meaning, just being competent is perhaps being capable, but below that of an expert (Eraut & du Boulay, 2000).

Based on Benner's (1984) definition, Redfern et al. (2002) viewed competence to be a capability of performance leading to desirable outcomes, i.e. incorporating both capability and performance. Way (2002), citing Bloom (1956), suggested that knowledge, skills, attitudes, cognition, psychomotor and affective attributes are vital for the development of competence.

Competence in nursing has been suggested by Locsin (1998) as consisting of a clinically proficient performance, along with a state of mind or a quality of personality. Bechtel et al. (1999) and Axley (2008) have suggested that definitions emphasising both performance and state of mind might prove difficult for some educators of nurses, but retain the potential to

achieve more balanced, insightful learning. Chapman (1999) described competence as an individual's skills, rather than their knowledge, focussing on actually interacting with patients as being more important than simply being with them. Likewise, Winskill (2000) believed more emphasis on competency based training and education must be on what nurses do and called for observable and measurable outcomes and evidence of clinical skills in patient care practice. This was seen as having more importance than what nurses know and the process of how they learn things (Winskill, 2000).

Woodruffe (1993) defined competence as the skills an individual performs in a job and competency as the thinking process that permits such performance. However, the opposite is also stated. Competence has been defined as knowledge, a personal capacity and a potential for performing skills related to a specific job, with competency being a specific capability and actual performance in a particular situation (Nolan, 1998; McConnell, 2001; Clinton, 2005). Mustard (2002) further defined competence as the potential to perform a skill related to a profession, and competency as the actual performance of such skill within set care standards. With further contradiction, McMullan et al. (2003) defined competence and competences as relating to actions, behaviour, performing job skills and the outcomes of such. McMullan et al. (2003) then argued that competency and competencies are defined as characteristics and qualities indicative of the effective or superior job performance of a person (McMullan et al. 2003).

However, While (1994) claimed that competence consists of the knowledge and ability of an individual, describing their actual behaviour as their performance (i.e. an outcome measure), rather than a competency (Nolan, 1998; McConnell, 2001;, Mustard, 2002). McMullan et al. (2003) subsequently warned of an inconsistent (and interchangeable) use of the terms 'competence', 'competency', 'performance' and 'capability', despite the fact that many researchers did not agree on a definition.

The concepts of 'competence' and 'competency' are not used in the same way. There appears to be a distinct difference between the meanings of competence and competency (Manley and Garbett 2000, McMullan, 2003). Competence is a generic term describing a person's overall capacity, while competency refers to specific capabilities, such as leadership (Clinton, 2005).

In apparent agreement with McConnell (2001), Mustard (2002) defined competence as the potential capability to undertake a job, and competency as actual performance when

complying with set standards of care. According to Cowan et al. (2005) competency is one's "actual performance" of a skill, taking into consideration institutional or practice-derived expectations. It appears that competency is either related to a specific capability, or the level of competency in a specific situation. Therefore, overall competence is dependent on the level of each specific competency (Clinton, 2005). McMullan et al. (2003) made important clarification for the concept of competence based on three approaches illustrated in table 2.2.

Table 2.2: Summary of the main approaches of competence and its assessment (McMullan et al. 2003).

Approach	Terminology	Definition	Assessment	Measurement	Claimed advantage	Criticism
Behavioural Focus**:** Job Origin**:** UK-NCVQ	Competence Competences	Performance, ability to integrate affective and psychomotor skills.	Action/ behaviour /outcomes subjective	Statement of competence Unit of competence (5-20). Made up of 4-5 elements with performance criteria	Simple/ objectives levels of competences are distinguishable Successful performance demonstrate underlying knowledge No need to demonstrate these separately	Competence fragmented Non transferable Fails to measure underlying /cognitive affective critical thinking skills Individualistic. Ignore context
Generic Focus: person Origin :USA McBer	Competency /competencies	Underlying attribute of practitioners associated with expert performance/ broad cluster of abilities	Capability of individual Characterises and qualities	Competency= narrative description 3-6 behaviour	Assessment incorporates underlying knowledge, understanding and skills.	Assumption that competences are transferable, Assessment difficult.
Holistic **Focus:** underlying attribute **Origin:** Australia	Not determined	Dynamic consistently charging, bring together complex combination of knowledge, attribute, values and skills intelligent performance in specific situation	Difficult in view of interacting. Contextual factors of input Broad visibility. Not just observation of performance More than perspective to reduce bias	Difficult to measure/ contextual factors	Incorporate context, ethics need for effective practice	Difficult to asses

McMullan et al. (2003) have clarified the approaches to competence related to Gonczi's (1994) conceptualisation competence approach. Gonczi (1994) focuses on three conceptualisations of competence, which are broadly established and discussed in the literature, as follows. First, there is a behavioural or performance approach, which suggests performance might be measured for competence against specific behaviours. Second, a generic approach, which is the degree of capability can be deemed sufficient to undertake a particular activity. Meanwhile behaviouristic and generic approaches have been widely

criticised for their limitations in reference to their lack of ability to assess professional clinical judgements and their lack of transferability (Cowan et al., 2007; Fordham, 2005; McMullan et al., 2003: Franklin et al., 2013). Third, a holistic approach, which requires the application of a complex combination of knowledge, skills, performances, values and attitudes (Short, 1984; Gonczi, 1994; Cowan, 2005). Short (1984) believed that a quality or a state of being offered the most comprehensive definition of competence; this is exemplified by the Saudi move from nursing 'training' to nursing 'education'. The third approach offers the most representative concept; thus, any assessment method for competence can usefully focus on holistic elements, which represent quality to increases the level of the validity.

2.5 Competence assessment and measurement

Competence remains a complex concept that is difficult to measure (Watson et al., 2002; Levett-Jones et al. 2010). Lack of a gold standard with which to assess nursing competence in nursing literature was one of the most challenging aspects when designing this research to assess the preparedness of Saudi nursing graduates. Gonzi et al. (1993) noted that the complexities of nursing practice, human interaction and the importance of context complicate the measurement of nursing competence. Despite this, several types of quantitative and qualitative measures for nursing competence have been developed (Redfern et al. 2002). Qualitative measures might lack adequate definition and are not easily transferable between different settings or contexts (Bartlett et al. 2000). However, quantitative task-orientated measures, have been criticised as too reductionist (Bartlett et al. 2000) and inadequate to assess aspects of competence such as caring, human, interpersonal interactions, professional judgement and decision-making (Bircumshaw 1989, Girot 1993). Winskill (2000) believed that even if humanist views are incorporated into competency statements to create the broadest definition, emphasis must remain on observable and measurable outcomes, hence, requiring that a consistent standard of practice be achieved.

In addition, competence assessment is considered a complex issue in nursing practice partly because the literature reveals no 'gold standard' exists for the measurement of competence (National Nursing Research Unit. 2009; Clinton et al. 2005; Dolan 2003; Redfern et al. 2002; Watson et al. 2002). Nursing competence integrates a broad range of observed and unobserved skills that might be difficult to assess using a direct single method. This is due to

the diverse role of nursing, which encompasses psychomotor aspects and nursing care plans (i.e. assessing, planning, and the implementation and evaluation of patient care), but also the hidden aspects of nursing, referred to as the 'art' of nursing (Franklin & Melville, 2013).

This indicates that measurements of nursing competence are complex and involve more criteria than simply observation of performance in practice (Redfern et al. 2002), which can be influenced by the subjective value judgment of an assessor where standards of direct observation prove inconsistent (Redfern et al., 2002; Watson et al., 2002). That is, a successful performance on one particular day does not guarantee continuous good practice (Neary, 2000). The same point is also made regarding Objective Structured Clinical Examinations (OSCEs), because artificial assessment conditions may not guarantee competent performance in real practice. Additionally, in various contexts, OSCEs quickly become outdated through the introduction of new practices and place increased stress on nursing students (Redfern et al., 2002). Nevertheless, a number of competence measures have been developed (Redfern et al., 2002), incorporating the supposed greater accuracy of portfolio and mentorship assessment. Evidence regarding the efficacy of the different assessment methods used in clinical practice will be discussed below.

2.5.1 OSCEs

The objective structure clinical examination (OSCE) assesses the competence of health professionals, and is considered an essential and useful method. OSCE is composed of a station of exercises through which students individually rotate in order to demonstrate their skills and knowledge; each station relates to one or more skill areas (Alinier, 2003). OSCE is a corner stone in the assessment process for clinical practice in relation to patient safety, as it can be used to assess technical skills, and some aspects of clinical reasoning. Three systematic reviews have summarised findings concerning the reliability and the validity of OSCE in competence assessments, in both medical and nursing practice. The literature review conducted by Rushforth (2007) suggested a very important finding in relation to the fact that rigour could be achieved for the OSCE method, but that this depends on scrutiny and piloting, to ensure that the reliability and validity of the method and the particular assessment was maximised.

Walsh et al. (2009) reviewed twenty-three medical education studies and eighteen nursing studies and found that within the nursing literature there are gaps pertaining to the

psychometric properties of the OSCE, and with regard to its design suitability including lack of reliability, validity, costs and the time-consuming nature of implementing the tool was also considered as a major issues. Walsh et al. (2009) argued that research conducted into the psychometric properties of the OSCE tool, and correlations to other evaluative methods currently in use to evaluate nursing clinical competence would benefit educational practices.

Brannick et al. (2011) conducted a systematic review concerning the reliability of the OSCE score in the medical field. This review appraised the reliability of thirty nine studies that indicated overall scores on the OSCE were often unconfirmed, arguing that it was more difficult to reliably assess communication skills than clinical skills when considering both as general traits that could be applied in different situations. However, Brannick et al. (2011) found better reliability derived from the use of a greater number of stations and a higher number of examiners per station.

Cant et al. (2012) carried out a systematic review to assess the validity and the reliability of OSCE in pre-registering nursing. They consulted one randomised controlled trial, 2 experimental studies, 12 quasi-experimental studies, and 1 case study. The systematic review included students in their final year and novice nursing students. Six studies were judged as high quality as they used various methodologies; but the overall reliability and validity of the studies was judged to be mixed. Therefore, the reliability and validity of the assessment methods could not be verified.

The above reviews did not verify the reliability and the validity of OSCE. Thus, this might be more difficult when employed to different groups located in different universities around the country. An uncontrolled environment, stress during skills demonstrations, artificial equipment, and the involvement of many assessors without piloting and scrutinising the exam might lead to unfair judgments. In addition, OSCE cannot be used as single method in nursing practice, due to the diverse role of nursing in clinical practice.

2.5.2 Direct observation

Direct observation provides data for ongoing formative evaluation and feedback, which reinforces appropriate learning of clinical skills and the correction of deficiencies (Hasanin et al., 2004). A systematic review conducted by Jennifer et al. (2009) in the context of medical education assessed 55 tools from different medical specialities, and found the evidence associated with the validity of direct observation was insufficient to warrant more extensive

use and testing. Redfern et al. (2002) noted some methodological difficulties in rating students' performance by applying direct observations, such as observer inconsistency, small unrepresentative samples, inadequate instruments and the effect of the observer on the observed; this makes research based on observation uncommon. To date, these issues remain unresolved, and there is lack of research into real life assessment and direct observation.

2.5.3 Portfolios

A portfolio offers a collection of evidence put forward to show learning has taken place (Challis, 1999). Buckley et al. (2009) conducted a systematic review to investigate the effectiveness of the portfolio for undergraduate education; this was later published as a Best Evidence Medical Education (BEME) guide. The review included fifty six articles from ten countries involving different health care professionals. It determined that the strength and extent of the evidence base for the educational effects of portfolios in the undergraduate setting is limited. The high quality papers identified improvements in knowledge and understanding, increased self-awareness, engagement in reflection, and improved student-tutor relationships, as the main benefits of portfolio use. Most of the studies which used portfolio assessment were aimed to observe the learning development rather than how the tool is an effective scale in medical education. Buckley et al. (2009) recommended that more research is needed to strengthen the evidence base for portfolio use, particularly comparative studies which illustrate the changes in student knowledge and abilities.

Beyond the discipline of nursing, Hadfield et al. (2007) conducted a review to evaluate whether portfolios were the most effective tools for assessing the competence of physiotherapists in comparison with other tools such as direct observation, peer review and clinical record audit. The portfolio rated highly in terms of application when compared with the other methods; but the rigour of this tool remained unclear. Portfolios were also deemed to be time consuming to maintain in comparison to other assessment tools (Alsop 1995a and 2001; Davies et al., 2005; du Boulay, 2000; Gannon et al., 2001; McMullan, 2006; Hedfield et al., 2007).

A further two systematic reviews in the nursing field also presented similar findings. McMullan et al. (2003) carried out the first, to evaluate the use of portfolios in the assessment of learning and competence in nursing education. This review concluded that portfolios could provide evidence of learning outcomes and processes; specifically what ongoing learning

needs were. They suggested that issues of rigour in the assessment portfolio needed to be addressed. The second systematic review was carried out by McCready (2006); this highlighted similar advantages and suggested the use of portfolios could enhance learning; but it was inconclusive as to whether or not portfolios could measure competence, because of low to moderate inter-rater agreement on portfolio assessment.

The reviews did not establish acceptable levels of validity and reliability for portfolio assessment tools as a measure of competence because of their variety, the involvement of many assessors, and the long procedures involved in portfolio assessment. However, the portfolio does provide insight into a practitioner's level of competence and identifies areas of lesser competence and giving the assessor time to judge individual competence (Evans, 2008). For the method to be rated as more successful, more assessors and education for those assessors is required.

2.5.4 Patient outcomes

Patient outcomes may also be valuable measurements of competence (Evans, 2008). Patients can offer a realistic reflection of the quality of health professions. Although studies assessed health professionals' and nurses' competence through the assessment of patient outcomes, there were lack to focus on nursing and health profession graduates. One integrative review conducted by Ridley (2008) which measured the impact of level of education and quality of nursing care on patient outcomes.

The assessment of the quality of nursing care in terms of patient outcomes was begun by Aiken et al. (1994), who found that Magnet hospitals (as awarded by the American Nurse Credentialing Centre (ANCC) had lower mortality rates than other hospitals. Blegen et al. (1998) conducted another study to describe, at the level of the nursing care unit, the relationships between total hours of nursing care, registered nurse (RN) skill mix, and adverse patient outcomes. The results of this study revealed that the more diverse the RN's skill mix, the lower the incidence of adverse occurrences in inpatient care units. The review of Ridley (2008) includes three important studies undertaken by Aiken et al. (2003), (Estabrooks et al., 2005), and (Tourangeau et al., 2006), These studies found that hospitals with a high proportion of RNs holding Bachelor's degrees had better patient outcomes. However, the majority of such studies are non-experimental and so do not represent the top level of EBP. They also focus on nursing staff rather than nursing students or nursing

graduates and it is not easy to be utilized because nursing graduates is not fully responsible about nursing care. This is because they should be assigned under nursing staff supervision during their internship programme. Moreover, other factors may influence patient outcomes alongside nursing care (i.e. resources and doctors decisions). However, it is difficult to separate nurse staff that had different education levels for the purpose of research (Evan, 2008).

2.5.5 Peer review

A peer review is an assessment method used to assess the competence of health care professionals. The American Nurses Association (2005) has defined nursing peer-review as a process for evaluating the care provided by an individual according to accepted standards. Peer assessment provides the opportunity for students to scrutinise each other's work, give honest and constructive feedback, and promote individual and organisational self-assessment or self-regulation (Gopee, 2001). Peer review can refer to the receiving of feedback from individuals undertaking a similar activity (Brigges et al., 2005). The literature indicates that peer assessment (i.e. assessment by a colleague of equal status, at the same level of education, or working within the same area of specialism) is less likely to be utilised within professional health assessment strategies, and only a limited number of studies have focused on peer assessment.

Systematic reviews of medical education, undertaken by Evans et al. (2004), failed to assess the effectiveness of a peer review in relation to the measurement of performance or competence, demonstrating a lack of any clear framework, and leading to their validity remaining questionable. Furthermore, the authors stressed that this was as a result of the existence of only three valuable studies regarding their development of ability and reliability, despite the fact that, in a number of studies, a lack of training in the use of such instruments impaired the effectiveness of any outcomes. Dannefer et al., (2005) subsequently conducted a study with assigned randomisation, in order to assess the effectiveness of peer assessment with medical students, establishing that peer assessment had the potential to measure working and interpersonal habits, without demonstrating any ability for assessing competence as a result. Furthermore, as only two students were selected, it lacked the facility to be generalised. Gopee (2001) identified a number of strength, e.g. sharing colleagues' experiences in practicing a skill, assisting in identifying problems, and receiving feedback. Conversely, weaknesses (e.g. a lack of commitment) can cause disagreement amongst peers.

This can lead them to being overcritical (or difficult to criticise), due to a lack of experience in making judgments, and resulting in difficulties in achieving reliability and validity (including a clear framework of the assessment).

2.5.6 Self-assessment

Self-assessment defines the process of professionalization which should provide the trainee with norms and expectations of professional behaviour, including recognition of their own abilities and limitations (Gordon, 1991). The effectiveness of the Self-assessment method was assessed by three published integrative and systematic reviews Watson et al. (2002) argued in systematic reviews covering assessment methods that self-assessment, which is widely encouraged, may be a useful adjunct to other methods of clinical competence assessment. A literature review by Redfern et al. (2002) recommended the use of reflection in practices such as self-assessment as valid if based on rigorous analysis of critical incidents rather than simply on description. The majority of the studies found were reviewed in a systematic review by Yanhua and Watson (2011) and Licen and Plazar (2014), which assessed competence assessment methods in nurse education, such as the Six-Dimension Scale of Nurse Performance (6-D Scale), Nurse Competency Scale (NCS), Self-Evaluated Core Competencies (SECC) Scale and the EHTAN self-assessment competence for nursing professionals, produced by the European Health Care Training and Accreditation Network. The EHTAN self-assessment competence was the only method that provided for the testing of psychometric properties, and it was designed to assess nursing competence in different European countries. Yanhua and Watson (2011) stress that self-rated measurements have progressed notably in terms of psychometric properties when compared to other methods. However, all the different assessment tools have both advantages and disadvantages in relation to nursing education. Table 2.3 shows the advantage and disadvantages for each assessment method and some of these pros and cons was stated by Evan (2008).

Table 2.3: Advantages and disadvantages of assessment in nursing education.

Assessment tool:	**Advantages:**	**Disadvantages:**
OSCEs	Could be considered as the gold standard to assess competence because it has acceptable validation and reliability. Can provide an acceptable way of assessing skills and knowledge. Can provide valuable information to the assessor regarding individual competence. Safe way of assessment without putting the patient at risk. Simulated assessment and similar to real practice.	Costly in terms of resources. Time consuming. Students will be placed under stress which may reflect negatively on their performance. It requires greater effort to insure validity and reliability such as scrutiny and piloting the OSCE as well as good equipment.
Portfolios	Provides insight into an individual's level of competence and identifies areas in which practitioners have less competence. It gives the assessor time to make a judgment and provide documentation about a practitioner's competence	Less validity and reliability of competence assessment due to the complicated process. Time consuming. Requires more assessors. Education may be needed for all assessors or mentors. It requires a long process.
Peer review	It provides opportunities to identify weaknesses in competence. Less costly.	It could create anxiety among peers. It is has less validity and reliability. Risky if assessors are unaware of the assessment criteria.
Direct observation	Provides assessors the opportunities to identify areas in which assessed practitioners have less competence. Competence enhanced with greater direct observation.	It requires accurate judgment. Lack of evidence regarding reliability and validity in competence assessment. Anxiety for the practitioners who are being assessed.
Self-assessment	Cost-effectiveness. Could be valid and reliable for post-registered practitioners.	Self- bias students or pre-registered practitioners. Time constraints.
Patient outcomes	It maybe the best tool for assessing competence.	Patient may be anxious about assessing trainees. If this is obtained as a result of patients'

		views. Difficult to be conducted as patient outcomes related to other factors

In summary, all the above assessment methods can be used for assessing educational outcomes and enhancing learning development. Of these, the portfolio is useful in terms of learning development, OSCEs shows reliability and validity in terms of technical skills and it is important method as it ensure that the student can start clinical training under supervision. Peer review as a form sharing knowledge and skills with colleagues. Direct observation offers a snapshot of real life practice, and assessing the quality of nursing practitioners by measuring patient outcomes is a cornerstone in terms of assessing quality of care. However, holistic competence assessment with a high level of reliability and validity has not been achieved by any of these methods independently, as stated earlier. There are 5 criteria for good competence assessment: validity, reliability, practicality and cost-effectiveness, fairness, and usefulness (Gray, 2009). The current evidence shows self-assessment is cost-effective. It has more methodological strengths than other methods in terms of reliability and content validity, but it is criticised relative to subjectivity, particularly for pre-registered nurses. Between 2000 and 2014 there has also been increasing interest in utilising self-assessment in nursing education research, but few studies incorporate psychometric tested properties, and some employ another subjective method alongside the self-assessment, as will be discussed extensively in the next section.

2.6 International studies assessing nursing graduates

To assess the preparedness of Saudi nursing graduates for practice, previous international studies will be reviewed here, the aim being to evaluate and select the most appropriate method in relation to assessing nursing graduates. Therefore, this section focuses on assessment of nursing graduates' competence in the literature. It examines the type and the effectiveness of assessment methods utilised to assess nursing graduate's competence in different countries, and pros and cons of those methods. Moreover, it aims to identify the competence level of international nursing graduates. The search focused on the overall competence of nurses at the point of graduation (i.e. with a diploma or BSN), and thus there

was no inclusion of studies focusing on nursing students, due to their courses had not been completed. Table 2.4 below summarises the fifteen international studies reviewed, all of which were undertaken to assess nursing graduate's competence.

Table 2.4: International nursing graduates studies

Study	Participants and	method	Assessment domains
European Studies			
Bartlett et al. (2000), UK	Diplomats (n = 28) Graduates (n = 51) Statistical analyses	Nursing Competencies Self-assessment Questionnaire (NCQ)	Leadership (12 items) Professional development (9 items) Assessment (8 items) Planning (7 items) Intervention (21 items) Cognitive ability (6 items) Social participation (9 items) Ego strength (6 items)
Clinton et al. (2005), UK	Diplomats: 188 Graduate: 166 Manager diplomat: 51 Manager graduate: 60		
Doody et al. (2012), Ireland	Nursing students (n = 116) A questionnaire Statistical analyses	Self-evaluation Survey	28-items role preparation, role competence, role of organisation and support. Domains or competence elements not determined
Löfmark et al. (2006), Sweden	Nursing students (n = 106) Nurses (n = 136)	Self-assessment and experienced nurses assessment	(18 items) 1) Communication, 2) Patient care, 3) Personality characteristics and 4) Knowledge utilization.
Kajander-Unkuri et al. (2013), Finland	154 nursing graduate (42) nurse mentor	Cross-sectional study Self-assessment and monitor assessment	Nurse competence Scale (NCS) 73-item
Wangensteen et al. (2012), Norway	600 newly graduated nurses	A cross-sectional quantitative design.	Nurse competence Scale (NCS) 73-item The California Critical Thinking Disposition Inventory (CCTDI) consists of 75 items in seven subscales with 9–12 items in each subscale. Research Utilisation Questionnaire (RUQ)
US Studies			
Berkkow et al. (2008) USA	5,700 nurse leader responses	Survey of nurse leader perceptions about nursing graduates	(36 items) Communication (6 items) Clinical knowledge (6 items) Critical thinking (6 items) Management of responsibilities(6 items) Professionalism (6 items) Technical skills (6 items)
Raines (2010) USA	22 nursing graduate and 22 nurse experts	Pre- and post-study	using Benner's(1984) domains (14) items Helping role, Diagnostic functions, Managing situations ,Work role, Teaching–coaching Therapeutic interventions, Ensuring quality

Australian Studies			
Levett-Jones et al. (2010), Australia	654 nursing graduates	Qualitative feedback and quantitative survey	Perceived learning outcomes, consistency with general clinical performance, quality of assessors, and anxiety/ stress impact.
Hengstberger-Sims et al. (2008), Australia	Recently graduated nurses (n = 116) Nurse Competence Scale	Cross-sectional design Self-assessment in 2 methods and frequency of use	Nurse competence Scale(NCS) (73-items) NCS Australian National Competency Standards (ANCI) (14 items)
Lima et al. (2013)	47 nursing graduates	Self-assessment method only	Nurse competence Scale(NCS) 73-item: helping role (7 items), teaching–coaching (16 items),diagnostic functions (7 items), managing situations (8), therapeutic interventions (10 items), ensuring quality (6items) and work role (19 items)
South African Studies			
(Morolong & Chabeli 2005	20 nursing graduates	Observation and questioning method	**(11) Items** **Knowledge:** complete holistic assessment of congestive cardiac failure patient importance of team work in assessing patients, relevant data to congestive cardiac failure, data that is valid and reliable. **Skills:** Interviewing patients, observation, physical examination. **Attitudes and values:** Respect for human rights, empathy and care, assertiveness, confidence.
Middle East Studies			
Safadi et al. (2010)	Participants: 258 nurse graduates	Cross-sectional, comparative Self-assessment competence	27 items management (three items), professionalism (seven items), problem-solving (five items), nursing process (eight items
Adib-Hajbaghery M et al. (2012) Iran	Internship nursing students (n= 75)	Cross-sectional study Self-assessment and teacher evaluation	15 domains (190 items) 1) Assessment and care for patients with common medical and surgical disorders (36 items), 2) caring and education protocols (26 items), 3) medication administration (21 items), 4) monitoring and critical care (14 items), 5) oxygen administration, 6) suctioning and care of the airway (14 items), 7) patient care prior and after diagnostic and therapeutic procedures (13 items), 8) isolation precautions and care for patients with infectious diseases (12 items), 9) sampling and interpretation of common laboratory tests (11 items), 10) using health care facilities and equipment (9 items), 11) wound care (8 items), 12) inserting and care of catheters (7 items), 13) care of patients in traction and casts (7 items), 14) establishment of intravenous lines and fluid replacement therapy (4 items), 15) documentation (4 items), 16) communication with patients (4 items).
Japanese Studies			
Takase et al. (2013) Japan	Participants: 122 nurse graduates	Longitudinal study Methods: Self-assessed competence of the graduates was collected in the 3rd, 6th, 9th, and	Holistic Nursing Competence Scale (30 items) Factor 1: evaluates competence in staff education and management (9 items) Factor 2: assesses competence by engaging in ethically-oriented practice (9 items) Factor 3: evaluates competence when providing nursing care in teams (7 items) Factor 4: appraises competence in managing one's

		12th months	own professional development (4 items)

2.6.1 European studies

Bartlett et al. (2000) conducted a longitudinal descriptive study in the UK comparing the competence of graduates on two UK nursing programmes using the Nursing Competencies Self-assessment Questionnaire (NCQ), and their mentors' evaluation. Assessment was carried out at the following time points: 6 months, 1 year and post qualification. There were no significant differences between the two groups of graduates in terms of their mean scores; either in self-assessment or mentor assessment. However, at 6 months, the graduates had a higher significant score than the diplomats in professional development, assessment, and ego strength. At 1 year, the graduates also had a significant score higher than diplomats, whereas at qualification the diplomats had significantly higher scores for leadership than the graduates.

Four years later, Clinton et al. (2004) conducted a similar study using the NCQ to investigate the competencies of qualifiers from three-year degree and three-year diploma courses in England at one, two and three years post qualification. This study employed a cross-sectional survey design to compare both the self-reported and line-manager-rated competencies of graduate and diplomat nurses who had qualified up to three years previously. The findings showed no different between graduates and the diplomats across both assessment methods. Although the studies promoted the use of self-assessment competence for comparative group work, both studies were criticised for sample size differences either by nursing graduates or nursing managers and mentors. The NCQ provides very little evidence exists to establish the validity of the underlying constructs, and full psychometric assessment is required (Clinton et al., 2005).

In Ireland, Doody et al. (2012) assessed the preparedness of final year students at an Irish university. The researchers developed a 28-item survey and gathered data including demographic details, role preparation, role competence, organisation and support issues. Reliability was assessed using the Cronbach's alpha coefficient, which was computed to ascertain the internal consistency of the instrument (.97). An expert panel verified the face validity of the instrument, and piloting assisted the researchers to determine the ambiguity/clarity of the study instrument (Ryan et al., 2006). Doody et al. (2012) found that

71% to 92% of final year students felt competent about working effectively within a multidisciplinary team, managing their workload, prioritising care delivery, exercising time management skills, and employing effective interpersonal skills; they also felt competent about their ability to make ethical nursing decisions. 51% to 56% felt competent about providing health based information and education on health issues, while 39% lacked confidence in their level of knowledge. The definition of competence and its element were not determined in this study. Only statistical descriptive analysis was used to evaluate role preparation, role competence, organisation and support issues. The relationship between the role of competence or role preparation and organisational support was not examined.

In Norway, Wangensteen et al. (2012) employed three subjective methods: a self-assessment questionnaire using the Nurse Competency Scale (NCS), the California Critical Thinking Disposition Inventory (CCTDI), and a research utilisation questionnaire, to describe newly graduated nurses' own perceptions of their competence and to identify possible predictors influencing those perceptions. The CCTDI was designed to measure disposition in terms of willingness to engage with problems and make decisions by applying critical thinking. Although the three instruments show acceptable reliability the response rate has been very low (33%). Some nursing graduates had previous experience in health service organisations before entering nursing education. This might lead to a lack of equalisation in terms of the sample characteristics. However, although the study did not look at the difference between nursing graduates from different universities, and because both instruments were subjective measures, the findings show (CCTDI) assessment methods were significant predictors of nurse's self-assessed competence.

In Finland, Kajander-Unkuri et al. (2013) conducted PhD work when carrying out a cross-sectional study to evaluate the competence of graduating nursing students, to identify factors related to the nursing competence, and to assess the relationship between graduate nursing students' self-assessments using the Nurse Competence Scale. The study was conducted at four university hospitals and the sample contained 154 nursing graduates. The aim was not to compare the competence of the nursing graduates; rather it was to describe how nursing graduates rated their competence as a group. The nursing graduates rated themselves as having a good level of competence. This thesis was located in the grey literature, and student self-assessment score was compared with the evaluation of (42) mentor assessment scores in the same study. The results were surprising, as when the graduating nursing students'

competence was assessed by their mentors, the results were poorer. Therefore, good self-assessment scores were contradicted by poor mentor assessment. The findings of this study contradict the studies undertaken in the UK (as discussed above), in which agreement was established between self-assessment and mentors.

In Sweden, Lofmark et al. (2006) assess the competence of new graduates nurses by self-assessment alongside with nurse evaluation in the same items about the competence level of the graduates .18 items where used in the study which was provided with factor analysis and it was the argued that the assessment tool has acceptable construct validity. The result shows that nursing graduates assessed themselves similar to the nurses with more than five years' experience. Nurses with less than five years' experience had higher score than students themselves and experience nurses. Although the psychometric properties of the 18-item questionnaire were tested and considered to possess both good validity and reliability with reviewed face validity but it was developed with very limited four domains includes only (communication, patient care, personality characteristics and knowledge utilization). Moreover, the Cronbach's alpha value of the knowledge utilisation was quit low (0.57). Although that instrument in this study did not show high level of reliability and validity but the graduates rated themselves similar to experienced nurses evaluation whereas nurses with less than five years rated the student high than the graduates themselves. Nurse experience should be considered when mentor or nurse manager are asked to rate the students competence level.

2.6.2 US studies

Berkow et al. (2008) study was carried out through the Nursing Executive Centre, as an administrated national survey to assess how far nursing leaders were satisfied with nursing graduates with different qualifications. They tested 36 competencies deemed to be essential for safe and effective nursing practice. The level of satisfaction of the 5,700 respondents varied and only 25% of nurse leaders were fully satisfied with the nursing graduates, stating they believed them to be fully prepared to provide safe and effective care. The nurse leaders on units staffed predominantly by BSN graduates were more satisfied with the proficiency of the new graduates across most competencies, and it was recommended that improvement is needed across degree types. The reliability and validity of the study was neither examined nor explained. However, this study offers a useful assessment method with considerably important competencies, although conducting a similar study in Saudi is not useful, because

70% of nurses in Saudi were international nurses with short-term contracts working under different health care providers. For instance, teaching hospitals are run by universities and expected to monitor the students more closely than hospitals run by the Ministry of Health. Therefore, equitable feedback might not be obtained.

Raines (2009) conducted a study to quantify the perceptions of nursing practice competency among students on an accelerated (BSN) program at the beginning and the end of the program. The study also aimed to compare the students' own perceptions of their competency with the unit-based nurse experts' perceptions of the students nursing practice competency. The overall mean score for competency was 1.87 out of 7 at the beginning of the program of study, whereas the nurse experts rated the students 4.14. The overall mean score for competency across the seven domains of nursing practice was 3.84 at the end of their 12-month program, whereas nurse experts rated the students at 5.0. The limitations noticed in Raines (2009) study showed a small sample size, also indicating that the students might overestimate their skills development as they are involved in a course expected to develop their skills. Moreover, there was a failure to note the reliability and validity of the assessment method. Issues to be highlighted in this study include the fact that expert nurses rated the students higher than students' own self-assessments. The outcomes therefore differ from those in the UK, and the Finish study in which experienced nurses evaluated the students significantly higher than the students' self-assessments.

2.6.3 Australian studies

In Australia, Hengstberger-Sims et al. (2008) assessed the relationship between perceived competence and self-assessed frequency of use by new graduates using two measures of nursing competence: a questionnaire utilising the 2001 ANCI competencies and the Nurse Competency Scale (NCS) and the relative frequency of use for specific competence items. The Nurse Competency Scale (NCS) showed the accepted level of reliability in Meretoja et al. (2004) study. Similarly, the Australian Nurse Competency Incorporated (ANCI) model showed the accepted level of reliability in Fisher et al. (2005) study. The Hengstberger-Sims et al. (2008) study was conducted at three sites at moderate to large hospitals located in metropolitan Sydney. The findings of this study were that "self-assessed level of competence increased in direct proportion to the self-assessed frequency of using competencies" (Cowin et al., 2008). Therefore, the competence of the nursing graduates increased with experience in clinical practice. The study findings indicate the type of training received in large hospitals

that offer supportive training can increase the experience of students in a manner positively reflected in competence. Moreover, selection of assessment methods should be relative to the education and training competencies used to reform nursing graduates' competence. This study has acceptable reliability and validity, but the construct validity of the ANCI was not assessed, and Hengstberger-Sims et al. (2008) raises concerns about the high interrelatedness of the NCS factors. However, NCS domains are more closely related to the behaviouristic approach than the holistic approach of competence.

Lima et al. (2013) employed the Nurse Competency Scale (NCS) alone to assess forty-seven nursing graduates in a large paediatric hospital. Graduate nurses self-assessed their competence as rather good for overall competence in each of the domains. Although the NCS has some aspects of reliability and validity, it was not designed to assess specialised areas of nursing practice; therefore, it may not be applicable in this context. Moreover, the small size of the sample, and the single subjective measure, may not be able to confirm the reliability and validity of using NCS in paediatric nursing.

Levett-Jones et al. (2010) described the implementation and evaluation of the Structured Observation and Assessment of Practice (SOAP) model designed to assess third year BSN students. The SOAP model is a 6 hour holistic assessment of nursing students' clinical knowledge, skills, behaviours, attitudes and values, which is undertaken in a clinical context. It includes observations for student's performance and viva examines the knowledge, values and attitudes that inform student's practice, also looking for evidence of critical thinking and clinical reasoning. Formative and summative feedback was provided by assessors for their students. The assessors were experienced registered nurses involved in education. They had been prepared for using SOAP assessment in a two day workshop. The SOAP evaluation consists of qualitative feedback including a quantitative survey with a sample size of 654. There was positive feedback regarding the SOAP assessment for both measures. To ensure both face validity and content validity, an expert panel reviewed the instrument. Construct validity was tested to show an acceptable level of factor loading. The SOAP model is an innovation and effective competency assessment model, which could be introduced to motivate students learning. The most important findings concerned the strong correlation between SOAP results and academic results. The approach was time consuming, and needs well prepared resources that require time for planning and evaluation. This results in a lack of

transferability between institutions. Therefore, it may not be applicable for use in comparative studies.

2.6.4 Japanese Studies

Takase et al. (2013) conducted a longitudinal study to assess graduates' perceptions of their competence development in their first year of employment, and to compare the competence levels of graduates with different educational backgrounds. The self-assessed competence of graduates was collected in the 3rd, 6th, 9th, and 12th months of their employment using a survey method involving 122 participants. There were no significant differences found between the BSN degree and non-BSN degree in terms of self-assessed competence, except in the 3rd month when the non-BSN degree group scored significantly higher than BSN degree graduates. The internal consistency of the scale was demonstrated by applying the Cronbach's alpha = 0.962–0.974. The graduates perceived their competence to be rapidly growing during the first half of the graduate year and slowly later. A linear mixed model was employed to examine the pattern in relation to the development of competence, and to compare competence levels between groups. When it came to the competence level of the self-assessment, no effect was established in relation to educational background. The longitudinal design, along with the multivariate analysis, increased the validity of this study.

2.6.5 South African Studies

A different approach was used to assess the competence of nursing graduates in South Africa using observation and survey methods. Morolong and Chabeli (2005) conducted a quantitative, non-experimental study to evaluate the clinical nursing competence of newly qualified registered nurses from a South African nursing college who were working at two general hospitals. In Phase 1 Morolong and Chabeli (2005) used a pilot study to evaluate the feasibility of the instrument. Observation and questioning were used as data collection techniques in accordance with the instrument. Simple random sampling was used to select 26 newly qualified nurses from a target population of 36, although six of these nurses withdrew from the study. Measures were taken to ensure internal validity and reliability of the results. A three-part clinical evaluation instrument was developed. Part one (24 items) addressed knowledge competence, the knowledge of formulating the nursing diagnosis, the knowledge of how to plan for the identified diagnosis, the knowledge of how to implement the plan, the

knowledge of how to evaluate the effect of the nursing intervention and the knowledge of the importance of record keeping (Morolong & Chabeli 2005).

Part two of the instrument (11 items) dealt with the skills of the nursing process (in 6 parts) and part three (24 items) focused on the attitudes and values of nurses as they executed the six components of the nursing process. Two evaluators were used to improve the reliability of the participants' clinical performance because clinical evaluation is so complex (Ewan & White, 1984:216). The ratio scale ranged from 0 up to 5. Zero meant that the student is not competent, 1 equalled demonstration of very little competence, 2 equalled fairly competent, 3 equalled moderately competent, 4 equalled demonstration of good competence and 5 equalled demonstration of excellent competence including the use of higher order thinking in implementation of the nursing process (Morolong and Chabeli, 2005).

Data were analysed using a descriptive statistical method. Overall findings suggested that the newly qualified registered nurses were not competent. The results indicated that participants were generally fairly competent in terms of knowledge, skills, attitudes and values of assessment but had very little competence regarding nursing diagnosis (Morolong and Chabeli, 2005). Nurses lacked basic knowledge, skills, attitudes and values of the nursing process and lacked critical thinking skills in providing quality patient care (Morolong and Chabeli, 2005). The recommendations of the study were to improve the system of clinical placement of nurses, reviewing of the clinical facilities where learners are allocated, reviewing the implementation of the nursing curriculum, reviewing methods of teaching and quality assurance procedures (Morolong and Chabeli, 2005). At qualification level, learners should demonstrate ability to utilise critical thinking skills when implementing the scientific nursing process within their scope of practice in the provision of quality nursing care.

The authors recommended further research into the competence of newly qualified registered nurses at other colleges (Morolong and Chabeli, 2005). Although the study focus only on nursing process using very small size of sample and it considers competence in its holistic meaning. It used observation snapshot where this method cannot confirm that the graduates are not competent because they were examined only in one case study which is congestive cardiac failure. However, the study shows that the nursing graduate may score low if they were assessed by observational method.

2.6.6 Middle East Studies

Jordan Safadi et al. (2010) assessed the competence of nursing graduates from different Jordanian universities. Self-assessment competence methods were used in this study in a cross-sectional design, which included four public and two private universities. The study had an acceptable level of reliability (Cronbach's alpha = 0.97). Although the instrument was developed to assess some important aspects of nursing competence, such as management, professionalism, problem-solving, nursing processes, and knowledge of basic principles the psychometric properties was not validated to confirm construct validity of the assessment method and it lack of important elements related to the patient safety. This could be difficult because there is no general agreement over the concept of competence in nursing. The aim of study was to assess the learning environment in the clinical placement of nursing practice, but they assessed only knowledge of basic principles by employing a subjective measurement in the form of self-assessment. The results of the study showed no significant differences between private and public universities or between the three public universities. However, there was a significantly higher performance among graduates working in teaching hospitals for the two main competences: management and professionalism.

In Iran, Adib-Hajbaghery et al. (2012) conducted a cross-sectional study of 75 nurse interns at Kashan University of Medical Sciences in 2010. His aim was to investigate the correlation between nursing internship students' self-evaluations of clinical skills and their teachers' evaluations. The nursing interns rated themselves at a moderate level. Thus, it was concluded that the students' overall self-assessment score was significantly correlated with the scores given by their teachers ($r = 0.78$, $P = 0.001$). The tool was then assessed in terms of content validity. It comprised 190 items which is too long for a questionnaire. However, the reliability of the tool was also rechecked by calculating Cronbach's alpha, which was 0.84. Reviewing the content of assessment method it was found that the self-evaluation method was developed base on the curriculum content from an educational perspective, without considering health service needs.

Summarising the nursing graduate assessment literature, it was observed that subjectivity is widely used to measure the level of nursing graduate's preparedness in different countries because it was cost-effective and had higher psychometric properties than other methods. The studies found included longitudinal studies, cross-sectional and survey studies. The SOAP model is an innovation and an effective competence assessment model, but it was time

consuming to apply, and needed considerable resources and trained and experienced nursing educators to do so (Levett-Jones et al., 2010). The studies using mentor or nurse expert evaluation alongside the self-assessment showed some agreement; such as Bartlett et al. (2000), Clinton et al. (2004), although disagreement was found in Raines (2009) and Kajander-Unkuri et al. (2013). However, studies have generally established that self-assessment tools are more effective if more statistical methods are also employed. Two subjective measures were utilised by Clinton et al. (2004), Hengstberger-Sims et al. (2008), Wangensteen et al. (2012), Kajander-Unkuri et al. (2013). These included univariate, bivariate and multivariate analysis. All the statistical tests were useful in terms of illustrating the differences between two groups of graduates; however, by applying two subjective measures it was possible to improve the validity of the studies.

2.6.7 Saudi Studies

A review was undertaken of evidence from Saudi investigations into the preparedness (or quality) of Saudi nursing graduates. The aim was to illustrate and appraise current evidence relating to the quality of nursing graduates, and to establish whether the findings this study support existing evidence. The Saudi studies are illustrated in table 2.5. The four studies directly and indirectly assessed the nursing graduates' preparedness for clinical practice.

Table 2.5. Saudi studies assessing the skills or competence of nursing graduates.

Author	**The purpose of the study**	**Participants**	**Assessment method**	**Results**
Fielden (2012)	To report on the benefits of developing a new graduate programme for Saudi nurses at a hospital in Saudi Arabia	18 nursing graduates	Portfolio, clinical competence assessments, and skills development measures	Skills to be developed are critical thinking and patient focus. Lack of knowledge about the complexity of the patients
Almazwaghi (2013) Master's dissertation	To assess the perception of nurse preceptors and nurse educators regarding the ICU competence of new Saudi nursing graduates	15 participants. Nine preceptors and six nurse educators and lecturers were interviewed	Qualitative study	There was agreement among participants that the nursing graduates were not prepared to work in the ICU

Al-Neami et al. (2014)	Aims to contribute to the development of future nurses and the nursing profession considering the competencies of nursing interns developed before and acquired during their internship training.	40 nursing interns	Self-assessment questionnaire (before and after study)	Competencies of nursing interns are not yet well-developed as they have recently started their training. Significant changes occur during their training, particularly in regard to knowledge and skills but not significantly in terms of attitudes
Gazzaz (2009)	To assess the Saudi nurses' perceptions of nursing as an occupational choice.	38 male and female nursing interns	Qualitative – interviews include both Saudi nurse and Saudi interns	Personal struggle: female and male participants have been attempting to succeed by shifting gender, social, cultural, economic and global boundaries to achieve social and professional recognition

No comparative studies assessing nursing graduates across multiple old and new Saudi universities were found when conducting the search.

Fielden (2012) conducted a study using portfolio-based clinical competence assessments and skills development measures for 18 new Saudi Arabian nurse graduates from different universities working at King Faisal Specialist Hospital in Riyadh, a leading hospital in Saudi Arabia. A Clinical Practice Assessment Profile (CPAP) tool was used to assess the graduate student's needs, and target areas included knowledge, critical thinking, and communication, perception of experience, focus and role. Based on evidence from the literature review conducted by McMullan et al. (2003), the use of portfolios can provide students with an opportunity to demonstrate their individual learning outcomes and processes; describing how their skills and knowledge have developed and clarifying their learning needs are. Fielden (2012) assessed important skills with regard to learning needs and professional development, which could be incorporated into nurse preparation to ensure patients would receive high standards of care and safety in practice. Fielden (2012) found some of the graduates' skills needed to be developed further, such as their critical thinking and focus on patient care. The assessment method used in this study was broadly acceptable in terms of the future value of

the skills selected; such as critical thinking and patient focus rather than role focus. Furthermore, the tool could be used to help to develop the capability of the graduates in their future practice. Therefore, the methods and skills assessed, and those used for the competence assessment in Fielden's (2012) study are meaningful in terms of learning development and bridging the gap between theory and practice. However, the number of nursing graduates involved in the study was just 18, which is a relatively small sample size to provide valid or reliable results. Further study is required including more graduates and assessment methods that are more integrated to produce stronger evidence. Also, according to McMullan et al. (2003), when taking an assessment portfolio approach, issues of rigour need careful consideration, because the variety of methods used and the involvement of multiple assessors in this type of competence assessment might reduce the validity and the reliability of the tool; in addition, this method can be costly to employ.

Almazwaghi (2013) assessed the perceptions of preceptors and nurse educators concerning the level of preparedness of BSN graduates from King Abdulaziz University in a qualitative study. The purpose of the study was to assess if new nursing graduates were fully prepared to work Intensive Care Unit (ICU) in Saudi Arabia, and to identify the competencies they should possess at the end of their internships. It also considered whether there is a difference between nurse educators and preceptors in terms of the perception of required or expected nursing competencies in the (ICU). The total number of participants interviewed was 15, and the number of graduates included was 45. Nine preceptors and six nurse educators and lecturers were also interviewed. The author argues that this number of participants was sufficient to provide significant data when constructing the study. The statement by the Canadian Association for Critical Care Nurses standards provided the interview guide for this study, as King Abdul-Aziz university hospital is accredited by this association. However, while the findings might be relevant to standards at the hospital, they do not denote the university standard of education. However, there was also agreement between preceptors and nurse educators and lecturers that nursing intern students were reluctant to work in the ICU immediately after their internship year. The nursing graduates are from King Abdul-Aziz University hospital, which is an old university established with a university teaching hospital. The study may lack validity and reliability due to the interpretive description methodology approach but engaging hospital preceptors and nurse educators in the assessment while also employing relevant standards of assessment increases some aspects of the validity in terms of critical care practice.

Indeed, Almazwaghi (2013) found both nurse educators and preceptors agreed that nursing graduates were not fully prepared to work in an ICU immediately after graduation. Despite demonstrating acceptable levels of communication, patient assessment, and monitoring skills, their general nursing knowledge and skills such as critical thinking, decision-making and evidence based research require improvement first. The study was undertaken in a teaching hospital, in order to assess the graduates of a single established university, by illustrating the results of an interpretive description. However, the validity of this study might be not achieved as a result of the nursing graduates having been prepared by a Saudi university, while the interpretive description related to the statement of the Canadian Association for Critical Care Nurses standards.

Alneami et al. (2014) conducted a study on self-reporting for nursing interns at King Fahd Central Hospital in Jazan, in the south west of the Kingdom of Saudi Arabia. The study was carried out both before, and after, an internship programme, to assess knowledge, skills and the development of attitudes related to the following core competencies: the response to emergencies, infection control, environmental safety, hazard materials, and fall prevention). The participants were 40 female nursing graduates from Jazan University. They conducted a self-assessment using a five-point Likert scale (with the options 1=Poor; 2=Fair; 3=Good; 4=Very Good; and 5=Excellent). The questionnaire was based on the Ministry of Health Nursing Competency Program in the Kingdom of Saudi Arabia. The reliability and the validity of the instrument were not assessed or explained in this study. The participants rated themselves at the start as "Fair" (2.40), this assessment rose to "Good" (3.04) during their training. The mean scores for the assessed competencies before starting the internship programme were: knowledge (2.2), skills (2.5) and attitudes (2.7). After the programme, the scores were: knowledge (2.8), skills (2.8), and attitudes (3.3). Knowledge of the assessed competencies was lowest at the outset, and less improvement was observed in knowledge related skills. Issues to consider with pre and post self-reports after completion of skills development courses is that participants may overestimate their skills level at the end. Moreover, the competencies assessed in this study relate more to illness prevention and health promotion. Lack of skills assessment relates to patient assessment and care delivery in a holistic manner.

Gazzez (2009) indirectly assessed the knowledge and skills development of Saudi graduates in a qualitative study, although the focus of the study was on assessing Saudi Nurses'

Perceptions of Nursing as an Occupational Choice. In total, 38 nursing students were interviewed, most of whom were female baccalaureate degree students. The study found one of the barriers facing professionalism in nursing is insufficient development of competence during education and training. Some of the important themes raised in the interviews were:

it [clinical training] depends on where you had your training and internship. The hospital will either be very supportive or will treat you as a supernumerary and will not give you responsibilities" Int.17, female staff nurse (Gazzez, 2009. P.144)

"I go to different hospitals and I can see a difference in practice; I wish they [hospitals] had the same system. Before going to [name of hospital] government hospital, I expected it to be different, of a lower standard. It was different, yet, the team was good… they worked very well together, everything was so quick, it was amazing" Int.9, female student. (Gazzez, 2009. P.149)

Gazzez (2009) strongly suggests that to develop Saudi nursing student's skills and improve their practice, students would benefit from more supportive training while practising patient care in a health service setting. Despite the aim of the study, Gazzez (2009) did not focus primarily on the assessment of the outcomes of Saudi nursing education and training, but the students and graduates interviewed highlighted important issues regarding education and training as related to Saudisation in nursing, observing that the lack of supportive training in some hospitals may lead to higher turnover and less positivity within the nursing profession.

In summary, no Saudi studies were found, that assessed nursing graduates across different universities. The studies to date are all situated in the med level of evidence based practice. Quantitative and qualitative techniques have been applied to investigate the level of preparedness of Saudi nursing graduates in Higher Education; either focusing on new university graduates or those at a single health service institution. Although the studies found utilise subjective measures there was general agreement that Saudi nursing graduates are not well prepared to engage in clinical practice. Gazzez (2009) and Alneami et al. (2014) established a lack of knowledge among Saudi nursing graduates. This was similarly reported by Bahari (2015), who published a report addressing the fact that the National Council of State Boards of Nursing (NCSBN) had reported in 2009 that 12 students educated in Saudi Arabia had taken the National Council Licensure Examination for Registered Nurses (NCLEX-RN) exam, but only two students passed the exam. Fielden (2012) and Almazwaghi

(2013) observed a low level of critical thinking and understanding of the complexity of patients' needs among Saudi nursing graduates. A consistent learning environment and supportive training is needed in the health services, as explored by Gazzez (2009) and Alneami et al. (2014). By reviewing the outcomes of the qualitative and quantitative Saudi studies, it emerged that Saudi nursing graduates have the ability to recognise their own level of preparedness and can identity their weaknesses. This can encourage the use of the self-rating methods to assess the use of the Saudi nursing graduates.

2.7 Summary of the literature review

2.7.1 Concept of competence

No single definition has been widely accepted as clarifying the concept of competence in the literature. There are three approaches to conceptualising of competence. The first is a behavioural or performance approach, which suggests performance might be measured to determine competence according to specific behaviours. The second is a generic approach, which considers the degree of capability required to undertake a particular activity. These first two approaches have been widely criticised for their limitations in terms of ability to assess professional clinical judgement and their lack of transferability (Cowan et al., 2007; Fordham, 2005; McMullan et al., 2003: Franklin et al., 2013). The third option is the holistic approach, which requires the application of a complex combination of knowledge, skills, performances, values and attitudes (Short, 1984; Gonczi, 1994; Cowan, 2005). The holistic competence is less routinely criticised and mostly accepted by researchers in the literature (Percival, 2004; Meretoja et al., 2004: Cowan et al., 2007).

2.7.2 Assessment methods

Quantitative measures have been criticised as reductionist or task orientated, and qualitative measures have been accused of lacking both definition and transferability between institutions (Barelett, 2000; Watson, 2002). There are 5 criteria for good assessment: validity, reliability, practicality and cost-effectiveness, fairness, and usefulness (Gray, 2009). Self-assessment, portfolio, direct observation and OSCEs are common competence assessment methods found in the literature, and reliability and validity was not confirmed for a single method. The reliability and validity for self-assessment competence have been improved

compared to other methods (Yanhua and Watson, 2011) and are widely used in competence assessment in a nursing context (Kajander-Unkuri, 2014). It is possible to explore a wide range of skills relating to the art of nursing with consideration to the moral issues. Some of the self-assessment components were provided based on psychometric testing and acceptable levels of reliability and validity.

2.7.3International Studies

Most of the existing nursing graduates studies are based on subjective assessment methods and it lack of validity. Levett-Jones et al. (2010) SOAP model was good holistic assessment but it was time consuming and it needs very well trained clinical educators and resources. Morolong and Chabeli (2005) study is the only competence assessment study instrument employed observation method but is used only one case study where the outcomes of the study is very limited. A number of nursing graduate studies have employed either self-assessment, or the perceptions of mentor/nurse managers, concerning nursing graduates, with some employing a mixture of both. The majority of studies found that nursing graduates scored above the midpoint of the rating scale. Nursing graduate studies using both self-assessment and mentor assessment demonstrated mixed agreement in relation to outcomes. Thus, assessment by mentors is criticised due to the potential for the relationship between students and their mentor to result in inflated scores (Numminen et al., 2014). Moreover, different assessors gave inconsistent evaluations of the competence of new nurses (O'Connor et al., 2001; Calman et al., 2002 and Cassidy, 2009). However, the variety of statistical tests related to correlation, factorial and predictive analysis employed in nursing education literature, served to enhance the methodological strengths of self-assessment tools, particularly when combined with additional methods related to competence.

2.7.4 Saudi studies

No studies were found in the literature assessing Saudi nursing graduates at the national level. Availability is limited in terms of quantity and quality regarding the assessment of Saudi graduates. The following findings were raised subsequently in Saudi quantitative and qualitative studies. It was found that Saudi nursing graduates were not well prepared in terms of their knowledge and critical thinking, and that they were role focused rather than patient focused (Fielden. 2012). Lack of supportive training in some government hospitals, and the gap between theory and practice were identified as the major barriers to developing the Saudi

nursing profession (Gazzaz, 2009). A lack of knowledge was also reported, along with a lack of readiness to work in critical care units (Almazwaghi, 2013). Knowledge and skills were not yet developed, as the interns nurses started their program and significant improvements were later noticed at the end of internship programmes at the King Fahad Hospital in Jazan (Al-Neami et al. 2014).

Therefore, more robust evidence is needed as is the recruitment of a larger sample from different old and new Saudi universities located in different parts of the country. To increase the level of accuracy and improve judgments about the quality of Saudi graduates, valid and reliable self-assessment methods and standardised knowledge tests are needed to assess knowledge level alongside standardised OSCEs or other observation measures used to assess the technical skills or psychomotor ability of Saudi nursing graduates to ensure patient safety. This will also allow more accurate judgment when it comes to the assessment of different abilities related to holistic competence.

A high quality standardised knowledge test prepared by the Saudi Commission for Health Specialties as a nursing registration exam is also achievable, but the standardised OSCE and other observation measures are not achievable because they are not part of the Licensing exam prepared by the Saudi Commission for Health Specialties for international or national nurses. Undoubtedly, designing and employing a reliable, valid and transferable OSCE to assess nursing graduates produced by a number of Saudi universities distributed across a large country such as Saudi is difficult to achieve. Therefore, in this research project, a self-assessment competence method and a standardised knowledge exam will be employed to assess the quality of Saudi nursing graduates based on the best available assessment methods. This will include consideration of the background of graduates, due to criteria introduced by the Saudi admission system to improve the quality of students admitted to its universities.

Chapter 3

Aim, Objectives, Measures and Methodology

This chapter begins with an introduction and then specifies the aims and objectives of the study. It then provides a justification of the methodological approach and description of the selected self-assessment instrument and the knowledge test. The relationship between the two measures will then be discussed. It then describes the study design, the translation and validation of the instrument, the pilot study, establishing the reliability of the two assessment instruments. Sampling and data collection and associated ethical considerations will also be explained. Finally, the chapter summary will be presented.

3.1 Introduction

According to the literature review, the evidence concerning the preparedness of Saudi Higher Education nursing graduates for practice is limited. Therefore, evidence that is more robust was sought by recruiting a large sample of nursing graduates from different old and new Saudi universities located in different parts of the country, to employ valid, reliable and readily available assessment methods to assess the preparedness of nursing graduates. El-Gilany (2012) suggested the current trend for Saudi nursing education within different learning environments requires evaluation through large multi-centre, multi-regional studies.

A review of the history of nursing education in Saudi reveals that nursing education was mostly dependant on non-graduate degree qualifications. Al-Mahmoud et al. (2012) stated that in 2003 there were no more than 415 Saudi nurses with BSN, compared to 5,109 with non-graduate degrees. According to the Ministry of Health reports in Saudi, between 2005 and 2014 the percentage of Saudi nurses increased from 31% to 37%. This was with support from private sector nursing education, preparing non-graduate diploma nurses. The WHO report in 2006 strongly criticised the Saudi strategy in preparing the Saudi nursing workforce, arguing that the shortage of higher education training and the high dependency on non-graduate degrees did not effectively accelerate the Saudi nursing workforce, and some of the non-graduate nurses working in administrative jobs. However, between 2008 and 2011, 80%

of the non-graduate private sector health institutions were closed by the Saudi Commission for Health Specialists and the National Commission for Accreditation and Assessment, because they did not fulfil the requirement for effectively upgrading their level of education to BSN standards, according to the recommendations of the Commission of Accreditation and Assessment in Saudi Higher Education (Al-Hayat, 2013). Moreover, the government junior colleges under the administration of the Ministry of Health were transformed into newly implemented universities. Therefore, the dependency on preparing the BSN increased in the Saudi universities.

In 2013, approximately 221 nursing students graduated from different nursing programmes across regions in Saudi Arabia (Aldawsari, 2016).This is because most of the BSN programmes at the new universities started after 2008. The most recent annual statistical reports of the Ministry of Health in 2014 indicate that 812 Saudi nursing graduates came from government higher education, yet the number of students attending the BSN in Saudi universities was 6,797, attending fourteen BSN courses (Appendix 9). According to the Ministry of Higher Education statistics in 2015, private universities and private colleges are not yet accredited for nursing education so as to share with the government universities in producing Saudi nurses. Consequently, within the next five years, the number of the Saudi nursing graduates will increase by up to 1,100 per year, and is expected to continue to increase. Therefore, the focus of this research project was on assessing the preparedness of the nursing graduates from government universities, since they are the future Saudi nursing workforce.

In order to explore the quality of Saudi nursing graduates, a cross sectional study was undertaken comparing the knowledge and competence level of graduates from established universities with graduates from new universities. The preparedness of graduates was assessed using a standard knowledge test and a validated self-assessment of competence. The study aims to produce generalisable results, by offering a representative sample of full-time Saudi nursing graduates, from five universities in different regions of the country, including two established and three newer universities. The research will also consider the graduates' backgrounds, because admission criteria comprise a part of the Saudi admission system, with the aim of determining the quality of the students admitted to the different Saudi universities. As clarified in the following discussion, ethical considerations were determined, piloting of assessment methods was conducted, and selection of the statistical analysis method was undertaken, to assess reliability and validity of the study.

3.2 Aim

The aim of this research project is to assess the preparedness of Saudi nursing graduates for practice following the expansion of nursing education in the Saudi Higher Education sector, with particular focus on competence and knowledge. The characteristics of established universities and new universities differ in terms of the training facilities offered and type of students admitted. Therefore, the underlying aim was to differentiate between the level of knowledge and competence of graduates from established universities and new universities.

3.3 Objectives

1) To assess how nursing graduates from Saudi Arabian Universities performed in the knowledge test, and self-rated themselves in a self-assessment of competence at the point of graduation.

2) To investigate and compare the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence.

3) To compare the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence when the background is controlled.

3.4 Rationale for a quantitative approach

The literature demonstrates that quantitative and qualitative methodological approaches are two research paradigms that can be used to assess the preparedness of the nursing graduates for practice. The existing literature shows that quantitative assessment methods are widely used, compared to qualitative methods, particularly in comparative studies. In the literature, the qualitative approach is mostly used to assess the perceptions of students or graduates towards new courses or new teaching methods, rather than as a tool of measurement. However, Bartlett et al. (2000) argued that previous studies in the field of nursing have adopted a more qualitative approach to the assessment of competence, in contrast to the US reliance on quantitative measures, which have been criticised for being reductionist (Benner,

1984). Quantitative measures were criticised as being too task-orientated, whereas the concepts of caring, interpersonal interactions and decision-making were perceived as things that cannot easily be measured quantitatively (Girot, 1993). Conversely, qualitative measures may lack definition and not be easily transferable between institutions (Bartlett et al., 2000). In terms of quantitative measures, competence can be interpreted as clear elements, which can be measured in rating scales or via objective assessments. However, quantitative measures were used for the purposes of this research project for various reasons.

The first reason was the ethical issues relating to the privacy of Saudi women. Around 80 % of the Saudi nursing graduates are female. One of the socio-cultural barriers for the Saudi female nurses is mixing with males (Lamadah and Sayed, 2014). As a male researcher, it is challenging to meet or talk to female Saudi nurses in a culture that has gender segregation, although this may vary across the Saudi regions as some regions are more strictly religious than others (Mebrouk, 2008). The assessment of the preparedness of the Saudi nursing graduates through the use of qualitative methods would require separate interviews, which are not acceptable according to Saudi culture. Ethically, researchers should ensure that the privacy of the participants is maintained, and transgressing this boundary is one of the potential social risks (Polit and Beck, 2008). Thus, talking to, or remaining with, female Saudi nurses in a separate place for any period of time, in order to obtain qualitative data, could cause social problems for new female nurses at beginning of their nursing career; this can pose a social risk for the participants in question because people may assume that they are doing something wrong.

The second reason is that a quantitative approach would support the investigation of the differences between the two groups of graduates, and the effect of background factors on the outcomes, within the most appropriate statistical test, such as t-test and factorial test analysis using SPSS. As stated earlier, the pre-admission scores and clinical training opportunities available to graduates of the established universities and those from the new universities are not the same. The quantitative measurements paradigm, when rigorously applied, is reliable, valid, and generalisable and in some circumstances can offer predictions of cause and effect (Matveev, 2002). Therefore, by employing quantitative measures, comparing the differences of the outcomes of the two groups of graduates, and investigating the significant effects of background on the outcomes, will prove more accessible.

The third reason is that utilising quantitative measures will allow for a greater level of reliability and validity. Quantitative measures allow researchers to achieve high levels of reliability from the gathered data due to controlled observations, surveys, or other forms of research manipulation (Balsley, 1970; Matveev, 2002). Furthermore, assessing two groups of graduates located in different institutions necessitates a reliable transferable assessment method, which can be achieved through a quantitative approach. Moreover, the face validity and the content validity consider the outcomes of the BSN programmes, which are determined by the Saudi Commission for Accreditation and Assessment. Self-rating scales is one of the methods which are employed in quantitative approach.

3.4 Selection of self-assessment method

The literature review listed the most reliable and valid self-assessment methods that have been used in different countries to date; these are illustrated in table 3.1. These studies have also been discussed and reviewed previously in three systematic reviews of nursing competence (Yanhua and Watson, 2011; Ličen and Plazar, 2014; Wu et al., 2015).

Table 3.1: Self-assessment with psychometric properties.

The assessment methods and others	**Domains and number of items**	**Study and country**
Schwirian (1978),USA, the Six-dimension Scale of Nursing Performance (Six-D Scale),	Leadership (5), Critical care (7) Teaching/ collaboration (11), Planning/evaluation (7), Interpersonal relations/ communications (12), Professional development (10).	USA = McCloskey (1983); McCloskey & McCain (1988); Battersby & Hemmings (1991). UK = Bartlett et al. (1993)
The Nurse Competence Scale (NCS), Meretoja et al., (2004) Finland,	Helping role (7), Teaching – coaching (16), Diagnostic functions (7), Managing situations (8), Therapeutic interventions (10), Ensuring quality (6), Work role (19)	Used in different countries: Finland, Australia, Japan, Iran, Norway. Meretoja et al. (2004); Salonen et al. (2007); Dellai et al. (2009); Bahreini (2011); Istomina et al. (2011); Stobinski (2011); Hamström et al. (2012); Meretoja & Koponen (2012); O'Leary (2012); Numminen et al. (2013).
Bartlett et al. (2000), UK NCQ	Professional development (9 items) Assessment (8 items) Planning (7 items) Intervention (21 items) Cognitive ability (6 items) Social participation (9 items) Ego strength (6 items)	UK. Norman et al. (2002); Clinton et al. (2005)
Cowan et al. (2007) European Health Care Training and	Assessment (9 items), Care delivery (40 items), Communication (10 items) Health promotion and illness prevention	Used in five European countries (UK, Belgium, Greece, Germany, and Spain).

Accreditation Network. (EHTAN) self-assessment competence	(10 items), Personal and professional development (8 items) Professional and ethical practice (16 items), Research and development (6 items), Team work (9 items).	(N=588) post-registration nurses

The Six-Dimension Scale of Nurse Performance (6-D Scale) is the only instrument that has been applied frequently and tested rigorously (Meretoja and Leino-Kilpi, 2001); however, it does not cover ethical issues, and omits some skills related to illness prevention and patient safety. The Nurse Competencies Questionnaires (NCQ) offers very little evidence to demonstrate the validity of its underlying constructs, full psychometric assessment is required (Clinton et al., 2005), and it has not been widely used in different countries nor translated into different languages. The EHTAN self-assessment and NCS show acceptable reliability and validity. Both self-assessment methods have been translated into different languages with proven acceptable internal consistency. The Cronbach's alpha values, where the NCS has been used, were reported to be between 0.7 and 0.9 by Salonen et al. (2007), Meretoja et al. (2004a), Hengstberger-Sims et al. (2008), Bahreini et al., (2011) and Wangensteen et al. (2012). The Cronbach's alpha values in the EHTAN self-assessment competence was (0 .9) in each country.

The NCS, developed by Meretoja (2004), has narrower elements relating to the meaning of holistic competence when compared to the EHTAN self-assessment of competence. The EHTAN self-assessment method was developed based on a holistic conception of competence, as described earlier by Short (1984) and Gonczi (1994). The original items of the NCS were criticised by some researchers. For instance, Wangensteen et al. (2012) recommended carrying out factor analyses of the Nurse Competence Scale. Muller (2013) reported that the reliability and the validity of the original seven factor model of the NCS could not be confirmed. Subsequently its validity and reliability was re-tested and re-developed by Wangensteen et al. (2015). NCS has been developed according to Benner's (1984) competency framework, however, it fails to reveal a high degree of relevancy when applied to the holistic meaning of competence. Moreover, NCS fails to focus on a number of significant issues (e.g. health promotion or illness prevention) vital to patient safety. Therefore, EHTAN was judged to be the more applicable assessment method, based on its holistic competence in comparison to other methods.

The EHTAN self-assessment method was developed as part of the European Healthcare Training and Accreditation Network's project to improve the transparency of nursing qualifications, working practices, skills, training, culture and experience, and thus facilitate the mobility of the nursing workforce across the EU. It offers a compilation of tools to create a skills competency matrix (Cowan et al., 2007). The EHTAN self-assessment method was selected for this research because its psychometric properties have been tested across a large sample and have shown an acceptable level of reliability and validity. It is also more relevant to the Saudi course than other methods, and has been translated into different languages showing an acceptable level of reliability. Moreover, it was constructed to include behavioural and psychological aspects of nursing competence. It detects the differences in nurses' competence, both in their own country and in the migrant country. In addition, the draft framework of the EHTAN self-assessment procedure, is increased by being derived from nursing authority documents concerning the required competencies for nursing practice in European countries, followed by being re-evaluated by academics and experienced nurses. Additional reasons for selecting the EHTAN self-assessment will be discussed in the following section. The holistic competence definition employed in this study includes a combination of knowledge, skills, values and attitudes. However, technical skills have not been included or tested, because it needs to be directly observed but it includes knowledge. This will be objectively assessed in this current study by a standardised knowledge test. The elements of competence are blended together, with the eight elements conducted within 108 items. This includes the behavioural and psychological constructs necessary for the provision of a high quality of care.

3.5 EHTAN self-assessment competence

This first assessment tool employed in this research project was a self-assessment. As stated above this was the EHTAN self-assessment questionnaire. It consists of a four point Likert scale, where 1 = never, 2 = occasionally, 3 = usually and 4 = always, which was used to establish how frequently the graduates performed each of the listed competencies using an ordinal level of measurement. The well-developed EHTAN self-assessment questionnaire consists of eight domains with 108 indicators, as shown in Table 3.2 (a copy of the questionnaires is provided in Appendix 1).

Table 3.2: Self-assessment EHTAN competence. Domain (n = 8); Indicators (n = 108)

Assessment	9 items
Care delivery	40 items
Communication	10 items
Health promotion and illness prevention	10 items
Personal and professional development	8 items
Professional and ethical practice	16 items
Research and development	6 items
Team work	9 items

The EHTAN self-assessment tool, was initially used to measure competence among nurses in Europe (Cowan et al., 2008), which was considered the most suitable method for this study for five important reasons.

Firstly, the content validity and face validity was extensively considered during the development. The EHTAN questionnaire tool was variously discussed, reviewed, re-reviewed and assessed by five professors of nursing, five senior nurse educators, four senior nurse managers, six senior researchers, and other academics at the project partnership institutions, all of whom evaluated the scale's relevance to the measurement of nurses' competence (Cowan et al., 2008). Experts from the project's partner institutions in different countries had also previously assessed the questionnaires, and they had used them to assess competence amongst nurses in the UK, Spain, Belgium, Greece and Germany after translation into the relevant languages. The competence indicators were derived from other documents on required competencies for nursing practice in European countries (Cowan et al. 2008). This increases the content and face validity of the tool. However, for inclusion in this study, the EHTAN self-assessment method should also be relevant to the national courses taught in Saudi Arabia.

Secondly, the EHTAN self-assessment tool is a useful tool for assessing the holistic approach and the most relevant tool for assessing the majority of the core competencies or learning outcomes, as determined by the National Commission for Academic Accreditation (2011) in Saudi Arabia. These learning outcomes refer to knowledge, cognitive skills, psychomotor skills, patient assessment, therapeutic, interpersonal skills, responsibility, and communication and information technology (Appendix 6). Therefore, the learning outcomes document and its statements constitute more than simply observable skills and performance; they also require respondents to assess how they normally perform tasks or skills relative to their underlying

attributes, for effective practice. Moreover, The EHTAN self-assessment competence was developed to include health promotion and illness prevention components related to patient safety, which are then relevant to the Ministry of Health Nursing Competency Program in Saudi Arabia. These elements were stated and assessed in the study with Saudi and non-Saudi nurses by Fentianah (2012) and Alneami et al. (2014).

Thirdly, The EHTAN self-assessment competence questioners was then translated into the languages of the partner countries (Flemish, German, Greek and Spanish) and then back translated into English, following which no significant changes to the meaning of the questions was detected. The EHTAN self-assessment was translated into different languages, as shown by the overall excellent degree of reliability, as assessed using the Cronbach's alpha coefficient (.96) across five European countries. Table 3: 3 shows the similarities between countries of the outcomes of the Cronbach's alpha coefficient value.

Table 3.3 Internal consistency of EHTAN Q by EU country (Cronbach's alpha) (Cowan et al., 2007).

Country and No.	UK (n = 100)	Belgium (n =113)	Germany (n =150)	Greece (n = 95)	Spain (n = 130)
Total questionnaire (n = 108 items)	0.971	0.975	0.959	0.946	0.961

The simplicity and the clarity of the language and statements facilitated the translation of the assessment method. Any instrument developed for the assessment of competence should be further evaluated during its employment, in order to verify its validity and reliability in relation to nursing practice within different populations (Wu et al., 2014). This is encouraging when considering the ease of translation and employment of the EHTAN self-assessment questionnaire in Arabic to assess Saudi nursing preparedness for practice, and further supports the employment of this method in this study.

Thirdly, psychometric testing of the EHTAN self-assessment questionnaires was undertaken to assess the reliability and validity of the tool. Principal component factor analysis (exploratory) was undertaken to determine the underlying conceptual structure. Construct validation was also carried out using factor analysis and by examining the level of item

correlation according to Cronbach's coefficient alpha values (Cowan et al., 2008). Construct validation of the EHTAN self-assessment questionnaires was undertaken using factor analysis and also by examining the level of correlation between the items, as expressed by Cronbach's coefficient alpha values (Cowan et al., 2008). If variables correlate too highly ($r > 0.8$ or $r < -.8$), "it becomes impossible to determine the unique contribution to a factor of the variables that are highly correlated." By contrast, if a variable correlates too weakly with other variables ($-0.3 < r < 0.3$), it is likely that it does not measure the same underlying constructs as the other variables (Field, 2009, p. 648). The total of 107 EHTAN questionnaire items had a significant factor loading score of >0.4. Therefore, Psychometric testing, as expressed by the Cronbach's alpha values and principal component factor analysis, suggests the questionnaire has an acceptable degree of reliability and construct validity, and further supports the claim to content validity.

Fourthly, the EHTAN self-assessment tool can be used to assess skills related to the competence behaviouristic approach, such as patient assessment or care delivery, through unobservable attributes, which relate to the holistic approach with minimum resources. The holistic approach blends behaviouristic and generic aspects, combining a range of attributes including skills, values, ethics and attitudes (Cowan et al., 2008). A holistic approach is most frequently recommended within the literature, principally because it can ensure that patients receive a high quality of care. Self-reflection is essential when speaking broadly of competence as "… the knowledge, skills, and values essential in carrying out one's role...", or more narrowly when defining it as the ability to do a given skill correctly (Oermann, 1998; Schroeter, 2008, p.8). This encompasses assessment of a wide range of nursing skills, raising related moral and professional development issues across Saudi universities.

Fifthly, the EHTAN self-assessment has a powerful ability to detect differences between competence levels of nurses in five European countries, and the differences between a nurse's competence level in their own country and the migrant country using Wilcoxon's matched pairs test (Cowan et al, 2006). The results provide meaningful outcomes. This is because European migrant nurses score significantly higher in their own country than in the migrant country, with the exception of UK nurses, who score higher in the migrant country than in their own country (Cowan et al, 2006). The UK is a multicultural society, particularly when it comes to Europeans seeking employment in the UK, or migrants and those using the UK health services. UK nurses can therefore gain increased cultural competence in relation to

European ethnicity, resulting in higher scores in comparison to other European countries. This is due to improved preparation and professional development of nurses, supporting the argument in relation to meaningful outcomes. This promotes the employment of the assessment as an instrument to compare differences between graduates from established and new universities. Moreover, it facilitates further statistical analysis, which has significant benefits.

3.6 The need for an objective measure alongside the EHTAN-self-assessment competence

Benner's (1984) seminal work regarding skills acquisition noted that to be a competent nurse, a practitioner needs to be able to draw on several knowledge dimensions. Gonczi (1994) argued that if the holistic conception of competence underpinned assessment strategies, they would then probably be more valid than traditional methods. Self-assessment is the most readily available method that is applicable to assessing the holistic approach with high validity with regard to the concept of competence. While there are limitations to the self-assessment approach, such as subjectivity and response bias, several authors have suggested that it can be used to assess nursing competence, and if carried out correctly, can form an important component of a comprehensive competence assessment (Norman et al., 2000; Watson et al., 2002; Clinton, 2005). Holistic competence cannot always be directly measured, must be rather inferred through the competent performance of tasks (Redfern et al., 2002). Additional research is required to develop and test methods of assessing competence, and caution needs to be exercised in relying on results from a single method of assessment (National Nursing Research Unit, 2009).

Therefore, depending on only a single subjective method could arguably be criticised mainly for response bias; therefore, to avoid this here, a recognised knowledge test was selected as an objective measure to complement the subjective self-assessment. The standardised Saudi nursing registration exam will be employed as a knowledge test to reveal the knowledge capability of nursing graduates when seeking to perform different tasks. Kajander-Unkuri et al. (2013) and Lakanmaa et al. (2013) also suggested using a well-developed knowledge test alongside a self-assessment tool to provide a broader picture of competence and assess the knowledge required in specialist areas. Properly designed written examinations in the

multiple-choice format are considered the gold standard in knowledge assessment (Bashook, 2005). Combining multiple evaluation methods adds breadth and depth when seeking to guarantee safe and competent practice (Mahara, 1998). Rains (2010) states that competence is the crossroad between knowing and doing. Therefore, using a knowledge test alongside a self-assessment tool could capture differences between those graduates from established universities who practice in big hospitals in highly specialised areas, and those at new universities who practice in small hospitals.

3.7 Knowledge test

The second assessment tool is the Saudi Commission for Health Specialist (SCFHS) test, or (SCFHS) nursing registration exam. It is employed in this research project as a knowledge test. The SCFHS test for Nurses is composed of 70 questions in a multiple-choice format, marked according to percentage. The SCFHS test is designed to assess the general nursing knowledge of international nurses and Saudi nurses with international qualifications who have attained a Bachelor's degree in Nursing and applied to work within the Saudi health-care sector. Respondents must choose one correct answer from either A, B, C or D. Thus, the test results can be marked from zero to 100%. The total time taken by each group to answer the self-assessment questionnaires and the SCFHS test was around two hours. The Saudi Commission for Health Specialists recruits experts to write and review the registration exam. The MCQ questions used in this research were drawn from newly developed questions that were reviewed by expert nurse from the United States. Ten questions are provided in Appendix 3. There are many countries in the world struggling to introduce national licensing examinations at both undergraduate and postgraduate levels, but the Kingdom of Saudi Arabia is in good company in terms of its level of development in this area, and in some respects is already quite advanced (der Vleuten, 2013). Quality assurance has been introduced to ensure the data is maintained at the highest standards and the quality of the questions relies on three components: consistency of presentation, alignment with the course of study, and absence of item writing flaws (Ware et al., 2014). Figure 1.1 shows the process of the items production in questions banking units at the Saudi commission for Health Specialists.

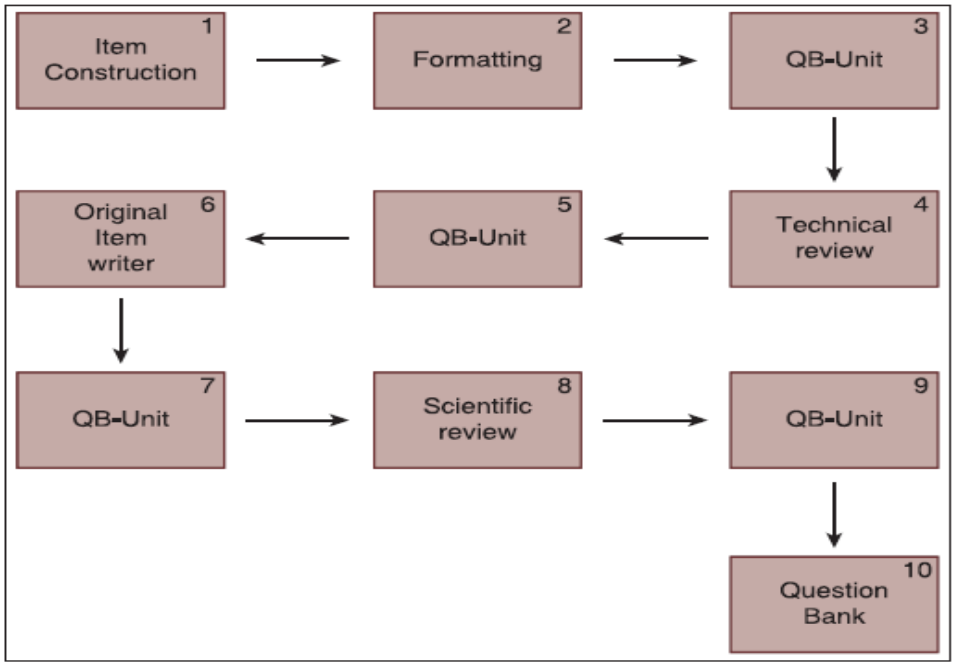

Figure 3.1: The flow chart for new item production and the question banking unit (QB-Unit) involving all logged items as they progress through the steps of quality control (Ware et al., 2014).

It is important to note here that the knowledge (SCHFS) test was employed in this research project for research purposes only. It is not obligatory for Saudi nursing graduates, because there is currently no registration exam for Saudi nursing graduates from Saudi universities. Therefore, there was no expectation that the nurses would pass the exam, because even some experienced nurses are likely to fail on their first attempt. From the perspective of a Saudi clinical educator, we can assert that it is unrealistic to expect a new graduate to pass a registration exam for which they have not been prepared. Therefore, the expected mean average score for all the graduates is between 35% to 45%.

3.8 Correlation between the two measures

Correlation between the two measures will be examined for all participants, and separately within the groups of graduates from the established and the new universities. Evidence regarding the relationship between self-assessment and objectives measures is mixed between negative and positive correlation including no positive or negative correlation in nursing practice and suggests additional studies are required to explore the effectiveness of

combining self-assessment with other objective measures, when assessing competence (Baxter and Norman, 2011).

Katowa-mukwato and Banda (2014) found an association between knowledge test scores and self-perceived competence scores when assessing final year medical graduate ($r = .360$, $p= .007$, $p<.05$). In addition, El-Deirawi and Zuraikat (2001) found a high correlation between the Diabetes Basic Knowledge Test (DBKT), which uses an MCQ format, and the Diabetes Self-Report Tool (DSRT) ($r = 0.402$, $p <0.0001$). In the field of nursing, Knocaba (2007) conducted a study to examine the relationship between RNs' own self-assessment competence and their performance based on simulated clinical practice with 62 newly employed nurses, and found a positive relationship between self-assessment competence and actual performance. Currie (2008) conducted a grounded theory study to explore learning development among nursing graduates, and found high didactic knowledge was associated with a high level of confidence. Adib-Hajbaghery et al. (2011) investigated the correlation between nursing internship trainees self-evaluation of clinical skills and their teacher's evaluations, and found a significant positive correlation ($r = 0.78$, $P = 0.001$).

Indeed, Kruger and Dunning (1999) conducted four distinct psychological studies, comparing the self-rating competence score to objective measures and the authors, confirming that a lack of metacognitive skills leads to imperfect self-assessment competence. Metacognitive means awareness or analysis of one's own learning. Kruger and Dunning (1999) did not support the claim by negative correlation between the two scores. Baxter and Norman (2011) addressed Kruger and Dunning's (1999) claim and conducted a study to assess the association between self-assessment and performance on an OSCE in senior nursing student and found a statistically significant negative relationship between self-assessment student and OSCE ($r= -0.4$, $P=0.01$).

Therefore, Bivariate analysis was also carried out to examine whether there was a positive or negative correlation between the knowledge test score and the self-assessment score for all participants, and if there was a positive or negative correlation between the knowledge test score and the self-assessment scores for the established universities' graduates and the new universities' graduates. This might support the validity of the study outcomes. Furthermore, a bivariate analysis enables examination of the relationship between students' admission scores and the outcomes of the EHTAN self-assessment scores and Knowledge test scores, to detect any influence on outcomes.

3.9 Examining the influence of universities' characteristics on outcomes

It is beneficial to examine a number of competence-related contextual factors (i.e. input), as these form a broad impression of performance, while the assessment of more than one perspective will reduce any potential for bias (McMullan et al., 2003). Therefore, investigating the relationship between background factors and the outcomes of the holistic self-assessment method will increase the validity of the study and it will illustrate the cause of the differences in the outcomes between the two types of graduates. The review background of the context nursing education development in Saudi which was discussed in chapter one illustrate that there are two important factors which could have direct influence on the outcomes which are high school grade with pre-admission scores and the female gender who is facing more social and cultural barriers. Firstly, the background scores, which consist of high school and pre-admission grades, consisting of a high school mark, achievement test and aptitude tests. It was anticipated that the universities' characteristics would differ in terms of these scores. The aim when referring to these measures was to examine the relationship between the background scores, and the effect of these scores on outcomes by conducting correlation and multivariate analysis, because the evidence suggests that there is a significant impact from high school and pre-admission grades on academic performance in nursing education. This was illustrated in nines studies, as reviewed by Pitt et al. (2013). As stated previously in the background section, this is was probably because the nursing students from the new universities are admitted with lower high school grades and pre-admission scores, due to the smaller population and poor image of nursing in rural communities. The aptitude and achievement tests referred to are quality tests arranged by the National Centre for Assessment at the Ministry of Higher Education for all high school graduates who apply to higher education. High school grades, aptitude and achievement in exams are scored from zero to 100.

3.10 Study design

A cross sectional survey design was undertaken, using a quantitative comparative method to assess the knowledge and competence level of the two groups of nursing graduates from the five universities, comprised of two established universities and three newer universities out of seven universities preparing nursing graduates for the year 2012-2013. The EHTAN self-

assessment competence and nursing MCQ exam prepared by the Saudi Commission for Health Specialists as a knowledge test were employed, and details of the graduates' backgrounds in terms high school grades and pre-admission scores were also recorded. The study design included three phases, as illustrated in table 3.4. Phase1: a descriptive analysis to assess how all the participants scored in the measures, including bivariate analysis to elucidate the relationship between outcomes. Phase 2: a comparative analysis to illustrate if there were significant differences between the established universities' graduates and the new universities' graduates in all outcomes. Phase 3: to illustrate if there were significant differences between the established universities' graduates and new universities' graduates self-assessment and knowledge test scores when the background was controlled.

Table 3.4. The study design

Phase	Objective	Sample	Statistical test	Goal
Phase 1	1.To assess how nursing graduates from Saudi Arabian Universities performed in the knowledge test, and self-rated themselves in self-assessment of competence at the point of graduation.	150 nursing graduates from 5 universities	Descriptive analysis and bivariate analysis	Attain all participants scores for the measures including bivariate analysis to elucidate the relationship between outcomes
Phase 2	To investigate and compare the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence	(78) New universities. (72) Established universities	Univariate analysis	To illustrate the significant differences between the scores of the established universities' graduates and new universities' graduates in all outcomes and the differences between them in terms of background variables.
Phase 3	3. To compare the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence when the background is controlled.	(78) New universities. (72) Established universities	Bivariate and multivariate analysis	To determine how the outcomes is effected by the background variable.

3.11 Instrument translation and validation

The EHTAN competence questionnaire was developed in English, but Arabic is the participants' first language. Nursing programmes in the higher education sector in Saudi Arabia are taught in English, so use of the tool in English could be justified; however, translation could enhance the reliability of the tool. Therefore, an expert in both Arabic and English translated the EHTAN competence questionnaire into Arabic (Appendix 2). Academics in English and Arabic translation from Alqassim University were then asked to judge clarity of the questionnaire by examining the Arabic translation, before conducting the pilot study. This review enhanced the tools focus on relevance, clarity, simplicity and ambiguity. The EHTAN self-assessment questionnaire was given to the participants along with a translation into Arabic, and its content was reviewed by an academic nurse to establish its relevancy to the nursing programme at Alqassime University.

The knowledge test was not translated into Arabic because it was designed to be taken in English by nurses with Bachelor degrees taught in English. The English language is the academic and communication language in the lectures and exam. Nursing textbooks that are published in the English language are the study references for the nursing courses in the Saudi Higher education sector. Thus, translating the knowledge test had the potential to create conflict among students when it came to their understanding of such medical terms.

The internal consistency for the MCQ was assessed using the Cronbach's alpha coefficient for the outcomes of the knowledge test. A validity analysis including a difficulty index analysis and a content validity index was conducted. The aim of performing these analysis steps was to determine whether the questions on the knowledge test were relevant to Saudi nursing practice, as also discussed in the results chapter. Reliability for EHTAN self-assessment was also assessed by piloting the study before conducting the research, resulting in acceptable reliability.

3.12 Piloting the study

The EHTAN self-assessment questionnaires and the knowledge test were piloted before carrying out the main research. The self-assessment questionnaires and the knowledge test were given to thirteen male students (5% of the total population) at Hail University, who had come to receive their internship certificates from the nursing school. This gave the researcher an initial impression regarding the utility and value of the tools as data gathering instruments before using them in the main study. Moreover, piloting made it possible to convey information regarding the subject, the setting, data entry, and data analysis to gain an understanding of how long participants would be likely to take to complete the questionnaire and the test. The time set for the data collection sessions was one and a half to two hours. There were no problems reported with the self-assessment questionnaire, but there was a problem with the knowledge test, because it was discovered after piloting that some of the items were redundant or exposing. Therefore, these questions were changed in the main study for more valid questions which were reviewed by an expert nurse from the US, and a Professor who is also the director of training and continuing education at the Saudi Commission for Health Specialists. The total mean score for the self-assessment of this group was 3.01 out of 4. The overall result for the Cronbach's alpha was 0.76, and this is considered acceptable.

3.13 Population/Sample

The target population of the research was comprised of nursing graduates from Saudi universities, all of whom who had completed their formal professional education and the associated practical components and are engaged in internship programs within the Saudi health services. The internship programme is the final year of study, during which time students practice as pre-registered nurses under the supervision of universities and health services. The ages of all the participants was similar because the target participants were full-time students who had joined university from high school. The total population of all Saudi nursing graduates, according to the Ministry of Higher Education census for the years 2012-2013, was 267 from seven universities. In order to acquire the most suitable and applicable participants for the study, inclusion and exclusion criteria were determined.

Included

Internship students or fifth year nursing students who have successfully completed their theoretical and practical programmes. Full time students who are pre-registered nurses, having joined the university from high school; and

Population members with a minimum of three months internship training. To ensure they have had time to show how their knowledge and skills have developed while working as pre-registered nurses.

Excluded

Part-time students or post-registered nursing students who joined university to upgrade their educational levels was excluded, because they may be influenced by their previous clinical practice. Therefore, it would be invalid to compare them to pre-registered students.

A request to conduct the study (along with a proposal) was sent to all seven Saudi universities engaged in preparing nursing graduates between 2012-2013. Five universities approved and accepted the researcher's request to conduct the study. Therefore, in total, one hundred and ninety five (195) participants from Saudi nursing colleges, both male and female, from two established universities and three newer universities were invited to participate. One hundred and fifty (150) internship students completed the self-assessment questionnaires and the SCFHS test. All those who did not wish to participate in the project had their wishes respected.

Non-probability sampling is made up of units, whose chances of selection are not known in advance; however, with convenience sampling, the researcher chose according to availability (Parahoo, 2006). Cross-sectional studies with a low response rate can be readily criticised for overlooking the significant differences affecting responders and non-responders (Mann, 2003). Therefore, a number of steps were taken to maximise the response rate. Firstly, this process involved the inclusion of all nursing graduates from five Saudi universities. Secondly, having a recommendation letter from the Saudi cultural Bureau, London referring to the Ministry of Higher Education provided additional encouragement to nursing colleges to support the research project. This recommendation was considered because the quality of nursing graduates is a major concern within the Saudi higher education sector at present. Thus, because nursing colleges supported the study, this should encourage students to

participate. Thirdly, nursing college authorities and nursing education departments at the hospitals encourage student participation. Fourthly, active and positive coordination between nursing colleges and nursing education departments in the hospitals facilitated the arrangement of suitable days and classrooms for the data collection process to be undertaken. Fifthly, prizes were given, such as luxury pens and small first aid kits. Finally, there was a clear, verbal and written statement in both Arabic and English language stating '*please don't write your names or any ID number at any part of the assessment tools'*. This reassured the graduates, and gave them the confidence to participate in the study. In line with this data collection mechanism a response rate of 77% was achieved.

3.14 Data collection

The data was collected from five Saudi universities located in north, south, east, South east and in the middle of the large country. Figure (3. 2) shows the location of the universities on the Saudi map. The time and place for the data collection were scheduled for data collection process and arranged with nursing education departments. This was done in coordination with the universities' training supervisors and the nursing education departments in the hospitals.

Figure 3.2: Map of the location of the universities in the Saudi Arabia

The EHTAN self-assessment questionnaires and the knowledge test were self-administered to the participants at the same time. Table 3.5 shows all five universities and the place of data collection. The time allocated for answering the self-assessment questionnaire was one and half hours. Water, coffee, juice, tea and sandwiches were provided to the students when undertaking the survey and the test.

Table 3.5: The locations where the data was collected

University	**Place of data conduction**
Dammam University (Established):	Classroom in the university hospital (King Faisal Hospital)
King Saud University (Established):	Classroom in the university hospital (King Khaled University hospital) During the weekly meeting in nursing education department
Jazan University (New):	Conference hall for medical education in Jazan health affairs during the infection control course
Shaqra University (New):	Classroom for medical education department in Dowadmi Hospital
Aljouf University Hospital (New):	Classroom in the medical education department in Alsodiri

The knowledge test was provided to the participants alongside the self-assessment, and they answered both at the same time. Copies of the instruments consisting of the self-assessment

questionnaire and the knowledge test, in addition to some information about the importance of the research project, were prepared to give the participants at a meeting day held either in the hospital or at the nursing college. Nursing educators were asked respectfully not to attend the data collection process. This reassured the graduates that they were not embarking on an evaluation process. The researcher distributed the instruments for the participants to answer and then finally collected them. In order to ensure the reliability and the validity of the data collection, an examination environment was used for the answering of both the survey and the test. Participants in the knowledge test which is the MCQ exam might not answer in accordance with what they think are correct, but according to what others say. Therefore, all the answers may be similar to each other.

Ethical approval was obtained from two research committees in Saudi Arabia prior to the data collection procedures (section 3.16). The graduates were given the right to decide whether to participate. The aim of the research, and the time made available to answer the questions was explained to the students. A participant information sheet was attached to the file with an Arabic translation; the graduates read this before they answered the self-assessment questionnaires and took the knowledge test (Appendix 4).

Undertaking research within a Saudi nursing care setting, where pre-registered female Saudi nurses comprise the majority of the sample was challenging as a result of cultural and social issues. Mebrouk, (2008) stated that it was challenging to meet or speak with female Saudi nurses in a culture that emphasises gender segregation, although the level of difficulty could vary across the Saudi regions, because some regions are more strictly religious than others.

Ethically, researchers should ensure their participants' privacy is maintained at all times, and recognise that transgressing such a boundary is one of the potential risks of social research (Polit and Beck, 2008).

Thus, speaking to or remaining, for the purpose of the research, when female Saudi nurses were present in an isolated place raises social problems; which could pose a social risk to the nurses, because Saudi culture is segregated by gender, and people may assume they are doing something wrong. Therefore, appropriate arrangements were made with the female nursing colleges and the nursing education departments within the hospitals. This involved making prior contact via telephone and through letters sent to nursing educators, in order to gain their

acceptance and allocate a time and place in which the graduates could answer the survey and complete the knowledge test with full ethical consideration.

3.15 Confidentiality and anonymity

This research project is a knowledge and skills based investigation, and as such is a very sensitive topic for pre-registered nurses who are planning to apply for jobs soon. Thus, consideration of a threat to their future employment would need to be made. Parahoo (2006) strongly argued that knowledge based questions could threaten health professionals as the data could fall into the hands of their employers. Therefore, anonymity was guaranteed for this particular research, and this was explained to those taking part. Collection of telephone and e-mail details was deliberately avoided during the data collection phase to protect confidentiality. Individual's names and numbers were not required, as the study was not intending to focus on individual participants, but on the contrast between the educational outcomes at newer and more established universities. Thus, graduate names and numbers were not recorded in self-assessment or the documents relating to the knowledge test.

The privacy of Saudi female nurses wearing hijab was also considered, in order to respect Islamic rules and accord with Saudi cultural norms. Coordination with nursing education staff in the hospitals and training supervisors in the universities was established to ensure privacy for the Saudi female nurses where tests were being administered. The participants also have the right to choose to participate or not, and the right to withdraw if they so desire after the data collection process has been concluded, as explained in the consent form. All of the data will be retained securely in the researcher's locker.

3.16 Ethical approval

The research proposal was approved first by the Qassim Regional Research Ethics Committee, which is a registered committee of the National Committee of Bio. &Med. Ethics (H-04-Q-001. The approval was accepted by Jazan University, and Shaqra and Dammam University. The research proposal was also reviewed and approved by the College of Medicine & King hospital at King Saud University, and Aljouf University accepted this approval (Appendix 7).

3.17 Data analysis

The quantitative data from the EHTAN self-assessment, knowledge test, and knowledge test subset, high school grade and admission scores were analysed using SPSS statistical software (Version 21, SPSS Inc. Chicago, IL, USA). The data entered and analysed in two phases. Phase 1: The results of the EHTAN self-assessment data were entered and analysed. The results of the mean scores for each university, and the mean scores for each domain were drawn out. Phase 2: the results of the knowledge test and the background variables, which consisted of high school grades, achievement tests and aptitude tests scores were entered and analysed alongside the score for self-assessment and the knowledge test score.

A frequency analysis was performed on the continuous data to check for missing values, which revealed no problem with missing data. Statistical significance was defined as probability [p] < 0.05 for all statistical tests. Four main statistical tests were performed as illustrated in table 3.6, which also details other secondary statistical tests, as explained below.

Table 3.6: The main Statistical tests used in the study

Purpose	Statistical tests
Objective one: To assess how nursing graduates from Saudi Arabian Universities performed in the knowledge test, and self-rated themselves in self-assessment of competence at the point of graduation	Descriptive statistics (mean scores, SD)
Objective two: To investigate and compare the differences between graduates from established and new Saudi Arabian Universities in terms of knowledge test performance and self-assessment competence.	Univariate analysis Independent sample t- test (two-tailed).
Objective three: To determine the relationship between the two measures, as well as the relationship between background variables and outcomes and	Bivariate analysis Pearson correlation coefficient
To examine the differences between the two types of institutions' graduates, when controlling for background differences.	Multivariate analysis of covariance

First, a descriptive statistics analysis was carried out to illustrate all the Saudi nursing graduates' mean scores and the *SD* for the following: (High school grade, pre-admission, self-assessment, knowledge test and knowledge subset score).

Second, an independent sample t-test (two-tailed) was performed, to compare the total mean score for the EHTAN self-assessment for the established universities with that for the new universities. Moreover, an independent sample t-test (two-tailed) was performed to compare the total mean of the knowledge test scores of the established universities with that for the new universities. Similarly, the test was also performed to compare the total mean scores for high school achievements and aptitude requirements for the established universities and those for the new universities. This was done to discover if there were any significant differences between the two groups of nursing graduates, as stated when answering the question determined by the second and third objectives of the study. This type of t-test will also be performed later to compare the scores for each self-assessment domain of the established universities and the new universities.

Thirdly, the Pearson correlation coefficient (two-tailed) was performed to examine whether there is a significant relationship between the following independent variables: EHTAN self-assessment score, knowledge score, high school score, achievement score and aptitudes score. Any relationship between these variables could be linked to specific contributions. The findings for all these statistical analyses are provided in the results section.

Fourthly, multivariate analysis was conducted to investigate whether the type of university and the pre-admission scores effect the outcomes of the graduate. Three analyses of covariance (ANCOVA) were carried out to test whether the type of university (i.e., new versus established) predicts total-self-assessment scores, while controlling for aptitude test score and high school grade as the two covariates. A second ANCOVA was performed to test if the type of university predicts knowledge test scores (knowledge exam test), while controlling for aptitude test scores and high school grade as two covariates; and testing if knowledge subset scores vary by university, controlling aptitude and high school grade as covariates.

A frequency analysis was carried out to illustrate the percentage of correct answers to the knowledge test (MCQ). The aim was to examine the validity of the knowledge test outcomes.

A reliability analysis was performed using Cronbach's alpha to assess the internal consistency of all the EHTAN self-assessment questionnaires response and the knowledge test outcomes. Moreover, the internal consistency was tested for each domain, each university, and both groups (i.e. new universities and the established universities). The minimum threshold for acceptable reliability is $\alpha = 0.7$ (Gliem and Gliem, 2003, p. 88), and the reliability analysis is provided in the results section.

3.18 Chapter summary

Assessment of quality or the holistic competence can be performed using a self-rating method, but this is subject to the criticism of subjectivity. The EHTAN self-assessment was found to be the most developed assessment to test holistic competence, because it is designed to assess nursing practice and the application of complex combinations of knowledge, skills, values and attitudes in different contexts. The EHTAN self-assessment has an acceptable degree of reliability, face and content validity, and construct validity. It has been used in five countries and translated into different languages showing a similar level of internal consistency. However, it is necessary to confirm its results by employing objective measures here in the form of a knowledge test. A standardised knowledge test or registration exam is the most reliable knowledge assessment method for assessing the knowledge level of the Saudi graduates. It allows the researcher to assess a wide range of skills associated with the Saudi nursing standards assessed using the EHTAN self-assessment, determining the relationship between the two measures to confirm the outcomes across Saudi universities with consideration of the influence of background factors, such as high school grade and pre-admission scores.

A cross-sectional design was judged the most appropriate, to allow for assessment of knowledge and self-assed competence level across Saudi universities situated in different regions, concluding with a representative sample. Appraising the reliability and validity of the EHTAN self-assessment tool used in Cowan et al.'s (2006) study, where it was translated and employed to assess competence across European countries, encouraged the use of the tool in this study. Furthermore, piloting the study and obtaining similar results regarding the reliability of the previous study offered some reassurance concerning the applicability of the assessment tools to assess the competence level of the Saudi graduates. The data collection

stage was the most difficult component of this study, because the participants targeted were internship nursing practitioners located in different health services in each city. In addition, the assessment method not only involved self-assessment, but was also combined with a knowledge test requiring an exam type environment for its administration. Therefore, the graduates needed to be allocated and invited to complete the data collection procedures, requiring time and effort to increase the response rate without enforcement. Although the data collection process takes time it has acceptable reliability, as will be explained in the next chapter.

Chapter 4

Results

This chapter reports the quantitative results of this study, in order to achieve the aim and objectives of the research project. It begins by describing the characteristics of the study sample, and their relative institutions. Then follows a presentation of descriptive statistics, to reveal the participant scores for both the EHTAN self-assessment of competence and the knowledge test. Then, the univariate results will be reported to illustrate the differences between the two types of institutions' graduates using the two assessment methods. Bivariate results will be reported to illustrate the relationship between the two measures, as well as the relationship between the type of university and the outcome. Finally, based on the bivariate analysis, multivariate results will be presented, which examine the effect of the type of university on the outcome, when controlling any differences between student characteristics.

4.1 The characteristics of institutions

Table 4.1: characteristics of institutions and training facilities.

University	**Type of university**	**Year of establishment**	**location**	**Training facilities**
King Saudi University	Established (Old)	(1976)	Riyadh, the capital city of Saudi Arabia	(University teaching hospital) 800 beds
Dammam University	Established (Old)	(1987)	Dammam western region of Saudi Arabia	(University teaching hospital) 500 beds
Ajouf University	New	(2005)	North side of Saudi Arabia, small different cities	Small Ministry of Health hospitals (50-200) beds
Jazan University	New	(2006)	Southwestern Saudi, small different cities	Small Ministry of Health hospitals (50-200) beds
Shaqra University	New	(2007)	Middle of the country, rural area.	Small Ministry of Health hospitals (50-200) beds

The sample included 150 nursing graduates from five universities. Of these, 72 participants represented two established universities, located in large cities that are served by teaching hospitals with not less than 500 beds; and 78 were from three new universities, located in small rural cities, where training takes place in Ministry of Health hospitals with 50-200 beds. The two older universities were established between 1976 and 1987, and three new universities were established between 2005 and 2007. Detailed information regarding the universities is presented in Table 4.1.

4.2 The sample characteristics

Table 4.2: The characteristics of the sample

University	**King Saudi university (N=** 27)	**Dammam University** (N= 45)	**Aljouf University (N= 19)**	**Jazan University** (N= 35)	**Shaqra University** (N= 24)
Type	**Established (N= 72)**		**New (N= 78)**		
Gender	M:17 F:10	All Female	M:3 F:16	All Female	M:8 F:16
Proportion	18%	30%	12.6%	23%	16%
Proportion male and female	Male : 24 % Female : 68 %		Male : 14% Female : 86%		

There were a total of 267 Saudi nursing graduates for the academic year 2012-2013, from seven universities (MOHE, 2012). The 150 graduates were recruited from five universities that agreed to participate in this research study; the response rate was 77% of graduate who were invited to participate. Table 4.2 details the characteristics of the sample, which included 150 nursing school graduates from five universities, of whom 28 (19%) were male and 122 (81%) were female. Their ages ranged from 23-26 years. All participants joined the nursing colleges after high school as full-time students. The proportion of graduates from each university was 78 (52%) from new universities and 72 (48%) from established universities. The proportion of graduates from the established universities was as follows: Dammam University 45 (30%), and King Saud University 27 (18%); and graduates from the new universities was: Jazan University 35 (23%), Shaqra University 24 (16%), and Aljouf University 19 (12.6%). The proportion of male graduate from established universities was 17

(24%) and female 55 (68%). The proportion of male graduate from established universities was 11 (14%) and female 64 (86%).

Table 4.3: Pre-admission scores for established and new universities.

Pre-admission scores	**Established Universities (N=72)**			**New Universities (N=78)**		
	Mean	***SD***	***Range***	***Mean***	***SD***	***Range***
High school grade	95.6	4.1	80-100	95.4	4.0	79-100
Achievement score	74.9	6.1	52-90	68.8	6.0	57-89
Aptitude score	74.4	7.0	56-100	68.4	6.1	52-85

The data collected indicates that the established universities admit students with higher aptitude test scores, an average of 74.4%, and higher achievement test scores, at an average of 74.9%, compared with new universities, which admit students with lower aptitude test scores, an average of 68.4%, and lower achievement test scores, at an average of 68.8%. The high school grade of participants was similar for both types of institutions, an average of 95%. Data collection also shows that female students in the collected sample are admitted to the BSN programme with greater high school grades (95.9), achievement (72.2) and aptitude (71.8) compared to the high school scores (93.5), achievement (69.5) and aptitude (68.8) scores of male graduates (Table 4.3).

4.3 Objective 1: Result of the EHTAN self-assessment competence and knowledge test

4.3.1 Results of the EHTAN self-assessment

Table 4.4: the total mean scores for the EHTAN- self-assessment of competence, mean score for each domains and knowledge score for all participants.

Outcome	**Mean score for each domain for all participants (N=150)**	**Standard Deviation**	**Range**
Total mean score for the EHTAN- self-assessment of competence.	3.0	.38	2.2 - 3.8

The total mean score for knowledge test score.	26.6%	6.2	11- 42%
The self-assessment domains			
Assessment	2.6	.52	1.2 - 3.8
Care delivery	3.2	.43	2.2 - 4
Communication	3.0	.50	1.6 - 4.0
Health promotion and illness prevention	3.0	.53	1.0 -4.0
Personal and professional development	3.1	.52	1.5 - 4.0
Professional and ethical practice	3.2	.44	2.1 - 4
Research and development	2.8	.63	1 - 4
Team working	3.1	.51	1.6 - 4

The first objective was to explore how Saudi nursing graduates score in the EHTAN self-assessment of competence and knowledge test. Table 4.4 above shows that the total mean score for EHTAN self-assessment is 3.0, out of a maximum of 4, for all participants, with quite narrow standard deviation. A high number of graduates scored around 3, while none scored less than 2.2, and none scored above 3.8. However, all participants scored themselves above the midpoint for the total EHTAN self-assessment, as well as most of the subscale domains.

Table 4.4 above shows the mean score for the eight self-assessment domains for all participants, which ranges between 2.6 for the 'assessment' domain to 3.2 for 'care delivery' and 'professional and ethical practice' domains. The score for the 'assessment' domain is the lowest average score at 2.6, compared with other domains, and ranges between 1.2 and 3.8. 'Care delivery' and 'professional and ethical practice' received the highest mean scores, at 3.2 and 3.2, respectively. The scores for 'care delivery' range from 2.2 to 4, and for 'Professional and ethical practice' range from 1.5 to 4. The nursing graduates scored between 3.0 and 3.1 in other domains, except 'research and development', which at 2.8 is the second lowest scoring domain of the self-assessment of competence, where scores range from 1 to 4.

Briefly, the Saudi nursing graduates scored 3 out of 4 in the self-assessment of competence. The total mean scores for all domains for all participants show that the 'assessment' domain is the lowest scoring, whereas 'care delivery' and 'professional and ethical practice' are the highest scoring.

4.3.2 Results of the knowledge test

Table 4.4 shows that the total mean score for all participants on the knowledge test is just 26.6%. The standard deviation is quite large, 6.2, with widespread scores between the lowest and the highest (11% - 42%) where the pass mark is 50%. This result shows that the score for all the participants are below the pass mark. Therefore, an investigation of the reliability and validity of the knowledge test was carried out.

4.3.3 Possible reasons for the low knowledge test score

The probability that a participant will guess the correct answer is equal to one divided by the number of alternatives (Considine and Thomas, 2005). The average of 26.6% recorded for all participants in the knowledge test, which is designed as a four option MCQ exam, could be contributed to the fact that the participants were chosen under a random selection strategy. Random selection is considered one of the disadvantages of using the MCQ exam for research proposes, particularly if the exam is not part of participant's education assessment or professional registration requirement. Therefore, future research should consider targeting the health specialist licensing authority to obtain the data of the outcomes of the registration exams so as to attain a high level of validated data instead of employing a non-obligatory test. However, the standardised MCQ exam prepared by the Saudi Commission for Health Specialists was evident in terms of the quality assurance criteria, which were illustrated by Ware et al. (2014), such as the consistency of presentation, alignment with the course of study, and absence of item writing flaws.

The second reason for the low score in the knowledge test is that the participants were not prepared to take the exam, in terms of studying and reviewing their professional nursing knowledge prior to taking the exam. Although the knowledge test employed in this research project was not designed to assess the pass or the fail status, nonetheless, the result of 26.6% is lower than expected. Therefore, the reason for the low score is most likely the difficulty of the questions, or that the questions were not very relevant to the nursing profession, which goes against the argument of Ware et al. (2014) that the Saudi standardised exam for nursing

has been prepared with a high level of quality assurance. However, this can be tested by means of difficulty analysis, which will be carried out to test the responses for each item through frequency analysis.

4.3.4 Reliability, validity and difficulty analysis of the knowledge test

The reliability and the validity analysis includes internal consistency analysis, difficulty index analysis and a content validity index. The aim of performing these three analysis steps was to determine whether the questions of the knowledge test were relevant to Saudi nursing courses in identifying subset items with the highest relevance. The internal consistency of the results of the knowledge test was assessed using Cronbach's alpha, and was shown to be low ($\alpha = 0.3$), indicating that participants did not respond consistently to items within the knowledge test. A difficulty index analysis was undertaken to illustrate the rate of correct answers for each question. This was calculated by running frequency analysis, using SPSS Statistics version 20, the results of which are shown in Figure 4.1.

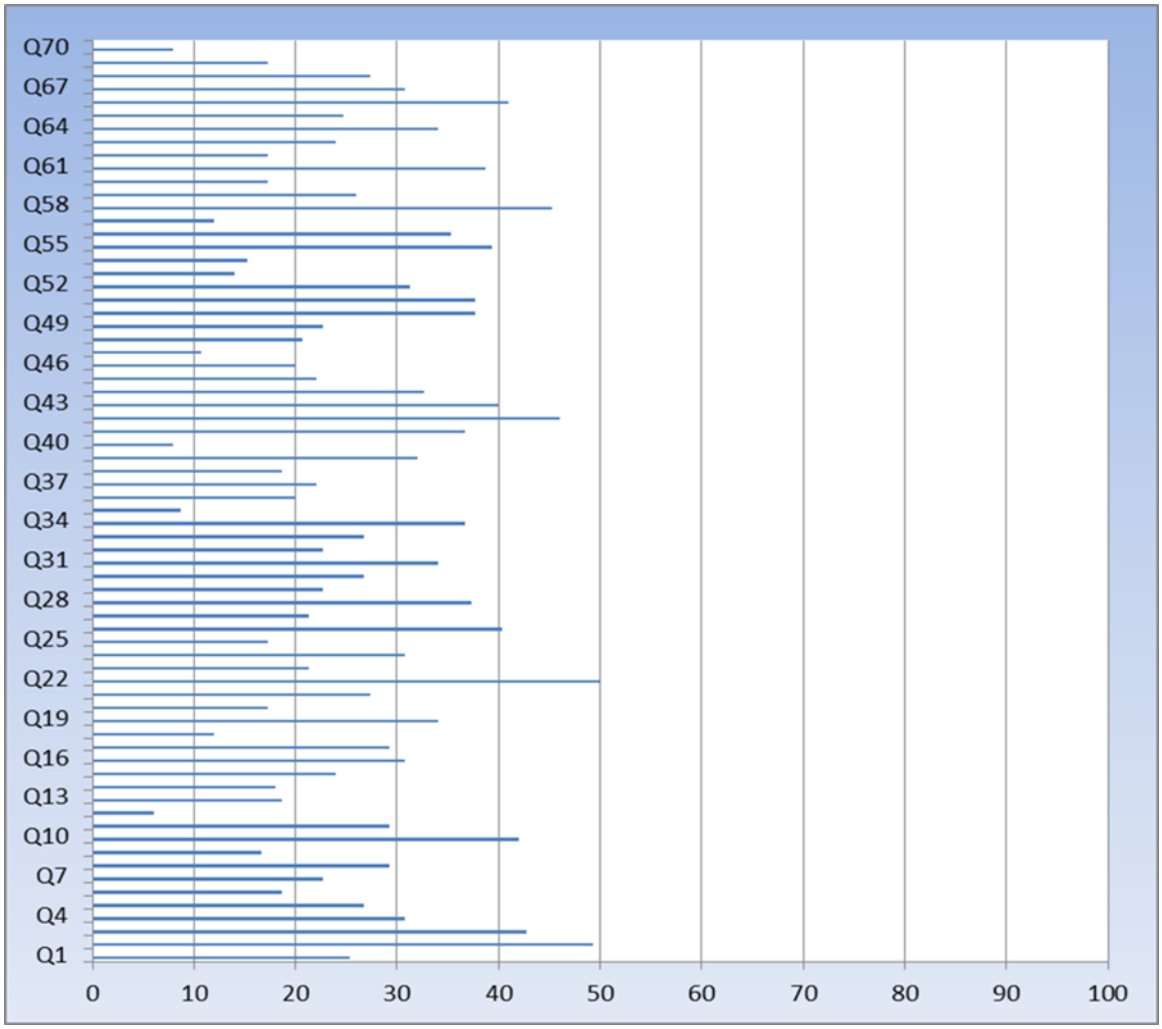

Figure 4.1. Frequency of participants' correct answers for the (SCFHS) knowledge test

Figure 4.1 shows that the participants correctly answered some of the questions in the maximum range of 50%. By tracking the questions with a high rate of correct answers, it became apparent that the questions most relevant to Saudi nursing courses are generally answered correctly by the participants. However, the relevance of the questions to the Saudi nursing courses had to be judged and rated by external observers to avoid selectivity in the study when the outcomes of two groups were compared with each other.

4.3.5 Content Validity Index and the subset score

The content validity index was used to determine the items relevant to the Saudi nursing courses, which were rated by three external observers. The strategy used to determine the content validity and to produce subset questions was made up of three steps. First, developing

the selection criteria (Table 4.5), as a guide for selecting the questions that are believed to be most relevant to the nursing curriculum in Saudi higher education, an intention stated in the background chapter.

Table 4.5: Selection criteria for relevant questions

Selected question	**Avoided question**
Questions, which examine nursing knowledge, related to the Saudi nursing curriculum, which is presented in the background chapter.	Questions that are not related to the Saudi nursing curriculum, which is presented in the background chapter.
The selected questions should focus on nursing care plans, such as nursing assessment, diagnosis, planning, intervention, rationale and evaluation.	Questions related to medical interventions that require a high level of medical decision-making, such as administering medication or taking decisions for surgical procedures.
	Questions that are thought to be difficult for nursing graduates, such as questions that require more nursing experience to be answered correctly.
	Questions presented with a confusing, ambiguous or unclear writing format.

Second, a version of the MCQ questions, the selection criteria and the table of the nursing programme content was given to three external observers so that they could select the questions most relevant to the Saudi higher education nursing programme without knowing the current knowledge score of the graduates or the difficulty index analysis result. The first and second assessors were Saudi registered nurses with a Master's degree in nursing, working in Saudi universities. The third assessor was an internationally registered nurse with a Master's degree in nursing, working in clinical practice and performing skills demonstrations for students in Saudi. It is difficult to judge relevance on a yes or no basis; therefore, to facilitate the judgment, a four-point Likert scale was used, where 1= not relevant, 2= somewhat relevant, 3= quite relevant and 4= highly relevant. Lynn (1986), recommends that a minimum of three experts be consulted, but not more than 10, and that 3-5 rating scales should also be considered. However, a 4-point ordinal scale is advised by Polit and Beck (2006) to avoid having a neutral and ambivalent midpoint; this is also recommended by Lynn (1986). According to Waltzet et al. (2005), item level Content Validity Indexes (CVIs) should

be 1.00 where there are five or fewer judges. When there are six or more judges, this standard can be relaxed, though Lynn (1986) recommends I-CVIs of no lower than 78. CVI was calculated based on the proportion of judges who rated an item as quite or highly relevant. The following formula, which is explained by Polit and Beck (2006), was used to determine the relevant subset questions for the calculation in this MCQ format: Items Rated 3 or 4 on a 4-Point Relevance Scale / number in agreement. Table 4.6 shows an example of the rating and calculating strategy.

Table 4.6: Example (Q1- Q17) of rating strategy

Question No	1st assessor	2nd assessor	3rd assessor	Total score
1	1	1	2	No item score 3 or 4
2	3	2	1	.33
3	1	1	1	No item score 3 or 4
4	3	4	3	1
5	1	1	2	No item score 3 or 4
6	2	2	3	.3
7	3	2	2	.3
8	3	2	1	.3
9	2	2	3	.3
10	3	4	4	1
11	4	4	3	1
12	2	4	1	.3
13	2	4	2	.3
14	3	3	4	1
15	3	1	2	.3
16	3	3	2	.66
17	1	2	3	.3

Finally, eleven questions that scored 1 were selected and analysed, to form subset of relevant knowledge test items. Seven of the questions selected by the external observers scored between 30% and 46% for correct answers in the difficulty index analysis. Figure 4.2 shows an example of the questions relevant to nursing care that received a high percentage of correct answers, and were also highly rated by external observers.

A 35 year-old man is hospitalized in the Psychiatric Unit. The nurse observes that he constantly keeps things in order, particularly whilst eating. He arranges his food into symmetrical and equal bite-sized pieces before eating. He consistently asks if the food is fresh and if it has been cooked thoroughly.

Which nursing diagnosis is most appropriate?

A. Anxiety

B. Self-esteem disturbance

C. Impaired social interaction

D. Ineffective verbal communication

Answer: A

Figure 4.2. Example of a relevant question

Figure 4.3 shows an example of irrelevant questions that have a low percentage of correct answers, also given a low score by external observers. This question may be more relevant to medical practice than to nursing practice.

49. A 50 year-old woman presents to the clinic for an annual physical examination. On auscultation over the cardiac apex a mid-systolic click is heard and is followed by a murmur. The murmur worsens with standing and improves in the squatting position.

Which type of treatment is most likely indicated?

A. Warfarin administration

B. Antibiotic prophylaxis

C. Surgical correction

D. Digoxin administration

Answer: B

Figure: 4.3. Example of an irrelevant question

4.3.6 The results of the knowledge subset

Table 4.7: Knowledge subset scores compared with knowledge test scores for all participants

Outcome	**Mean score for each domain for all participants (N=150)**	**Standard Deviation**	**Range**
***Total mean score for knowledge subset* (11 questions)**	31.8	14.9	0%- 64%
Total mean score for knowledge test (70 questions)	26.6%	6.2	11- 42%

Table 4.7 illustrates the total mean score for all participants for knowledge and knowledge subset scores, which improved from 26.6% to 31.8 %. The maximum knowledge subset score was 64%, compared to 42% for the knowledge test score, although the minimum range decreased from 11% for the knowledge test score to 0%. The standard deviation was duplicated in the knowledge subset score, at 14.9.

4.4 Objective 2: Comparison between established and new universities' graduates

The second objective was to assess the differences in outcomes between the graduates of established universities and new universities. An independent sample t-test was carried out to compare the differences between graduates of the two kinds of universities in terms of total mean self-assessment of competence and in each self-assessment domain, as well as knowledge test and subset scores. Before presenting the outcomes results, it is important to illustrate the differences between the established universities and the new universities in the admission scores.

4.4.1 Admission scores

Table 4.8 : The differences between established and new universities in admission scores.

pre-admission and high school grades	**Established Universities (N=72)**		**New Universities (N=78)**		**Value**	
	Mean	***SD***	***Mean***	***SD***	***t-value***	***p-value***
high school mark	**95.6**	**4.1**	**95.4**	**4.0**	**-.349**	**.728**
achievement test	74.9	7.0	68.8	6.0	-5.67	.000
aptitudes test	74.4	6.1	68.4	6.4	-5.78	.000

There are no statistically significant differences between the graduates of established universities and new universities in relation to high school grade .The total mean score for the high school for established universities was (*Mean* = 95.6, *SD* = 4.1), and for the new universities (*Mean* = 95.4, *SD* = 4.0), (148), t= -.349, p = .728. The established universities scored significantly higher (*Mean* = 74.9, *SD* = 7.0) than the new universities (*Mean= 68.8, SD= 6.0)* (148), t= -5.67, p = .000 in achievement test score. The established universities scored significantly higher (*Mean* = 74.9, *SD* = 7.0) than the new universities (*Mean= 68.8, SD= 6.0)* (148), t= -5.78, p = .000 in the aptitude test score (Table 4.8).

4.4.2 Self-assessment competence

Table 4.9: The differences in Mean scores for each assessment domain, and total mean score for graduates of new and established universities, and independent sample t-test results.

EHTAN Self-assessment domains (8)	**Established Universities (N=72)**		**New Universities (N=78)**		**Value**	
	Mean	***SD***	***Mean***	***SD***	***t-value***	***p-value***
Total mean self-assessment of competence	**3.0**	**.385**	**3.0**	**3.88**	**.836**	**.405**
Assessment	2.8	.47	2.5	.52	-3.25	.001
Care delivery	3.1	.42	3.2	.45	.388	.699
Communication	3.0	.57	3.0	.43	.449	.647
Health promotion and illness prevention	3.0	.57	3.1	.55	1.304	.199
Personal and professional	3.0	.49	3.2	.55	1.657	.100

development						
Professional and ethical practice	3.2	.41	3.3	.48	.214	.830
Research and development	2.7	.67	2.9	.57	1.881	.062
Team working	3.1	.52	3.2	.49	1.850	.066

Table 4.9 shows the independent sample t-test results. There are no statistically significant differences between the graduates of established universities and new universities in relation to the total mean self-assessment of competence score. The total mean score for the EHTAN self-assessment for established universities was (*Mean* = 3.0, *SD* = .385), and for the new universities (*Mean* = 3.0, *SD* = .385), (148), t= .836, p = .405.

There was no significant difference between the graduates of the two types of university in all self-assessment domains, except for the 'assessment' domain, where the graduates of established universities scored significantly higher (*Mean* = 2.8, *SD* = .47) than those of new universities (*Mean* = 2.5, *SD* = .52) t (148) = -3.259, p = *001, p* ≤ .05.

4.4.3 Knowledge test and subset test scores

Table 4.10: Mean knowledge test score and subset scores for established and new universities and independent sample t-test results

Knowledge test outcomes	**Established Universities (N=72)**		**New Universities (N=78)**		**Value**	
	Mean	***SD***	***Mean***	***SD***	***t-value***	***p-value***
mean knowledge test score(70 questions)	**28%**	**7.25**	**25%**	**4.74**	**-2.681**	**.008**
The knowledge subset score (11 questions)	**35.4%**	**15.11**	**28.5 %**	**14.18**	**2.895**	**.004**

Table 4.10 shows the independent sample t-test results and the mean differences between established universities and new universities for the knowledge test score and knowledge subset score. There is a statistically significant difference between graduates based on type of university; Graduates of established universities achieved higher knowledge test scores (*Mean* = 28%, *SD* = 7.25) compared with the graduates of new universities (*Mean* = 25. %. *SD* = 4.74), t (148) = -2.681, *p value = 008*. Graduates of established universities also have higher knowledge subset scores (*Mean* = 35.4%, *SD = 11.15)* compared with those of new

universities (*M*ean= 28.5%. *SD = 14.18),* t (148) = 2.895, *P value = 004*. Therefore, graduates of the established universities score 3% higher than new universities' graduates in knowledge test score, and 7.1 % higher in the knowledge subset score.

4.5 Objective 3: The bivariate and the multivariate analysis, and the differences between the two groups of graduates

This section will identify the outcomes of two main bivariate analyses, first, to explore the relationship between self-assessment of competence and the knowledge test scores, second, to discover the relationship between the characteristics of the admitted students in terms of admission criteria, such as high school and pre-admission scores, with the self-assessment of competence and the knowledge test scores, as the characteristics of established universities show that they admit students to BSN programmes who have higher aptitude and achievement scores compared with the new universities. Based on the bivariate results, a multivariate analysis will be carried out to identify how the outcomes are influenced by characteristics of the universities.

Table 4.11: Pearson correlations between self-assessment, high school grade, aptitude, achievement, knowledge test sores and subset score

Variables	High school grade	achievement	aptitude	Self-Assessment	Knowledge T
High school					
Achievement T	**.315****				
Aptitude T	-.095	**.326****			
Self-assessment	**.184***	.105	-.117		
Knowledge T	-.133	.020	.151	-.003	
Subset	0.086	.146	**.266****	.136	.080

*p<.05 significant correlation at the 0.05 level.

Table 4.11 shows the Pearson correlations (two-tailed) between achievement, aptitude, self-assessment of competence score, knowledge test score and the knowledge subset score for the results of all participants. There is no significant correlation between total self-assessment

score and total knowledge test score (r =-.003, p = .96), or between total self-assessment score and total knowledge subset score (r= .136, p= .097). However, a positive moderate relationship is evident between the self-assessment of competence and the knowledge subset (r = .312, p= .008, p<.05) in the established universities. No significant correlation is found between aptitude and knowledge test score (r = .151, p = .065), or between achievement and knowledge test score (r = .020, p = .805). A significant and positive weak correlation is identified between aptitude and knowledge subset score (r = .266, p= .001, p < .01), with higher aptitude associated with a higher knowledge subset score. There is also a significant positive weak correlation between total self-assessment and high school grade (r = .184, p=.025, p<.05), with a higher high school grade associated with higher total self-assessment. However, No significant correlation is found between aptitude and total self-assessment score (r = -.117, p = .154), or between achievement and total self-assessment score (r = .105, p = .200).

4.5.1 The effect of university type on the outcome of the graduate.

The achievement test score is significantly correlated with high school grade and with aptitude test score. However, achievement test score does not correlate with any outcomes variables, whereas high school grade is significantly correlated with total self-assessment score, and aptitude test score is correlated with knowledge subset score. Established universities admitted students with significantly higher pre-admission scores. Therefore, multivariate analysis was conducted to investigate whether the type of university influenced the outcomes of the graduate.

4.5.2 The multivariate analysis and the effect of type of university on the outcomes

Three analyses of covariance (ANCOVA) were carried out to test whether the type of university (i.e., new versus established) predicts total-self-assessment scores, while controlling for aptitude test score and high school grade as the two covariates. A second ANCOVA was performed to test if the type of university predicts knowledge test scores, while controlling for aptitude test scores and high school grade as two covariates; and testing if knowledge subset scores vary by university, controlling aptitude and high school grade as covariates.

Table 4.12: ANCOVA results for type of university predicting total self-assessment scores, while controlling for aptitude test scores and high school grade

Source	df	F	Sig.
Corrected model	3	2.284	.081
Intercept	1	4.336	.039
High school grade	1	4.699	.032
Aptitude test	1	.871	.352
Type of university	1	.173	.678
Error	146		
Total	150		
Corrected Total	149		

A one-way analysis of co-variance (ANCOVA) with aptitude test score and high school grade as two covariates, total self-assessment score as the dependent variable and type of university (i.e. , new versus established) as the independent variable was carried out. Table 4.12 illustrates the ANCOVA results. High school grade is found to be a significant covariate, $F (1, 146) = 4.699$, $p = .032$. However, aptitude test is not a significant covariate, $F (1, 146) = 0.871$, $p = .352$. The ANCOVA further revealed that university type does not affect self-assessment score, $F(1, 146) = .173$, $p = .678$ after controlling for these factors .

Table 4.13: ANCOVA test results for type of university predicting knowledge scores, while controlling for aptitude test scores and high school grade as covariates

Source	df	F	Sig.
Corrected model	3	3.550	.016
Intercept	1	9.815	.002
High school grade	1	2.734	.100
Aptitude test	1	.374	.542
Type of university	1	4.856	.029
Error	146		
Total	150		
Corrected total	149		

A one-way ANCOVA was conducted with aptitude test score and high school grade controlled as covariates, knowledge test score as the dependent variable and type of university as the independent variable. The results, shown in Table 4.13, reveal that neither high school grade nor aptitude test score are significant covariates, at $F (1, 146) = 2.734$, $p = .100$, and $F (1, 146) = .374$, $p = .542$, respectively. The ANCOVA further revealed that type of university has an effect on knowledge test scores, $F (1, 146) = 4.856$, $p = .029$. Graduates of the established universities had significantly higher knowledge test scores than graduates

of the new universities, after controlling for any differences due to high school grade and aptitude, which ensures that this effect is not simply a product of differences in high school grade or aptitude score.

Table 4.14: ANCOVA test results for type of university predicting knowledge sub scores, while controlling for aptitude test scores and high school grade

Source	df	F	Sig.
Corrected Model	3	5.289	.002
Intercept	1	1.347	.248
High school grade	1	1.690	.196
Aptitude test	1	6.168	.014
Type of University	1	2.390	.124
Error	146		
Total	150		
Corrected Total	149		

A one-way ANCOVA was performed with aptitude test score and high school grade as covariates, the knowledge subset scores as the dependent variable and the type of university as the independent variable. The results are shown in Table 4.14. Aptitude test was found to be a significant covariate, $F(1, 144) = 6.168$, $p = .014$, indicating that knowledge subset scores co-vary with student aptitude; however, high school grade was not a significant covariate, $F(1, 144) = 1.690$, $p = .196$, indicating that knowledge subset scores are independent of high school grade. The predicted main effect of type of university was not statistically significant, $F(1, 144) = 2.390$, $p = .124$. Therefore, nursing students at both new and established universities have similar knowledge subset scores, when the effect of aptitude and high school grade is controlled. This suggests that the observed large differences between established and new universities' graduates in the subset scores may be a product of differences in the characteristics of students admitted with higher aptitude scores.

Overall, the results of the three ANCOVA tests indicate that the nursing graduates from both types of universities appear to self-assess their competence similarly. However, students at

established universities perform significantly better in the knowledge test score, although, not in the knowledge subset score.

4.5.3 Implication of gender on the results of the study

The multivariate analysis (ANCOVA) was carried out to investigate if gender has an affect on the study findings, specifically when comparing established and new universities' graduates. The outcomes and a full analysis are provided in Appendix 8. Briefly, the ANCOVA further revealed that gender of participants affects their self-assessment scores, F (1, 146) = 9.087, p = .003, after controlling for high school grade and pre-admission factors. There was no significant differences between the nursing graduates by gender for the knowledge test scores, F (1, 146) = .757, p =.386 after controlling for aptitude and high school grade. The predicted main effect of gender was not statistically significant, F(1, 144) = 2.390, p = .211. Further investigation was carried out to clarify the differences between males and female in all variables. Table 4.15 shows the mean scores for pre-admission scores and outcomes, SD and an independent t-test comparing the admission scores and outcomes.

Table 4.15: Mean scores for the outcomes, SD, an independent t-test comparing self-assessment domains and knowledge test scores

Outcomes	**Male (N=28)**		**Female (N=122)**		**Value**	
	Mean	***SD***	***Mean***	***SD***	***t-value***	***p-value***
high school grade	93.5	3.8	95.9	4.0	2.85	.005
achievement test	68.8	8.0	72.2	7.4	1.80	.074
aptitude test	69.5	6.6	71.8	8.0	2.08	.039
Self-assessment domains						
Assessment	*2.5*	*.46*	*2.7*	*.52*	*1.80*	*.074*
Care delivery	*2.9*	*.48*	*3.2*	*.41*	*3.30*	*.001*
Communication	*2.8*	*.51*	*3.0*	*.50*	*1.61*	*.109*
Health promotion and illness prevention	*2.9*	*.56*	*3.1*	*.55*	*1.68*	*.095*
Personal and professional development	*2.8*	*.50*	*3.2*	*.50*	*4.01*	*.000*
Professional and ethical practice	*3.0*	*.44*	*3.3*	*.43*	*3.24*	*.001*
Research and development	*2.6*	*.65*	*2.8*	*.62*	*1.34*	*.182*
Team working	*2.9*	*.52*	*3.2*	*.50*	*2.53*	*.012*
Total mean self-assessment of competence	2.8	.41	3.1	.36	3.12	.002
Knowledge test score	25.8	6.6	26.8	6.1	0.775	.439
Knowledge subset score	28.5	13.7	32.6	15.2	1.29	.197

Table 4.15 shows the female nursing graduates scored significantly higher (*Mean* = 95.9, SD = 4.0) than the male nursing graduates (*Mean*= 93.5, SD= 3.8), (148), t= 2.85, p = .005 in high school grade. There are no statistically significant differences between the female nursing graduates and male nursing graduates in relation to achievement test scores. The total mean score for the achievement test for the female nursing graduates was (*Mean* = 72.2, SD = 7.4), and for the male nursing graduates it was (*Mean* = 68.8, SD = 8.0), (148), t= 1.80, p = .074. The female nursing graduates scored significantly higher, (*Mean* = 71.8, SD = 8.0), than male nursing graduates (*Mean*= 69.5, SD= 6.6), (148), t= -2.08, p = .039 in the aptitude test score (Table 4. 15).

Table 4.15 also illustrates the gender differences in terms of self-assessment of competence and knowledge scores. The results of an independent t-test comparing gender differences show that female graduates score more highly (*Mean* = 3.1, *SD* = .41) than male graduates in terms of total mean for the self-assessment of competence score (*Mean* = 2.8 *SD* = .36), t (148) = 3.12, *p value = .002* . Moreover, female nursing graduates show a statistically significant score in four self-assessment domains: the 'care delivery' domain score was higher for female graduates (*Mean = 3.2, SD* = .41) than for male graduates (*Mean* = 2.9 *SD* = .48), t (148) = 3.30, *p value = .001* ,; the score for 'personal and professional development' domain was higher for female graduates (*Mean = 3.2, SD* = .50) than males (*Mean* = 2.8 *SD* = .50), t (148) = 3.24, *p value = .001*; female graduates scored higher (*Mean = 3.3, SD* = .43) for 'professional and ethical practice' domain than male graduates (*Mean* = 3.0 *SD* = .44), t (148) = 3.24 *p value = .001* ; and, finally, female graduates scored higher (*Mean = 3.2, SD* = .50) for the 'team working' domain than male graduates (*Mean* = 2.9 *SD* = .52, t (148) = 2.53 *p value = .012.* There were no significant differences between the male and female nursing graduates in relation to the other four self-assessment domains. The independent t-test also showed no significant differences between the male and female nursing graduates in terms of both the knowledge test and the knowledge subset scores.

The differences between males and females was only apparent in the total self-assessment score and some self-assessment domains. Therefore, the independent t-test was re-carried out to explore the differences between the established and new universities' graduates with female gender, only because they were over represented in the sample by 81% (122 students). The result remains similar to the original results, in terms of the significance of the differences between the established and new universities' graduates (Appendix 8). There was

no significant difference between the female graduates from the two types of universities in total mean score for the self-assessment score and in all self-assessment domains; except for the 'assessment' domain, where the graduates of established universities scored significantly higher (*Mean* = 2.8, *SD* = .45) than those of new universities (*Mean* = 2.5, *SD* = .52) t (120) = 3.542, p = *001, p* ≤ .05. Similarly, there was no significant differences between male nursing graduates from the established universities (*Mean* = 2.8, *SD* = .40) and female nursing graduates from new universities (*Mean* = 2.8, *SD* = .44) t (26) = .124, p = *.903)* in the total mean score of the self-assessment. This confirms that female nursing students were admitted to both types of universities with higher high school grades and aptitude scores and they scored higher in the total mean score for self-assessment, which does not effect the study findings in relation to the differences between the scores of graduates from established and new universities.

4.6 Summary of the main findings

- The established universities admit students with significant higher pre- admission scores, in terms of aptitude and achievement, but there are no significant differences between the two types of universities in relation to high school grade.
- The Saudi nursing graduates score 3 out of 4 in EHTAN self-assessment of competence.
- The Saudi nursing graduates have a low score in the knowledge test, just 26.6 %. Therefore, the knowledge subset score was validated according to the relevancy of the questions to the BSN Saudi courses, and was used alongside the self-assessment and knowledge test scores.
- The Saudi nursing graduates scored 31.8% in the knowledge subset questions.
- There is no significant difference in the total mean score of the EHTAN self-assessment of competence between the nursing graduates from established universities and new universities. Following the validation of the knowledge test through knowledge subset score and controlling for the background variables, the result shows no differences between the two groups of graduates.

- The graduates of established universities scored significantly higher than the graduates of the new universities in the ‘assessment’ domain of EHTAN self-assessment of competence, and there are no significant differences between the two types of universities in the other seven domains.

- There is no correlation between the self-assessment and knowledge test scores, or between self-assessment and the knowledge subset scores, in the results for all participants. However, there is a positive correlation between the self-assessment and the knowledge subset scores in the scores of the established universities.

- High school grade has a positive weak correlation with self-assessment, and the aptitude score has a positive weak correlation with the subset score.

- The multivariate (ANCOVA) analysis shows that the type of university has no influence on the self-assessment score.

- The multivariate (ANCOVA) analysis shows graduates of the established universities performed significantly better in the knowledge test score, although not in the subset score test. Those who graduated from established universities scored higher in the knowledge subset questions as a result of the fact that these universities admit students with higher pre-admission scores.

- Although there was differences between male and female participants in the total mean score for self-assessment and some of the self-assessment domains, this did not affect the original study results.

Chapter 5

Discussion and Conclusion

This chapter will clarify the main findings of the study, broadly discuss and interpret the results of the study, illustrate any limitations, and finally establish the implications for future research, prior to establishing the conclusion.

5 .1 Discussion

5.1 .1 The main findings of the study in relation to the aim and objectives

The purpose of the research project was to assess the preparedness of Saudi nursing graduates for practice, and to compare the differences in outcomes between graduates from established and new universities, following the expansion of nursing education within higher education. The characteristics of established and new universities differ in terms of training facilities offered and types of students admitted. The data collected confirmed established universities admit students with higher aptitude test scores, an average of 74.4%, and higher achievement test scores, with an average of 74.9%, compared with the new universities, which admit students with lower aptitude test scores, an average of 68.4%, and lower achievement test scores, with an average of 68.8%. The high school grades of participants was similar for both types of institutions, an average of 95%. The results for all participants in response to the first objective revealed that the total mean score for all the participants on EHTAN self-assessment is 3 out of 4, whereas the total mean score for the knowledge test is just 26.6%. The knowledge test score for all participants was improved to 31.8% when the knowledge test was validated through the means of a knowledge subset score. In response to the second objective, there were no statistically significant differences found between the graduates of established universities and new universities in relation to the total mean score of self-assessed competence. The total mean score for the EHTAN self-assessment for both university types' graduates was 3.0. Graduates from the established universities achieved higher knowledge test scores (28%) compared with the graduates of new universities (25%). Graduates from the established universities also scored higher for the knowledge subset (35.4%) than those from new universities (28.5%).

The third objective was to assess the relationship between the characteristics of each type of university on the outcomes, and the influence of these characteristics on the outcomes scores.

No positive or negative correlation between aptitude and knowledge test score or between achievement and knowledge test score were found. A significant and positive weak correlation was identified between the aptitude and knowledge subset score, with higher aptitude associated with a higher knowledge subset score. There was also a significant positive weak correlation between total self-assessment and high school grade, with a higher high school grade associated with a higher total self-assessment. The multivariate analysis, after controlling for the background factors, showed that the type of university has no influence on the self-assessment score. Graduates from the established universities performed significantly better in the knowledge test scores, although not for the subset score. The established universities scored higher in the knowledge subset questions as a result of admitting students with higher pre-admission scores.

5.1.2 Self-assessment competence outcomes for all participants

The participants rated themselves as having a good level of competence and they scored three out of four in the EHTAN self-assessment. Moreover, scores were above the midpoint in all eight of the self-assessment competence domains, which contained 108 items. The EHTAN self-assessment method, in relation to this study, revealed acceptable reliability in the overall results as expressed by Cronbach's Alpha, which was 0.96, indicating excellent internal consistency for this particular measure. The EHTAN self-assessment method was employed in this research project, because it consists of the most important elements of holistic nursing care and it covers most of the content of the National Commission for Academic Accreditation and Assessment (NCAAA) competencies, and nursing programmes in Saudi higher education are regulated by the NCAAA. The average of the self-assessment scores for all participants indicate that universities are successfully demonstrating NCAAA competencies by means of a competency-based curriculum to produce qualified nurses. Salem (2015) argued that the college of nursing at King Saud University which is one of the established universities included in this study adhere to competency-based curriculum to improve the quality of nursing graduate and to provide a safe, competent, and ethical nursing care to Saudi's. This might be against the previous argument stated by Al-Yafi (2008) and El-Meghraby (2011) that, as a result of a lack of experts, facilities and resources, new universities proved unable to apply quality assurance strategies in order to ensure the quality of their graduates.

Recent studies have claimed that Saudi nursing graduates were insufficiently prepared for nursing practice (Almazwaghi, 2013; Fielden, 2012). Comparing the result of the self-assessment competence in this study with international studies assessed the nursing graduates by the self-assessment competence method as only subjective measures, the Saudi nursing graduates rated themselves as being at a similar level of readiness to international nursing graduates (Lofmark, et al., 2006; Hickey, 2009; Safadi, et al., 2010; Kajander-Unkuri, et al., 2013).

Table 5.1: Self-assessed mean competence scores of nurses in the EHTAN EU partner countries compared to Saudi nursing graduates scores.

	UK (n = 100)	**Spain (n = 130)**	**Belgium (n = 113)**	**Germany (n = 150)**	**Greece (n = 95)**	**Saudi graduates (n=150)**
The total mean score	3.33	3.13	3.01	2.92	2.76	3.05
Assessment	2.8	2.6	2.4	2.5	2.7	2.6
Care delivery	3.4	3.3	3.2	3.1	2.3	3.2
Communication	3.4	3.3	2.6	3.1	3.1	3.0
Health promotion and illness prevention	2.9	2.8	3.0	2.5	2.9	3.0
Personal and professional development	3.3	3.1	3.0	2.6	3.0	3.1
Professional and ethical practice	3.5	3.3	3.1	3.1	3.3	3.2
Research and development	2.7	2.1	2.0	1.9	2.4	2.8
Team working	3.4	3.1	3.9	3.1	2.9	3.1

Comparing the results of this study with those of the original EHTAN self-assessment competence study (Cowan, et al., 2007), which assessed the competence of five experienced European nurses in their country and the migrant country, the Saudi nursing graduates scored 3.05; higher than German nurses (2.92) and Greek nurses (2.76) and Belgian nurses (3.01) in their own countries (Table 5.1). However, they rated themselves lower scores than UK and Spanish nurses. The score for all participants in the two assessment methods was found to be valid in terms of predictive validity because there was some correlation between the background scores and the total mean scores. The recruited European nurses in Cowan et al.'s

(2007) study had five years' experience, but their qualifications were not stated. The Saudi nurses recruited in this study were BSN graduates with less than one-year's experience. Therefore, the finding suggests that all participants from the Saudi universities rated themselves as more competent than three the European countries.

The definition used in the EHTAN self-assessment focuses on a combination of knowledge, skills, values and attitudes. The BSN curriculum in Saudi higher education, which is maintained by the National Commission for Academic Accreditation & Assessment, takes these elements into consideration in the nursing programmes as learning outcomes to apply to prepare competent nurses. The results of the EHTAN self-assessment of Saudi nursing graduates were slightly closer to the EHTAN self-assessment score of European nurses. The goal of preparing qualified Saudi nurses through higher education, using CBE regulated by National Commission for Academic Accreditation and Assessment, may thus be achieved within established and new universities. However, this needs to be confirmed by observation measures capable of assessing psychomotor skills. Hence, a similarity exists between this current research project and the earlier study by Al-Neami et al. (2014), which was undertaken, in order to assess the competence of 40 Saudi nursing interns at Jazan University (i.e. a new university) where a Likert five-point scale was used. Al-Neami et al. (2014) found the participants at the end of the programme were scoring 3 out of 5. Jazan University was included in this study, scoring 3.2 out of 4 in an EHTAN self-assessment, despite a low level of knowledge, i.e. there was no change in the self-assessed scores of Jazan University graduates in the two studies, using two different methods of self-assessment.

5.1.2.1. The self-assessment domains

The results of the self-assessment domains or skills for the Saudi graduates demonstrated some similarities with the study by Cowan, et al. (2006) and other studies, which assessed competence amongst nursing professionals. Some of these less developed skills were found to be global challenges in nursing practice. The low score in the 'assessment' domain and the 'research and development' domain compared to other EHTAN self-assessment domains may indicate that Saudi nursing graduates are able to identify their weaknesses and it could illustrate the ability of EHTAN self-assessment method to detect the differences in demonstration of various skills among different nursing profession . The 'assessment' domain was the lowest score amongst the eight self-assessment domains for all the Saudi graduates. Similarly, the total mean score for the 'assessment' domain for European nurses in the study

by Cowan, et al. (2006) was 2.6, yet it was the third lowest score amongst the eight self-assessment domains for all European nurses. Likewise, the total mean score for the Saudi nursing graduates was 2.6. The items in the EHTAN self-assessment with regard to the 'assessment' domain were not only concerned with health status, but included the ability to carry out physical, mental, social, cultural and home environment assessments, which relate to the holistic assessment of the condition of a patient. The holistic assessment is one of the current challenges facing nursing and health professional education, because it focuses not only on the health status of the patient, but includes the surrounding environment. In a portfolio assessment for eighteen Saudi graduates, Fielden (2012) found that the Saudi graduates were task focused rather than patient focused. However, the graduates of the established universities scored higher than those of the new universities in the 'assessment' domain, which was statistically significant and indicated that graduates of established universities are potentially more prepared in terms of assessment skills than those of the new universities. However, the weakness in the holistic needs assessment might be the global challenge in nursing care and in nursing education. Therefore, the problem may exist not only within the Saudi nursing education. Indeed, baseline studies in 2009 revealed that fewer than 25% of cancer patients received a holistic needs assessment and a care plan (Macmillan Cancer Support, 2015).

The second lowest score amongst the participants related to the 'research and development' domain, although research processes and evidence-based nursing is taught in the majority of the BSN in Saudi courses. Moreover, a lack of knowledge concerning evidence-based research amongst Saudi nursing graduates was identified in the qualitative study carried out by Almazwaghi (2013). The participants scored 2.8 in the 'research and development' domain. Similarly, the lowest score amongst European nurses in the study by Cowan, et al. (2006) was for 'research and development' (2.2). This domain concerns appraising and utilising research evidence and sharing or undertaking in research activity. In the study by Clinton, et al. (2005), research awareness achieved the second lowest score amongst diploma and graduate nursing graduates across ten domains.

Moreover, in the study by Clinton, et al. (2005), the diplomat graduates rated themselves as 2.7 and their line manager as 3.0, whereas the nursing graduates with graduate degrees rated themselves as 2.7 and their line manager as 2.9. The lack of engagement with research might be due to a lack of educational and health services support for the internship students and for

nurses in general. Furthermore, there are some barriers to the utilisation of research in Saudi health services, which were explored by Omer (2012) and Aboshaiqah, et al. (2014), who stated that the barriers amongst multicultural nursing settings in Saudi health care are as follows: lack of time; lack of authority; lack of physician co-operation; lack of EBP-related education. Therefore, evidence based practice and research might be taught but not encouraged in the Saudi health services, which may account for the low self-rated assessment score for the 'research and development' domain compared to other scores.

On the other hand, the scores for 'care delivery' and 'professional ethical practice' were the highest amongst the Saudi nursing graduates, and in both domains they scored 3.2. According to Cowan, et al. (2006), the European nurses scored 3.0 in the 'care delivery' domain and 3.3 for 'professional and ethical practice'. The care delivery domain in the EHTAN self-assessment consisted of forty items, which include different care disciplines. The internship year is a rotation year on different hospital wards and in different health care facilities. Therefore, the participants might feel able to provide care within different health care facilities. Indeed, the participants believed that they took the ethical issues relating to patients into serious consideration, which might explain the reason for not investigating the condition of the patients even though the patients were rejecting the nursing assessment. However, the high score for ethical awareness is notable in most areas of the study that assessed the competence of the nursing graduates. Hicky's (2009) study focussed on the following themes: (1) fear of harming patients; (2) a desire to help individuals; (3) a need to integrate theory and clinical practice; (4) and a desire to master psychomotor skills. Students also reported a need to focus on the mastery of skills prior to encountering more complex situations with patients. They reported the most important clinical environments as being those enabling them to learn and practice their communication, time management, and organisational skills alongside their psychomotor skills. (Hartigan-Rogers et al., 2007). Moreover, Kajander-Unkuri, et al. (2013) reviewed four studies that used the Nurse Competence Scale and found that the highest level of competence was reported in helping patients to cope and providing ethical and individualised care.

The other domains, such as 'communication', 'health promotion and illness prevention', 'personal and professional development' and 'Team working', scored between 3.0 and 3.1. In addition, Fielden (2012) found that Saudi nursing graduates lack written communication skills regarding patient progress, which was not identified by this study, which focused more

upon communication with patients and other health specialists. Moreover, the qualitative study by Almazwaghi (2013), which assessed the competence of nursing graduates in intensive critical care units, found that nursing graduates were positive communicators and facilitators due to their knowledge of both the Arabic and English languages, particularly in situations where the patients are Saudi and the staff are primarily of non-Saudi origin. Therefore, Saudi higher education takes into consideration the communication skills in the recent BSN programme, particularly when linked to the National Commission for Academic Accreditation & Assessment, which considers the CBE.

In general, the disclosures of Saudi graduates on the EHTAN self-assessment demonstrated a number of similarities with those of both the international nursing graduates and the European nurses. In addition, the self-assessment method demonstrated a degree of accuracy in assessing certain aspects of the holistic approach considered to be the main elements in a patient's care and integrated with technical skills, i.e. the 'assessment' domain and the 'care delivery' domain. Norman et al. (2002) note that self-assessment forms an important aspect of multi-method assessment, and is no less valid than other assessment approaches. The participants in the current study scored 2.6 in the 'assessment' domain and 3.2 in the 'care delivery' domain, thus revealing a number of similarities to the majority of scores from European countries, particularly in those domains. Moreover, due to the lack of availability of a standardised valid observation tool, no assessment was undertaken in this study of either technical or psychomotor skills, it has been established that self-assessment offers the ability to detect a number of aspects of competence that cannot be measured by other methods (e.g. OSCEs) when considering holistic nursing care. The variation in patient assessment in this current study, along with the provision of patient care, was identified through differences between the domains of 'care delivery' and 'assessment' in the results for all participants. Moreover, the utilisation in this current study of EHTAN self-assessment was reliable in terms of internal consistency.

The outcomes of EHTAN self-assessment domains indicated that Saudi nursing graduates may not sufficiently prepared to demonstrate holistic patient assessment skills in comparison to other skills, which may become more apparent when compared to other international nursing competence assessment studies, such as the study carried out by Kajander-Unkuri, et al. (2013), which found that diagnostic assessment is one of the highest levels of competence, whereas assessment skills amongst the Saudi graduates was the lowest domain. Furthermore,

research skills were low compared to other scores, which is a situation commonly found amongst nursing staff and nursing graduates worldwide. Similarly, the score for the professional and ethical domain was high, which also scores highly in some international studies (Lofmark, et al., 2006). Therefore, Saudi nursing graduates have considered ethical issues at the start of their nursing career, something that has also been established by international studies.

Moving from nursing training to nursing education through the higher education system could be a step towards providing qualified nurses in care delivery with moral deliberation but not in holistic patient assessment. The participants scored highly in the 'care delivery' domain although it was not objectively measured but it took into consideration aspects of holistic nursing care. This is an important issue in terms of the quality of nursing care. The Saudi universities have prepared nursing graduates to have sufficient quality skills to provide a good quality of care. However, the 'assessment' domain and the 'research and development' domain achieved low scores compared to other domains for all the nursing graduates. Moreover, Saudi nursing education may not encourage holistic assessment skills in its teaching, or the health service culture in the Middle East may be a factor, where nurses are carers rather than assessors and provide care according to the orders of the physicians, unlike the nurses in developed countries. For instance, training with advanced nurses in walk-in centres in the UK, where the advanced nurse can assess the patient and even prescribe, will develop the clinical assessment skills of the students. On the other hand, patients in Middle Eastern countries are sometimes unwilling to accept having a nurse assess their health status and enquire about their social issues, due to the poor image of nursing in these countries and the belief that it is the responsibility of the physicians. Therefore, nursing educational programmes should consider assigning nursing students to the ambulance services in order to provide the opportunity to practice assessment skills without restriction. This will improve the quality of health services through the double-checking of a patient's condition, in order to reduce malpractice and medical errors resulting from an incomplete patient assessment. However, the established universities, where graduates trained in teaching hospitals, scored significantly higher in the 'assessment' domain than the new universities, where graduates trained in Ministry of Health hospitals.

5.1.3 Knowledge test score for all participants

The Saudi nursing graduates had a low score of 26.6% and a maximum score of 42%, which is lower than the pass mark (50%). The knowledge subset score improved to 31.8% when the knowledge test was validated and the maximum score increased to 64%, which is above the pass mark. However, it was not anticipated that a high percentage of nursing graduates would achieve the pass mark, because the nursing graduates did not study or prepare themselves for the exam; however, the maximum score in the full knowledge test was only 42%.

The findings of this study support the findings reported by Bahari (2015), which reported the low pass rate of Saudi nursing graduates in the National Council Licensure Examination for Registered Nurses (NCLEX-RN). That study stated that 12 students educated in Saudi Arabia took the examination, and achieved a pass-rate of only 20%. This is in comparison to 21,439 internationally educated graduates, who took the exam in 2009 with a pass rate of 42.37%. Although this is an extremely small sample, it demonstrates a number of similarities with the findings of this research project, including a very low pass rate, with only 11% scoring above 50% in the knowledge subset score, and only 22% scoring above 44%. Bahari (2015) states that this poor test performance suggests an inadequate preparation of Saudi nursing graduates for the NCLEX-RN, leading to a need to evaluate the curriculum of nursing educational programmes in Saudi Arabia. The Saudi educational system remains highly traditional, with students being accustomed to being 'spoon-fed' content from their teachers in lectures, memorising the information, and regurgitating it word for word in the final examination (Wittmann, 2013). Thus, alternative methods of teaching in nursing education should be considered, particularly those promoting the retrieval of knowledge and independent thinking (e.g. case studies, role-playing and bedside teaching accompanied by discussion) in order to improve clinical reasoning and analytical judgment which can reflect on knowledge gain improvement (Blane, 2015).

Nevertheless, as previously mentioned, a lack of knowledge development among the Saudi graduates was identified in several earlier studies. In a portfolio assessment, Fielden (2012) found that in terms of knowledge Saudi nursing graduates had an incomplete understanding of the complexities of people, health and nursing itself. The following quote highlights an important theme that was stated earlier in the literature review and was found in the qualitative study by Gazzaz (2009, p. 138), which illustrates the gap between theory and practice amongst Saudi nurse interns and which is one of the barriers to knowledge

development: *"We take the knowledge then lose it, because we do not immediately apply it in the hospital. There is no link between theory and practice, what I learn I should practice, but we do not get enough training'.*

Although it is not clear whether this theme is true of the university hospitals or the Ministry of Health Hospitals, it does reflect the results of this study. The level of knowledge of BSN nursing graduates at Jazan (a new university) was found to be at its lowest in relation to the following competencies response, infection control, environmental safety, Hazards material and fall prevention (AlNeami et al. 2014).

Similarly, low levels of nursing knowledge were also found among the Middle Eastern graduates, particularly with Jordanian nursing graduates, in the previously discussed study conducted by Sadafi, et al. (2010), which was assessed via self-assessment competence. Lakanmaa et al. (2013) also identified a low level of knowledge in Finnish nursing graduates in a self-reporting assessment of the knowledge and competence of nurses in a critical care unit, supported by the standardised knowledge test in critical care known as the Basic Knowledge Assessment Tool (Version 7). In the knowledge test, the mean score of 138 nursing graduates was only 32%, whereas the self-assessment score was 4 out 5. The average performance 34.05% in the South African nursing graduates in the study of Morolong and Chabeli, (2005) which assessed nursing graduates by observation. Doody et al. (2012) investigated student perceptions of the role of transition during a four-year BSc nursing programme at an Irish university, addressing that 39% of students lacked confidence in relation to their level of knowledge. Even after allowing for the limitations of the assessment method, it is important to note that the standardised knowledge test employed in this research project was able to detect slight differences between the graduates of the established universities and those of the new universities in terms of nursing knowledge, and the difference was statistically significant for both the knowledge test score and the knowledge subset score. In this study, the Cronbach's Alpha for the subset score also improved from 0.3 in the knowledge test score to 0.6 in the subset score and, moreover, the subset score became a predictor for the aptitude score and positively correlated with the self-assessment score for graduates of the established universities. Therefore, although the student achieved low score in the knowledge test but it reflects some predictive validity and it was useful in terms of knowledge assessment. For future research, to minimise the possibility of random selection, the data should be obtained from real, well-deigned registration exam.

A longitudinal study by Takase et al. (2013) (as discussed above in the literature review chapter) addressed that, in some cases, diploma holders score higher than BSN degree graduates. Takase et al. (2013) argued that the transfer of nursing education to tertiary institutions has been made with the aim of promoting nursing's professionalism, and producing more competent graduates. However, Japanese universities are considered to overemphasise the intellectual and theoretical aspects of study, placing a lower emphasis on practical components. Therefore, it is essential to ensure the integration of both components by using a variety of teaching methods in higher education, in order to improve the integration of technical skills, along with the cognitive skills that inform best practice. The Saudi graduates scored low in the knowledge test, and cognitive skills and dominating technical skills rely on the knowledge base. Upgrading the nursing qualification to improve analytical skills may be beneficial, but cannot be completely achieved by Saudi nursing educators because of the low level of knowledge within the participants in this study.

5.1.4 The differences between the two groups of graduates and the influence background variables on the outcomes

The underlying aim was to identify the differences to self-assessment of competence and knowledge test performance from established universities, trained in teaching hospitals, and graduates from new universities, trained in small Ministry of Health Hospitals with limited educational facilities. Although there was no significant differences between the established universities' graduates and new universities' graduates in the mean score of EHTAN self-assessment but the established universities' graduates score significantly higher than new universities' graduates in the knowledge test score and in the 'assessment' domain of the EHTAN self-assessment. However, following the validation of the knowledge test through knowledge subset score and controlling for the background variables, the result shows no differences between the two groups of graduates in terms of education and training facilities.

The positive correlation between the mean score of EHTAN self-assessment and knowledge subset score might improve the validity of the outcomes of the established universities graduate but it was weak positive correlation (r =.312). There was no positive or negative correlation between EHTAN self-assessment and knowledge test scores of the new universities graduates. Therefore, the relationship between the two assessment methods in this study didn't strongly verify the criterion validity of the outcomes for both established

and new universities graduates. This might be due to the limitation of the knowledge test used in this study.

The expectation was that these two types of institutions would differ in terms of their admission characteristics. The findings confirm that the established universities admit students with significantly higher pre-admission scores. The multivariate analysis shows a limited affect from the investigated background factors on the outcomes. The established universities scored higher in the knowledge subset questions because they admitted students with higher pre-admission scores. No influence was established on the self-assessment scores or knowledge test scores from high school grades and pre-admission scores. Following the validation of the knowledge test through knowledge subset questions, those who had graduated from established universities scored higher in the knowledge subset questions, due to these universities admitting students with higher pre-admission scores.

It appears that, despite a noticeable difference in pre-admission scores, the rapid expansion of nursing education in different regions of Saudi Arabia has had no effect on the development of competence among Saudi nursing graduates. The lower scores for new universities' graduate's in the pre-admission scores might result from the fact that the new universities are in smaller cities with smaller populations than the established universities; therefore, the new universities may have fewer competitive applicants and admit the available applicants with lower pre-admission scores. On the other hand, it may be due to the fact that there are additional cultural barriers in rural areas, in comparison to large/main cities, which prevent Saudi women from becoming nurses. Nursing courses in Saudi Arabia tend to have low levels of enrolment, due to the adverse image of nursing in comparison with other professions (Alyami and Watson, 2014). There is considerable disparity in the Saudi nursing workforce between regions in both applicants, and provision in relation to population share (Al-Mahmoud and Spurgeon, 2012). It is possible that this low level image could be more prevalent in smaller cities. The result of the admission scores in this research project demonstrates a marked difference between applicants for established and new universities. However, no Saudi studies have yet explored the differences between the admission scores of Saudi universities in different regions in relation to the quality of graduates.

A proportion of the literature suggests that the development of competence can be facilitated by the learning environment itself (Midgly, 2004; Dunn et al., 2005; Rahmani et al., 2011). When it comes to training in the Ministry of Health's government hospitals, an earlier

qualitative study conducted by Gazzaz (2009, p.147) assessed the perceptions of Saudi nurses in relation to nursing an occupational choice, and identified the following theme:

As a student, I spent two years of my training experience at government hospitals, but did not learn much. After graduation, I chose to do my internship at the [other than government] hospital. I really benefited there, they [nurse educators] prepared me well and got me started.

This study has established no difference between the BSN programme at established universities where graduates are trained in tertiary teaching hospitals in terms of nursing self-assessment competence, in comparison to the BSN programme educated and trained at new universities implemented simultaneously in different parts of the country that lacked teaching hospitals, with training commencing in MOH secondary hospitals with 200-300 beds. The total mean score of the EHTAN self-assessment competence or in the mean score for the seven subscale domains, with the exception of the 'assessment' domain. Comparing this result with that of Safadi, et al. (2010), who used self-assessment competence for nursing graduates, Safadi, et al. found no significant differences in the overall level of competence between nursing graduates working in public, private and university hospitals, but nurses working in the teaching hospitals demonstrated significantly higher performance in two competencies (management and professionalism) than nurses in the public and private hospitals. The established universities' graduates scored higher in the assessment domain and in the knowledge test score and there was no influence of university type on the knowledge subset score. Supportive clinical training is needed for the Saudi nursing graduates because the evidence which was previously discussed by Whitehead et al. (2013), newly qualified nurses' benefit from a period of supported and structured preceptorship during the transition stage. Although Saudi nursing education research has not focused on evaluating the effectiveness of different models of preceptorship, Omer et al. (2013) found nursing students are usually satisfied by preceptors who provide extensive mentoring, offering close guidance and assistance. Therefore, the Saudisation strategy in nursing needs further consideration to improve the knowledge and competence levels of nursing graduates and to support well-structured hospital training, including innovative teaching methods which can raise the level of the nursing graduate's quality.

In terms of the knowledge test which consisted of 70 questions, the established universities' graduates scored 3% higher than new universities' graduates. In the validated knowledge

subset score which consisted of 11 subset questions, the established universities' graduates scored 7 % higher than the new universities' graduates but when the admission variables were controlled, there were no differences between the two groups of graduates. This may reflect the importance and the effect of admission criteria on the knowledge development while they were doing their BSN programme. The relationship between the admission criteria and course performance was identified in several earlier Saudi medical studies, which discovered a relationship between high school grades or pre-admission scores and the GPAs (Al Alwan, et al., 2012; Albishri, et al., 2012; Murshid, 2013). Furthermore, several nursing studies indicated correlations between high school grades or pre-admission exam marks and academic performance in nursing programmes (Pitt, et al., 2012). Therefore, it might be a good decision for the Saudi strategy to improve the admission criteria as much as possible in order to improve the quality of the graduates, although the admission criteria found in this study was low compared to that of medical students. It is recommended that the results of this research project should be added to the existing Saudi medical evidence, particularly as the results of this study correlated with the subset score of the registration exam for nursing.

Moreover, Lamadah and Sayed (2014) claimed that Saudis have a lack of interest in nursing as an occupational choice, and Al-Omar (2004) observed that Saudi high school students (males and females) scored very low in terms of the intention of becoming a nurse. According to this study, it could be argued that higher high school scores are associated with higher self-assessment and that higher aptitude scores are associated with higher knowledge subset scores. The aim was not to assess professional motivation; however, this might be indicative of learning development and career progression as a result of the encouragement of Saudis towards nursing professions. Therefore, raising the level of the admission scores may increase the levels of the knowledge and skills of Saudi nurses.

5.1.5 The consideration for differences between female and male nursing graduates in both measures

The introduction into the results section of an analysis of differences between male and female nursing graduates aimed to explore the ways in which gender differences influence the study findings, and to establish the scores of Saudi women (who face a number of social and cultural barriers) according to the two assessment methods. The result suggests that there were significant differences between the male and female graduates in the pre-admission

scores but not in high school. There was differences between male and female participants in the total mean score for self-assessment and some of the self-assessment domains. For instances, female nursing graduates scored significantly higher in self-assessment domains such as ‘care delivery’, ‘personal and professional development’, ‘professional and ethical in practice’ and ‘team working. The multivariate analysis indicated that gender significantly affected the self-assessment competence score, but not the knowledge test or knowledge subset scores. However, in this study, the males comprised 19% (28 students) and females 81% (122 students), leading to little influence on the outcomes and the original study results, due to the majority of students admitted to the nursing programmes being female.

The results of this current study reveal that Saudi women feel competent at the point of graduation, despite facing a number of social and cultural challenges. Gillespie et al. (2013) investigated the association between the demographic factor and pre-operative competence in Autralian large sample consisting of (1044) participants but women consist of (944) participants. Gender was a significant predictor on three subscales and men score higher significantly higher than women in these three characteristics; Foundational Knowledge, Professional Development and Leadership. Men and women did not differ in their perceived degree of competence on the Proficiency, Collegiality, and Empathy subscale. The qualitative study conducted in Taiwan by (Yang et al. 2004) found the male nurses reported higher scores in applying knowledge and a strong desire for personal growth and professional promotion than women (Yang et al. 2004). Ekstro (1999) found female nurse care are preferred by patients than male nurse. It is important to note that Saudi culture is a strong Muslim culture where female care preferred by female patients and male care is preferred by male patients. Therefore, producing adequate number of male nurses is needed in Saudi culture.

Saudisation in terms of the nursing workforce focuses mainly on females, who may face more cultural and social barriers compared to male nursing graduates, which may lead to a decrease in the total mean score for outcomes related to care delivery assessed by self-assessment competence and knowledge development. The majority of the participants were female, their self-assessed competence scores were higher than male participants although there was no differences between both gender in knowledge test scores and the overall results of this study shows similarities with international studies in nursing education and in nursing practice. This is a contradiction of the findings of Mebrouk (2008), who claimed that female

Saudi nurses face cultural challenges such as gender segregation, and that the image of nursing and Saudi female nurses wearing the hijab are some of the obstacles working against the Saudisation of nursing care. The outcomes of this study revealed that educating and preparing Saudi nurses is not extreme challenge. However, the social and cultural barriers, which comprise social perception, public image, family disagreement, cultural values, long working hours and concerns about not being married (Alomer, 2004), remain a challenge for a long term job for the Saudi women. It is a challenge for secondary and tertiary health services to replace the international nurses and to maintain stability in the nursing workforce. Based on the self-assessments, it can be seen that Saudi nurses feel themselves to be at the same level of competence as international nurses as discussed earlier. However, the ability to sustain nursing as a career remains a challenge for Saudi female nurses. Almalki et al. (2012) assessed the quality of the work-life balance among primary health care nurses which is run by high percentage of Saudi nurses in the Jazan region, Saudi Arabia, establishing considerable levels of dissatisfaction. This was primarily due to: (1) unsuitable working hours; (2) a lack of facilities for nurses; (3) the lack of an ability to balance work with family needs; (4) inadequacy of holiday periods for nurses and their families; (5) poor staffing; (6) poor management and supervision practices; (7) a lack of professional development opportunities; (8) an inappropriate working environment in relation to security levels, patient care supplies and equipment, and recreation facilities (i.e. an area for use during breaks). Therefore, based on the outcomes of this study, it is not cultural and social factors forming barriers to Saudi women becoming competent nurses, but it is rather issues related to their long-term careers that require further investigation.

Saudi male nurse are is also needed and should be attracted to the nursing workforce as male care preferred by the male patients. Saudi male nurses continue to represent a minority within the Saudi nursing-workforce (Gazza, 2009). Al-Osimy (1994) emphasised that nursing, at the MoH Health Institutes and Colleges, should be made more appealing to Saudi male applicants who tend to prefer other health disciplines over nursing. Another important consideration for the development of nursing national workforce is encouraging Saudi male leaders in the nursing workforce. Tumulty (2001) argued that, in societies where power and control rest with men, these male nurses are greatly hampered by their lack of educational credential. Al-Rabiah (1994) and Lovering (1996) suggested that having more educated and highly qualified Saudi male nurses will improve the power and status of nursing in Saudi Arabia. This will improve the effectiveness of the Saudisation strategy in nursing. Saudi male

nurses at the top level of health services organisations will increase the power in determining their needs for long term job satisfaction according to the Saudi culture.

5.2 Limitations

Firstly, the results of this study should not be generalised, because it is a cross-sectional study and the new Saudi university facilities are under development and students with higher pre-admission scores might be admitted to their nursing programmes in the future. Moreover, there may also be further developments in the teaching and training within new universities, leading to an improvement in the quality of nursing graduates. Despite the fact that this was a cross-sectional study, in which cause cannot be identified, the causes in this current study were addressed through the analysis of the relationship between variables and the effect of the variable on the outcomes.

Secondly, the most important feedback (gained during the piloting phase and the data collection for the main study) refers to the knowledge test questions and the self-assessment, suggesting they are too long. However, refining the self-assessment questions may threaten their validity and reliability. Nevertheless, the targeted group was comprised of students who had finished their theoretical and practical studies and were not yet in full-time employment and, therefore, have the time to answer both assessment tools.

Thirdly, the exam may lack alignment with the Saudi higher education courses and may require questions concerning experiences in clinical practice to be answered. This was visibly noticeable after the content validity analysis, which produced the subset scores. Therefore, the subset scores became the predictor for the aptitude scores for all graduates and were associated with the self-assessment score in the result for the established universities. The content validity index should be considered and performed before conducting the study, although the nurse educators who assigned in this study to select the subset questions were unaware of the results of the exam.

Fourthly, the questions were presented as quite long case studies and required time to be read and some analysis in order to be answered. However, the difficulty index shows that there were some questions have higher rate of correct answer reach to 50 % whereas there are some questions has low rate of correct answer and some the questions which was found to be reach to higher rate of correct answers was due to the relevancy of these question to the Saudi courses.

Fifthly, the researcher marked the knowledge test. The neutrality of this test may have been compromised by the fact that the researcher was aware of the names of the universities. However, there was only one answer for every question, which was chosen from either A, B, C or D, thus, eliminating any bias during marking. A separate marker was not employed due to the necessity to maintain high levels of confidentiality towards the exam papers relating to nursing registration.

Sixthly, the total mean score of the full knowledge test was 26.6% for all participants, which is designed as 70 questions with a four option MCQ exam, could be contributed to the fact that the participants were chosen under a random selection strategy. The graduates had not studied or prepared themselves to take the knowledge exam, because there is no registration or license for Saudi Higher Education graduates. Therefore, the exam was self-administered for the purpose of the research and some of the graduates may not have answered the exam questions seriously. However, they were expected to be more serious, because they did not have the responsibility of working and they had completed their theoretical course. Furthermore, the nursing graduates were motivated by prizes. There was no guarantee that they were guessing, however, the total mean score for all participants for the knowledge subset scores increased from 26.6% to 31.8%. The result of the knowledge subset score thus positively correlated with both the aptitude test score and self-assessment score ($r = 0.266$) for all participants. .

5.3 Strengths

Despite the fact that the results cannot be readily generalised, the sample was obtained from five universities located in five different regions in the country from both established and new universities. The data relating to the pre-admission scores confirmed that established universities admit students with higher scores, demonstrating a relationship between knowledge subset scores and aptitudes score. Moreover, high school grades, and the self-assessment scores. These factors influenced the outcomes, and were analysed by means of multivariate analysis.

This finding supports the recommendations of the systemic review and policy recommendation put forward by the National Nursing Research Unit (2009) and the systemic review conducted by Yanhua and Watson (2011). This recommended the need for robustness in a multi-method approach, including the use of advanced statistical analysis. This addressed

evidence that knowledge is related to competence by addressing the relationship between the competence stated in the self-assessment and the validated knowledge test score. This finding contradicted some previous research in relation to medical education (Goldney and McFarlane, 1986) and nursing (Norman et al., 2002), which concluded that that different methods address different abilities.

The EHTAN self-assessment questionnaires employed in this study demonstrate a reasonable level of reliability when translated into Arabic, similar to that found in Cowan et al. (2007).

5.4 Implications

The results of this research project raise some implications for the research field of nursing education and clinical practice, which should be considered during the assessment process in clinical practice.

5.4.1 Research field

The employment of self-assessment alongside a standardised knowledge test score was not sufficient to assess the preparedness of the Saudi nursing graduates for practice. Triangulation of the assessment methods should be considered, which includes standardised OSCE, self-assessment and standardised knowledge test scores. The assessment of technical skills is very important in terms of ensuring patient safety, and could be assessed by OSCE in future research. Furthermore, the lack of a standardised exam, including resources that could be transferred between the five universities, was a barrier to employing OSCE in this study.

The employment of a standardised knowledge test alongside the self-assessment indicates some validity, but it must be an obligatory exam in order to avoid guessing and the content validity could be improved by discrimination analysis.

Nursing students should be trained in metacognitive skills and should be given the opportunity to identify their abilities and weaknesses. Training on self-assessment and receiving feedback from clinical practitioners and educators to identify learning needs is essential for professional development and for evaluating the success of education and training programmes. If students are equipped for lifelong learning, they will be able to assess themselves and monitor their own learning needs (Norman, et al., 2002). In turn, this could save resources, time and effort and enhance ethical issues concerning patients, since it

appears that nursing graduates from established universities are able to identify their abilities better than nursing graduates from new universities.

The employment of the EHTAN self-assessment questions alongside the knowledge test might raises the possibility of over-estimation, amongst the nursing graduates. Previously, psychologists investigated self-assessment competence when combined with objective performance. Kruger and Dunning (1999) suggested that incompetent individuals have greater difficulty recognising their true level of ability than more competent individuals, and that a lack of metacognitive skills may underlie this deficiency. Baron and Kenney (1986) found that a low level of objective performance was associated with inflated self-assessment. Moreover, they argued that people tend not give negative feedback about themselves when they didn't feel that they perform well in the objective assessment; hence, this should be taken into account when using self-assessment competence alongside objective. Furthermore, time should be allocated between taking the self-assessment and before taking the knowledge exam. Additionally, during this study that was not possible, because the participants might be missed after completing the self-assessment questions. However, in this study, there was no positive or negative correlation between the self-assessment and both knowledge test scores in the results of all participants but there was a weak positive correlation between the total mean score of the self-assessment and knowledge subset score in the result of the established universities graduates. This minimises the possibility of any over-estimation in this study.

Furthermore, patient feedback and patient outcomes should be strongly considered in order to assess the quality of the products of each university, because medical, health sciences and nursing schools are partners with health services in terms of providing better health care. Indeed, the patient is the customer for the health services and, thus, for their partners. However, ethical considerations need to be taken into consideration, due to the potential ethical issues raised by assessing the satisfaction of ill patients towards staff who are undergoing training.

5.4.2 Nursing education and nursing practice

In relation to nursing education, using different methods of assessment, such as direct observation, portfolio, OSCE, patient feedback, case scenario, peer review and written exams, will improve the accuracy of judgment in the absence of a gold standard.

The gap between theory and practice and the lack of knowledge amongst Saudi nursing graduates was noticeable in this study and in previous studies, particularly in the specialised areas, which might be due to the diverse role of nursing. The traditional curriculum for nursing education is challenged by the rapid developments in medical knowledge and technology. Hence, this requires developments in education and training instead of providing unprepared nursing graduates who need to be re-trained and developed through in-service training. The Saudi health service faces several challenges as a result of instability and a lack of quality in the nursing workforce, mainly due to the short-term contracts within the nursing professions. Therefore, an effective transition strategy implemented before graduation is necessary to avoid resignations from the nursing careers, which were observed earlier by the World Health Organisation Report (2006).

5.5 Conclusion

The Saudi government has made some notable efforts to accelerate the Saudisation strategy in nursing, by expanding the nursing education in higher education in the Kingdom; although this sudden expansion has created two types of universities, characterised by their pre-admission scores and education and training facilities. The existing evidence regarding the assessment of the preparedness of Saudi nursing graduates is limited in terms of quantity and quality in the literature. A number of this study's findings extend to the findings of the previous Saudi studies discussed earlier, by demonstrating the low level of knowledge and lack of skills in the area of patient assessment among Saudi nursing graduates. Assessments of the preparedness of nursing graduates in Saudi Arabia, and differentiation between graduates from established universities and new universities is hindered by the unavailability of a gold standard of assessment method. However, this current study provides a number of positive findings in relation to the preparation of the nursing workforce by means of the BSN programme.

This study finds EHTAN self-assessment to be reliable and it has some aspects of face and content validity in regards to the Saudi nursing competencies. Moreover, it was designed to assess a wide range of skills related to holistic approaches to competence, although self-assessment methods in general were criticised on the grounds of subjectivity. Therefore, a standardised knowledge test was used alongside self-assessed competence to insure the

validity of outcomes if the two measures correlated with each other. This study offers new evidences regarding the following aspects: 1) The Saudi nursing graduates' knowledge and self-assessed competence levels; 2) Differences between the established universities' graduates and new universities' graduates in terms of knowledge and competence level; and 3) Differences between established universities' graduates and new universities' graduates in knowledge and self-assessed of competence level when background variables are controlled.

The results for all participants indicate that they trust their level of competence at similar level of international nursing graduates, although their knowledge level is low, and the results of the correlation of both measures were uncertain. The mean average of both knowledge test scores were below the pass mark, although this increased when it came to the knowledge subset score. However, there needs to be a consideration of the limitation of the employment of the standardised knowledge test in this research project. Future research should consider targeting the health specialist licensing authority to obtain the data of the outcomes of the registration exams so as to attain a high level of validated data instead of employing a non-obligatory test. Nevertheless, a diversity of teaching methods needs to be established in Saudi nursing colleges, in order to enhance and improve the nursing knowledge of Saudi graduates, due to a lack of verification of the reasons behind the low score in the knowledge test.

There were no significant differences between the established universities' graduates and the new universities' graduates in self-assessed competence level. Those who were undertaking their clinical placement and clinical training in MOH hospitals, scored themselves at a similar level to established universities graduates who had been educated at experienced faculties and trained in teaching hospitals. However, this should not disregard the supportive training found in the clinical placement. Cooperation and collaboration is required between health services providers and nursing education institutions within the new universities, so as to support health service training.

The current evidence suggests that supporting students in their preceptorship and internship programme facilitates their transition from students to practitioners. This will improve levels of confidence and competence, and will reduce levels of stress and anxiety during the transition stage. Moreover, it will reduce the incidence of individuals immediately withdrawing from the post of new nurse practitioner to take up a post in office administration in health services, which has been noted within a proportion of Saudi nursing graduates.

The findings confirm that the established universities admit students with significantly higher pre-admission scores and this correlated with outcomes, however this demonstrates no influence on self-assessment scores. The established universities' graduates scored significantly higher in the knowledge subset score, as a result of admitting students with higher pre-admission scores. However, the established universities' graduates scored significantly higher than the new universities' graduates as a result of pre-admission scores. Therefore, pre-admission scores have an influence on the nursing knowledge level of the participants but not on self-assessed competence.

Most of the admitted students are female. It was argued previously that Saudi female nurses encounter social and cultural barriers to becoming competent nurses. In this current study, Saudi female nursing graduates scored significantly higher in the total mean score of the self-assessed competence and in four self-assessment domains in the comparison to male nursing graduates but they scored similar to the male participants in both knowledge test scores and knowledge sub set scores. Therefore, the social and cultural issues are not a barrier for competence development of the Saudi female nursing graduates. However, unequal participants were noted and considered, because the nursing schools are admitting a higher percentage of female students.

More studies are needed to assess the professional development and to track the career progression of Saudi nurses. The BSN five-year course, which is costly for the students and for the government, needs to be evaluated in terms of the length of the programme, in order to encourage students to take up nursing. Shortening the length of the courses available and improving the teaching and training strategies, particularly in preceptorship developed models, might be useful for facilitating the transition between theory and practice.

It is important to conclude that the employment of the EHTAN self-assessment method, which has some aspect of reliability and validity alongside the validated standardised knowledge test results in outcomes that shows some validity in terms of predictive validity of the results of all participants. Further research should be considered, using robust observation measures to assess technical and psychomotor skills, such as standardised OSCE alongside the holistic self-assessment competence and well-designed standardised knowledge test.

List of References

Abdulghani, HM. (2009) Admission criteria for Saudi Health Colleges: The current status and a literature review. *Med Channel* 2009, 15(3), 18-21.

Abu Duhier, F. Aly, N. Kandeel, N. & Ali, R. (2011) Identifying the priority needs for applied medical science specialties, *Australian Journal of Basic and Applied Sciences*, 5(6), 646-651.

Abulfaraj, W., Zahed, A. H., Kabesh, M. & Ali, S. (2006) The international trends and reforms in engineering education at King Abdulaziz University, *World Transition on Engineering and Technology Education*, 5(1),143–148.

Abu-Zinadah, S. (2005) The regulation and its impact on nursing education: Saudi Arabia experience. Paper presented in the first International Nursing Conference: Toward Advancing Nursing, Riyadh, Saudi Arabia, 9th December.

Abu-Zinadah, S. (2006) Nursing situation in Saudi Arabia. Riyadh: Saudi Nursing Board, Saudi Commission for Health Specialties. Available at: http://www.nurse.scfhs.org [accessed 7 Jan 2013].

Adib-Hajbaghery, M., Karbasi-Valashani, K., & Heidari-Haratmeh, A. (2012). Correlation of clinical skills self-assessment of nursing internship trainees with their teachers' evaluation. *Nursing and Midwifery Studies*, 1(2),94–99.

Agency for Healthcare Research and Quality (2007). Nurse staffing and quality of patient care. *Evidence Report/Technology Assessment* Number 151, AHRQ, USA,. 07-E005.No 152, available at http://archive.ahrq.gov/downloads/pub/evidence/pdf/nursestaff/nursestaff.pdf. [Accessed 5th May 2014].

Aiken, LH. Smith, HL. & Lake, E.T. (1994) Lower medicare mortality among a set of hospitals known for good nursing care. *Medical Care*, 32(8),771–787.

Aiken, LH. Clarke, SP, Cheung, RB. Sloan, DM and Silber, JH. (2003) Educational levels of hospital nurses and surgical patient mortality. *JAMA*, 290(12),1617–1623.

Aiken, LH. Cimiotti, JP & Sloane, DM. (2011) Effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *Med Care*. 49(12), 1047-1053.

Al Thagafi, H (2006) Change of attitudes towards the nursing profession for a sample of Saudi youth through a counselling program: Experimental study on a sample of students, Master's dissertation, Naif Arab University for Security Sciences.

Al-alwan, I. (2009) Exams and Early Performance in Health Science College, *Saudi J Kidney Dis Transpl, 20*(3), 448–453.

Alamri, A. Rasheed, M. & Alfawzan, N. (2006) Reluctance of Saudi youth toward the nursing profession and the high rate of unemployment in Saudi Arabia: Causes and effects. Riyadh: King Saud University. [in Arabic].

Albejaidi, F. (2010) Healthcare system in Saudi Arabia: An analysis of structure, total quality management and future challenges, *Journal of Alternative Perspectives in the Social Sciences,*2(2), 1-20.

Albishri, J. A. Aly, S. M. & Alnemary, Y. (2012) Admission criteria to Saudi medical schools, *Saudi Med J,* 33(11), 1222–1226.

Aldawsari, N. Yolanda,B. Mary-Anne,A (2016) Transitioning from nursing student to clinical teacher in Saudi Arabia. *Journal of Nursing Education and Practice,*6(2),76-85.

Aldossary, A. While, A. Barriball, L .(2008) Health care and nursing in Saudi Arabia. *International Nursing Review*, 55 (1,)125–128.

Al-Eisa, A. & Shahab, S. (2006) The experience of King AbdulAziz University in accreditation and quality. First Arabic conference for university quality and requirements of licencing and academic accreditation, AL Sharjah, United Arab Emirates,

Alghamdi, M. G. & Urden, L. D. (2015) Transforming the nursing profession in Saudi Arabia. *Journal of nursing management*, 1–6, 23(2), 139-274 Available at http://onlinelibrary.wiley.com/doi/10.1111/jonm.12301/abstract;jsessionid=486AF66F8E272FCEC8A6790A4CA3CC9C.f03t04. [Accessed 11 November 2015]

Al-Husaini, H. (2006) Factors hindering the efficient practice of the Saudi nurses working under the MOH at the Riyadh Region (Arabic Text, Title Translated by LG). Department of Human Resources, MOH, Personnel Affairs. Available at: <http://www.moh.gov.sa> [Accessed 20 January 2007]

Ali, W. (2012) Caring and effective teaching behavior of clinical nursing instructors in clinical area as perceived by their students, *3*(7), 15–27.

Alinier, G. (2003) Nursing students' and lecturers' perspectives of objective structured clinical examination incorporating simulation. *Nurse Education Today*, 23(6), 419-426. Available at: http://linkinghub.elsevier.com/retrieve/pii/S0260691703000443 [Accessed March 1, 2012].

Al-Mahmoud, S. Mullen, P & Spurgeon, P. (2012) Saudisation of the nursing workforce: Reality and myths about planning nurse training in Saudi Arabia. *Journal of American Science,* 8(4),369-379.

Almalki, M. Fitzgerald & Clark, M. (2011) Health care system in Saudi Arabia: an overview, *Eastern Mediterranean Health Journal,* 17(10), 784-793.

Almazwaghi, S. (2013) Intensive care unit competencies of new nursing graduates in Saudi Arabia, nurse educator and preceptor perspectives. Master's dissertation. University of Saskatchewan,

Almutairi, K. M. (2015) Culture and language differences as a barrier to provision, *36*(4), 425–431.

Al-Neami , I. Cynthia, G. & Elizer, R. (2014) Competencies of nursing interns at King Fahd Central Hospital, *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* ,3(2), 34–44.

Al-Ohali, M. (2009) Higher Education in Saudi proceeding of Saudi national conference for quality in Higher Education, Riyadh , Saudi Arabia

Al-Omar, B. (2003) Knowledge, attitudes and intention of High School Students towards the nursing profession in Riyadh City, Saudi Arabia. *Saudi Med J,* 25(2), 150-155.

Al-Osaimi, M. (1994) Nursing in the kingdom of Saudi Arabia, King Fahad National Library, Riyadh. [Arabic Text].

Al-Rukban, M. Munshi, F. & Abdulghani, H. (2010) The ability of the pre-admission criteria to predictperformance in a Saudi medical school, *Saudi Med Journal,* 31 (5), 560-564.

Alsop, A. (1995). The professional portfolio—purpose, process and practice, Part 1: Portfolios and professional practice. *British Journal of Occupational Therapy*, 58(7), 299–302.

Al-Yafi,W. (2008) Obstacles of applying total quality in Higher Education: Taif University case study : research, No 42-428 -1, Taif, Saudi Arabia

Alyami, M. S. & Watson, R. (2014) An overview of nursing in Saudi Arabia, *Journal of Commission Health Specialist,* 2(1), 10–12.

American Nurses Association. (1988) *Peer Review Guidelines*. Kansas City, MO: ANA;

Axley, L. (2008). Competency: a concept analysis. *Nursing forum*, *43*(4), 214–222.

Bahari, G. M. (2015) A plan to promote NCLEX-RN success of Saudi Arabian nurse graduates, *Austin Journal of Nursing & Health Care***,** 2(1), 1–8.

Bahreini, M. Shahamat, S. Hayatdavoudy, P. & Mirzaei, M. (2011) Comparison of the clinical competence of nurses working in two university hospitals in Iran. *Nursing and Health Sciences,* 13 (3), 282–288.

Bajammal, S., Zaini, R., Abuznadah, W., Al-Rukban, M., Aly, S. M., Boker, A., Al-Zalabani, A., et al. (2008).The need for national medical licensing examination in Saudi Arabia. *BMC medical education*, 8 (53),1-20.

Balsley, H.L. (1970). *Quantitative research methods for business and economics*. New York: Random House.

Bartlett, H.P. Chan, S. Wong, F. & Pang, P.(1993) Measuring competence in BSN graduates. Department of Health Sciences, Hong Kong Polytechnic, Hong Kong.

Bartlett, H.P., Simonite, V. Westcott, E. & Taylor, H.R. (2000) A comparison of the nursing competence of graduates and diplomates from UK nursing programmes. Journal of Clinical Nursing 9(3),369–379.

Battersby D. & Hemmings L. (1991) Clinical performance of university nursing graduates. *Australian Journal of Advanced Nursing*, 9(1), 30-34.

Baxter, P., & Norman, G. (2011) Self-assessment or self deception? A lack of association between nursing students' self-assessment and performance. *Journal of advanced nursing*, *67*(11), 2406–13.

Bechtel, G. Davidhizar, R. Bradshaw, M. (1999) Problem-based learning in a competency-based world. Nurse Education Today 19 (3), 182–187.

Benner, P. (1984) From novice to expert: Excellence and power in clinical nursing practice. Menlo Park, CA: Addison-Wesley.

Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Berkow, S. Virkstis, K. Stewart, J. & Conway, L. (2008). Assessing new graduate nurse performance, *The Journal of Nursing Administration ,38*(11), 468–474.

Bircumshaw D. (1989a) How can we compare graduate and non-graduate nurses? A review of the literature. *Journal of Advanced Nursing*, 14(6), 438-443.

Bircumshaw D. (1989b) A survey of the attitudes of senior nurses towards graduate nurses. *Journal of Advanced Nursing*, 14(1), 68-72.

Blane, J. T. Reducing. (2015) *" Spoon-Feeding " to Promote Independent Thinking*, Master dissertation, United State Military Academy.

Blegen, M. a, Goode, C. J. Park, S. H. Vaughn, T. & Spetz, J. (2013) Baccalaureate education in nursing and patient outcomes. *The Journal of nursing administration*, *43*(2), 89–94.

Bradshaw, A (2000) Editorial comments. *Journal of Clinical Nursing* , 9 (3), 319–320.

Brannick, M. Erol-Korkmaz, H. Prewett, M (2011). A systematic review of the reliability of objective structured clinical examination scores. *Medical education*, 45(12),1181-1189. Available at: http://www.ncbi.nlm.nih.gov/pubmed/21988659 [Accessed March 11, 2012].

Briggs, L. a, Heath, J. Kelley, J.(2005) Peer review for advanced practice nurses: what does it really mean? *AACN clinical issues*, 16(1), pp.3-15. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15714013. [Accessed March 11, 2012].

Brown, N. (2000) What are the criteria that mentors use to make judgements on the clinical performance of student mental health nurses? An exploratory study of the formal written communication at the end of clinical nursing practice modules. *Journal of psychiatric and mental health nursing*, 7(5), 407-16. Available at: http://www.ncbi.nlm.nih.gov/pubmed/11933467. [Accessed March 15, 2012].

Buckley, S. Coleman ,J. Davidson, I. Khan, KS. Zamora, J. Malick, S. Pollard, D. Ashcroft, T. Popovic, C. Sayers, J. (2009) The educational effects of portfolios on undergraduate student learning: a Best Evidence Medical Education (BEME) systematic review [BEME Guide No.11] *Med Teach*. 31(4),282–98.

Byrne, M. Delarose, T Leske,J. Sapnas, K. Schroeter, K.(2007) Continued professional competence and portfolios. *Journal of trauma nursing*, 14(1), 24-31. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17420648. [Accessed March 7, 2012].

Calman L, Watson R, Norman I, Redfern S, Murrells T. (2002) Assessing practice of student nurses: methods, preparation of assessors and students views. *Journal of Advanced Nursing*. 38(5), 516-523.

Calman, L. (2006) Patients' views of nurses' competence. *Nurse education today*, 26(8), pp.719-25. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17014931.

Cant, R. Cooper, S. (2010) Simulation-based learning in nurse education: systematic review. *Journal of advanced nursing*, 66(1),3–15.

Cassidy, S. (2009) Interpretation of competence in student assessment. *Nursing Standard*. 23, 18, 39-46.

Challis, M. (1999) AMEE Medical education guide: Portfolio-based learning and assessment in medical education. *Medical Teacher*, 21(4), 370 - 386.

Chapman, P. (1999) Some important limitations of competency-based education with respect to nurse education: an Australian perspective. *Nurse Education Today*, 19 (2)129–135.

Clinton, M. Murrells, T. & Robinson, S. (2005) Assessing competency in nursing: a comparison of nurses prepared through degree and diploma programmes. *Journal of clinical nursing*, *14*(1), 82–94.

Considine, J., Botti, M. and Thomas, S. (2005) Design, format, validity and reliability of multiple choice questions for use in nursing research and education. *Collegian*, 12(12005), pp.19–24.

Cowan, D. T., Norman, I., & Coopamah, V. P. (2005) Competence in nursing practice: a controversial concept--a focused review of literature. *Nurse education today*, *25*(5), 355–62.

Cowan, D.T., Norman, I. Coopamah, V. P. (2005) Nurse competency: A project to establish a skills competency matrix for EU nurses. *British journal of Nursing*, 14(11) 613-618.

Cowan, D.T. Wilson-Barnett, J. Norman, I. (2007) A European survey of general nurses' self assessment of competence. *Nurse education today*, 27(5), .452-8.

Cowan, D. T. Wilson-barnett, D. J., Norman, I. J., and Murrells, T. (2008) Measuring nursing competence : Development of a self-assessment tool for general nurses across Europe, *International Journal of Nursing Studies*, 45(6), 902–913.

Cowin, L. Hengstberger-Sims, C. Eagar, S. Gregory, L. Andrew S. Rolley J. (2008) Competency measurements: testingconvergent validity for two measures. *Journal of AdvancedNursing*, 64(3), 272–277.

Dandori, E. Hoke,T. (2007) A pilot study investigation the opinion of staff and faculty members about applying evaluation activities and quality assurance procedure at the Saudi Universities and Colleges. Paper presented at annual conference for Saudi Education and psychological Association, Alqasssim ,Saudi Arabia.

Dannefer, E. Henson, Bierer,B .Grady-Weliky,A . Meldrum,S Nofziger,A. Barclay,C Epstein, R (2005) Peer assessment of professional competence. *Medical education*, 39(7),713-22. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15960792 [Accessed March 19, 2012].

Davis, MH. Ponnamperuma, GG, Ker, JS (2009) Student perceptions of a portfolio assessment process. *Med Educ*.,43(1),89–98.

Dellai, M. Mortari, L. & Meretoja, R. (2009) Selfassessment of nursing competencies – validation of the Finnish NCS instrument with Italian nurses. *Scandinavian Journal of Caring Science,s* 23 (4),783–791.

Dolan, G. (2003) Assessing student nurse clinical competency 'will we ever get it right'. *Journal of Clinical Nursing* , 12 (1), 132–141

Doody, O. Tuohy, D. & Deasy, C. (2012) Final-year student nurses' perceptions of role transition, *21*(11), 684–688.

Downing, S. M., & Haladyna, T. M. (1997) Test item development: Validity evidence fromquality assurance procedures. *Applied Measurement in Education*, 10, 61–82.

Du Boulay, C. (2000) From CME to CPD: getting better at getting better? *British Medical Journal*, 320(7232), 393-394.

Dunn, S. Hansford,B.(1997) Undergraduate nursing students' perceptions of their clinical learning environment. *J Adv Nurs*, 25(6), 1299-306.

El-Deirawi ,KM. Zuraikat, N. (2001) Registered nurses' actual and perceived knowledge of diabetes mellitus, *Journal for Nurses in Staff Development*, 17(1), 5-11.

El-Gilany, A.-H., & Abusaad, F. E. S. (2013). Self-directed learning readiness and learning styles among Saudi undergraduate nursing students. *Nurse education today*, *33*(9), 1040–4.

El-megaraby, H. (2011) Quality Assurance in Newly Established Universities in Saudi Arabia Higher Education in Saudi Arabia : Origins of Quality Evaluation in Saudi Universities :Aljouf University.

Epstein, R. Hundert, E. (2002) Defining and assessing professional competence. *JAMA.* 287(2),226-235.

Eraut, M. du Boulay, B. (2000) Developing the attributes of medical professional judgment and competence. Department of Health, London. http://users.sussex.ac.uk/~bend/doh/reporthtml.html [Accessed 5 December 2013]

Eraut,M. (1994) Developing professional knowledge competency, *1st edition*, Falmer Press. London.

Estabrooks, C., Midodzi, W., Cummings, G. Ricker, K. & Giovannetti, P (2005) The impact of hospital characteristics on 30-day mortality. *Nursing Research,* 54(2), 74–84.

Evans, A (2008) Competency assessment in nursing: *A summary of literature published since 2000*, National Education Framework Nursing Care. Available at http://www.edcan.org/pdf/EdCancompetencies literaturereviewFINAL.pdf: [Accessed 11 March 2012]

Evans,R. Elwyn,G. Edwards,A(2004) Learning in practice : Review of instruments for peer assessment of physicians, *BMJ* 328, 1240-1243.

Ewan, C. White, R. (1984) Teaching nursing: A self-instruction handbook. *2 Sub edition*, London: Croom Helm.

Fentianah, N.A. (2012) Impact of nursing competence on quality of nursing care and safety of nursing practice. Doctoral dissertation, University of Phoenix, USA.

Field, A. (2009).*Discovering Statistics using SPSS*. Sage: London.

Fielden, J. M. (2012) Managing the transition of Saudi new graduate nurses into clinical practice in the Kingdom of Saudi Arabia. *Journal of nursing management, 20*(1), 28–37.

Finnbakk, E. Wangensteen, S. Skovdahl, K. & Fagerström, L. (2015) The professional nurse self-assessment scale: Psychometric testing in norwegian long term and home care contexts. *BMC nursing*, 14, 59. Available at :

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4647290/pdf/12912_2015_Article_109.pdf. [Accessed 9th September 2015]

Fordham, A. J. (2005). Using a competency based approach in nurse education. *Nursing Standard*, *19*(31), 41—48.

Franklin, N. & Melville, P. (2013) Competency assessment tools: An exploration of the pedagogical issues facing competency assessment for nurses in the clinical environment. *Collegian*, 22(1),25-31.

Fritsche, L. T Greenhalgh, T .Falck-Ytter,Y .Neumayer, H. Kunz, R. (2002) Do short courses in evidence based medicine improve knowledge and skills? Validation of Berlin questionnaire and before and after study of courses in evidence based medicine, *BMJ*, 325, 1338-1441.

Gannon, FT. Draper, PR. Watson, R. Proctor ,S. Norman, IJ. (2001) Putting portfolios in their place. *Nurs Educ Today*, 21(7) 534–40.

Gazzaz L. (2009) Saudi nurses' perceptions of nursing as an occupational choice: A Qualitative interview study. PhD thesis, the University of Nottingham.

Gliem, J. A. & Gliem, R. R. (2003). Calculating , interpreting , and reporting Cronbach ' s Alpha reliability Coefficient for Likert-type scales, presented at the Midwest research-to-practice conference in adult, continuing, and community education, The Ohio State University, Columbus, OH, October 8-10, 2003.

Girot, E. (2000) Assessment of graduates and diplomats in practice in the UK – are we measuring the same level of competence? *Journal of Clinical Nursing*, 9 (3), 330–337.

Girot, E. (1993) Assessment of competence in clinical practice review of the literature. *Nurse Education Today,* 13(2), 83–90.

Gonczi, A. (1994) Competency based assessment in the professions in Australia. *Assessment in Education: Principle, policy& practice* ,1 (1), 27–44.

Goorapah, D. (1997) Clinical competence/clinical credibility. Research on perceptions of the meaning of these terms to nurse teachers. *Nurse Education Today*, 17 (4), 297–302.

Gopee, N. (2001) The role of peer assessment and peer review in nursing. *British journal of nursing (Mark Allen Publishing),* 10 (2), 115-121.

Gordon, M.J. (1991) A review of the validity and accuracy of self-assessments in health professions training. *Academic Medicine*, 66(2), . 762-769.

Gray, M, Donaldson, J. (2009) *National approach to practise assessment for nurses and midwives; Exploring issues in the use of grading in practice literature review*. Edimburg: Edimburgh Napier University, Scotland.
http://www.nes.scot.nhs.uk/media/572846/final_report_-

__exploring_issuesin_the_use_of_grading_in_practice__volume_1_.pdf [Accessed 10 October 2014]

Gruppen, L. D. Mangrulkar, R. S. & Kolars, J. C. (2012) The promise of competency-based education in the health professions for improving global health. *Human resources for health*, 10(1), 43.

Hadfield, I. Murdoch, G. Smithers, J. Vaioleti L, Patterson, H. (2007) Is a professional portfolio, as a record of continued professional development, the most effective method to assess a physiotherapist's competence?, *NZ J Physiother*,35(2)72–83.

Haladyna, T. Downing, S. & Rodriguez M. (2002) A review of multiple-choice item-writing guidelines for classroom assessment. *Applied Measurement in Education* ,1,5(3), 309–333.

Hamdi, O. AlHaidar A. (1996) Factors affecting Saudi women in enrolment in nursing. King Fahad National Library Publication: Riyadh. Saudi Arabia (In Arabic).

Harper, B. C. M. (2009*) Critical analysis of the discourse of competence in professional nursing practice*, Master dissertation, Waikato Institute of Technology. Hamilton, New Zealand .

Hartigan-Rogers, JA. Cobbett, SL. Amirault MA & Musie-Davies ME. (2007) Nursing graduates' perceptions of their undergraduate clinical placement. *International Journal of Nursing Education Scholarship* ,4 (9) 1–12.

Hasnain, M. Connell,K. Downing,S. Olthoff,A.Yukowsky,R.(2004) Toward meaningful evaluation of clinical competence: the role of direct observation in clerkship ratings. *journal of the Association of American Medical Colleges*, 79(10 Suppl), .S21-4. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15383380. [Accessed 27 April 2012]

Hengstberger-Sims, C. Cowin, L.S. Eagar, S.C. Gregory, L. Andrew, S. & Rolley, J. (2008) Relating new graduate nurse competence to frequency of use. Collegian: The Australian *Journal of Nursing Practice, Scholarship and Research,* 15 (2), 69–76.

Hickey, M.T.(2009) Preceptor perceptions of new graduate nurse readiness for practice. *Journal for Nurses in Staff Development,* 25 (1), 35–41.

Holmboe,E. Hawkins,R & Stephen, J. (2004) Effects of training in direct observation of medical residents ' clinical competence. *Ann Intern Med.* 140(11), 874-881.

Istomina, N. Suominen, T. Razbadaukas, A. Martinkénas, A. Meretoja, R. & Leino-Kilpi, H. (2011) Competence of Nurses and Factors Associated With It. *Medicina (Kaunas*), 47 (4), 230–237.

Kajander-unkuri, S. (2015) Nurse competence of graduating nursing students, Department of Nursing Science, Faculty of Medicine, University of Turku, Finland Annales Universitatis Turkuensis, Painosalama Oy, Turku 2015, Doctoral thesis.

Kajander-Unkuri, S. Meretoja, R. Katajisto, J. Saarikoski, M. Salminen, L. Suhonen, R. and Leino-Kilpi, H. (2013) Self-assessed level of competence of graduating nursing students and factors related to it. *Nurse Education Today*, 34(5),795-801.

Katowa-mukwato, P., and Banda, S. S. (2014). Medical students ' knowledge of clinical practical procedures : Relationship with clinical competence, *Scientific research*, 21 (5), 1895–1904.

King Faisal Specialist Hospital & Research Centre (2011) *Development of nursing education in Saudi Arabia*, Available from http://www.kfshrc.edu.sa/wps/portal/En/!ut/p/c0/04 [Accessed 17 Jan 2013].

Kirton, S. and Kravitz, L (2011) Objective structured clinical examinations (OSCEs) compared with traditional assessment methods. *American journal of pharmaceutical education*, 75(6),1-7.

Kogan, JR. Holmboe, E. S., and Hauer, K. E. (2009) Tools for direct observation and assessment: A systematic review, *JAMA*, *302*(12), 1316-1326.

Lakanmaa, R.-L. Suominen, T. Perttilä, J. Ritmala-Castrèn, M. Vahlberg, T. and Leino-Kilpi, H. (2013). Graduating nursing students' basic competence in intensive and critical care nursing. *Journal of Clinical Nursing*, 23(5-6),645–653.

Lamadah, S.M. Sayed,H.Y (2014) Challenges facing nursing profession in Saudi Arabia, *Journal of Biology, Agriculture and Healthcare*, 4(7), 20-25.

Levett-Jones, T. Gersbach, J. Arthur, C. & Roche, J. (2011) Implementing a clinical competency assessment model that promotes critical reflection and ensures nursing graduates' readiness for professional practice. *Nurse education in practice*, *11*(1), 64–69.

Ličen, S. & Plazar, N. (2015) Nurse education today identification of nursing competency assessment tools as possibility of their use in nursing education in Slovenia : A systematic literature review. *YNEDT*, *35*(4), 602–608.

Lima, S. Newall, F. Kinney, S. Jordan, H. L. & Hamilton, B. (2014) How competent are they? Graduate nurses self-assessment of competence at the start of their careers. *Collegian*, *21*(4), 353–358.

Locsin R. (1998) Technologic competence as caring in critical care nursing. *Holist Nurs Pract.*,12(4):50-6

Lofmark, A. & Wikblad, K. (2006) Competence of newly-graduated nurses – a comparison of the perceptions of qualified nurses and students, *Journal of Advanced Nursing*. 2006 Mar; 53(6), 721-728 .

Long, D. a. Mitchell, M. L. Young, J. & Rickard, C. M. (2014) Assessing core outcomes in graduates: psychometric evaluation of the paediatric intensive care unit-nursing Knowledge and skills Test. *Journal of Advanced Nursing*, *70*(3), 698–708.

Lynn, M.R. (1986) Determination and quantification of content validity, *Nursing Research*, 35(6), 382–385.

Maben, J., Althowini, K., West, E. and Fafferty, A. (2010) Uneven development: Comparing the indigenous health care workforce in Saudi, Bahrain, Oman, *International Journal of Nursing Studies*, 47(3), 392-396.

Mahara , M.(1998) A perspective on clinical evaluation in nursing education. *Journal of Advanced Nursing*,28(6),1339–46.

Mahara, M.S. (1998) A Perspective on Clinical Evaluation in Nursing Education. *Journal of Advanced Nursing*, 28 (6),1339-1346.

Manley K. & Garbett B. (2000) Paying Peter and Paul: reconciling concepts of expertise with competency for a clinical career structure. *Journal of Clinical Nursing*, 9(3), 347–359.

Mansour, A. (1994) Continuing education in Saudi Arabia: The Missed Sonata. *J Contin Educ Nurs*, 25(2), 90-92.

Manuscript, A. & Patient, S., 2011. NIH Public Access. , 290(12),.1617-1623.

Martuza, V.R. (1977) Applying norm-referenced and criterion-referenced measurement in education. Boston: Allyn & Bacon.

McAllister, M.(1998) Competency standards: clarifying the issues. *Contemporary Nurse*, 7(3)131–137.

McCloskey J.C (1983) Nursing education and job effectiveness. *Nursing Research*, 32(1), 53-58.

McCloskey J.C. & McCain B.(1988) Nurse performance: Strengths and weaknesses. Nursing Research 37(5), 308-313.

McConnell, E. (2001) Competence vs. competency. *Nursing Management*,32 (5), 14–15.

McCready,T. (200) Portfolios and the assessment of competence in nursing: a literature review. *International journal of nursing studies*, 44(1), pp.143-51. Available at: http://www.ncbi.nlm.nih.gov/pubmed/16631759 [Accessed March 4, 2012].

McGrath P., Fox-Young S., Moxham I., Anastasi J., Gorman D,. Tollefson J (2006) Collaborative voices: ongoing reflections on nursing competencies. *Contemporary Nurse*, 22(1), 46–58.

McMullan, M. Endacott,R. Gray, MA. Jasper ,M. Miller, CM. Scholes, J. Webb, C.(2003) Portfolios and assessment of competence: a review of the literature. *Journal of advanced nursing*, 41(3), .283-94. Available at: http://www.ncbi.nlm.nih.gov/pubmed/12581116 [Accessed March 7, 2012].

Matveev, A.V. (2002) The advantages of employing quantitative and qualitative methods in intercultural research: practical implications from the study of the perceptions of intercultural communication competence by American and Russian managers." in *Collected research articles, Bulletin of Russian Communication Association "Theory of communication and applied communication, Edited by I.N. Rozina, Issue 1, 59-67.*

Mebrouk, J. (2008) Perception of nursing care: views of Saudi Arabian female nurses. *Contemporary nurse*, *28*(1-2), 149–61. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18844568.

Meretoja R, Leino-Kilpi, H. (2001) Instruments for evaluating nurse competence. *Journal of Nursing Administration,* 31(7/8), 346–352.

Meretoja, R. Isoaho H,. Leino-Kilpi H. (2004) Nurse competence scale: development and psychometric testing. *Journal of Advanced Nursing* , 47(2), 124–133.

Meretoja, R. & Koponen, L.(2012) A systematic model to compare actual and optimal competencies in clinical settings. *Journal of Advanced Nursing,* 68 (2), 414–422.

Meretoja, R. Saarikoski, M. (2012) Evidence based development of clinical learning environment in Finnish health care services**.** In Improvement by Evaluation/ Eval2012, University of Tampere, 150-156.

Meretoja, R. Isoaho, H. & Leino-Kilpi, H. (2004a) Nurse competence scale: development and psychometric testing. *Journal of Advanced Nursing*, 47 (2), 124–133.

Meretoja, R. Leino-Kilpi, H. & Kaira, A-M. (2004b) Comparison of nurse competence in different hospital work environments. *Journal of Nursing Management* ,12(5), 329–336.

Meretoja, R. Numminen, O. Isoaho, H. & Leino-Kilpi, H. (2014) Nurse competence between three generational nurse cohorts: a cross-sectional study. *International Journal of Nursing Practice.* 21,(4):350- 358.

Midgley K. (2006) Pre-registration student nurses perception of the hospital-learning environment during clinical placements. *Nurse Educ Today*; 26(4): 338-345.

Miller, P. Tuekam, R. (2011) The feasibility and acceptability of using a portfolio to assess professional competence. *Physiotherapy Canada. Physiothérapie Canada*, 63(1), pp.78-85. Available at: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3024199&tool=pmcentrez&rendertype=abstract [Accessed May 15, 2012].

Miller-Rosser, K. Chapman, Y. Francis, K.(200) Historical, cultural, and contemporary influences on the status of women in nursing in Saudi Arabia, *Online J Issues Nurs.* 19;11(3):8 available: http://www.ncbi.nlm.nih.gov/pubmed/17279862 [Accessed 13 April 2014]

Milligan, F. (1998) Defining and assessing competence: the distraction of outcomes and the importance of educational progress. Nurse Education Today 18(4), 273–280.

Ministry of Health. (2010) *Health Statistical Year Book*., Riyadh, Available from: http://www.moh.gov.sa/en/ministry/statistics/book/pages/default.aspx. [Accessed 10 February 2013]

Ministry of Health. (2014) *Health Statistical Year Book*., Riyadh, Available from: http://www.moh.gov.sa/Ministry/Statistics/book/Pages/default.aspx. [Accessed May 2016]

Ministry of Higher Education (2012) *Education statistics centre*. Riyadh , Available from: https://hesc.moe.gov.sa/pages/default.aspx. [Accessed 13 March 2013]

Morolong, B G, Chabeli, M M. (2005) Competence of newly qualified registered nurses from a nursing college, *Curationis*, 28(2):38-50.

Mufti, Mohammed Hassan, S. (2000). *Healthcare Development Strategies in the Kingdom of Saudi Arabia.* New York: Springer.

Müller, M. (2013) Nursing competence: psychometric evaluation using Rasch modelling. *J. Adv. Nurs*. 69(6), 1410-1417.

Murrells T. Robinson S. & Griffiths P. (2009) Assessing competence in nursing. *Nursing Management ,1*6(4), 18–19.

Mustard (2002) Caring and competency , *JONAS Healthc Law Ethics Regul*. , 4(2):36-43.

National Commission for Academic Accreditation & Assessment. (2011) *Program Learning Outcomes, Guidelines for Program Development and Review*, Available from: http://www.ncaaa.org.sa/english/acmspage.aspx?id=4 [Accessed 11 Feb 2013]

National Nursing Research Unit. (2009) Nursing competence: what are we assessing and how should it be measured? Policy plus evidence, issue and opinions in health care, Kings Collegge London, No.18.

Neary, M. (2000) Supporting students' learning and professional development through the process of continuous assessment and mentorship, *Nurse Education Today* , 20 (6), 463 – 474.

Nematollahi,R. Isaac,J. (2012) Bridging the theory practice gap : a review of Graduate Nurse Program (GNP) in Dubai , United Arab Emirates, *International Nursing Review*, 59(2),194-199.

Nolan, P (1998) Competencies drive decision making. Nursing Management 29 (3), 27–29.

Norman, I.J. Watson, R. Murrels, T. Calman, L. & Redfern, S. (2002) The validity and reliability of methods to assess the competence to practise of pre-registration nursing and midwifery students. *International Journal of Nursing Studies* 39 (2), 133–145.

Numminen, O. Laine, T. Isoaho, H. Hupli, M. Leino-Kilpi, H. & Meretoja, R. (2014). Do educational outcomes correspond with the requirements of nursing practice: educators' and managers' assessments of novice nurses' professional competence. *Scandinavian journal of caring sciences*, *28*(4), 812–21.

Numminen, O. Meretoja, R. Ihoaho, H. & Leino-Kilpi, H. (2013) Professional competence of practicing nurses. *Journal of Clinical Nursing,* 22 (9-10), 1411–1423.

O'Connor, S.E., Pearce, J., Smith, R.L., Voegeli, D. & Walton, P. (2001) An evaluation of the clinical performance of newly qualified nurses: a competency based assessment. *Nurse Education Today,* 21 (7), 559–568.

O'Leary, J. (2012) Comparison of self-assessed competence and experience among critical care nurses. *Journal of Nursing Management,* 20 (5), 607–614.

Oermann, M. (1998). Professional reflection: Have you looked in the mirror lately? *Orthopaedic Nursing*, 17(4), 22-6.

Omer, T. Y. Suliman,W. a. Thomas, L. & Joseph, J. (2013) Perception of nursing students to two models of preceptorship in clinical training. *Nurse education in practice*, 13(3), 155–60.

Parahoo, K. (2006) Nursing research: principles, process and issues. *2nd ed*. Basingstoke: Palgrave MacMillan.

Phillips, A. (1989) BSN Education in Saudi Arabia. *Nurs Outlook*, 37 (3),116-119

Pitt, V. Powis, D. Levett-Jones, T., & Hunter, S. (2012) Factors influencing nursing students' academic and clinical performance and attrition: an integrative literature review. *Nurse Education Today*, *32*(8), 903–13.

Polit, D. F. & Beck, C. T. (2006). The content validity index : Are you sure you know what ' s being reported ? critique and recommendations, *Research in Nursing & Health*, 29(5), 489–497.

Polit, D. F. Springs, S. & Chaboyer, W. (2013.). The influence of personal characteristics on perioperative nurses ' perceived competence : implications for workforce planning, *Australian Journal of Advanced Nursing*, *30*(3), 14–25.

Polit,D. Beck,C. (2004) Nursing Research: principle and methods, *7th ed*, Lippiincott William&Wilkines, Philadelphia.

Rahmani,Z,. Zamanzadeh,V. Farahnaz,A. Lotfi,M. Bani,S. Hassanpour,S. (2011) Clinical learning environment in viewpoint of nursing students in Tabriz University of Medical Sciences, *Iran J Nurs Midwifery Res*,16(3), 253–256.

Raines, D. (2010) Nursing practice competency of accelerated bachelor of science in nursing program students. *Journal of professional nursing*, 26(3), 162–167.

Redfern, S. Norman, I. Calman, L. Watson, R. Murrells, T. (2002) Assessing competence to practice in nursing: a review of the literature**.** *Research Papers in Education*. 17(1), 51–77.

Ridley, RT. (2008) The relationship between nurse education level and patient safety: an integrative review. *J Nurs Educ*. 47(4)149-156.

Roberts, M. (2007) Is a professional portfolio , as a record of continued professional development , the most effective method to assess a physiotherapist ' s competence? *New Zealand Journal of Physiotherapy*, 35(2),72-83.

Rushforth, H. (2007) Objective structured clinical examination (OSCE): review of literature and implications for nursing education. *Nurse education today*, 27(5),.481-490.

D. Ryan, P. Mannix McNamara and C. Deasy. (2006) Health Promotion in Ireland: Principles Practice and Research. Gill and MacMillan, DublinAvailable at: http://works.bepress.com/patricia_mannixmcnamara/5/

Salonen, A.H. Kaunonen, M. Meretoja, R. Tarkka, M-T. (2007) Competence profiles of recently registered nurses working in intensive and emergency settings. *Journal of Nursing Management* ,15 (8), 792–800.

Schroeter, K. (1999) Ethical perception and resulting action in perioperative nurses. *AORN Journal*, 69(5), 991-1002.

Schwirian, P.M. (1978) Evaluating the performance of nurses: a multidimensional approach. *Nursing Research,* 27(6), 347-351.

Sebai,Z. Milaat,W. (2001) Health Care Services in Saudi Arabia: Past, Present and Future, Journal of Family & Community Medicine, 8(3), 19-23, Available from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3439740/ [Accessed 17 Jan 2013]

Selim, A. Ramadan, F. El-Gueneidy,M. Gaafer,M. (2012) Using objective structured clinical examination (OSCE) in undergraduate psychiatric nursing education: is it reliable and valid? *Nurse education today*, 32(3), 283-8.

Sharif, A (2011) closing 80% of the private health institutes, *Al-Hayat newspaper*, 25th May, accessed from: http://www.alhayat.com/Details/517169 [Arabic].

Short, E. (1984) Competence re-examined. *Educational Theory* ,34 (3), 201–207.

Smith, L. & Abouammoh, A. (2013) Higher Education in Saudi Arabia: achievements, challenges and opportunities, Springer, New York.

Simpson, E. Butler, B. Al-Somali, S. & Courtney, M. (2006) Guiding the transition of nursing practise from an inpatient to a community-care setting: a Saudi Arabian experience. *Nursing and Health Sciences*, 8(2),120–124.

Stewart, J. Clark, D. & Clark, P. (2007) *Migration and recruitment of healthcare professionals: Causes, consequences and policy responses*, Discussion paper, Policy brief, No7.

Stobinski, J.X. (2011) Competency and work environments among military and civilian perioperative registered nurses: A predictive model. TUI University, United States.

Sullivan, D.T. Hirst, D. & Cronenwett, L. (2009) Assessingquality and safety competencies of graduating prelicensure nursing students. *Nursing Outlook* , 57 (6), 323–331.

Tourangeau, A E. Doran, D M. McGillis Hall, L. O'Brien Pallas, L. Pringle, D. Tu, J. V, Cranley, L. a. (2007). Impact of hospital nursing care on 30-day mortality for acute medical patients. *Journal of advanced nursing*, 57(1), 32–44.

Tumulty, G. (2001) Professional development of nursing in Saudi Arabia. *Journal of Nursing Scholarship*, 33(3), 285–290.

United Kingdom Central Council for Nursing, Midwifery & Health Visiting (UKCC) (1986). *Project 2000: A New Preparation for Practice*. London: UKCC.

Van der Vleuten, C P. (2013) National licensing examinations and their challenges, *Journal of Health Specialties*, 1(1), 1-2.

Walsh, M. Bailey, P. Koren,I. (2009) Objective structured clinical evaluation of clinical competence: an integrative review. *Journal of advanced nursing*, 65(8),1584-95. Available at: http://www.ncbi.nlm.nih.gov/pubmed/19493134 [Accessed May 15, 2012].

Wangensteen, S. Johansson I S, Nordström, G. (2015) Nurse competence scale – Psychometric testing in a Norwegian context, *Nurse Education in Practice* , 15(1) , 22 – 29.

Wangensteen, S. Johansson, I. S., Björkström, M. E. & Nordström, G. U. N. (2012). Perception of Competence and Possible Predictor : A Cross - Sectional Survey, *Journal of Professional Nursing, 28*(3), 170–181.

Ware, J. Kattan, T. Mohammed, A. & Siddiqui, I. (2014) The perfect MCQ exam. *Journal of Health Specialties*, 2(3), 94.

Watkins, M. (2000) Competency for nursing practice**.** *Journal of Clinical Nursing*, 9 (3), 338–346.

Watson, R. Stimpson, A. Topping, A. Porock, D. (2002) Clinical competence assessment in nursing: a systematic review of the literature, *Journal of Advanced Nursing* , 39(5) 421–431.

Way, R. (2002) Assessing clinical competence, *Emergency Nurse*. 9(9), 30–34.

While, A.E. (1994) Competence versus performance: which is more important? *Journal of Advanced Nursing,* 20 (3), 525–531.

Whitehead, Bill, Owen. P. Holmes, D. Beddingham, E. Simmons, M. Henshaw, L. Barton, M. Walker, C. (2013). Supporting newly qualified nurses in the UK: A systematic literature review.' *Nurse Education Today,* 33(4), 370–377.

Winskill, R . (2000) Is competency based training/education useful for workplace training. *Contemp Nurse.* 9(2),115-119.

Wittmann, L. (2013) Trend in nursing education: Saudi Arbia and class room, teaching maternity nursing http://teachingnursing.weebly.com/blog/trends-in-nursing-education

Woodruffe,C. (1993) What is meant by a competency?, *Leadership & Organization Development Journal*,14(1), 29-36.

World Health Organization. (WHO). (2006) *The World Health Report 2006 - Working Together for Health.* Geneva [Online] from:http://www.who.int/whr/2006/en,[accessed on 17 Nov 2011.

Wu, F. Wang, Y. Wu, Y. & Guo, M. (2014) Application of nursing core competency standard education in the training of nursing undergraduates. *International Journal of Nursing Sciences*, 1(4), 367–370.

Wu, X.V. Enskär, K. Lee, C.C.S. Wang, W. (2015) A systematic review of clinical assessment for undergraduate nursing students" *Nurse Education Today.* 35(2), 347-359.

Yanhua, C. Watson, R. (2011) A review of clinical competence assessment in nursing**.** *Nurse Education Today*,31(8),832–836.

Appendix 1

CODE	

Assessing the quality of nursing graduates in Higher Education (Research Project)

QUESTIONNAIRE

Introduction

You have been invited to participate in this study because you are an internship nursing student. The purpose of this study is to compare the knowledge and self-assessed skills in working practices of internship nursing student from different universities in Saudi Arabia. The knowledge of these differences is not fully documented as there is currently no available evidence for comparison. As a research student from Southampton University, I am working to compare the knowledge, skill levels, and attitudes of internship nursing student from different universities in Saudi Arabia. This project is part of Doctorate of Clinical Practice requirement. This research study will support the future planning and development of nursing education in Saudi Arabia. To this end, we would be grateful if you could answer the following questions.

SECTION A

What are your sores in the following testes?

High School Grade:……. %

Achievement test (Tahsili test):…….%

Aptitude test (Qudratt test):……%

1. (a) How many months of clinical experience do you have as an internship nursing student?

Months……..

(b) In which hospitals?…….

2. (a) How confident do you (or would you) feel about practising as an internship student?
3. Please circle the appropriate description:

Not at all	Marginally	Reasonably	Very

SECTION B

Now could you please answer some questions about your current nursing role. The following items ask you to rate how frequently you perform the following competencies in your current job. Please rate yourself as honestly as possible by ticking the relevant box as follows:

N	=Never	O	=Occasionally	U	=Usually	A	=Always

How often do you:

1.	Carry out a complete and accurate clinical assessment (covering physical, psychological and social areas) with the patient and/or their relatives?	**N**	**O**	**U**	**A**
2.	Evaluate the health status of an apparently healthy person accurately?	**N**	**O**	**U**	**A**
3.	Evaluate a patients' social environment accurately?	**N**	**O**	**U**	**A**
4.	Accurately identify health problems in a patient's home environment?	**N**	**O**	**U**	**A**
5.	Evaluate a patients' social and family background accurately?	**N**	**O**	**U**	**A**
6.	Accurately identify patients who are at risk of having one or more health problems (eg physical, mental, social or cultural)?	**N**	**O**	**U**	**A**
7.	Accurately identify patients who may benefit from preventive health care measures?	**N**	**O**	**U**	**A**
8.	Accurately assess the effectiveness of preventive health care measures?	**N**	**O**	**U**	**A**
9.	Identify objectives of care which reflect patient-centred goals?	**N**	**O**	**U**	**A**

10. Plan care activities using available resources and in accordance with your organisation's policies?

N	O	U	A

N =Never **O =Occasionally** **U =Usually** **A =Always**

How often do you:

11. Develop an appropriate plan of care?

N	O	U	A

12. Select interventions appropriate to a patients' problem?

N	O	U	A

13. Implement appropriate interventions, independently?

N	O	U	A

14. Implement appropriate interventions in collaboration with other carers?

N	O	U	A

15. Perform clinical procedures safely as part of a treatment plan (eg catheterisation)?

N	O	U	A

16. Effectively update the plan of care to meet a patients' individual needs?

N	O	U	A

17. Adapt therapeutic interventions appropriately to meet a patients' needs?

N	O	U	A

18. Plan appropriate care together with your patients?

N	O	U	A

19. Where appropriate, adapt nursing practice to meet varying and unpredictable circumstances?

N	O	U	A

20. Carry out an effective evaluation of the care process?

N	O	U	A

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

21. Where necessary, redesign a plan of care according to evaluation of the care process?	**N**	**O**	**U**	**A**
22. Accurately assess a patients' resources and their potential to continue the plan of care at home if necessary?	**N**	**O**	**U**	**A**
23. Plan a patient discharge?	**N**	**O**	**U**	**A**
24. Carry out a discharge plan effectively?	**N**	**O**	**U**	**A**
25. Prepare a patient appropriately for various diagnostic or interventional procedures which they will undergo?	**N**	**O**	**U**	**A**
26. Carry out activities to prevent hospital acquired infections rigorously?	**N**	**O**	**U**	**A**
27. Accurately explain to patients what various procedures involve for them?	**N**	**O**	**U**	**A**
28. Select and prepare appropriate resources required for procedures (eg equipment, disposable items and drugs)?	**N**	**O**	**U**	**A**
29. Adequately prepare the environment in which procedures will be carried out?	**N**	**O**	**U**	**A**

30. Carry out procedures according to established protocols?

N	O	U	A

N	=Never	O	=Occasionally	U	=Usually	A	=Always

How often do you:

31. Ensure a patient's physical and psychological safety?

N	O	U	A

32. Promptly carry out preventative actions to protect a patient from possible complications during procedures?

N	O	U	A

33. Document actions and incidents accurately?

N	O	U	A

34. Follow up a patient's progress regularly to assess the effectiveness of implemented procedures?

N	O	U	A

35. Accurately interpret and implement medical instructions?

N	O	U	A

36. Provide appropriate care for a vulnerable patient?

N	O	U	A

37. Provide sensitive care for a patient who is grieving?

N	O	U	A

38. Provide safe care for an older patient?

N	O	U	A

39. Manage palliative care appropriately for a terminally ill patient?

N	O	U	A

40. Implement therapeutic measures for a patient who is in pain?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

41. Provide efficient care in emergency situations?	**N**	**O**	**U**	**A**
42. Adequately meet patients' nutritional needs?	**N**	**O**	**U**	**A**
43. Adequately meet patients' personal hygiene needs?	**N**	**O**	**U**	**A**
44. Demonstrate skills with regard to the appropriate administration of medicines?	**N**	**O**	**U**	**A**
45. Demonstrate skills regarding safe and effective moving and handling of a patient?	**N**	**O**	**U**	**A**
46. Demonstrate skills with regard to emotional care for a patient?	**N**	**O**	**U**	**A**
47. Carry out activities, protocols and procedures effectively, with respect and empathy for a patient?	**N**	**O**	**U**	**A**
48. Initiate, enhance and maintain a therapeutic relationship with a patient?	**N**	**O**	**U**	**A**
49. Take effective steps to guarantee the quality of nursing care?	**N**	**O**	**U**	**A**

50. Promote an environment to facilitate communication?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

51. Communicate effectively with a patient and their relatives/visitors?	**N**	**O**	**U**	**A**
52. Successfully communicate with a patient who has difficulty in communicating and understanding?	**N**	**O**	**U**	**A**
53. Use new information and communication technology effectively?	**N**	**O**	**U**	**A**
54. Verify that a patient fully understands information given regarding their care?	**N**	**O**	**U**	**A**
55. Complete nursing documentation that is legible, well structured and concise?	**N**	**O**	**U**	**A**
56. Present oral material in a structured, coherent and precise way?	**N**	**O**	**U**	**A**
57. Effectively communicate with nurses from different specialities?	**N**	**O**	**U**	**A**
58. Effectively communicate safety concerns to a relevant authority?	**N**	**O**	**U**	**A**
59. Present a patient's information clearly to others?	**N**	**O**	**U**	**A**
60. Effectively advise a patient regarding different means of risk				

prevention and health promotion?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

61. Accurately identify environmental influences on health?	**N**	**O**	**U**	**A**
62. Accurately evaluate a patient's learning about health issues over time?	**N**	**O**	**U**	**A**
63. Provide relevant and current health information to a patient in a form which facilitates their understanding and acknowledges choice and individual preference?	**N**	**O**	**U**	**A**
64. Consult with patients to identify their need and desire for health promotion advice?	**N**	**O**	**U**	**A**
65. Identify environmental hazards and eliminate and/or prevent them where possible?	**N**	**O**	**U**	**A**
66. Encourage a patient and their family to change their life style if necessary?	**N**	**O**	**U**	**A**
67. Provide support and education in the development and/or maintenance of independent living skills for a patient?	**N**	**O**	**U**	**A**
68. Identify clinical risks?	**N**	**O**	**U**	**A**
69. Take appropriate action to manage clinical risks?	**N**	**O**	**U**	**A**

70. Participate in teaching other staff?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

71. Assess your own knowledge and skills?	**N**	**O**	**U**	**A**
72. Effectively utilise different learning methods to address any deficits in your own knowledge?	**N**	**O**	**U**	**A**
73. Effectively utilise different learning methods to address any deficits in your own skills?	**N**	**O**	**U**	**A**
74. Contribute to a positive learning environment in the workplace?	**N**	**O**	**U**	**A**
75. Identify your own professional development needs by reflecting on practice?	**N**	**O**	**U**	**A**
76. Further your professional development needs by engaging in lifelong learning?	**N**	**O**	**U**	**A**
77. Seek professional development opportunities within the framework of continuous training?	**N**	**O**	**U**	**A**
78. Participate in the assessment of other health care workers?	**N**	**O**	**U**	**A**
79. Respect the values, customs and beliefs of individuals or groups?	**N**	**O**	**U**	**A**

80. Develop professional practice based on patients' rights? | N | O | U | A |

N	=Never	O	=Occasionally	U	=Usually	A	=Always

How often do you:

81. Accurately identify potential infringements on patients' rights? | N | O | U | A |

82. Having accurately identified infringements on patients' rights, take appropriate action to resolve the situation? | N | O | U | A |

83. Deliver care in accordance with accepted standards of nursing ethics? | N | O | U | A |

84. Assume responsibility for your decisions and actions? | N | O | U | A |

85. Accurately identify ethical dilemmas in nursing care? | N | O | U | A |

86. Maintain awareness of standards and criteria for professional practice? | N | O | U | A |

87. Maintain a patient's confidentiality? | N | O | U | A |

88. Maintain a patient's dignity? | N | O | U | A |

89. Maintain a patient's privacy? | N | O | U | A |

90. Provide a rationale for nursing care delivered which takes account of cultural influences?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

91. Recognise the limits of your competence and where necessary ask other staff members for help?	**N**	**O**	**U**	**A**
92. Recognise the limits of your role boundaries and where necessary ask other staff members for help?	**N**	**O**	**U**	**A**
93. Take account of cost/benefit aspects in the performance of your duties?	**N**	**O**	**U**	**A**
94. Critically appraise research evidence for practice?	**N**	**O**	**U**	**A**
95. Critically appraise the way that care is organised?	**N**	**O**	**U**	**A**
96. Undertake research activities?	**N**	**O**	**U**	**A**
97. Base practice on research results (eg evidence-based knowledge)?	**N**	**O**	**U**	**A**
98. Participate in the development of research and development with regard to professional competencies?	**N**	**O**	**U**	**A**
99. Participate in clinical audits?	**N**	**O**	**U**	**A**

100. Collaborate with members of the multidisciplinary team?	**N**	**O**	**U**	**A**

N =Never **O** =Occasionally **U** =Usually **A** =Always

How often do you:

101. Evaluate the plan of care as part of the care team?	**N**	**O**	**U**	**A**
102. Take account of views held by different members of the team?	**N**	**O**	**U**	**A**
103. Give your opinion firmly and clearly, whilst still respecting the views of others?	**N**	**O**	**U**	**A**
104. Facilitate professional discussion amongst colleagues?	**N**	**O**	**U**	**A**
105. Document relevant information systematically?	**N**	**O**	**U**	**A**
106. Recognise the competencies of other professionals?	**N**	**O**	**U**	**A**
107. Recognise the roles of other professionals?	**N**	**O**	**U**	**A**
108. Delegate tasks to others effectively, according to their knowledge and abilities?	**N**	**O**	**U**	**A**

Thank you for completing this questionnaire.

We will be pleased to receive any further comments on the issues covered in the questionnaire. So please do write them on the back of this page.

Appendix 2

ممكن من فضلك تجيب على بعض الاسئلة عن دورك الحالي في مجال التمريض. البنود التالية تطلب منك أن تقيمي تكرار أدائك للمهام التالية في وظيفتك. رجاء قيمي نفسك بأكثر قدر ممكن من الأمانة من خلال وضع علامة على الخانة المناسبة كما يلي:

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك ب :

	د	ع	ح	ب
1. أقوم بتنفيذ تقييم اكلينيكي كامل ودقيق (لتغطية المجالات الجسمانية والنفسية والاجتماعية) مع المريض و/أو أقاربهم؟				
2. تقييم الوضع الصحي لشخص يبدو سليم بشكل دقيق؟				
3. تقييم البيئة الاجتماعية للمريض بشكل دقيق؟				
4. ان يعرف بدقة المشاكل الصحية في البيئة المنزلية للمريض				

5. تقييم الخلفية الاجتماعية والاسرية للمريض بشكل دقيق؟	د	ع	ح	ب
6. تعريف المرضى المعرضين لخطر الاصابة بمشكلة صحية أو أكثر (مثال جسمانية، عقلية، اجتماعية أو ثقافية)؟	د	ع	ح	ب
7. يحدد بدقة المرضى الذين يستفيدون من معايير رعاية صحية وقائية؟	د	ع	ح	ب
8. يقيم بدقة فاعلية اجراءات الرعاية الصحية الوقائية؟	د	ع	ح	ب
9. تحديد أهداف الرعاية والتي تعكس الاهداف المتمركزة حول المريض؟	د	ع	ح	ب
10. تخطيط نشاطات الرعاية باستخدام الموارد المتاحة وبما يتفق مع سياسات منظمتكم؟	د	ع	ح	ب

د			

ب	=أبدا	ح	=أحيانا	ع	=عادة		=دائماً

ما مدى تكرار قيامك بكل مما يلي:

11.تطوير خطة رعاية ملائمة؟	د	ع	ح	ب
12.اختيار التدخلات الملائمة لمشكلة المريض؟	د	ع	ح	ب
13.تنفيذ التدخلات الملائمة بشكل مستقل؟	د	ع	ح	ب
14.تطبيق التدخلات الملائمة بالاشتراك مع مقدمي الرعاية الآخرين؟	د	ع	ح	ب
15.أداء الاجراءات الاكلينيكية بطريقة آمنة كجزء من خطة العلاج (مثال القسطرة)؟	د	ع	ح	ب
16.تحديث خطة الرعاية بفاعلية للوفاء بالاحتياجات الفردية للمريض؟	د	ع	ح	ب

	د	ع	ح	ب
17.تعديل التدخلات العلاجية بالشكل الملائم للوفاء باحتياجات المريض؟				
18.التخطيط للرعاية الملائمة مع مريضك؟				
19.عند الحاجة تعدل من ممارستك للتمريض لمواجهة الظروف المتغيرة وغير المتوقعة؟				
20.تنفيذ تقييم فعال لعملية الرعاية؟				

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي:

21. عند الضرورة اعادة تصميم خطة رعاية طبقا لتقييم عملية الرعاية؟	د	ع	ح	ب
22. اقيم بدقة مصادر المريض وامكانية استكمالهم لخطة الرعاية في المنزل عند الضرورة؟	د	ع	ح	ب
23. أخطط لخروج المريض من المستشفى؟	د	ع	ح	ب
24. انفذ خطة الخروج من المستشفى بفاعلية؟	د	ع	ح	ب
25. حضر المريض بالشكل الملائم لمختلف الاجراءات التشخيصية أو العلاجية التي سوف يمر بها؟	د	ع	ح	ب
26. أنفذ النشاطات لمنع انتقال العدوى داخل المستشفى بقوة؟	د	ع	ح	ب

27. فسر بدقة للمرضى ما هي الاجراءات المختلفة التي تتخذها لهم؟

د	ع	ح	ب

28. اختار وحضر المصادر الملائمة المطلوبة للعملية (مثال المعدات، الأشياء التي يتم التخلص منها والأدوية)؟

د	ع	ح	ب

29. احضر البيئة التي سيتم اجراء العملية فيه بشكل ملائم؟

د	ع	ح	ب

30. تنفيذ الاجراءات طبقاً للبروتوكول المنفذ؟

د	ع	ح	ب

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

31.تأكد من السلامة الجسمانية والنفسية للمريض؟	د	ع	ح	ب
32.انفذ فوراً التصرفات الوقائية لحماية المريض من المضاعفات المحتملة أثناء العمليات؟	د	ع	ح	ب
33.توثيق التصرفات والحوادث بدقة؟	د	ع	ح	ب
34.متابعة تقدم المريض بانتظام لتقييم فاعلية الاجراءات المنفذة؟	د	ع	ح	ب
35.تفسير وتطبيق التعليمات الطبية بدقة؟	د	ع	ح	ب
36.تقديم الرعاية المناسبة للمرضى المحتاجين للرعاية؟	د	ع	ح	ب

ب	ح	ع	د

37.تقديم رعاية حساسة للمرضى المتألمين؟

ب	ح	ع	د

38.تقديم رعاية آمنة للمرضى كبار السن؟

ب	ح	ع	د

39.تقديم مسكنات ملائمة للمرضى من ذوي الحالات شديدة التدهور؟

ب	ح	ع	د

40.تطبيق معايير علاجية للمريض المتألم؟

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

41. تقديم رعاية كفئة في مواقف الطوارئ؟	د	ع	ح	ب
42. الوفاء باحتياجات المريض الغذائية بالشكل الملائم؟	د	ع	ح	ب
43. الوفاء باحتياجات المرضى من النظافة الشخصية بالشكل الملائم؟	د	ع	ح	ب
44. عرض مهارات خاصة باعطاء الأدوية بالطريقة الصحيحة؟	د	ع	ح	ب
45. عرض مهارات خاصة بالتحرك الفعال والتعامل مع حالة المريض؟	د	ع	ح	ب
46. عرض المهارات الخاصة بالرعاية العاطفية للمرضى؟	د	ع	ح	ب

ب	ح	ع	د

47. تنفيذ النشاطات والبروتوكولات بفاعلية بخصوص التعاطف مع المريض؟

ب	ح	ع	د

48. بدء وتحسين وصيانة علاقة علاجية مع المرضى؟

ب	ح	ع	د

49. اتخاذ خطوات فعالة لضمان جودة الرعاية التمريضية؟

ب	ح	ع	د

50. تحسين البيئة لتحسين التواصل؟

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

51. التواصل بفاعلية مع المريض واقاربه/ زواره؟	د	ع	ح	ب
52. التواصل غير الناجح مع المريض الذي يعاني من صعوبة في التواصل والتفاهم؟	د	ع	ح	ب
53. استخدام المعلومات الجديدة وتقنية الاتصالات بفاعلية؟	د	ع	ح	ب
54. التأكد أن المريض يفهم المعلومات المقدمة الخاصة برعايته تماماً؟	د	ع	ح	ب
55. اكمال مستندات التمريض الدالة على أن المريض مؤهل للعلاج وتكون جيدة التنسيق ومختصرة؟	د	ع	ح	ب
56. تقديم المعلومات شفهيا بطريقة منظمة ومتواصلة ومختصرة؟				

	د	ع	ح	ب
57. التواصل الفعال مع الممرضات من مختلف التخصصات؟				
58. توصيل المخاوف على السلام بفاعلية للسلطات المعنية؟				
59. تقديم معلومات المريض بوضوح للآخرين؟				
60. تقديم النصيحة بفاعلية للمريض بخصوص الوسائل المختلفة لمكافحة المخاطر وتحسين الصحة؟				

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

61.تحديد التأثيرات البيئية على الصحة بدقة؟	د	ع	ح	ب
62.تقييم تعلم المريض بخصوص المسائل الصحية مع الوقت؟	د	ع	ح	ب
63.تقديم المعلومات الصحية المهمة والحديثة للمرضى في شكل يسهل الفهم ويستوعب الاختيار والتفضيلات الشخصية؟	د	ع	ح	ب
64.الاستشارة مع المرضى لتحديد احتياجاتهم ورغبتهم في الحصول على نصيحة لتحسين الصحة؟	د	ع	ح	ب
65.تحديد المخاطر البيئية واستبعاد و/ او منعها ان امكن؟	د	ع	ح	ب
66.تشجيع المريض وأسرته على تبديل اسلوب حياتهم عند الضرورة؟	د	ع	ح	ب

د	ع	ح	ب

67. تقديم الدعم والتعليم في التطوير و/ أو الصيانة لمهارات الحياة المستقلة للمريض

د	ع	ح	ب

68. تحديد المخاططر الاكلينيكة؟

د	ع	ح	ب

69. اتخاذ الاجراءات الملائمة للتغلب على المخاطر الاكلينيكية؟

د	ع	ح	ب

70. المشاركة في تعليم باقي فريق العمل؟

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

	د	ع	ح	ب
71. تقييم معرفتك ومهاراتك الشخصية؟				
72. استخدام مختلف طرق التعليم بفاعلية لمواجهة أي نقص في معرفتك؟				
73. استخدام مختلف طرق التعليم بفاعلية لمواجهة أي نقص في مهارتك؟				
74. المشاركة في بيئة تعليمية ايجابية في محل عملك؟				
75. تحديد احتياجات تطويرك المهني من خلال تأثيرها على عملك؟				
76. زيادة احتياجاتك التطورية من خلال المشاركة في التعلم المستمر؟				

د	ع	ح	ب

77. السعي للحصول على فرص التطوير المهني في اطار التعلم المستمر؟

د	ع	ح	ب

78. المشاركة في تقييم العمال الصحيين الآخرين؟

د	ع	ح	ب

79. احترام القيم والعادات والمعتقدات الخاصة بكل فرد أو جماعة؟

د	ع	ح	ب

80. تطوير الممارسة المهنية على أساس حقوق المريض؟

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

	د	ع	ح	ب
81.تحديد المخالفة المحتملة لحقوق المريض بدقة؟				
82.تحديد مخالفات تم تقديرها بدقة على حقوق المريض واتخاذ التصرفات الملائمة لحل الموقف؟				
83.تقديم الرعاية بما يتفق مع المعايير المقبولة لأخلاقيات التمريض؟				
84.تحمل مسئولية قراراتك وتصرفاتك؟				
85.حل المسائل الاخلاقية المتعلقة بالرعاية التمريضية بدقة؟				
86.المعرفة بمعايير وخصائص الممارسة المهنية؟				

87. الحفاظ على سرية معلومات المريض؟

د	ع	ح	ب

88. الحفاظ على كرامة المريض؟

د	ع	ح	ب

89. الحفاظ على خصوصية المريض؟

د	ع	ح	ب

90. تقديم مبرر منطقي للرعاية التمريضية المقدمة وهو ما يخص التأثيرات الثقافية؟

د	ع	ح	ب

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

91.معرفة حدود الكفاءة عند الضرورة وطلب المساعدة من أعضاء الفريق الآخرين؟	د	ع	ح	ب
92.التعرف على حدود دورك عند الضرورة اطلب المساعدة من أعضاء الفريق الاخرين؟	د	ع	ح	ب
93.حساب عناصر التكلفة/ الفائدة في أداء مهامك؟	د	ع	ح	ب
94.التقييم النقدي لدليل البحث للمارسة؟	د	ع	ح	ب
95.التقييم النقدي لطريقة الرعاية المنظمة؟	د	ع	ح	ب
96.تولي نشاطات البحث؟	د	ع	ح	ب

د	ع	ح	ب

97. جعل الممارسة تعتمد على نتائج البحث (مثال المعرفة القائمة على دليل)؟

د	ع	ح	ب

98. المشاركة في تطوير البحث والتطوير بخصوص الكفاءات المهنية؟

د	ع	ح	ب

99. المشاركة في المراجعات الاكلينيكة؟

د	ع	ح	ب

100. التعاون مع أفراد من الفريق متعدد التخصصات؟

ب	=أبدا	ح	=أحيانا	ع	=عادة	د	=دائماً

ما مدى تكرار قيامك بكل مما يلي :

101.	تقييم خطة الرعاية كجزء من فريق الرعاية؟	د	ع	ح	ب
102.	حساب وجهات النظر التي يعتقدها الاعضاء المختلفين في الفريق؟	د	ع	ح	ب
103.	اعطاء رأيك بصرامة ووضوح مع احترام وجهات نظر الاخرين؟	د	ع	ح	ب
104.	تسهيل المناقشة المهنية بين الزملاء؟	د	ع	ح	ب
105.	توثيق المعلومات المهمة بطريقة نظامية؟	د	ع	ح	ب

د	ع	ح	ب

106. التعرف على قدرات الموظفين الاخرين؟

د	ع	ح	ب

107. التعرف على ادوار الموظفين؟

د	ع	ح	ب

108. توكيل المهام للآخرين بفاعلية طبقا لمعرفتهم وقدراتهم؟

شكرا لاكمالك هذا الاستبيان

سيسرنا أن نتلقى أي تعليقات اضافية عن المسائل التي تم تغطيتها في الاستبيان لذا رجاء اكتبهم خلف هذه الصفحة.

Appendix 3

Example of the (SCFHS) test (10 Question)

MCQs: Choose the correct answer.

1. A 75 year-old woman underwent a total hip arthroplasty and is admitted to the Post-Operative Care Unit. Her body mass index is 30 and she spends most of her day watching television. Four years ago, she was treated for a deep vein thrombosis that had developed after a surgical procedure.

Which intervention has highest priority?

A. Intravenous catheter in a lower extremity

B. Roll towels and place behind the knees

C. Massage lower extremities from top to bottom

D. Intravenous fluids for homeostasis

2. A 72 year-old woman was admitted to the Post-Operative Care Unit after undergoing a right-sided total knee arthroplasty. Four days later she complains of having chest pain that she rates at a level 5 on the 1-10 scale. She appears restless and feels she cannot get enough air.

Blood pressure 128/86 mmHg

Heart rate 100 /min

Respiratory rate 32 /min

Temperature 38.1o C oral

Oxygen saturation 92% on room air

Which underlying problem should be considered first?

A. Pleural effusion

B. Pulmonary embolism

C. Deep vein thrombosis

D. Spontaneous pneumothorax

3. A 28 year-old woman with a history of asthma is admitted to the Emergency Department. For the past two days she has had a mild cold with a productive cough. Her breathing is labored with suprasternal retractions on inspiration and expiration. She has difficulty speaking. On admission 28% oxygen is delivered by Venturi mask. Following an intravenous infusion of hydrocortisone and aminophylline the partial pressure of carbon dioxide rises to normal levels.

Blood pressure 140/80 mmHg

Heart rate 120 /min

Respiratory rate 32 /min shallow

Temperature 38.1o C

Oxygen saturation 85% on room air

Test Result Normal Values

ABG1 PCO2 4.27 4.7–6.0 kPa

What is the next best step in management?

A. Administer antibiotics

B. Prepare for mechanical ventilation

C. Reassure patient that she is improving

D. Change to humidified oxygen via nasal cannulae

1, ABG, arterial blood gas

4. A 50 year-old woman presents with complaints of sleeping difficulties, abdominal cramping and loose stools. Her hands show find tremors at rest. There is bulging of the eyes and the skin is moist and warm. A nursing diagnosis of Imbalanced Nutrition is made and a care plan created.

Which is this best “related to” factor when creating the full nursing diagnosis?

A. The effects of a hypermetabolic state

B. The effects of a hypometabolic state

C. Advanced stages of dementia

D. Progression of thyrotoxic crisis

5. A 62 year-old man presents to the Emergency Department with complaints of nausea, vomiting and oliguria. He says his blood pressure is chronically high. Auscultation of the chest reveals bilateral adventitious lung sounds. There is pitting edema 3+ in the lower

extremities. He is admitted to the hospital with an order for a 24-hour urine and fluid balance monitoring. On day two the nurse suspects increased fluid retention.

Which clinical findings most significantly confirm the suspicion?

A. Decreased fluid output

B. Increased weight gain

C. Increased adventitious lung sounds

D. Increase of blood pressure from baseline

6. A 64 year-old woman presents to the hospital with a dull chest pain. She had eaten a heavy meal one hour before and feels the symptoms are related to heartburn. The pain radiates down the left arm. She has a history of unstable angina with hypertension and had taken sublingual nitroglycerin tablets before coming to the hospital. An electrocardiograph is performed and shows elevated S-T segments.

Which medication is most likely to be administered?

A. Heparin

B. Warfarin

C. Streptokinase

D. Aspirin

7. A multigravida presents to the hospital after the amniotic membranes rupture at home. Fetal heart tones show a baseline of 140 beats per minute with accelerations. The fetal head is engaged and contractions occur every 5 to 7 minutes and last for 60-90 seconds. An examination of the cervix shows 4 centimeters dilatation and 90% effacement. She is uncomfortable during contractions and rates the pain at a level 7, on a pain scale of 1-10.

Which finding is most indicative of true labor?

A. Level of pain

B. Engagement of presenting part

C. Cervical dilatation and effacement

D. Frequency and length of contractions

8. A multigravida presents to the Labor and Delivery Unit with contractions occurring every 3-5 minutes and lasting for 60-90 seconds. During contractions she closes the eyes and is

focuses on breathing in order to cope with the pain. At the end of each contraction she opens her eyes and resumes talking with the nurse and her husband.

What is the expected cervical dilatation in centimeters?

A. 1-2

B. 3-6

C. 7-8

D. 9-10

9. A 25 year-old man believes that people are spying on him. While speaking he keeps his eyes to the floor and appears uncomfortable. Although his family provides him with financial support he avoids contact with them. He has never been employed and does not want to work. His days are spent alone in his small apartment. The nurse considers Erickson's theory of psychosocial development.

Which stage is this patient most likely experiencing?

A. Autonomy versus shame and doubt

B. Initiative versus guilt

C. Trust versus mistrust

D. Identity versus confusion

10. A 32 year-old man was admitted to the hospital one day before. He had presented with bright red bleeding from the rectum and is now ready to undergo an exploratory colonoscopy. The nurse assists the patient to position himself on the surgical table prior to the administration of conscious sedation anesthesia.

Which position is most appropriate?

A. Left side lying with legs bent

B. Prone with the hips elevated

C. Right side lying with legs straight

D. Supine lithotomy with legs suspended

Appendix4

CONSENT FORM

Study title: Assessing the preparedness of Saudi nursing graduates for practice.

Researcher name: Shaher Almutairi
Study reference:
Ethics reference: 6203 #H (H-04-Q-001)

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (insert date /version no. of participant information sheet) and have had the opportunity to ask questions about the study.	☐
I agree to take part in this research project and agree for my data to be used for the purpose of this study	☐
I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected	☐

Data Protection
I understand that information collected about me during my participation in this study will be stored and protected and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Signature of participant……..

Date……

Participant Information Sheet

Study Title: Assessing the preparedness of Saudi nursing graduates for practice

Researcher: Shaher Almutairi **Ethics number**:603

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?
The purpose of this study is to compare the knowledge, skill levels, attitudes and working practices of internship nursing student from different universities in Saudi Arabia. The knowledge of these differences is not fully documented as there is currently no available evidence for comparison. As a research student from Southampton University, I am working to compare the knowledge, skill levels, and attitudes of internship nursing student from different universities in Saudi Arabia. This project is part of Doctorate of Clinical Practice requirement. This will support the future planning and development of nursing education in Saudi Arabia.

Why have I been chosen?
You have been chosen because you are internship nursing student in year 2012-2013.

What will happen to me if I take part?
You will answer questioner survey and MCQ exam which will take approximately one and half hour only.

Are there any benefits in my taking part?
You will receive a first aid kit and nursing book and the postgraduate researcher will give lecture about professional development

Are there any risks involved?
The risk is limited because the maximum questioner survey and the MCQ exam will take around one and half hour only. The anonymity and confidentiality will be strongly considered.

Will my participation be confidential?
Yes, no names or students number will be used. Coded files will be used that have the code of the university only and it will be kept confidentially in locker with researcher only even the faculties of the students are not allowed to see the result of the test or the questioners.

What happens if I change my mind?
You have the right to participate or not, with the right to withdraw at any time if you so wish, even after the data collection process are concluded.

Where can I get more information?
Researcher name: Shaher Almutairi

Telephone number: 009665525088881 , 00447446124007

Email address: shaheralmutairy@yahoo.com , sma1f08@soton.ac.uk

Arabic instruction

اخى الخريج\اختى الخريجة تعبئة هذه الاستبانة يتطلب الاتى

١ -عدم كتابة الاسم او رقم الطالب او اي رقم يدل على هوية الطالب

٢- الرجاء الإجابة على جميع الاسئلة

٣- عند الموافقة يجب وضع علامة √في المربع المخصص في الصفحة الاولى الذي يلي شرح الهدف من البحث

مع العلم ان هذا الاستبانة والاسئلة ليست تقييم شخصي وانما لتقييم مخرجات تعليم التمريض في المملكة بشكل عام

Appendix 5

Letter

سعادة عميد كلية التمريض- **الموقر**

السلام عليكم ورحمة الله وبركاته

انا طالب دكتوراه من جامعة ساوثهامبتون في بريطانيا مبتعث من جامعة القصيم واعمل بحث علمي على طلاب التمريض الذين هم في مرحلة الامتياز في الجامعات السعودية وجامعتكم من ضمن الجامعات المشمولة في البحث والغرض من البحث هو مقارنة خريجي الجامعات الناشئة مثل جامعة الجوف وجازان بالجامعات العريقة مثل جامعتكم وجامعة الملك سعود من حيث القدرة والكفاءة باستخدام نموذجين من الأسئلة التي يتم الإجابة عليها من قبل الطالب او الطالبة والتي قد تستغرق من الوقت من ساعة الى ساعة ونصف مع الحفاظ على السرية التامة لهذه المعلومات حيث ان هذ المعلومات تكون فقط لدى الباحث والمشرف على البحث وبدون ذكر اسم الطالب على نموذج البحث وبإمكانكم الاستفادة من النتائج لغرض التطوير والجودة مستقبلا.

لذا امل الحصول على الموافقة على اجراء البحث وتسهيل مهمتي بالإضافة الى الموافقة الأخلاقية للبحث العلمي حيث حصلت على موافقه من جامعة ساوثهامبتون لا جراء البحث بالخطاب المرفق مع هذا الطلب.

"شاكرا لكم حسن تعاونكم"

شاهر المطيري
طالب دكتوراه- جامعة ساوثهامبتون

Shaher Almutairi
DClinP-student(Second year)
Faculty of Health Sciences
University of Southampton
Building 45,
Highfield Campus
SO17 1BJ
email: sma1f08@soton.ac.uk

Ministry of Higher Education
University of Ha'il

جامعة حائل

عمادة البحث العلمي
Research Deanship
www.uoh.edu.sa

سعادة الدكتور / محمد بن سليمان المقبل
عميد كلية الصحة العامة والمعلوماتية **سلمه الله**

السلام عليكم ورحمة الله وبركاته .. وبعد :-

افيد سعادتكم بأنه تقدم لنا المبتعث / شاهر بن مصلح المطيري ويرغب بجمع معلومات تساعدة في أنجاز بحثة العلمي تحت عنوان " **في مجال التطبيق الأكلينيكي**" وذلك حسب إفادة سعادة الملحق الثقافي بسفارة المملكة العربية السعودية في لندن

لذا نأمل من سعادتكم تسهيل مهمة الباحث ما أمكن.

وتفضلوا سعادتكم قبول فائق التحية والتقدير،،،

عميد البحث العلمي

د. منيف بن مهنا الرشيدي

بسم الله الرحمن الرحيم

ROYAL EMBASSY OF SAUDI ARABIA
CULTURAL BUREAU
LONDON

سفارة المملكة العربية السعودية
الملحقية الثقافية
لندن

التاريخ ١٤٣٤/٧/١٤هـ

إفـــادة

رقم الملف QU147

تفيد الملحقية الثقافية بسفارة المملكة العربية السعودية في لندن بأن السيد/ شاهر مصلح سلمى المطيري سجل مدني (١٠٣٠٩٢٠١٤٢) والمبتعث من قبل جامعة القصيم لدراسة الدكتوراه بجامعة Southamptonفي مجال التطبيق الإكلينيكي المتقدم في الرعاية الطارئة قد التحق بالبعثة بتاريخ ١٤٣٢/١١/٣هـ ومن المتوقع أن تنتهي بعثته بتاريخ ١٤٣٧/٣/٢٠هـ يرغب بجمع معلومات تساعده في بحثه العلمي وقد أعطيت له هذه الإفادة بناءً على طلبه لتقديمها الى من يهمه الأمر.

وتقبلوا فائق التحيات،،،

الملحق الثقافي

بسفارة المملكة العربية السعودية في لندن

فيصل بن محمد المهنا أبا الخيل

630 Chiswick High Road, London W4 5RY Tel: +44 (0) 20 3249 7000 Fax: +44 (0) 20 3249 7001 E-mail: sacbuk@uksacb.org
www.uksacb.org

Appendix 6

Specific Learning Outcomes for Nursing Education

Program Learning Outcomes

Guidelines for

Program Development and Review

Business	Nursing
Dentistry	Pharmacy
Engineering	Teacher Education
Medicine	

National Commission for Academic
Accreditation & Assessment

August 2011

Specific Learning Outcomes for Nursing Education

Specific Knowledge Outcomes

Bachelor's degree graduates should be able to demonstrate sound knowledge and understanding of:

- the components of the life and human sciences that underpin and contribute to nursing practice and health promotion.
- the components of the health sciences, social sciences, and the arts that underpin and contribute to nursing practice and health promotion.
- contemporary developments and issues such as the environmental impact on health, disaster management and scientific advances such as genetics and genomics.
- acute and chronic illness, its etiology and manifestations, and how it affects the bio-psychosocial functioning of individuals.
- contemporary nursing practice including nursing models and transition of healthcare, health promotion, illness prevention, care of individuals, families, groups, communities and populations across the lifespan and across the health illness continuum.
- healthcare matters of national and international significance, national health priorities including elements such as remote and rural health, mental health, maternal care, chronic disease, aged care, disability and primary health care.
- research processes and findings relevant to nursing including their utilization and application in nursing practice.
- main provisions and the central importance of ethics, law and the humanities for professional nursing practice.
- the professional standards of moral ethical and legal conduct .
- concepts of patient privacy, confidentiality and informed consent.
- nursing methods, nursing skills and healthcare management.
- processes of assessment, nursing diagnosis, planning, implementation and evaluation.
- requirements of professional practice and accountability in different healthcare settings and employer contexts and the importance of these requirements.

- the history of nursing , and understanding of contemporary issues in nursing and their impact on current nursing practice.
- cultural issues affecting patients with whom they may be expected to work. understanding of their significance to providing culturally appropriate healthcare
- healthcare policy, finance and regulatory environments.
- knowledge of accepted healthcare terminology for use in oral and written communication.
- requirements for accurate, legible records and the need to handle these records and all other.

Specific Cognitive Skills Outcomes

Nursing graduates should be able to apply analytical skills and utilize evidence and research findings to exercise clinical judgments and carry out nursing practice. They should be able to integrate and synthesize complex information to deliver quality care. They should have the ability to reflect critically on practice, to evaluate health care outcomes and provide leadership in improving care. Nursing graduates should be able to respond to the rapidly changing health care environment through reflection on experience and continuing study and research.

Specific cognitive skills include the ability to:

• identify and apply appropriate knowledge to investigate and plan to meet the healthcare needs of patients and clients.

• integrate knowledge and methods drawn from a variety of disciplines related to the nursing field to inform decision-making.

• synthesize relevant concepts, principles, and theories to assess needs and provide appropriate nursing care.

• apply knowledge of social and cultural factors to the care of diverse individuals, families, groups, and communities.

• evaluate data from all relevant sources including technology to inform the delivery of care

• engage in ongoing evaluation of all care delivered, and change or suggest changes in plans for care as appropriate.

• reflect on and recognize the limits of their own knowledge and skill and seek appropriate advice from or referral to other professionals when required.

• clearly articulate and explain the theory and research that underlies professional nursing practice.

• actively promote the rights, well-being, security, and safety of people in the care environment.

• draw on a range of resources to evaluate and audit care and use results to contribute to improvements in services, family care experiences, and outcomes of care.

• reflect on practice, feelings, beliefs, and the consequences of these for individuals or groups.

• recognize the importance of accountability in nursing practice, supervise and delegate appropriately in keeping with sound professional judgments.

• practice nursing in ways that are consistent with professional, ethical, regulatory and legal codes, while recognizing and responding appropriately to moral or ethical dilemmas and issues in day to day practice.

• within the scope of professional practice and accountability, articulate the different roles, responsibilities, and functions of a nurse both individually and within a health care team, and adjust the role to respond effectively.

• where necessary and appropriate, question or challenge current systems.

• undertake effective risk assessments and take appropriate action.

• critically question, evaluate, interpret, and synthesize a range of information and data sources to facilitate patient choice, and make sound clinical judgments to ensure quality standards are met and practice is evidence based.

• interpret and reflect on the nature of professional nursing and forms of nursing knowledge and practice information in accordance with applicable legislation, protocols, and guidelines.

Specific Interpersonal Skills and Responsibility Outcomes

A nursing graduate should collaborate in effective professional and therapeutic interactions with patients and engage actively in appropriate team building and collaborative strategies to produce positive professional working relationships within the interdisciplinary health care team.

Note that the intention in describing these outcomes is that graduates will actually behave in the ways described. Programs should ensure that students are able to do these things effectively, and that there are reasonable expectations that they will do so. Program evaluation strategies should include evidence that these expectations are being realized.

Specific interpersonal skill and responsibility outcomes for Bachelor's Degree Programs in Nursing include:

- communicating effectively at all stages in the care of patients with colleagues, and with family members including people with communication difficulties.
- developing effective therapeutic relationships through the use of appropriate culturally sensitive communication and interpersonal skills
- practicing their profession in a holistic, tolerant, non-judgmental, caring, and sensitive manner that recognizes and respects diversity and the beliefs, rights and wishes of those being cared for
- challenging inequalities or exclusion from access to care, supporting action aimed at the prevention of neglect and abuse and protection of clients, patients, the public and colleagues from the risk of harm
- delivering safe, evidence-based care to patients, families, and groups, in a variety of care settings
- supporting the integration of proven technological advances into practice
- formulating strategies for meeting the healthcare needs of patients and clients through inter-disciplinary and multi-agency working
- using inter-and intra disciplinary communication and collaborative skills to deliver evidence based patient-centered care
- engaging in teamwork, inter disciplinary, inter-agency and collaborative activities, demonstrating appropriate teambuilding strategies, effective cooperation and contributing nursing perspectives to optimize patient outcomes

- developing leadership skills and strategies to promote effective management and delivery of quality services

- valuing and demonstrating commitment to promoting health and social care for patients, families, groups, communities and populations taking advantage of opportunities for health promotion and health education activities
- using a range of communication techniques to promote patient well being, give emotional support and arranging for specialist counseling or other interventions when needed
- facilitating, supporting and promoting the health, well-being, comfort and dignity of individuals, groups, communities and populations whose lives are affected by ill health, distress, disease, disability or death
- accepting responsibility for keeping their own knowledge and skills up to date through ongoing professional development and learning, using evaluation, supervision, and appraisal to reflect and improve their own performance and enhancing the quality of care and service delivery
- facilitating the safe practice and learning of others through professional development

Specific Communication, Information Technology, and Numerical Skills Outcomes

Nursing graduates should communicate effectively verbally and non- verbally using appropriate communication skills for different audiences. They should be able to use a range of information management and patient care technologies to deliver safe and effective services. They should have proficiency in numerical skills as required for safe medication and therapeutic management. Specific communication, information technology, and numerical skills outcomes for bachelor's degree graduates in nursing include

- the ability to communicate effectively both orally and in writing, using a range of media that are widely used in nursing and other health professions such as the writing and presenting reports to different types of audiences
- the ability to make judgments about the quality and reliability of information sources; for example, information derived from the internet or from other sources
- ability to make effective use of information technology related to patient/client care, health promotion, and continuing professional development

- competence in numerical skills necessary for safe patient and client care
- ability to make effective use of computers and other information systems, keeping accurate, legible and complete records while complying with legal requirements, including confidentiality requirements, data protection legislation and other codes of practice when dealing with medical information
- ability to use and interpret patient care technology, information systems, and communication technology to support safe nursing practice

Specific Psychomotor Skills Outcomes

Nursing graduates demonstrate competence in a range of psychomotor skills (often assessed by approaches such as Objective Structured Clinical Examination (OSCE). They are extensive and may vary procedurally according to context and complexity. The principles of safe and effective techniques apply to all psychomotor skill application. The nursing graduate should demonstrate psychomotor skills as an integral part of total nursing practice including the exercise of clinical judgment and interpersonal skills. The range of nursing specializations influences the range of nursing skills and extensive lists of skills exist for different specializations.

The following list of psychomotor skills is not exhaustive and does not include all potential skills. Negotiation with clinical health placement facilities may require the inclusion or exclusion of specified items. All items may be procedurally altered to take into account patient variance, age, gender, pregnancy and lactation, and predisposing conditions.

Appendix7

Ethical Approval

Kingdom of Saudi Arabia
Ministry of Health
General Health Affiars Directorate
Training, Medical Education & Research
Al-Qassim Province

MERC

المملكة العربية السعودية
وزارة الصحة
المديرية العامة للشؤون الصحية بمنطقة القصيم
إدارة التدريب والتعليم الطبي والبحوث

الرقم: ..... التاريخ: ..... المشفوعات : .....

09 Ramadan 1434H (17 July 2013G)

To: **Mr. Shaher Almutairi**
Postgraduate Research Student (Doctorate in Clinical Practice at the University of Southampton)

From: **Regional Research Ethics Committee**
Registered in National Committee of Bio. & Med. Ethics
Registration # (H-04-Q-001)

Dear Mr. Shaher,

Thank you for submitting your Research project entitled **"Assessing the Quality of Nursing Graduates in Saudi Higher Education"** to MERC for approval. We appreciate your efforts to meet the criteria requested by Qassim Regional Research Ethics Committee.

Decision: **APPROVAL (Exclusive to Qassim Ministry of Health Hospitals)**

Your Research Proposal is APPROVED by the Regional Research Ethics Committee.

- This approval is applied only to Qassim Ministry of Health Hospitals where Nursing Graduates from Qassim University have their internship rotations (not to Universities/Colleges or to other region).
- You can start your research proceedings at your convenience.
- Also, you shall be responsible for preserving patients' information and confidentiality.
- Please be aware that this approval embraces no financial (or other) obligations or responsibilities from the side of the Saudi Ministry of Health and all its health facilities.
- Written approval from the directors of the research sites have to be granted by the study principal investigator.

Best Regards.

DR. OMAR ABDULAZIZ AL YAHIA, MBBS, DPHC, ABFM
Chairman of Qassim Regional Research Ethics Committee
Consultant Family Medicine
DirectorTtraining & Regional MERC Administration
Al Qassim Province, KSA

cc: Julie Wintrup
Principal Teaching Fellow
University of Southampton

مستشفى الملك فهد التخصصي – القصيم – بريدة – ص.ب: ٢٢٩٠ – هاتف: ٠٦ ٣٢٣١٨٧٤
King Fahad Specialist Hospital - Al-Qassim - P.O.Box: 2290 - Telefax # +966 6 323 - 1874 - E-mail: mercqassim_training@hotmail.com

بسم الله الرحمن الرحيم

Kingdom of Saudi Arabia
Ministry of Higher Education
King Saud University
Code 034
College of Medicine
& King Khalid University Hospital

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك سعود
رمزها ٠٣٤
كلية الطب
ومستشفى الملك خالد الجامعي

Date: 22.10.2013 / 17.12.1434 التاريخ: No.: 13/3827/IRB الرقم:

Mr. Shaher Almutairi
PhD Student
Qassim University, Riyadh, K.S.A.
Southampton University, UK

Subject: **Research Project No. E-13-1004**

"Assessing the Quality of Nursing Graduates in the Saudi Higher Education"

Dear Mr. Almutairi,

Your above-mentioned research project was reviewed by the Institutional Review Board on 19 October 2013 (14 Dhu Al-Hijjah 1434). The project was approved. However, as the primary investigator of your proposed project is a scholar from University of Qassim and is now finishing your PhD thesis abroad, the IRB request an approval letter from the Vice Dean of Hospital Affairs at the College of Medicine, King Saud University to conduct the proposed project at King Khalid University Hospital. The IRB would also require a name of a collaborating co-investigator to be responsible for this project locally in case future inquiries arise in the future.

Work on the project may not begin until the above concerns are addressed and reviewed by the Board.

If you have further questions, please feel free to contact me.

Thank you!

Sincerely yours,

Dr. Khalid M. Al-Faleh
Chairman, Institutional Review Board
King Saud University - College of Medicine
P.O. Box 7805 Riyadh 11472 K.S.A.
E-mail: kfaleh@ksu.edu.sa

Cc: Vice Dean for Hospital Affairs /rubie

Appendix 8

The multivariate analysis and the effect of gender on the outcomes

Table 5.17 ANCOVA results for gender predicting total self-assessment scores, while controlling for aptitude test scores and high school grade

Source	df	F	Sig.
Corrected Model	3	5.391	.002
Intercept	1	9.223	.003
High school grade	1	1.921	.168
aptitude_test	1	3.392	.068
Gender	1	9.087	.003
Error	146		
Total	150		
Corrected Total	149		

a. R Squared = .100 (Adjusted R Squared = .081)

b. Computed using alpha = .05

A one-way analysis of co-variance (ANCOVA) with aptitude test score and high school grade as two covariates, total self-assessment score as the dependent variable and gender of participants as the independent variable was carried out. High school grade is found to be not significant covariate, F (1, 146) = 1.921, p = .168. Moreover, aptitude test is not a significant covariate, F (1, 146) = 3.392, p = 0.068. The ANCOVA further revealed that gender of participants affect self-assessment score, F (1, 146) = 9.087, p = .003, after controlling for these factors. Therefore, female nursing students tend to have higher self-assessment score (Table 5.17).

Table 4.18 ANCOVA test results for gender predicting knowledge scores, while controlling for aptitude test scores and high school grade as covariate

Source	df	F	Sig
Corrected Model	3	2.131	.099
Intercept	1	7.669	.006
High school grade	1	2.684	.104
aptitude_test	1	2.293	.132
Gender	1	.757	.386
Error	146		
Total	150		
Corrected Total	149		

a. R Squared = .100 (Adjusted R Squared = .081)

b. Computed using alpha = .05

A one-way ANCOVA was conducted with aptitude test score and high school grade controlled as covariates, knowledge score as dependent variable and gender of participants as the independent variable. The results, shown in Table 5.18, reveal that neither high school grade nor aptitude test score are significant covariates, at F (1, 146) = 2.684, p = .104 and F (1, 146) =2.293, p = .132, respectively. There was no significant differences of the nursing graduates gender on the knowledge test score, F (1, 146) = .757, p =.386 after controlling the effect of aptitude and high school grade.

Table 5.19 ANCOVA test results for gender predicting knowledge sub set scores, while controlling for aptitude test scores and high school grade as covariate

Source	df	F	Sig.
Corrected Model	3	4.492	.005
Intercept	1	1.985	.161
High school grade	1	1.581	.211
aptitude_test	1	11.037	.001
Gender	1	.198	.657
Error	146		
Total	150		
Corrected Total	149		

a. R Squared = .100 (Adjusted R Squared = .081)

b. Computed using alpha = .05

A one-way ANCOVA was performed with aptitude test score and high school grade as covariates, the knowledge subset scores as the dependent variable and the gender of the participants as the independent variable. The results are shown in Table 4.19. Aptitude test was found to be a significant covariate, F (1, 144) = 11.037, p = .001, indicating that knowledge subset scores co-vary with student aptitude; however, high school grade was not a significant covariate, F (1, 144) = 1.581, p = .196, ηp2 = .011, indicating that knowledge subset scores are independent of high school grade. The predicted main effect of gender was not statistically significant, F(1, 144) = 2.390, p = .211. Therefore, there was no significant effect of the gender of the nursing graduate on knowledge subset scores, when the effect of aptitude and high school grade is controlled.

The differences (T-test) between Established and new universities graduates (Female only=122)

Group Statistics						
	Type of University	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
total self-assessment	Established	55	3.0785	.37082	.05000	.541
	New	67	3.1195	.36473	.04456	
Percentage Correct Answers (Knowledge)	Established	55	40.17	13.056	1.761	.000
	New	67	26.46	14.131	1.726	
schs written exam test	Established	55	28.8600	7.04406	.94982	.001
	New	67	25.1388	4.64885	.56795	
high school grade	Established	55	96.3564	3.75382	.50617	.338
	New	67	95.6539	4.20897	.51421	
aptitude test	Established	55	75.7818	5.10153	.68789	.000
	New	67	68.6716	6.02366	.73591	
achievment test	Established	55	76.4000	6.69605	.90289	.000
	New	67	68.8955	6.29606	.76919	
assessment	Established	55	2.8990	.45726	.06166	.001
	New	67	2.5728	.54292	.06633	
care delivery	Established	55	3.2451	.39630	.05344	.720
	New	67	3.2720	.42431	.05184	
communication	Established	55	3.0352	.58922	.07945	.739
	New	67	3.0657	.41726	.05098	
health promotion and illness prevention	Established	55	3.0545	.58195	.07847	.309
	New	67	3.1584	.53854	.06579	
personal and professional	Established	55	3.1510	.45626	.06152	.094
	New	67	3.3041	.53043	.06480	
professional and ethical practice	Established	55	3.3470	.40408	.05449	.908
	New	67	3.3562	.46065	.05628	
research and development	Established	55	2.7455	.69378	.09355	.115
	New	67	2.9254	.55904	.06830	
team working	Established	55	3.15101	.504382	.068011	.100
	New	67	3.30182	.495323	.060513	

Appendix 9

MOH statistical report (2014): The number of the BSN programme in the Saudi universities and nursing graduates

Cont. Table : 2-39

تابع جدول: ٢-٣٩

Nationality and Sex الجنسية والجنس									College الكلية	
Total المجموع			N.S غير سعودي			S سعودي				
المجموع Total	أنثى F	ذكر M	المجموع Total	أنثى F	ذكر M	المجموع Total	أنثى F	ذكر M		
141	87	54	0	0	0	141	87	54	Applied Science, Al jouf U.	العلوم التطبيقية التطبيقية جامعة الجوف
23	9	14	0	0	0	23	9	14	Applied Science, Northern Border U.	العلوم التطبيقية جامعة الحدود الشمالية
3039	1663	1376	27	17	10	3012	1646	1366	Total	المجموع
179	93	86	8	2	6	171	91	80	Nurse,King Saud U.,R.	التمريض جامعة الملك سعود بالرياض
46	46	0	3	3	0	43	43	0	Nurse , Abdul Aziz U.,J.	التمريض جامعة الملك عبدالعزيز بجدة
51	51	0	2	2	0	49	49	0	Nurse , Umm Al-Qura U.	التمريض جامعة أم القرى **
139	139	0	0	0	0	139	139	0	Nurse , Dammam U.	التمريض جامعة الدمام
222	222	0	0	0	0	222	222	0	Nurse , King Saud bin abdulaziz for Health Sciences National Guard	التمريض جامعة الملك سعود للعلوم الصحية بالحرس الوطني
15	15	0	0	0	0	15	15	0	Nurse , King Khalied U. Abha	التمريض جامعة الملك خالد بأبها *
43	43	0	0	0	0	43	43	0	Nurse ,Norah Bint Abdulrahman U.	التمريض جامعة الاميرة نورة بنت عبدالرحمن
60	45	15	0	0	0	60	45	15	Nurse , Hail U.	التمريض جامعة حائل
1	1	0	0	0	0	1	1	0	Nurse , Qassem U.	التمريض جامعة القصيم
33	33	0	0	0	0	33	33	0	Nurse , Jazan U.	التمريض جامعة جازان
23	23	0	0	0	0	23	23	0	Nurse , Northern Border U.	التمريض جامعة الحدود الشمالية
812	711	101	13	7	6	799	704	95	Total	المجموع
13	13	0	0	0	0	13	13	0	Health and Rehabilitation Sciemces Norah Bint Abdulrahman U.	الصحة وعلوم التأهيل جامعة الاميرة نورة بنت عبدالرحمن
14	0	14	0	0	0	14	0	14	Public Health &Health Informatics Qassem U.	الصحة العامة والمعلومات الصحية بالقصيم
27	13	14	0	0	0	27	13	14	Total	المجموع
8	0	8	0	0	0	8	0	8	Rehabilitation Taibah U.	التأهيل الطبي بجامعة طيبة
8	0	8	0	0	0	8	0	8	Total	المجموع
6568	3512	3056	107	58	49	6461	3454	3007	G.Total	المجموع الكلي

. عدد خريجي كلية الطب جامعة الملك سعود وجامعة الملك خالد بأبها منخفض مقارنة بالعام السابق وذلك نظراً لصدور قرار من الجامعة بعدم احتساب أطباء الامتياز ضمن الخريجين الا بعد الأنتهاء من فترة الامتياز