The Effect of Work-Related Stress and Burnout on Nursing Performance and Job Satisfaction: a Study of Hospitals in Saudi Arabia

By:

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ABSTRACT

Background: While there is much research on work-related stress among nurses in the literature, little attention has been focused on the effect of work-related stress and burnout on nursing performance and job satisfaction in hospitals within Saudi Arabia. In particular, studies from the western region of Saudi Arabia are lacking. Therefore, this study focuses on nurses in Jeddah, the country's entry port and a city that regularly hosts pilgrims. Jeddah is highly multicultural, and the second largest city in Saudi Arabia with nearly 4 million people including travellers; it has the largest foreigner to citizen population ratio in Saudi Arabia, and a particularly high proportion of hospital nurses non-native to Saudi Arabia.

Aim: The aim of this thesis was to identify research gaps and to contribute to existing knowledge by developing hypotheses pertaining to the level of work-related stress and burnout among hospital nurses in different hospital types in Jeddah. The study further evaluated the relationship between work-related stress and burnout, and how this related to nursing performance and job satisfaction. The analysis also examined the relationships between these variables among hospital nurses, and whether relationships are different for different hospital types.

Methods: A systematic review of existing research into nursing stress in Saudi Arabia between 2003 and 2014 was carried out. From the 81 articles identified from the database search, 8 met the inclusion criteria. At the onset a pilot study was conducted was done among hospital nurses in King Abdulaziz University.Thereafter, a quantitative survey of 567 nurses derived from three large

hospitals representing each sector (private, public and other governmental agency sector hospitals) was conducted. Bilingual questionnaires were used to collect quantifiable, reliable, and valid data in order to test the hypothesis derived from the pilot study.The data was analysed by quantitative research method of cross-sectional analysis and correlational study.

Findings: Results showed levels of work-related stress varied among nurses depending on the type of hospital where the nurses were employed. Furthermore, there was a positive relationship between levels of work-related stress and burnout among hospital nurses working in all three types of hospitals in Saudi Arabia. However, there was a very weak relationship between work-related stress and job performance among private hospital (International Medical Center) nurses compared to the strength of this relationship observed in public hospitals. Stress was a significant predictor of burnout among nurses while burnout was the strongest descriptor of the relationship between work-related stress and job satisfaction among nurses. The analysis outcome revealed that work-related stress had the highest impact on job satisfaction, which was facilitated by burnout. Nurses working in the public (King Fahad Hospital) and university (King Abdulaziz University Hospital) hospitals reported high levels of stress and burnout, and also conveyed low levels of job performance and high levels of dissatisfaction compared with nurses working in the International Medical Center (IMC) . The type of hospital moderated the effect between burnout and job satisfaction in both King Fahad Hospital (KFH) and King Abdulaziz University Hospital (KAUH) but did not affect the International Medical Center (IMC).The relationship between stress and burnout was significantly stronger in nurses working in the IMC compared with the KFH and KAUH hospitals. However, burnout was not important in the relationship between stress and satisfaction for those who worked in IMC. Therefore, hospital type did appear to moderate the mediation effect between burnout and job satisfaction, even though, the mediation effect occurred only in KFH and KAUH hospitals but not in IMC .

Conclusion: The study demonstrated that there is evidence of work-related stress among nurses in Jeddah, Saudi Arabia.Its prevalence depended on the age,experience,nationality and the employment status of the nurses. Work-related stress and burnout impacted negatively on job performance and job satisfaction in nurses in public (KFH) and university (KAUH)

hospitals but not in private (IMC) hospitals.Notably,there is a mediated relationship between work-related stress and burnout and a moderated mediation difference between the type of hospitals. Both work-related stress and burnout have shown an effect on the level of job satisfaction of nurses and their job performance. In essence,measures should be taken to help alleviate work-related stress and burnout levels of nurses working in non-privately funded hospitals Saudi Arabia. This study recommends an increase hiring Saudi Arabian nurses,a review of task allocation policies for nurses,provision of targeted training for nurses,increased focused government funds allocation to healthcare,an adoption of an integrated stress prevention, intervention and management program throughout the healthcare system of Saudi Arabia.

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ABBREVIATIONS AND DEFINITIONS

AC	Accreditation Canada
ACHSI	Australian Council on Healthcare Standards International
BMA	British Medical Association
CBAHI	Central Board of Accreditation for Healthcare Institutions
GDP	Gross Domestic Product
HSE	The Health and Safety Executive
IMC	International Medical Centre
ISO	International Organization for Standardization
JCI	Joint Commission International
KAUH	King Abdul-Aziz University Hospital
KFH	King Fahad Hospital
MMSS	McCloskey/Mueller Satisfaction Scale
MOH	Ministry of Health
NABH	National Accreditation Board for Hospitals & Healthcare Providers
NPC	The Nurse Professional Competence
OBI	Oldenburg Burnout Inventory
OGA	Other Governmental Agencies
PHC	Primary Healthcare Centre
PHCS	Private Health Care Services
SCHS	Saudi Commission for Health Specialties
WHO	World Health Organization

CHAPTER I: INTRODUCTION

1.1 FOREWORD

Stress is commonly associated with a specific incident or occurrence that one undergoes at a point in time. Usually stress is used to refer to an emotional strain at a certain point of an experience. However, it is important to investigate the prevalence of stress in certain heath care professions especially nursing, since nurses are the backbone of healthcare systems (Lamadah & Sayed, 2014). Unlike the single occurrence that sparks stressful reactions or effects, it is essential that effects of daily career-related stressors are investigated and reported with the aim of alleviating the occurrence of this condition especially in the context of the given study.

Stress, which is also associated with burnout in the healthcare sector, should be investigated in the context of the specific institution and geographical region; it can then be correlated with the performance of the investigated population. Equally, factors that are likely to affect work performance are most likely to affect job satisfaction hence the need for study of the association between work-related stress, burnout, job performance and job satisfaction. In this study, these factors were investigated with specific focus upon their effects on the performance and satisfaction of the healthcare workers in the sampled institutions.

The interest in research in "Work-related stress among nurses in Jeddah, Saudi Arabia" was ignited by my previous practice as a Total Quality Management Specialist at the Medical School of King Abdul-Aziz University Hospital. My daily interaction with healthcare professionals and my daily observation of the aforementioned personnel's general stress levels drove my curiosity and a need to find conclusive information and data that could be used to alleviate the situation of healthcare professionals. I found it ironic that these healthcare professionals exhibited work-related stress despite being the healthcare consultants to the general public.

After seven years of uninterrupted service in the King Abdul-Aziz University Hospital, my sympathy extended to the nurses who, in my view, experienced most of the burden because of the type of work they do, and especially, since most of them were not native to Saudi Arabia and had poor Arabic language skills in a country where patients are predominantly Arabic speakers.

Many other factors influenced their daily work including: nurses being emotionally attached to patients who are confined to bed, incomplete and unclear information from both the medical secretaries and the physicians, unrealistic demands from patients, and their own personal challenges, just to mention a few. Workloads, imbalanced work shifts, and departmental demands in different medical units were also emerging stressors for the nurses I interacted with. Expatriate nurses in Saudi Arabia are subject to societal stereotypes and prejudice as language and cultural barriers are apparent (Al-harasis, 2012).

As a result, expatriate nurses can feel devalued which adds to their existing stress levels at work. The nurses' lack of familiarity with the patients' context in terms of culture, language, and experience contributed to the need for background investigation of the roles they played.

In another geographical setting, my experience at the Massachusetts General Hospital Emergency Department in Boston, U.S. also exposed to me to the daily routine of nurses. Interestingly, despite having a predominantly single nationality and/or single language of communication among the healthcare practitioners and the patients, the types of work-related stress experienced were very similar to those in Saudi Arabia. Thus, I also got motivated to investigate the possible reasons of stress among nurses working in very specialist departments such as Intensive Care Units.

My experience in the USA was also enriched when I spent several weeks at Philadelphia University Hospital as a client rather than a practitioner. I was a guardian to a patient and my observation and interactions with attending nurses revealed similar outcomes. The practice in Massachusetts was identical to the environment and practice at Philadelphia University Hospital.

In essence, my pursuit of knowledge in this field and my intent to contribute to the existing literature would not only serve my need for expansion of awareness and policy change but would also provide additional reference to the little-known challenges, causes, effects, coping strategies, and prevention measures to stress experienced by nurses working in healthcare. Consequently, healthcare decision makers would have additional recommendations on ways to increase job satisfaction and performance outcomes among these nurses.

1.2 INTRODUCTION TO THE THESIS

"Nursing is, by its very nature, an occupation subject to a high degree of stress. Every day the nurse confronts stark suffering, grief, and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are, by normal standards, distasteful, even disgusting, others are often degrading; some are simply frightening'' (Hingley, 1984 in McGrath, Reid, & Boore, 2003). This quote highlights the importance of investing time and resources in investigating, reporting, and ameliorating the level of stress among nurses especially when the nature of their job readily exposes them to multiple agents of stress.

In Saudi Arabia, nurses comprise the largest section of healthcare personnel. In total, Saudi Arabia employs a total of 139,701 nurses to serve a population of 29,195,895 (MOH, 2012); an approximate ratio of 1:208 for nurse per potential patient. Notably, out of these nurses, 64% are non-Saudis and the remaining 36% are Saudi nationals. This phenomenon is a unique aspect of the service provided by nurses in Saudi Arabia.

Saudi Arabia has a rapidly growing population. Statistically, its rate of population growth is more than 6 times that of the UK and more than 3 times that of the USA. However, Saudi Arabia spends only 4% of its total Gross Domestic Product (GDP) on healthcare. In comparison, this is less than half of what the UK spends on healthcare as a percentage of the GDP, and less than about 20% of what the USA spends on healthcare in proportion to GDP (WHO, 2013). Arguably, this augments the challenge to the healthcare sector and the nursing fraternity in Saudi Arabia, highlighting the scarcity of resources in the healthcare sector in Saudi Arabia, compared to developed nations.

Apart from this budgetary fact, it is noteworthy to recognize that for every 10,000 population, the USA and UK both employ more than 94 nurses while Saudi Arabia employs only 21 nurses. Clearly, these numbers show the expected increased workload (greater than four-fold) of nurses working in Saudi Arabia compared to those working in the UK or the USA.

Based on these circumstances in Saudi Arabia, one of the direct effects of stress among nurses is the impact on the quality of patient care. This could arise because of absenteeism, frequent

turnover among nurses, decreasing commitment to work, impaired performance and productivity, and increasing unsafe working practices and accident rates in the health centres. Understandably, nurses who are stressed most of the time will adversely affect others in the organisation and possibly result in harm to their patients (Ongori & Agolla, 2008).

Therefore, it is essential to establish evidence on how work-related stress and burnout affect the performance of nurses and how this affects their job satisfaction. This study is important in not only providing a threshold for policy and procedure reviews but also to inform stakeholders in the field of healthcare of the consequences that may accrue from work-related stress amongst those nurses employed in healthcare.

1.3 STRUCTURE OF THE THESIS

This thesis explores the consequence of work-related stress and burnout among nurses and how these effects impact on their performance and job satisfaction. The setting of the study is in three hospitals in Jeddah, Saudi Arabia namely; King Fahad General Hospital (denoted as KFGH), the International Medical Centre (denoted as IMC), and King Abdul-Aziz University Hospital (denoted as KAUH).

In chapter two of the thesis, the discussion is focused on the background of the study question and the context of this research. It explores the organization of the healthcare system in Saudi Arabia including its resources and performance.Later,the chapter narrows down to the contextual detail of nursing in Saudi Arabia including challenges.

In chapter three, the literature review of this study is presented. Therefore, there is a general overview of stress among nurses. In the same perspective, there is also a discussion of the global burden of stress and how it can affect nurses, the effect of burnout among nurses, the effect of stress and burnout on the nurses' job performance, and level of job satisfaction. In order to contextualize details, there is coverage on the location or region of study where demographic details and health services are explored. Studies that cover work-related stress, its symptoms, causes, effects, and prevention and coping strategies are reviewed. The model of stress at work is also presented in this chapter. Since key terms are part of this literature review, some definition of terms is discussed here.

Additional reviews are carried out across the country, the wider Middle-East region and in developed countries such as the USA or the UK. Additional studies that are reviewed consider nursing performance and job satisfaction.

In the fourth chapter of this thesis, a systematic review of literature was carried out on work-related stress among nurses in Saudi Arabia and the Middle East. This section is followed by the rationale for this study and the hypothesis, including the research aims and objectives, presented in the fifth chapter.

The sixth chapter of this thesis is focused on the methodology of the study and the process of the investigation is presented. The type of investigation is reported, the study design is discussed including the study setting,, particpants and measures of the study. In addition,the pilot study that was carried out is described after which the procedure,data analysis used in the study is given. Similarly, the process of ethical consideration is elaborated and completed. Finally, in this chapter, the constraints of the study are discussed and the plan for analysing the data is presented.

The results of the study are provided in the seventh chapter of this thesis. This chapter presents the findings of the work done in the three hospitals in Jeddah, Saudi Arabia. There are descriptions of statistical data in this section: Descriptive statistics,correlation data statistics,mediation data statistics and moderated mediation statistics statistics are presented. In addition, there is distribution and socio-demographic data analysis and reporting in the selected hospitals. This chapter also assesses the differences of the results in terms of levels of stress, burnout, performance, and job satisfaction. Among the test results that are tabulated and interpreted are correlation analysis, mediation analysis, moderation analysis and moderated mediation analysis.

The central findings of the thesis are discussed in the eighth chapter of this thesis. The discussion reconsiders and embeds the findings about work-related stress, stress in the field of nursing in Saudi Arabia, job satisfaction, nurses' performance outcomes and job satisfaction within the wider literature and by hospital type. In addition, the discussion encompasses the strengths of the study, the limitations and the implications for further research studies. Finally, the conclusion of the study and the recommendations and implications are provided.

CHAPTER II: BACKGROUND

2.1 CONTEXTUAL OVERVIEW OF SAUDI ARABIA

As an upcoming third world monarchy undergoing substantial infrastructural development since 1970, Saudi Arabia only assumed global recognition about three decades after the first discovery of oil in 1938 (Simmons, 2011). Saudi Arabia is one of the wealthiest and fastest growing countries in the Middle East; it is categorised as the Eastern Mediterranean region by the World Health Organisation. It is approximately two million square kilometres in size making it the largest country in the Middle East. The climate is arid and desert-like in most parts of the country. Saudi Arabia has a population of 28,288,000 (WHO, 2013). The estimated growth in the population of Saudi Arabia as shown in the table below reflects an increasing trend, with the population growth rate at 2.2% and the estimated population by 2030 expected to be 35,630,000 (Nations, 2014).

Year	Total estimated population in Saudi Arabia
2008	24,807,273
2009	25,373,512
2010	27,136,977
2011	28,376,355
2012	29,195,895

Table 1: Total estimated population in Saudi Arabia for the time period from 2008 to 2012 (WHO, 2013).

Saudi Arabia has more foreign nationals than Saudi citizens. Of the total Saudi Arabian population, only 31% are Saudi Arabian nationals. Almost half of the population is female. The country has a 'young population' with 11.4% under the age of 5, and 30% under 15 years; the population over the age of 60 years is estimated at 5%. In comparison to developed countries, Saudi Arabia has a higher population aged under 15 than the United States of America (USA) and the United Kingdom (UK), at 20% and 17%, respectively. In addition, the annual population growth rate in Saudi Arabia is 2.2 % while in the USA and the UK, it is 0.9% and 0.5%, respectively.

The crude birth rate in Saudi Arabia per 1000 population is nearly double that of developed countries: 21.5 compared to 13.8 in the USA and 12.3 in the UK. However, the crude death rate in Saudi Arabia per 1000 population is less than half that of the advanced nations: 3.2 compared to the USA and the UK at 8.3 and 9.1, respectively (WHO, 2013). Although Saudi Arabia has a higher

population growth rate, a larger population under the age of 15, and a greater crude birth rate, it has the lowest gross national income and the lowest crude death rate compared to the two aforementioned nations. The gross national income per capita is 24,700 USD and the life expectancy average at birth is 75 while the life expectancy at the age of 60 is 79 (WHO, 2013). The gross national income per capita in USD is 24,700 compared to 48,820 USD for the USA and 36,010 USD for the UK.

The total fertility rate per woman in Saudi Arabia is 2.7 compared to the Eastern Mediterranean regional average of 3.2 and the global average of 2.5. The maternal mortality ratio per 100,000 of the population is 16 while the Eastern Mediterranean regional average is 170 and the global average is 210. The major cause of death in Saudi Arabia is non-communicable diseases (also known as chronic diseases) that are not passed from one individual to another. 66% of deaths in Saudi Arabia are caused by non-communicable diseases while the regional average is 37%. Communicable diseases account for 18% of deaths while the Eastern Mediterranean regional average is 48%. The proportion of deaths caused by injuries in Saudi Arabia is 16%, which is similar to the Eastern Mediterranean regional average. The most prevalent health risk factor for adults in Saudi Arabia is obesity above the age of 20 years, followed by tobacco use at the age of 15 and above. Other notable adult risk factors are hypertension and raised blood glucose at the age of 25 and above. With regards to health service utilisation, births attended by skilled health personnel and measles immunization have the highest demand. Both of these take up 98% of departmental services workload (WHO, 2014).

The country is an Islamic nation and it practices Islamic Sharia law. It hosts the two holy cities Makkah and Madinah, and Saudi Arabia receives an annual average of two million pilgrims during the holy months. The country is divided into thirteen regions. The regions are ruled by a governor appointed by the King. The governor is the administrative head of the region. Makkah is the second largest region in Saudi Arabia with eleven governorates and contains 25.5% of the total population of Saudi Arabia. It is the most cosmopolitan region in the country. Saudi Arabia has 83% of its population living in urban areas compared to the regional average of 49% and global average of 53%. Hence, Saudi Arabia is more prone to healthcare challenges associated with an urbanized population (Almalki, 2012).

The Healthcare System in Saudi Arabia

A country with a population and size of Saudi Arabia has a major role in providing an efficient healthcare system for its population. The healthcare system is the structure used by a nation to meet the health services needs of its population. Saudi Arabia has a national healthcare system where the government provides healthcare services through government agencies. However, there are three categories of hospitals in the Saudi Arabia healthcare system namely: public hospitals, other government agency hospitals, and private hospitals. The Saudi Arabia total expenditure on health per capita in USD is 659 compared to 8,233 USD for the USA and 3,495 USD for the UK. The total expenditure on health as the percentage of the GDP is 4.0 in Saudi Arabia, 9.6 in the UK, and 17.6 in the USA, respectively (WHO, 2013).

According to article 31 of the basic law of Saudi Arabia, the state has the responsibility to provide healthcare and welfare for each citizen (Royal Order, 1992). According to article 27 of the basic law of Saudi Arabia, "the state guarantees the rights of the citizen and his family in cases of emergency, illness and disability, and in old age; it supports the system of social security and encourages institutions and individuals to contribute in acts of charity" (Royal Order, 1992). Therefore, the government only provides free medical care to Saudi citizens through the government owned public hospitals. In addition, the government also provides free medical care for foreign workers who are not insured. However, this only relates to those workers who are employed by individuals and not sponsored by companies.

Consequently, the (MOH) has the primary responsibility to guarantee provision of primary, secondary, and tertiary healthcare to all citizens of Saudi Arabia. According to the fifth article of the MOH by-laws, the MOH has the responsibility to plan, develop strategies and implement plans to ensure provision of healthcare services to citizens (CCHI, 2012). The healthcare system of Saudi Arabia is composed of three main branches of service providers namely: The Ministry of Health (MOH), Other Governmental Agencies (OGA) and Private Health Care Services (PHCS) (Almalki *et al.*, 2011).

The MOH includes all public hospitals that are financed by the government. They are the largest providers of healthcare services in Saudi Arabia. The healthcare system provided by MOH may be divided into three levels based on the services provided. These are primary (healthcare centres),

secondary (general hospitals), and tertiary (specialist hospitals). However, MOH services may also be subdivided into four categories: health centres, hospitals, total health services and health services during the Hajj season, which are specifically erected to cope with the influx of pilgrims to Makkah from other countries (MOH, 2012).

Other government agencies have hospitals dedicated to serve specific populations that include: university hospitals and medical centres in Saudi Arabia; Armed Forces Hospitals; National Guards Medical Services; Ministry of Interior Medical Services; King Faisal Specialist Hospital & Research Centre, Riyadh; King Faisal Specialist Hospital & Research Centre, Jeddah; Royal Commission Hospitals; ARAMCO Hospitals; School Health Units, Ministry of Education; Youth Welfare; Saudi Red Crescent Society; Salin Water Conversion Corporation; and the Institute of Public Administration, Riyadh (CDSI, 2011). Although the MOH is not involved in the daily running of the OGA hospitals, it still oversees the activities.

Finally, private hospitals are managed and owned by private companies or individuals. They are mostly established for profit and mainly serve the expatriate community. However, the MOH is responsible for supervision and follow-up of all healthcare activities within the private sector (M. Almalki et al., 2011)

According to the MOH (2012), the total number of outpatient visits to hospitals in all sectors in 2010 was 129,986,885. In the same year, the healthcare system served 3,286,770 inpatients in all hospitals in all sectors in the country. To achieve this service, the Saudi government has invested heavily in healthcare system resources.

The total number of hospitals and beds in the facilities of MOH, OGA and PHCS are summarized in table 2. The total number of hospitals in Saudi Arabia is 435. The hospitals have a total of 61,036 beds (MOH, 2012), 59% of which are in MOH facilities. In a regional and global average comparison, Saudi Arabia in 2012 had 20.9 hospital beds per 10,000 population, in comparison to 12 hospital beds per 10,000 population in the Eastern Mediterranean Region (EMR) and 30 hospital beds per 10,000 population globally (WHO, 2013).

Healthcare Sectors	Total # of Hospitals	Total # of Beds	Ratio of hospitals to beds
MOH	259	35,828	1:138.3
OGA	39	11,043	1:283.2
PHCS	137	14,165	1:103.4
Total	435	61,036	1:140.3

Table 2: Total number of hospitals and beds in Saudi Arabia for each healthcare sector (MOH, 2012).

2.1.1.1 Healthcare System Resources in Saudi Arabia

The responsibility for running a healthcare system requires resources and the financial capital to operate its functions. Saudi Arabia has a Gross Domestic Product (GDP) per capita of USD 24,911. The percentage of the MOH budget from the total governmental budget was 6.8% in 2012. The total per capita for MOH expenditure was USD 430 (MOH, 2012). The government provides free healthcare services to Saudi citizens in public health facilities (Royal Order, 1992). Consequently, this may provide an additional burden to the country in terms of funding the health services. This may become a challenge especially due to the increasing population growth, the increasing cost of new technology, and the increased prevalence of non-communicable diseases, which require long-term treatment.

Resources in the healthcare sector may be viewed and classified into four main categories: workforce, infrastructure, medical technologies and devices, and access to essential medicines. The sufficiency of these resources may also be determined by their distribution per group of people. In this case, the distribution of these resources per 10,000 population provides an indicator of their adequacy. In table 3, a summary of these indicators per 10,000 populations is shown (MOH, 2012).

Indicator	Rate (per 10,000 population)
Physicians	24.4
Dentists	3.41
Pharmacists	5.3
Nurses	47.8
Allied health professionals	26.3
MOH primary health care centres	0.77
Hospital Beds (all sectors), KSA	20.9

Table 3: Total resources in the healthcare sector per 10,000 population (MOH, 2012).

Accordingly, the population of Saudi Arabia is served by human resources in the healthcare sector, which is divided into three main healthcare sections. There is a total of 26,266 physicians and 64,408 nurses working in the MOH hospitals. OGA has a total of 13,198 physicians and 28,380 nurses employed. PHSC hospitals have a total of 22,479 physicians and 28,373 nurses employed as shown in table 4 (MOH, 2012).

Healthcare Sectors	Total # of Physicians	Total # of Nurses	Ratio of Physicians to Nurses
MOH	26,266	82,948	1:2.5
OGA	13,198	28,380	1:2.2
PHCS	22,479	28,373	1:1.3
Total	**61,943**	**139,701**	**1:2.0**

Table 4: Total number of physicians and nurses working in Saudi Arabia healthcare sectors (MOH, 2012).

2.1.1.2 Performance of the Healthcare System

The performance of the healthcare system of Saudi Arabia can be assessed by indicators in relation to the target population and in comparison, to the regional and global performance on the same indicators. These may include: life expectancy, mortality rates and the healthcare professionals to patients' ratio. According to the World Health Statistics Report, life expectancy in Saudi Arabia for the year 2012 was 73.8 years, which exceeded the regional average by 5.8 years and exceeded the global average by 3.8 years (WHO, 2013).

The indicators in relation to the target population, Saudi Arabia could be compared to the regional and the global performance. According to the MOH and WHO, the percentage of the population under 15 years of age in Saudi Arabia for the year 2012 was 30%, which is lower than that of the Eastern Mediterranean Region (34%) and is higher than the percentage reported globally (27%). In addition, the crude birth rate (per 1,000 population) in Saudi Arabia for the year 2012 was 22.5, which is lower than both the regional (31.4) and global (24.3) averages. Furthermore, the crude death rate (per 1,000 population) in Saudi Arabia for year 2012 was 3.8, which is lower than the regional rate (6.3) and is almost half the global rate (7.9). Finally, the infant mortality rate (per 1,000 live births) among Saudis for year 2012 (16.2) was 63% less than the regional rate (44) and 56% less than the global rate (37) (WHO, 2013).

Performance of the healthcare system is monitored by local and international accreditation agencies. The country's official accreditation body is the Central Board of Accreditation for Healthcare Institutions (CBAHI). All government and private healthcare institutions operating in Saudi Arabia are required to meet CBAHI standards and maintain its quality certification. Furthermore, most hospitals seek additional accreditation from international accreditation agencies including (ISO), Joint Commission International (JCI), Accreditation Canada, Australian Council on Healthcare Standards International (ACHSI), and Accreditation and National Accreditation Board for Hospitals & Healthcare Providers (NABH).

The effectiveness of healthcare systems may also be determined by the affordability of their services to the target population. The Council for Cooperative Health Insurance was established by the government in 1999 to oversee a health insurance strategy for the Saudi healthcare market. So far, the cooperative health insurance is provided for Saudi Arabian citizens and foreigners in the private sector. Private sector insurance requires employers to pay for the medical insurance of their employees (M. Almalki et al., 2011).

However, the total number of health insured individuals in Saudi Arabia has decreased since 2010. The number of insured Saudi Arabians decreased in 2011 to 2,264,284 Saudi Arabians whereas the number of insured expatriates decreased to 5,674,313, and the total number of all those insured decreased to 7,938,597, which is a 5% decline compared to 2010. Although the number of insured Saudi Arabian citizens increased in 2012 to 2,318,491, the number of insured expatriates declined further to 5,509,876. Consequently, the total number of all those insured in Saudi Arabia declined to 7,938,597 and 7,828,367 in 2011 and 2012, respectively. This accounts for a decline rate of 5% and 1.38% in 2011 and 2012, respectively. In summary, this means only 26.8% of the population is insured in Saudi Arabia (CCHI, 2012).

Therefore, Saudi Arabia has a higher performance rating in the following healthcare indicators: life expectancy,crude birth rate,crude death rate and infant mortality rate. Similarly, the country has implemented a quality assurance system in the healthcare sector through accreditation.

However, there has been a notable decline in the provision of insurance services in the country,and a decline in the which may impact on the effectiveness of the outreach of health services to the target population.

Nursing in Saudi Arabia

The healthcare sector in Saudi Arabia employs a total of 139,701 nurses. Although nursing is not considered a rare, highly skilled or advanced profession, it requires very specialized training that Saudi Arabia cannot sufficiently provide to meet the needs of the market.Although recently there has been an increase in training institutions for nurses in Saudi Arabia,the profession suffers a cultural stereotype of being associated with demanding workshifts,low salaries and low class profession(Al-Mutairi, 2014).

Consequently, nurses are predominantly recruited from other Asian countries especially the Philippines and India. There are few Western trained nurses from the US and the UK in Saudi Arabia. A total of 82,948 nurses were employed by the MOH in Saudi Arabia in 2012,this does not include nurses employed by OGA and PHCS. This equates to 47.8 MOH nurses per 10,000 population, which marked a 35% increase, of MOH nurses only, from 2008 to 2012 (MOH, 2012). The rate of nurses employed at PHCS centres of the MOH increased from 5.2 nurses per 10,000 population in 2008 to 5.6 nurses per 10,000 population in 2012 (MOH, 2012). Of the total number of nurses, only 50,554 are Saudi nationals and 89,147 are expatriate nurses. These nurses are distributed across the various healthcare sectors. In essence, the 50,554 Saudi nurses employed in the health sector represent only 36.1% of the total number of nurses employed in Saudi Arabia. Table 5 illustrates the ratio of the number of Saudi nurses to non-Saudi nurses working in Saudi Arabia.

Hospital Type / Nationality	Saudi	Non-Saudi	Total
MOH	45,875	37,073	82,948
OGA	3,820	24,560	28,380
PHCS	859	27,514	28,373
Total	**50,554**	**89,147**	**139,701**

Table 5: Total number of nurses in Saudi Arabia facilities by nationality (MOH, 2012).

In 2012, according to the World Health Statistics Report (World Health Organisation, 2013), Saudi Arabia had 2.3 nurses per physician employed at the facilities of the MOH, in

comparison to 1.3 nurses for every physician in the Eastern Mediterranean Region (EMR) and 1.8 nurses for every physician globally (WHO, 2013).

When compared to regional and global averages, Saudi Arabia seems to lag behind developed nations quite significantly. For instance, the number of nurses per 10,000 population in the USA is 98.2, where in the UK it is 94.7, while in Saudi Arabia it is only 21.0 nurses per 10,000 population (WHO, 2013). This difference is evident among other healthcare professions as summarized in table 6.

Country	# Physicians per 10,000	# Nurses per 10,000	# Dentists per 10,000	# Pharmacists per 10,000
Saudi Arabia	9.4	21.0	2.3	0.6
United Kingdom	27.7	94.7	5.3	6.7
United States	24.2	98.2	-	8.8

Table 6: Number of healthcare workforce per 10,000 populations in KSA, UK and USA (WHO, 2013).

The information presented here shows that Saudi Arabia has an increasing supply of financial, physical and human resources to support the functioning of the healthcare services, although when compared to other advanced nations there are fewer resources in relation to population size. Arguably, it may be observed that it is how these resources are used to meet the healthcare needs of the country's population, which may determine the effectiveness of Saudi Arabia's healthcare system.

The largest proportion of the healthcare sector in Saudi Arabia comprises nurses. The fundamental role of the nurse is to promote health, prevent illness, restore health and alleviate suffering. They render these services to individuals, families and the community. Their primary commitment is to the patients and they protect the health, safety and rights of patients in Saudi Arabia. In addition to being patient advocates, nurses are charged with establishing, improving and maintaining a conducive healthcare environment at their respective facilities (Al Oseimy, 2011). Although nurses have some clinical responsibilities in Saudi Arabia, they are not yet involved in diagnostics or prescribing as is current practice in other developed nations (Aldossary, 2013). Essentially, nurses provide care management services to patients in the Saudi healthcare system. They are charged with the role of providing the physical needs of

patient care, the professional aspects of patient care, and patient care management (Aldossary, 2013).

The nursing profession in Saudi Arabia is composed of three broad categories: general specialty, main specialty, and subspecialty. The general specialty encompasses nursing and midwifery. The main specialties of nursing in Saudi Arabia are categorized into: Nursing Administration, Nurse Educator, Nursing Leadership, Nursing Informatics, Legal Nursing, Community Health Nursing, Gerontological Nursing, Clinical Nurse Specialist, Forensic Nursing, School Health Nursing, Adult Care Nursing, Nurse Anaesthetist, Adult ICU Nurse, Child & Family Health Nursing, Community Health Nursing, Psychiatric-Mental Health Nursing, and Geriatric Nursing. Of these main specialties, subspecialties include: Cardiology Nurse Practitioner, Neonatal Nurse Practitioner, Family Health Nurse Practitioner, Primary Health Care Nurse Practitioner, Paediatric Nurse Practitioner, Women's Health Nurse Practitioner, Acute Care Nurse Practitioner, Adult Nurse Practitioner and Nursing Midwifery (SCHS, 2014).

The average nurse practicing in Saudi Arabia qualifies with a bachelor's degree level. In addition, it is a requirement that each nurse receives a practicing license from the MOH and from the Saudi Commission for Health Specialties. Even though there is no specific prerequisite for the candidates' language competencies, all expatriate nurses must be licensed and registered to practice in their countries of origin before being allowed to work in Saudi Arabia (SCHS, 2014).

2.1.1.3 Challenges of Nursing in Saudi Arabia

In comparison to other countries, Saudi Arabia has a unique set of challenges that affect nurses. Even though Saudi Arabia has invested heavily in the healthcare system, there still exist challenges in the field of nursing. Although the country has recently increased the number of nurses, the number is still not sufficient to meet the demand of the country's population. Apart from a shortage of nurses, other challenges affecting nurses in Saudi Arabia include educational challenges, social and cultural challenges, and challenges related to the country's healthcare system (Lamadah & Sayed, 2014).

Saudi Arabia has increased the number of nurses employed by the MOH, OGA, and PHCS in the last few decades. In 1970, the total number of nurses in Saudi Arabia was 3,262. This number exponentially increased by nearly 15 times to 48,477 in 1990, and by 2010 the total number of nurses was 139,701 (MOH, 2012). This is more than triple the number of nurses employed two decades earlier. Although the growth rate of the number of nurses in Saudi has been greater than the population growth over the same period, the shortage of nurses in 2010 was estimated at 30% (Lamadah & Sayed, 2014). Clearly, this affects the employed nurses as their workload increases with the need.

The country also recruits more than half of its nursing workforce from other countries, mainly the Philippines. This factor poses additional challenges to the nursing profession in the country. When these nurses arrive in Saudi Arabia, most of them are not able to communicate in Arabic and they are unaware of the Arabian culture. Consequently, they often experience a culture shock, which is sustained if they continue to work in the country. Their educational training may not have prepared them for this work environment as most nurses are trained to provide services in their country of origin and not in a Middle Eastern environment. The educational curricula vary according to the system of education of the country of origin of the incoming nurses. As a result, there are educational gaps among nurses regarding training and practice. For instance, a hospital that recruits nurses from twenty countries receives nurses from twenty different training curricula hence posing the challenge of standardization of practice. In response, hospitals are required to provide in-house training programs, induction programs, orientation programs and other professional development programs to ensure that the quality of nursing matches expectations. According to Lamadah & Sayed (2014), nurses' in-house professional development services vary greatly in the hospitals especially between the three sectors: MOH, OGA, and PHCS. Consequently, nurses may not be adequately prepared for their jobs even though these programs assert additional budget to the hospitals.

Despite the fact that many nurses are hired every year from different countries to work in Saudi Arabia, the healthcare sector also faces the problem of many nurses leaving the profession or leaving the country, which leads to a high turnover within the sector. Consequently, the healthcare sector loses out financially because of the investment in recruitment, training and

employment. According to Almalki (2012), the home and work life of expatriate nurses working in Saudi Arabia, social and cultural aspects, accommodation facilities, transportation, building and infrastructure of the facilities, nature of work, job instability, privacy at work, patients and the community, and distance between home and workplace were identified as major contributors to the high turnover rate of nurses in Saudi Arabia (Almalki, 2012).

In addition, nurses in Saudi Arabia undergo social challenges that originate from various areas of society. Given that most nurses are foreigners, there is a language barrier between them and the Saudi population whose main language of expression is Arabic. Nurses coming from other religious backgrounds also face challenges of worship since Saudi Arabia is an Islamic country that outlaws public or group worship of any other religion. This would be a particular issue for nurses from the Philippines whose religion is often Christianity. Social interactions and events are also limited by gender separation. Saudi nurses may also face challenges in society since the nursing profession is poorly regarded by the public, and this may impact upon their ability to get married (Gazzaz, 2009).

In conclusion, challenges faced by both Saudi and expatriate nurses in Saudi Arabia are related to training, socialization and the healthcare system in the country. These factors may contribute to work-related stress and burnout due to overload, and perceived dissatisfaction of the management, which may consequently lead to high turnover, low levels of job satisfaction, and poor performance.

CHAPTER III: LITERATURE REVIEW

In this chapter, a general review of studies performed on stress, burnout, job satisfaction, and job performance among nurses will be discussed. Thereafter, in the next chapter, a systematic review focusing on the studies performed on this subject in Saudi Arabia will be presented, followed by the chapter that will highlight the study hypotheses.

3.1 STRESS

The definition of stress can be traced from the agrarian age when scientists focused on physiological functions and the new knowledge of body functions. The French physiologist Claude Bernard (1864, p.158), concentrated on the study of the internal environment of the human body, and focused on the balance of "the circulating liquids, the blood serum and the intra-organic fluids" with little relevance to how stress is understood today. He opened up the study of the body's "inner world" (Bernard 1864, p. 170(Cannon, 1929); Cannon, 1929). The thought and pursuit to understanding of the existence of the inner world gave rise to further interests in the physiological study of the internal body functions. In this view, emphasis is laid on the physical interpretation of internal processes. Decades later, Walter Cannon (1929) introduced the concept of 'homeostasis', a state where the body maintains an equilibrium of its internal conditions. This provided further understanding on how stress affects the internal body balance. The concept of stress therefore incorporated the relationship between the physical and physiological approaches and how these related to equilibrium. In the same era, the scientific and industrial revolution together with the physical sciences such as engineering created the coinage of words in language hence the word stress and its related definition (Cannon, 1929).

Since the advent of the Industrial Age, the definition of stress has been controversial. According to the American Institute of Stress, stress is defined by Hans Selye as the non-specific response of the body to any demand for change (1950). After this advancement,

Selye's coinage of the term "stress" focused on the undefined reaction, which is the "non-specific response" of the body hence a focus closely linked to physical response. From this perspective, stress was postulated as how the body responds to certain 'stressors', which are injurious.

In the early 21st century, stress has also been described as a state when an individual's available resources are unable to measure up with the psychological and physical needs at that moment in time. In this case, stress is apparent according to one's situation and physical and psychological state (Michie, 2002). Considering this, it is apparent that the definition of stress has adopted the reliance on available resources hence stress becomes a variant of one's capacity and accessibility to resources. In this interpretation, it can be concluded that one's stress level depends on what one has in possession to counter their psychological and physical requirements. Therefore, stress can be based on the availability of resources versus the required needs of an individual at that specific time. Based on this viewpoint, stress could easily be computed by determining the ratio of one's psychological and physical needs to one's available resources at a given time.

More recently, stress has been defined as "any situation in which internal and external demands, or both, are appraised as taxing or exceeding the adaptive or coping resources of an individual or group" (Lim *et al*, 2010). Although Lim and colleagues viewpoint could be considered a new way of considering stress, the fundamental components of the definition are closely related to the definition of Michie (2002). This is because both of these define stress as a result of the ratio between needs or demands and the resources. Therefore, in recent years, stress has been accepted as "an essential part of life" (Beheshtifar *et al*, 2011). This view can be attributed to the changes in lifestyles and civilization, as stress becomes part of the daily lives of individuals. Therefore, stress is seen as part and parcel of everyone's life unlike the previous notions that stress only affects those who are in work areas. According to Beheshtifar *et al* (2011), stress has become a necessary aspect of humanity, which provides the notion that stress has become universal.

In summary, it may be observed that stress may not be conclusively defined without considering the ever-changing environment that humans are subjected to. The conditions

around an individual have a great impact on stress, hence it is important to contextualize the concept of stress rather than define it in the 21st century. Furthermore, the influx and transient nature of information and technology contributes to the complexity of the notion of stress in the present era. Whether deemed as positive or a negative part of life, stress could be viewed differently according to the background or environmental context of the individual.

Work-related Stress

The most recent definition of stress by 21st century studies is closely related to the workplace environment. Such terms as work stress, job stress and occupational stress have arisen, and have henceforth been used interchangeably. Occupational stress or work-related stress may be viewed as a characteristic of the work environment and usually as an objectively measurable aspect of that environment (Cox, 2000). Symonds (1947) is of a similar view where: “stress is that which happens to the man, not that which happens in him; it is a set of causes not a set of symptoms” (Broome & Llewelyn, 1995, p.22). This definition was most applicable to workplace situations especially in relation to the problems at work. In his two key books, Selye (1956,1977) suggests stress as a close response to work challenges. Selye (1985) elaborates that stress is not what happens to you but how you react to it.

At the end of the 20th century, Peter and Siegrist (1997) defined job stress as a difficult response due to pressures at work. They emphasize that job stress is an adverse reaction to excessive job pressures and demands. This definition focuses on what the individual does in response to the pressure asserted or received at the workplace. Therefore, the measure of work stress would be determined by the response of the individual at work.

Furthermore, as stress has garnered increasing attention from public health and other researchers, several definitions of job stress have surfaced over the past few decades. The National Institute for Occupational Safety and Health defines job stress as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker" (NIOSH, 1999, p. 6). Thus, job stress has clearly been classified as detrimental responses that one evokes when there is an imbalance between the standards of the job expected and the tools that are available to the individual.

Therefore, job stress could easily be measured by determining the discrepancy between what is expected and the available resources. Stress could be the deviation from the psycho-physiological balance between an individual's available resources and the required demands or needs as determined by his or her environment (Siegrist, 2001). Accordingly, as time progresses, the view of work-related stress also changes. In the agrarian age, work-related stress correlated to the engineering approach of stress where it was related to the load of work given to an individual hence asserting a pressure. This view of stress is predominantly a physical view of stress.

Over the years, the definition of work-related stress has attracted different viewpoints. Firstly, according to McVicar (2003), job or work-related stress is defined as the divergence that exists between role expectations and what is being accomplished in that role. In this case, the work stress is the gap between the expected and the actual expectation. This type of stress could closely be linked to the performance level of the worker as compared to the targets set at the workplace. Therefore, the level of stress could be measured by the ability of the worker to reach the set goals hence job stress becomes a product of ability and expectation.

Secondly, the terms occupational stress, job stress, organisational stress, and workplace stress and psychological insecurity at the workplace have been used to describe work-related stress (Atkins, 2007). This is due to the fact that these concepts are often indistinguishable. Despite efforts over the last decades to define the "term", no satisfactory definitions of these exist. One may consider that the terminology is selected depending on the context of the situation. Occupational stress could be used to describe stress that is linked to the type of a profession one belongs to. For instance, stress that is associated with nurses would be termed as occupational stress. Occupational stress is also viewed as the perception of the difference between stressors and the individual's ability to withstand the stressor or environmental demand (Ongori & Agolla, 2008). In this view, occupational stress would be determined by the skills of the worker to measure up with the demands at work. So, a skilled worker would be less stressed compared to a worker who has less skill to cope with the work environment.

Thirdly, according to Jourdien *et al.* (2010), job stress is defined as a situation where a person faces persistently higher demands compared with the actual work. In this viewpoint, the worker would be defined as stressed when they feel that additional tasks have been added to their responsibility on top of the normal work. In other words, this would easily be categorized as being overworked or work overload.

Fourthly, Fried and Fottler (2010) predict that employees who are prone to suffer from work-related stress are those who have depression, anxiety, job insecurity, unsupportive management, and limited chances for promotion. In this claim, work-related stress could be determined both by the external factors around the employee's workplace and the feelings of the employees at the workplace.

Later, Bolhari *et al*. (2012) explored the subject of occupational stress in relation to job-related issues that interact with the operator to either enhance or disrupt the physiological or psychological conditions. In this regard, stress is observed as a product of the pressures at work and the individual, which either yield as positive feedback or a negative result. This perspective has been stretched to include the broad range of professional occupational groups examined by Bolhari *et al.*

Evidently, there is plentiful literature concerned with work-related stress. Nevertheless, the main causes, symptoms and the effects of work-related stress are very similar when the various studies are considered.

The table below indicates that relationships with supervisors and colleagues, bureaucracy, work-family conflict, pressure for performance and job prospects were important variables affecting a cross-section of professionals in Singapore (Chan *et al*., 2000)**.**

Work-Related Stress Variables	Nurses	Doctors	Engineers	Insurance Agents	Lawyers	Teachers	All
Poor relationship with Supervisor	6.29	1.78	5.42	2.86	3.37	4.86	4.74
Bureaucracy constraints	6.24	2.13	5.92	3.48	3.35	5.11	4.91
Work-Family conflict	5.85	4.99	6.32	4.73	4.92	8.05	5.78
Poor relationship with colleagues	8.26	3.29	5.93	3.46	4.77	6.17	6.16
Performance pressure	10.72	6.61	9.71	6.89	10.73	10.51	9.78
Poor job prospects	8.99	2.15	5.91	4.39	2.76	4.88	6.03
Overall Work-related stress	**2.08**	**1.5**	**2.05**	**1.81**	**2.12**	**2.29**	**2.04**

Table 7: A 5-point scale mean comparison of work-related stress among nurses, doctors, engineers, insurance agents, lawyers and teachers in Singapore (Chan *et al*., 2000).

Symptoms of stress

The symptoms of stress have been categorized into a number of different groups to try and explain the signs of stress. Cooper and Marshall (1976) classified stress symptoms into categories namely individual and organisational symptoms. Using this classification, the individual symptoms include raised blood pressure, depression, irritability, chest pains and alcoholism, while organisational symptoms of stress manifest as high turnover, increased absenteeism, poor quality of work and difficulties in industrial relationships. Accordingly, the two separate categories only focused on what the visible reaction and behaviour of the stressed worker is and how the behaviour would also be manifested at the work place.

At the beginning of the 21st century, Cohen and Single (2001) categorized the symptoms of stress as emotional, physical, behavioural, mental and health. In their classification of stress symptoms, emotional signs were conveyed through the feeling expressed or experienced by an individual, for instance, anxiety or moodiness. The physical symptoms are manifested through changes in physiological function such as back and neck muscle tension and insomnia. The behavioural symptoms on the other hand are observed through extreme actions of the individual for example use of recreational drugs and overworking. The change in the cognitive functions of the individual portray the mental symptoms of stress and this could range from lapses in memory to difficulty in concentrating. In their final category, Cohen and Single suggest health symptoms are directly related to the physical wellbeing of an individual such as asthma and strokes.

Similarly, Michie (2002) classified stress symptoms into behavioural, cognitive, feeling, health and physical symptoms. In Michie's classification of stress symptoms, there is a slight change in terms but the fundamental five points are the same as those raised by Cohen and Single a year earlier. Therefore, it is apparent that at the beginning of this century there was agreement among these researchers on the categories of symptoms of stress. A decade later, Beheshtifar and Nazarian (2013) classified stress symptoms into three collective areas: physiological symptoms of stress, emotional-affective symptoms and behavioural symptoms**.** Although the symptoms identified are not so different from the researchers a decade earlier, the approach merges the different categories of symptoms as identified by Michie (2002) and Cohen and Single (2001). Notably however, Beheshtifar & Nazarian do not cite cognitive or mental symptoms as key categories, as provided in this earlier work.

Recently, Seňová and Antošová (2014) classified stress symptoms into physiological, behavioural and emotional-affective symptoms. Although the physiological and behavioural symptoms are not very different from the list provided by previous researchers, the presentation of emotional-affective symptoms sheds additional light on the inter-related symptoms of stress. For instance, a sudden change in mood may manifest as sudden anger, which may lead to worsening relationships with friends, relatives or co-workers. Another chain would be the symptom of closing in on oneself, which leads to unwillingness to cooperate hence the feeling of guilt, which may also lead to insomnia. Although Seňová and Antošová classify these symptoms individually, there is a correlation between them and one would easily observe a compounding effect between symptoms. In effect, a nurse who is burdened by these compounding effects may not perform well, which may subsequently affect the quality of patient care (Hogh *et al.*, 2012). In essence, it can be argued that if initial symptoms of stress are not addressed, this may increase the risk of exposure to other stressors, which then manifest with different symptoms.

It appears that Cooper and Marshall's perspective (1976) of symptoms of stress from both an individual and an organisational perspective provides a threshold for determining the level of stress in different work places. It raised the question of measurement of stress levels in different companies as opposed to individuals. Perhaps further research is needed to form an indicator

of group stress levels especially in healthcare facilities. The figure below traces the historical focus on the study of stress and it is evident that organisational factors that can act as stressors have been largely ignored in research since Cooper & Marshall's study in 1976.

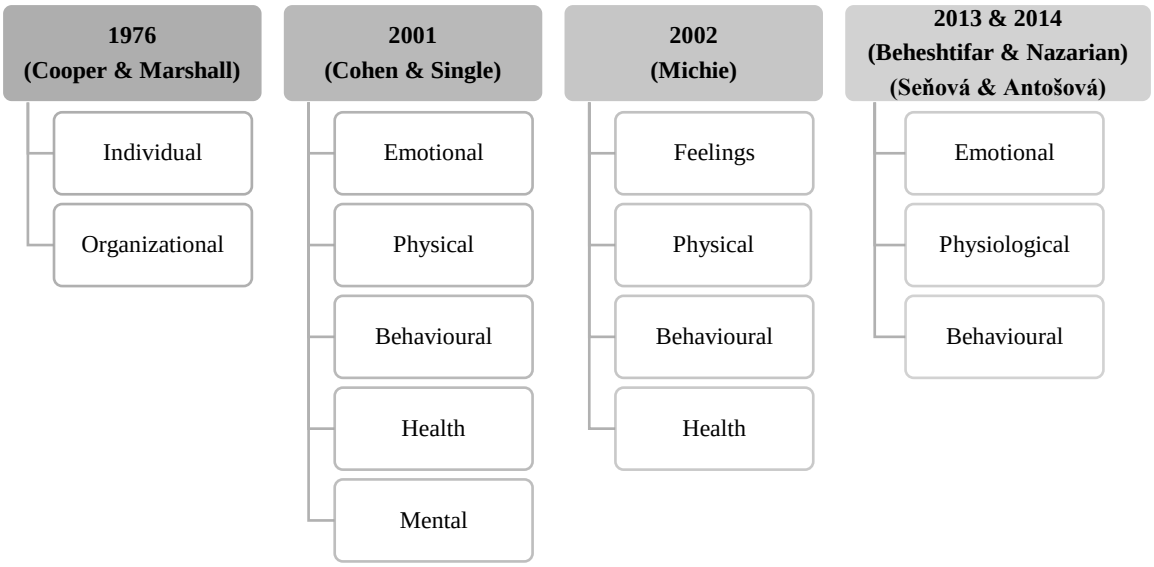


Figure 1: Chronological approach to studies on symptoms of stress

Causes of work-related Stress

According to the Northwestern National Life survey reported in NIOSH (1999), one out of four workers in the United States rated their jobs as the most significant stressor in their lives. 26-52% of all the workers reported moderate stress levels at work and 75% of workers believe that they undergo more job stress than workers in the previous generation. Consequently, about 50% of absenteeism at work and 40% of employee turnover are related to job stress. In this survey, it is evident that causes of stress have been closely associated with work. The trend is on the rise and the portrayal of this perception has given rise to the increased interest in studies on work-related stress (NIOSH, 1999).

The Seventh Annual Labour Day Survey results (Interactive, 2001) concur with those reported in NIOSH (1999), with 28% of interviewees reporting that work demands are the major cause of stress in their lives. 21% of the respondents also attributed family and personal demands as major contributors to stress in their lives. Notably, respondents who said that workplace

demands cause the bulk of their stress are much more likely to have high (i.e., negative) scores on the Workplace Stress Scale than those who stated more of their stress stems from family or personal demands (Interactive, 2001).

The National Institute of Occupational Safety and Health (NIOSH) went further in designing a model explaining the relationship of job stress and relationships. Accordingly, NIOSH enumerated physical environment, role conflict, role ambiguity, interpersonal conflict, job future uncertainty, job control, employment opportunities, quantitative work load, variance in work load, responsibility for people, under-utilization of abilities, cognitive demands and shift work as major causes of work-related stress. These causes would explain the ratings that were received in the survey on causes of work-related stress. In this regard, Michie (2002) examined the causes and sources of stress. These causes could be influenced or out with the control of the individual. Accordingly, a specific source of stress is influenced by situational causes, which include those that are beyond one's control in terms of time, place and event (Michie 2002). In this model of stress at work, Michie identifies areas that could cause stress at work. These sources were closely linked to the content of work and the socio-organisational context of the work. In his model, sources of stress are classified into: intrinsic to the job causes, career development, role at the organisation, relationship at work, and organisational structure and climate.

Leka *et al*. (2003) introduced a dichotomy of causes of stress according to work content and work context-related causes. Accordingly, work content (which encompasses job content, workload and work pace), working hours, participation, and control were categorized as a branch of work-related stressors. Other categories include job content, which entails the description of specific details of processes, procedures and instructions at the workplace; workload; and work pace, which is speed or accomplishment associated with the duties. On the other hand, work context, which involves career development, status and pay, role in the organisation, interpersonal relationships, organisational culture, and home-work interface have been identified as causes of stress that emerge from the surroundings at workplace. Based on this view, causes of stress are largely based on the atmosphere at work and the job description. Overall, the main causes of work stress concern the way work is designed and the way in which

organisations are managed (Leka *et al.*, 2003). Similarly, Ongori and Agolla (2003) argue that occupational stress is caused by the loss of job security, prolonged time at work in the same position, lack of safety, work schedules, lack of resources, and lack of autonomy. This is an extension of Michie (2002) and Leka *et al*.'s (2003) views. According to this perspective, when demands and pressures from work are such that people are unable to cope with them, they respond in various ways to register this inability hence the source of stress.

Other categorization of causes proposed by De Silva and Hewage (2009) were personal, job, and organisational characteristics. Personal characteristics (which include demographic factors), lack of social support and high expectations of the job have been described as causes of stress that can lead to burnout. Similarly, job characteristics, which entail role conflict, role overload, role ambiguity and poor interpersonal relations, have been classified to be another area of stressors. Additionally, organisational characteristics relate to procedures and policies, which has also been factored as causes of stress. These could include under-appreciation, confusion about expectations and priorities, and anxiety over job security (De Silva and Hewage, 2009). In this categorization, causes of stress have been associated with the individual, the type of work, and the organisation that the individual works for.

Independently, Bhatti *et al*. (2010) categorized causes of stress into extra-organisational and intra-organisational. This dichotomy looks at causes of stress based on their origin, hence those that originate from out of the work place as extra-organisational and those that originate from the work place as intra-organisational. This means that family, weather conditions and the general economic causes are categorized into extra-organisational causes while company policies, procedures, leadership, and office timing are directly related to the organisation and hence termed intra-organisational causes. In this dichotomy, the focus has been shifted from work-only causes to work and other individual causes. Arguably, this view could be looked at as a broader viewpoint. On the other hand, according to the study of Seklecka *et al*. (2013), stress at work is instigated by five key factors, which relate to professional roles, job demands, lack of recognition at work, lack of opportunities for professional development, and organisational model and type of management. Comparatively, these parameters could easily fit into Leka and colleagues work context causes of stress (2003).

The most recent view of causes of stress explores the possible sources initiated by internal stress-inducing situations versus external stress-inducing situations (Seňová & Antošová, 2014). This outlook is based on the person's way of thinking and mental attitude versus the work environment, culture, relationships and demands. Therefore, the causes of stress are viewed as both individually and environmentally based.

According to Cooper's (1988) classical questionnaire, causes of stress were assigned based on the employee types; hence the study assigned stress to the type of work an individual did. This classification gave rise to the emergence of organisational views about the causes of stress. Consequently, causes of stress could therefore be categorized into blue-collar and white-collar employees. This classification does not challenge the historical background of stress but examines the association of stress and the occupation of the individual (Cooper 1988).

Drawing on the increasing acknowledgement of the range of organisational factors that can cause work-related stress, The UK Health and Safety Executive's (HSE) Management Standards (MS) were developed to enhance the management of sources of work-related stress. This work-related stress management tool's indicators are closely related to the recent sources of stress in the available literature. These indicators include demands, control, managerial support, peer support, relationships, role, change, job satisfaction, job-related anxiety, job-related depression and errors/near misses (Kerr *et al.*, 2009).

Arguably, it appears that the recent focus of research on causes of work-related stress relate to organisational sources. However, it could be demonstrated that causes of stress could be classified into psychological, physiological, cognitive and affective categories. These factors require association with the environmental factors that have been identified extensively. Therefore, causes of stress should be looked at from both the individual perspective with all facets of a person's life together with the person's environmental pressures both at work and at home. The figure below draws a relationship summary between work content and work context causes of stress as presented by multiple studies discussed in this section.

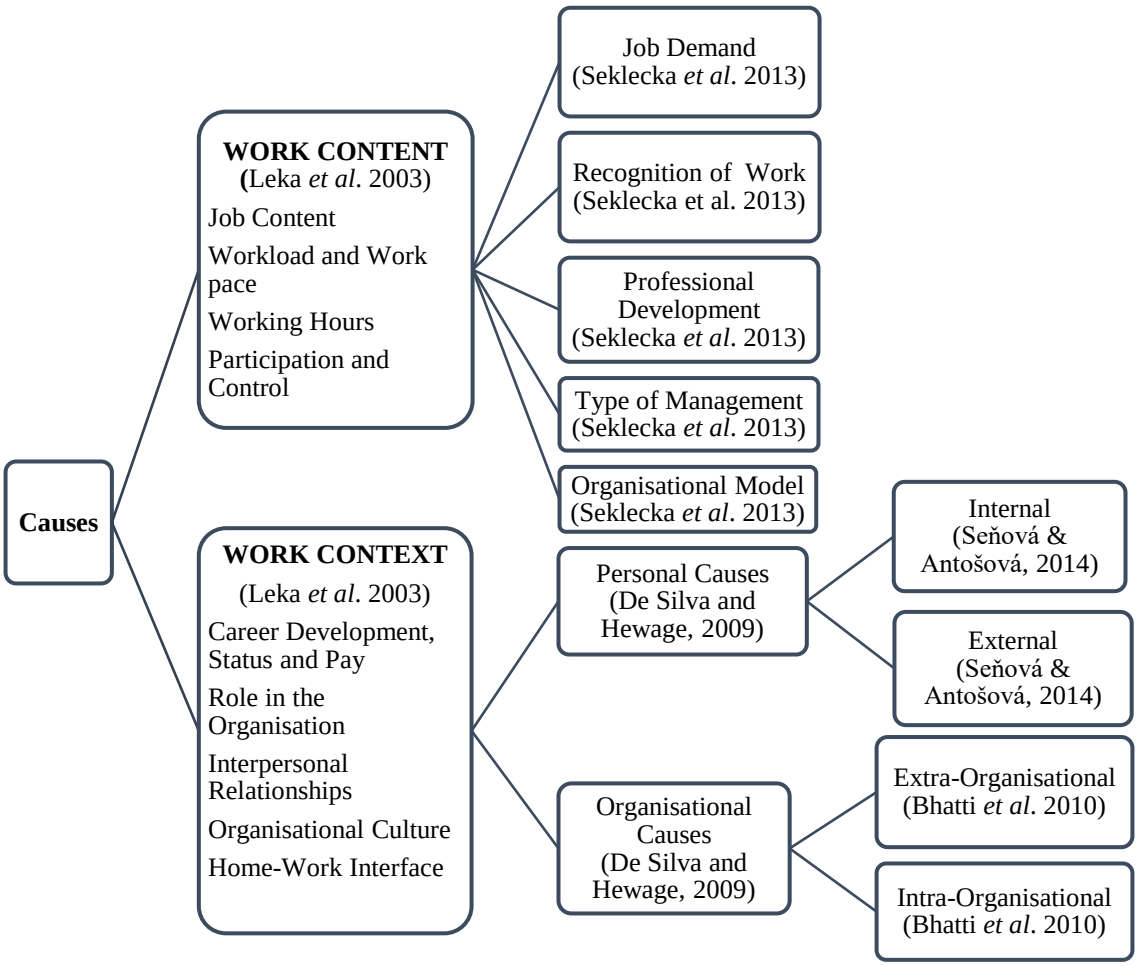


Figure 2: Summary of the causes of work-related stress

Effects of work-related Stress

Research demonstrates the association between job stress and its far-reaching consequences on the health and safety of workers, their families and also for the employers (NIOSH, 1999). Based on the literature from various researchers, the effects of stress could be broadly covered under the domains of effects on the individual, effects on the organisation (Leka *et al.*, 2003), and societal effects. The impact on organisations can affect company performance, while the individual effects are closely related to the health of individuals, while societal effects are felt by the associates and family of the stressed individual. According to Leka *et al*. (2003), effects of stress on the organisation would include increasing absenteeism, decreasing commitment to work, increasing staff turn-over, impaired performance and productivity, and increasing unsafe working practices and accident rates in the workplace. In retrospect, the employees who are

stressed most of the time pass the effect of their stress to others in the organisation (Ongori & Agolla, 2008).

In relation to performance, stress has led to the outcomes that threaten organisational success. These include low morale and burnout (Sutherland & Cooper, 1990), as well as physical injuries at work, absenteeism, turnover, reduced productivity, and diminished job satisfaction (Hayes & Bonnet, 2010; Lu *et al*, 2012). Although there is a close link between individual causes and the success of the organisation, effects that impact the effectiveness of the organisation could be accrued to organisational consequences.

Michie (2002) also observes that absenteeism, low rate of retention of staff through resignation and early retirement, ill staff, work mistakes, reduced performance and reduced customer satisfaction are consequences of work-related stress. These consequences can directly reduce the performance of the organisation.Cox (2000) contrasts the absenteeism with the introduction of presenteeism as an escape strategy used by stressed workers; and as equally, a characteristic effect of stress in an ordganization.The notion of presenteism relates to staff being physically at work but mentally absent hence influencing the organizational perfomance(Cox, 2000).It was therefore equally noted that presenteeism just like absenteeism negatively impacts on performance and both are indicators of work related stressed staff.

Moreover, organisational impact of work-related stress may include the financial cost of sustenance; the costs of work slowdown and the reduced health effect of stress on the employees. According to Cryer *et al*. (2003), the level of work stress in the United States of America increased by 10% between August 2001 and May 2002. “In 1999, a study of 46,000 workers published by the Health Enhancement Research Organisation, or HERO, revealed that health care costs are 147% higher for those individuals who are stressed or depressed, independent of other health issues” (Cryer *et al.*, 2003, p.1).

A similar finding on the effects of occupational stress have also been attributed to high dissatisfaction, high job mobility, burnout, poor performance, ineffectiveness, reduced

motivation and a drop in morale, decrease in performance, low retention rate, poor service, poor work communication, and conflicts (Ongori & Agolla, 2008).

In their recent published meta-analysis, de Boer *et al*. (2011) demonstrate that critical incidents are positively related to post-traumatic stress symptoms, anxiety, and depression in hospital-based health professionals. An explanation to this report shows that previous research highlighted the relationship between chronic stressors and burnout (de Boer *et al.*, 2011), hence the effect of these stressors on the performance and effectiveness of the health professional. Although this is arguably indirectly related, the effect is directly felt by the organisation. The organisation suffers as it loses productivity due to the stressed individuals.

At an individual level, Cooper (2013) has provided evidence that workplace stress contributes to high blood pressure and increased cholesterol levels. In the areas of workplace stress and well-being, Cooper presents literature supporting stress-strain relationships, workplace stress and stressful occupations (Cooper, 2013). Physiologists have also enumerated effects of stress on the body to include gastric diseases, cardiovascular diseases, asthma, allergies, reduced immunity and cancer (Beheshtifar & Nazarian, 2013). This further explains the effects of stress on an individual's health.

According to the European Agency for Safety and Health at Work (Leka *et al.*, 2003), individual related effects could also be categorized into psychological, social, physiological and physical effects of stress. These are effects that a person suffers as a consequence of the stress status. The specific effects on the individual may include becoming increasingly distressed and irritable, becoming unable to relax or concentrate, having difficulty thinking logically and making sound decisions, enjoying their work less and feeling less committed to it, feeling tired, depressed, anxious with difficulty sleeping, or even experiencing serious physical problems such as heart disease, disorders of the digestive system, increases in blood pressure, headaches, and muscular-skeletal disorders (Leka *et al.*, 2003). These effects directly relate to the health of an individual, hence the categorization of effects of stress as individual effects.

Conclusion

The definition of stress has evolved over time with additional terms accompanying its description like work-related stress and occupational stress.The symptoms of stress have been classified differently over time,with earlier studies linking them to individual and organizational symptoms while later research categorizing the symptoms according to their impact like emotional,mental,physical and behavioural.The causes of stress have been categorized by the work content and work context while the effects have been reported in terms of impacts on the organisation and on the individual.

3.2 JOB SATISFACTION/ PERFORMANCE AND BURNOUT

According to the literature, work-related stress could affect job satisfaction and may also lead to burnout, which may consequently affect work performance and satisfaction. It is therefore essential to study work-related stress in relation to burnout vis-a vis performance and job satisfaction. A recent study of Iranian and Turkish nurses respectively confirmed that burnout is caused by prolonged exposure to stress (Özlü *et al*., 2016). It is therefore worth investigating this assertion in the Saudi Arabian context by determining the existence of work-related stress and burnout among nurses working in public hospitals, private hospitals and university hospitals, then establishing the relationship between work-related stress and burnout among these nurses across the three hospital categories.

In a similar study at King Abdullah public hospital in Jordan, it was established that there existed a significant relationship between stress and performance of nurses. This negative outcome of stress was measured from a random sample of 120 nurses (Al-khasawneh & Moh, 2013). A similar effect was noted among nurses who experienced burnout, where the level of performance and efficiency was reduced significantly among nurses who experienced burnout (Özlü *et al.*, 2016).

Walter *et al.* (2007) define job satisfaction as a state that is emotionally positive because of the experience received at work. Accordingly, job satisfaction is closely linked to the emotional wellbeing as a consequence of the work being done (Flynn *et al.*, 2006). Job satisfaction has also been defined simply as the positive feeling or attitude about various aspects or facets of

the job (McCalister *et al.*, 2006). Therefore, job satisfaction can partly be viewed as a consequence of work-related stress (Chan *et al.*, 2000). In a recent view, job satisfaction is the pleasant feeling of an individual after recognition or facilitating the success of one's job values (Trivellas *et al.*, 2013). Perceptions of work content, relationships with co-workers and supervisors, job control, job security, rewards, career opportunities, promotion and advancement, physical work environment, customers and feelings such as self-accomplishment and self-advancement, are all facets associated with job satisfaction (Trivellas *et al.*, 2013).

Further studies have identified interesting relationships between the performance of nurses and the amount of work-related stress. For instance, one study demonstrated that task appraisal at the beginning of the work asserted pressure and a type of stress upon the workers but increased the performance of the participants in the hospitals (Grawitch *et al.*, 2008). Therefore job demand, which is a stress indicator (Health and Safety Executive, 2013) has been argued to increase job performance in public hospitals in Saudi Arabia (Al-homayan *et al.*, 2013b).

On the same note, the study by Al-homayan *et al.* evaluated the role of stress as a mediator between job demand and performance with the evaluation of 632 nurses from the MOH in Saudi Arabia. It concluded that job stress mediates a relationship between job demand and performance (Al-homayan *et al.*, 2013b). However, an aim of the present study was to establish the mediated relationship between work-related stress, job satisfaction and performance with burnout being a mediator.

Job burnout is also associated with work-related stress and defined as a psychological syndrome of emotional exhaustion, cynicism or depersonalization and the tendency to evaluate oneself negatively (Hayes & Bonnet, 2010). Hence, burnout could be characterized as intense dissatisfaction at work. Consequently, it is vital to further the study of burnout and its links to work-related stress to avert the consequences. In addition, burnout is characterized by the level of emotional exhaustion and depersonalization in comparison to the level of personal accomplishment (AlSuliman & AlHablani, 2014). In regard to prevalence, the occurrence of burnout has been related to the low turnover of nurses from one department to another or from

one hospital to another. The prevalence was reported to be higher among nurses working in inpatient wards and foreign nurses who feel their home country work circumstances are better than the job conditions they are currently exposed to. In Japan, the burnout prevalence was recorded to be significantly higher among psychiatric nurses compared with the public hospital nurses whereas in Hungary, married nurses reported a higher burnout level compared to single nurses hence a wide scope of factors appear to influence the rate of burnout among nurses (AlSuliman & AlHablani, 2014).

Based on studies from different types of hospitals, there is evidence in the literature to demonstrate that stress is experienced by nurses from all types of hospitals. Although stressful circumstances and situations may differ between hospital type, it is well established that high levels of stress cause burnout, which negatively impacts on job satisfaction and the performance of nurses (Moustaka, 2010). A study of Greek public hospital nurses reported a direct correlation between work-related stress and job satisfaction among nurses. Nurses who exhibited work-related stress were significantly dissatisfied with their jobs (Trivellas *et al.*, 2013). In Pakistan, a study at the Pakistan Teaching Hospital indicated that work-related stress was directly related to the poor performance of nurses in the university hospital (Khalid *et al.*, 2010). In a study of nurses in private hospitals in India, there was a positive correlation between the level of stress and the level of burnout among nurses (Azeem *et al.,* 2014).

Conclusion

Job satisfaction and job performance have been depicted from the literature as conditions that can be affected by work-related stress and burnout. There is an abundance of literature that shows both direct and indirect correlations between work-related stress and job performance and satisfaction. The effect of work-related stress and burnout on job performance and satisfaction is very negative among healthcare practitioners which consequently exacerbates their job performance.

3.3 STRESS IN THE FIELD OF NURSING

Work-related stress is closely associated with professions that entail prolonged direct interaction between the practitioner and the client (Al-Turki, 2010). Nursing is among these

professions and stress has been assigned as a cause for physical, psychological, and behaviour disorders in the field of nursing (Al-homayan, *et al.*, 2013d). As a psychological reaction to the stimuli in the work environment among nurses in Saudi Arabia, stress greatly impacted upon the performance of nurses in hospitals in Saudi Arabia (Al-homayan, *et al*., 2013a).
There has been an increasing interest and research on stress in the healthcare industry and the last 50 years of research has provided considerable data on the margin of stress in the field of nursing, with a subsequent increase in job stress in nursing (Väänänen *et al*., 2012).

Although stress as a subject has been of general interest to researchers, specific literature on the effects of stress on the quality of nursing care, especially on patient outcomes and patient safety, has not been extensively evidenced. Accordingly, there is a need for extensive research to be carried out to provide solid evidence around the relationship of stress and nursing practice (Jennings, 1960). According to Väänänen *et al*. (2012), the role of nurses and the accompanying stress has been changing over time. Specific research was introduced in the 1960s during the social reform period whose focus involved challenges related to the emergence of social changes. Subsequently, the period of Industrial revolution shaped the focus on stress among nurses who served the 'Fordist' Industrialists. Progressively, this gradually changed into service associated with the knowledge intensive workforce then later it became a service-orientated work environment. Paradoxically, the advent of advanced healthcare technologies and information technology provided the nursing fraternity with an additional set of challenges and effects due to the need to learn new technologies in nursing and they had to adapt to the changes created by technology (Väänänen *et al.*, 2012).

Recently, nursing has been recognized as a stressful career and numerous negative effects have been documented (Happell *et al.*, 2013). Work-related stress and dissatisfaction at work and with work, is increasing the level of disillusionment in the healthcare sector (McCalister *et al.*, 2006).

In the field of healthcare, the direct effects of stress among nurses impact on the quality of patient care through absenteeism and frequent turnover among nurses (Kamal *et al*., 2012). Roberts and Grubb (2012) observed that stress among nurses has increased by additional recent

factors. Apart from physical suffering, work hours, shift work, interpersonal relationships and other pressures of the profession, it has been noted that healthcare technology, and constant organisational changes are among the additional upcoming causes of stress among nurses (Rashaun *et al*., 2012).

As a result, a nurse who has suffered from burnout would consequently perform poorly in her nursing role as she would be de-motivated and exhausted. According to Jourdain & Chênevert (2010), burnout among nurses may lead to a shortage of nurses due to the intention to leave organisations, absenteeism and withdrawal from the profession. Consequently, it is vital to further examine burnout and its links to work-related stress to avert the consequences.

Essentially, when a nurse is satisfied with her/his job, then her/his performance is bound to improve due to the fact that the nurse would exhibit a positive attitude and response to work. However, when the nurse is stressed and finally reaches a point of burnout, then the level of motivation drops and a negative attitude and response most typically characterizes the nurse's work. In essence, there is a need for further study of the relationship between job satisfaction, performance, work-related stress, and burnout.

Causes of stress in the field of nursing

The causes of stress among nurses can be tracked from the initial interest of research to stress among the nursing profession by Menzie (1960). In her findings, Menzie reported that stress among nurses is caused by the challenges of delivering patient care, the difficulty in decision-making, inability or hesitation to take responsibility and the factors of change in the hospital (Menzies 1960). Data generated from additional research in the field of nursing in the mid-20th century supported the previously presented causes of stress among nurses and added that physical pain, suffering, long duty hours, staffing and personal relationships are additional causes of stress in the field of nursing (Jennings, 1960).

Similarly, Roberts and Grubb (2012) observed that stress among nurses has increased with time. Apart from suffering, work hours, shift work, interpersonal relationships and other

pressures it has been noted that healthcare technology, and constant organisational changes are among the additional causes of stress among nurses (Rashaun *et al.*, 2012).

Causes of stress have been classified by different researchers according to the contextual characteristics. According to De Silva *et al*. (2009), these causes could be classified into personal, job and organisational causes of stress and burnout. Personal characteristics such as the absence of social support, high expectation levels at work and personal coping strategies have been identified as causes of work-related stress. In addition,according to Tugade and Fredrickson (2004) citedn in Alhajjar (2013;p.87),the ability to cope with adversity,resilience, determines the level of stress an individual retains after loss.(Alhajjar, 2013).Therefore,the stress level of nurses may be determined and caused by the level of resilience of nurses. Demographic factors such as gender, race, employment status, and age of the nurse may also be associated with stress and burnout (De Silva *et al*., 2009).

Likewise, job characteristics, which could include role conflict, role overload, role ambiguity, and poor interpersonal relations also serve as a key source of stress and burnout among nurses. Additionally, the place of work and the work place procedures and processes are other causes of stress and burnout among nurses. Nurses can experience difficulty at work, especially with the organisational expectation and conditions including too much work, under-appreciation, confusion about expectations and priorities, anxiety over job security and over-commitment as regards responsibilities (De Silva *et al*., 2009).

According to Hayes & Bonnet (2010), other factors that contribute to stress among nurses include difficult inter-personal relationships with physicians, facets of patient care, violence and abuse from patients directed at nurses, organisational factors and lack of access to ongoing education. In this situation, causes of stress are spread and rely on the organisation and the relationship between people in the organisation. Nurses have been subjected to abuse by both physicians and patients hence the fear of physical assault (Hayes & Bonnet, 2010).

Similarly, Haya and Bonnet (2010) precipitated examples of situations that may lead to stressful encounters with the nurses. They argue that patient frustration contributes to violence

and aggression towards nurses, which understandably results in nurses becoming stressed. Even though this study refers specifically to haemodialysis nursing, it is arguably a general cause for stress among other nurses too. Physical violence and verbal aggression from patients towards nurses have also been reported (Brokalaki *et al.*, 2001). In the case of haemodialysis patients, renal failure and related frustration causes patients and families to direct their anger at nurses (Hayes & Bonnet, 2010).

Arguably, one of the major sources of stress among nurses is work-related for example conflict with physicians, inadequate preparation, problems with peers, problems with supervisors, discrimination, workload uncertainty concerning treatment, dealing with death and dying patients and dealing with patients and their families are important (McVicar, 2003). Therefore, the causes of stress among nurses are organisational, relational, professional, and emotional.

Effects of stress in the field of nursing

Work stress remains a significant concern in nursing affecting both the individual and the organisation that the nurses work in. When available resources for nurses are unable to match their psychological and physical needs at that particular moment in time, the effects are observable in all areas (Jennings, 1960). As discussed earlier in section 3.1.4, the effects of stress may generally be categorized into three broad classifications: individual effects, organisational effects, and societal effects. In the field of nursing, a similar correlation could be drawn and related to the specific nursing context.

Although not explicitly stated, research by Vokić and Bogdanić (2008) presented organisational costs as a major effect of stress among nurses. The more nurses get stressed, the more their performance reduces hence the need for replacement, which results in a high turnover of nurses and increased cost of recruitment (Vokic and Bogdanovic, 2008). Consequently, one of the organisational effects of stress among nurses is the increased cost of the expenditure due to the consequences of stress. In essence, the stress experienced by nurses is likely to have an impact on staff retention (Lim *et al*., 2010).

The individual effects of stress among nurses range in consequence, hence a varied set of effects on the performance of the healthcare givers. Stress has been determined to have physical and psychological consequences among nurses. The effects of these psychological and physical consequences result in emotional exhaustion, anxiety, and somatic complaints (Schirmer & Lopez, 2001). According to Lim and colleagues research on predictors of stress among the nurses, the presence of stress predicted lower levels of mental health among the nurses. The study concluded that all sources of nursing stress significantly correlated with diminished mental health (Lim *et al*., 2010). Due to these factors, in the healthcare organisation, work stress may contribute to absenteeism and turnover, both of which detract from the quality of care (Jennings, 1960). Consequently, there could be reduction of 'care' in nursing work.

The societal effect of stress among nurses is evident through the studies reporting detrimental effects on nurses' physical and mental well-being with little consideration given to the spill-over effects of nursing work stress to their family and social relationships (Lim *et al*., 2010). Therefore, physically and mentally unfit nurses would negatively affect the quality of patient care.

3.4 Levels of stress in nursing compared to other healthcare professionals

The levels of work related stress in the field of nurses have been compared to the level of work related stress in multiple professions in different studies.According to Chan et al.(2000), in their study of work related stress among 2570 sampled professionals from six professions in Singapore,revealed the relationship between stress and the profession of individuals.The levels of stress among professionals is associated with the structural forces around each profession hence work related stress levels.It the comparative study of the overall work related stress,as shown in table 8,nurses were reported to have more overall work related stress (2.08) compared to doctors (1.5), even though other non-healthcare professions like teachers reported a higher stress level to nurses (Chan et al., 2000).

Work-Related Stress Variables	Nurses	Doctors	Engineers	Insurance Agents	Lawyers	Teachers	All
Overall Work-related stress	**2.08**	**1.5**	**2.05**	**1.81**	**2.12**	**2.29**	**2.04**

Table 8: A 5-point scale mean comparison of work-related stress among nurses, doctors, engineers, insurance agents, lawyers and teachers in Singapore (Chan *et al*., 2000).

Further studies that compare the level of work related stress between healthcare professionals were carried out in Riyadh,Saudi Arabia which involved doctors,nurses,technicians therapists and medical administrators.Based on an ANOVA and T-test on the differences in levels of work related stress among healthcare professionals in five city-based hospitals in Riyadh, the level of work related stress of nurses rated higher than that of medical technicians, therapists and hospital administrators.Nurses reported the second highest mean in the work related stress more than technicians,therapists and administrators.According to table 9, nurses reported a 3.98

	HealthCare professional	Doctors	Nurses	Technicians	Therapists	Administrators
Work related stress	**Mean**	4.04	3.98	3.89	3.81	3.69
	Standard Deviation	.96	1.03	1.08	1.14	.96
	Test Value	1.382 (F)				
	P Value	0.239				

Table 9: A 5-point scale mean comparison of work-related stress among nurses, doctors, technicians,therapists and medical administrators in Riyadh,Saudi Arabia *(Al-Omar, 2003)*

In addition,a comparative study between doctors and nurses as supportive workers in Malaysia revealed that supportive workers are more frequently stressed at work than the doctors (PL & I, 2011). Similarly,Koval,(2016) used a Professional Life Stress Scale by David Fontana and a Psychological stress scale PSM-25,to investigate the levels of professional life stress,and the level of Psychological stress among nurses and doctors.As depicted in table 10,nurses reported stress as a major professional life problem while doctors did not.On the same note,83.13% of nurses repoted a high level of psychological stress while doctors did not have this psychological stress.

Professional Life Stress Scale by David Fontana	Doctors(n=8)		Nurses(n=6)	
Level of Professional Life Stress	**Frequency (f)**	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**
Stress ism't a problem	4	50	1	16.67
Moderate range of stress	3	37.5	2	33.33
Stress is clearly a problem	1	12.5	2	33.33
Stress is a major problem			1	16.67
PSM-25	**Doctors(n=8)**		**Nurses(n=6)**	
level of Psychological Stress	**Frequency (f)**	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**
Low level of stress	6	75	1	16.67
Moderate level of stress	2	25		
High level of stress			5	83.13

Table 10: Levels of professional life stress,and the level of Psychological stress among nurses and doctors Professional Life Stress Scale by David Fontana (PLSS) and Psychological stress scale PSM-25(Koval, 2016)

3.5 Conclusion

It is evident from the literature presented that the primary symptoms of work-related stress are visible through emotional exposition, physical appearance, behavioural responses and the mental well-being of the hospital nurses. The secondary symptoms of work-related stress could be viewed at the organisational level where the impacts of a stressed nursing staff are recognized. On the same note, the causes of work-related stress have been viewed and categorized depending on the environment and the details of the specific work the nurse does, which is associated with the work content and context of the nurses.

Furthermore, studies on work-related stress have also examined the relationship between stress and job performance, burnout, and job satisfaction. The evidence suggests that there is a direct relationship between work-related stress and burnout among nurses working in all hospital types. In addition, the more stressed nurses are in hospitals the less effective and satisfied they are likely to be. This relationship however needs to be investigated in the context and setting of the present study, hence the need for a systematic review.

CHAPTER IV: SYSTEMATIC REVIEW OF WORK-RELATED STRESS AMONG NURSES IN SAUDI ARABIA

4.1 AIM AND OBJECTIVES OF THE REVIEW

The aim of this systematic review was to identify the studies related to work-related stress in the field of nursing in Saudi Arabia to answer the following review question: what is the evidence relating to work-related stress among hospital nurses working in Saudi Arabia? The objectives of this systematic review are to systematically identify and synthesise previous studies on work-related stress among nurses in Saudi Arabia. The findings of the systematic review would inform the primary research on existing gaps in knowledge, particularly in relation to the geographical context of the research. These findings would also inform the primary study on the rationale for research and provide recommendations for further research.The rationale of limiting the systematic review to Saudi Arabia lies in the target scope of the research since the study is limited to the healthcare system in Saudi Arabia and the participants are nurses working in Saudi Arabia.Therefore,the systematic review would inform the research what is available in the literature about the region and the setting of the study hence the crux to identification of an existing gap.

The selected studies for inclusion were appraised for quality and their findings synthesized. The interpretations of the findings are discussed in this review to determine the need for additional study and relate the policies, practices and scientific study to work-related stress.

4.2 METHODOLOGY

The review examined quantitative studies conducted between 2003 and 2014.Relevant work was assessed,summerized and interpreted as part of the systematic review study for these years.

Search Strategy

In order to identify relevant articles to be considered for the review, searches were carried out on a range of databases: Science Direct, Web of Science, Scopus and PubMed. Before searching these databases, background reading was done to develop search terms that would solicit the greatest and most relevant responses in the search engines. These terms were selected in consideration of the population in context.

The search was done with the following key words: Stress AND Nurse AND Saudi Arabia; (Nurse* OR Nursing) AND ("occupational stress" OR "job stress" OR "work stress" OR "burnout" OR "burn out") AND ("United Arab of Emirate" OR "Saudi Arabia" OR " Qatar" OR "Bahrain" OR "Kuwait" OR "Oman"). The search fields in the database were specified depending on the set up of the database program namely: Title / Topic; Keywords; Abstract; Title, Keywords and Abstract; Title and Abstract; and All Fields.

Other potential sources of articles were sought from Google Scholar and MIT Library (Barton Plus). All articles that met the inclusion criteria were selected for later reference. Articles that met all the inclusion criteria were included after reconfirmation that they were not in the four core search databases.

Database	**Number**	**Date**	**Date Range**
Key words: Stress AND Nurses AND Saudi Arabia			
Science Direct	653	April 30, 2014	April 14, 2014 to June 15, 2014
PubMed	8		
Web of Science	20		
Scopus	14		
Total searched texts	**695**		
Key words: (Nurse* OR Nursing) AND ("occupational stress" OR "job stress" OR "work stress" OR "burnout" OR "burn out") AND "United Arab of Emirate" OR "Saudi Arabia" OR " Qatar" OR "Bahrain" OR "Kuwait" OR "Oman"			
Science Direct	130	May 02, 2014	
PubMed	13		
Web of Science	10		
Scopus	409		
Total searched texts	**539**		

Table 11: Preliminary database search

The search was conducted multiple times using the same search field to ensure that the results were reliable. After recording the search results from each field and each key word set, relevant results were selected from each search in the database fields.

Database	Search terms	Number
Web of Science (Topic) **Scopus (Title, Keywords and Abstract)** **MEDLINE via PubMed (All Fields)**	Stress AND Nurse AND Saudi Arabia	43
Web of Science (Topic) **Scopus (Title, Keywords and Abstract)** **MEDLINE via PubMed (All Fields)**	(Nurse* OR Nursing) AND ("occupational stress" OR "job stress" OR "work stress" OR "burnout" OR "burn out") AND "United Arab of Emirate" OR "Saudi Arabia" OR " Qatar" OR "Bahrain" OR "Kuwait" OR "Oman"	34
Total Titles and Abstracts reviewed		77
Articles Excluded after screening		55
First selection of articles		22
Duplicates removed		13
Articles selected from another source		4
Final selection of articles		9

Table 12: Search strategy.

4.2.1 Inclusion/Exclusion Criteria

The following criteria were used to determine inclusion of studies.

The sample population included: the nursing profession alone, nurses of Saudi Arabian origin and nurses of foreign citizenship working in Saudi Arabia. The environment was considered during the selection process. The nurses included were only those working in hospitals namely public hospitals, other governmental agency hospitals, and private hospitals. On the other hand, the selection criteria also included nurses from all departments in hospitals and not nurses in a specified department. The selection criteria on publication featured only full text articles. Abstracts were not considered. The setting in the selection criteria was limited to Saudi Arabia. Table 13 summarizes the applied inclusion and exclusion criteria in the selection of articles.

INCLUSION	EXCLUSION
Population:	
• Only nurses • Both foreigners and natives • Both male and female	• Including other healthcare professionals
Environment:	
• Only hospitals • Both private and public • All departments	• Very specific departmental nurses • Nurses working outside the hospital setting
Publication characteristics:	
• Only full articles • Peer reviewed	• Only abstracts • Incomplete or unpublished papers
Setting:	
• Saudi Arabia	• Studies in other countries outside Saudi Arabia
Content:	
• Stress • Occupational Stress/Job Stress/Work Stress" • Burnout	
Language: • Only articles published in English	
Date: • Articles published between 2003-2014	
Study Design: • Articles that meet the methodlogical quality of cohort studies (Jarde,2013)	

Table 13: Search inclusion and exclusion criteria

Study Selection

The selection of articles was carried out by a single reviewer. The selection ensured that only full text articles that met the inclusion criteria were selected. All articles that did not meet the inclusion criteria were removed .

Outcomes

As a result, the study selection resulted in 8 relevant articles that were selected for the research question. The primary database resulted in only 5 of the total items relevant to my topic. Additional sources availed 4 of the relevant articles for the systematic review. However, one full-text article was finally excluded as it was found to be a secondary analysis.

Quality Assessments

To determine the quality of the retrieved studies, several quality assessment tools were considered. The most relevant tool for the study design in the selected articles was chosen; the United States of America based National Institutes of Health, which is adapted from Alexander Jarde's "A tool to assess the methodological quality of cohort studies" (Jarde, 2013).

The criteria included the journal of publication, which indicated that a peer review of the study had been performed before the final publication and inclusion in the listed journals. Thereafter, 14 specific article-related indicators were used namely: research question; study population; the participation rate of eligible persons; groups recruited from the same population and uniform eligibility criteria; sample size justification; exposure assessed prior to outcome measurement; sufficient timeframe to see an effect; different levels of the exposure of interest; exposure measures and assessment; repeated exposure assessment; outcome measures; blinding of outcome assessors; follow-up rate; and statistical analyses.

4.3 RESULTS

77 related articles were identified from the core databases, while 4 articles were retrieved from Google Scholar. These citations were screened and 22 of them were removed due to duplication. 50 irrelevant articles were excluded at the title and abstract level. The remaining 9 articles were selected for full text reading. After in-depth reading, one article was eliminated because it was a secondary analysis of a previously included paper. The 8 remaining articles were shortlisted for review as they met all the inclusion criteria.

Strategy for Data Synthesis

The extracted data were analysed using a narrative synthesis of information received from the selected studies. A thematic approach was applied to data synthesis and narratives were used to summarize and analyse the extracted data. Brief narrative summaries were written after in-depth study of the selected articles. To ensure critical analysis was conducted on each item, analysis tables were designed and drawn to itemize and classify information from the articles (Table 14). Narrative summaries were written to capture the qualitative aspects of the studies.

The results of the quality assessment indicated that all papers were of similar credibility. It should be noted that some of the 14 indicators do not apply to this specific study type or may not be elucidated in this type of study. On average, the papers included in the study were rated as good on a three-point scale with descriptors of Poor, Fair, and Good. Table 14 below provides a summary of the quality assessment of the included papers.

Author/Year	Al-Aameri (2003)	Zaghloul (2008)	Al-Turki (2010)	Al-Turki *et al.* (2010)	Humaida (2012)	Saleh *et al.* (2013)	Al-Homayan *et al.* (2013)	AlSuliman *et al.* (2014)
Research question	1	1	1	0	1	1	1	1
Study population defined	1	1	1	0	1	1	1	1
Study population participation	1	1	1	1	1	CD	CD	1
Groups recruited from the same population and uniform eligibility criteria	1	1	1	1	1	1	0	1
Sample size justification	1	0	1	1	0	0	1	0
Exposure assessed prior to outcome measurement	1	0	1	0	1	0	1	1
Sufficient timeframe to see an effect	0	0	0	0	0	0	0	0
Different levels of the exposure of interest	NA	NA	NA	NA	NA	NA	NA	NA
Exposure measures and assessment	1	1	1	1	1	1	1	1
Repeated exposure assessment	0	0	0	0	0	0	0	0
Outcome measures	1	1	1	1	1	1	1	1
Blinding of outcome assessors	1	1	1	1	1	1	1	1
Follow-up rate	NA	NA	NA	NA	NA	NA	NA	NA
Statistical analyses	1	1	1	1	1	1	1	1
Quality Rating of the articles out of the 12 eligible criteria for testing	**10**	**8**	**10**	**7**	**9**	**7**	**8**	**9**

Table 14: Quality rating of the selected articles using a quality assessment tool for observational cohort and cross- sectional studies
*CD, cannot determine; NA, not applicable; NR, not reported.

Description of Included Studies

All 8 included studies were conducted in Saudi Arabia. They were all cross-sectional and quantitative studies investigating the levels of stress among nurses in Saudi Arabia. Some articles featured burnout (AlSuliman & AlHablani, 2014), job satisfaction (Saleh *et al.*, 2013) and performance (Al-homayan et al., 2013d), and causes and effects of stress (Al-Aameri, 2003). The earliest relevant publication retrieved was from 2003 (Al-Aameri, 2003) and the most recent eligible publication was dated 2014 (AlSuliman & AlHablani, 2014). Two out of the 8 studies were conducted across Saudi Arabia (Al-homayan *et al.*, 2013d; Al-homayan et al., 2013a), 2 studies were conducted in the northern part of the country (Humaida, 2012; AlSuliman & AlHablani, 2014), 3 were conducted in the eastern region of the country (Zaghloul, 2008; Al-Turki, 2010; Al-Turki *et al.*, 2010) and the remaining study took place in the central region of Saudi Arabia (Al-Ameri, 2003). No published study has been carried out in the western region of the country, which includes Makkah province.

The journals in which the articles were published numbered 7 in total. Only the Saudi Medical journal had published 2 of the shortlisted articles. The included studies were conducted within three university hospitals (Zaghloul, 2008; Al-Turki *et al*., 2010; Al-Turki, 2010), three public hospitals (Al-Aameri, 2003; Humaida, 2012) and (Al-homayan *et al.*, 2013d), one military hospital (AlSuliman & AlHablani, 2014) and one specialist hospital (Saleh *et al*., 2013). All these facilities are located in five different cities in Saudi Arabia. Apart from the 2 studies conducted across the country, the remaining 6 studies were performed in tertiary care hospitals. Among the 6 tertiary care hospitals included, one was a specialist hospital, 3 were university hospitals and 2 were public hospitals. The PRISMA diagram (figure 3) illustrates the stages of study selection in this review.

The PRISMA 2009 flow diagram below shows the chronological process of extraction of the included studies.

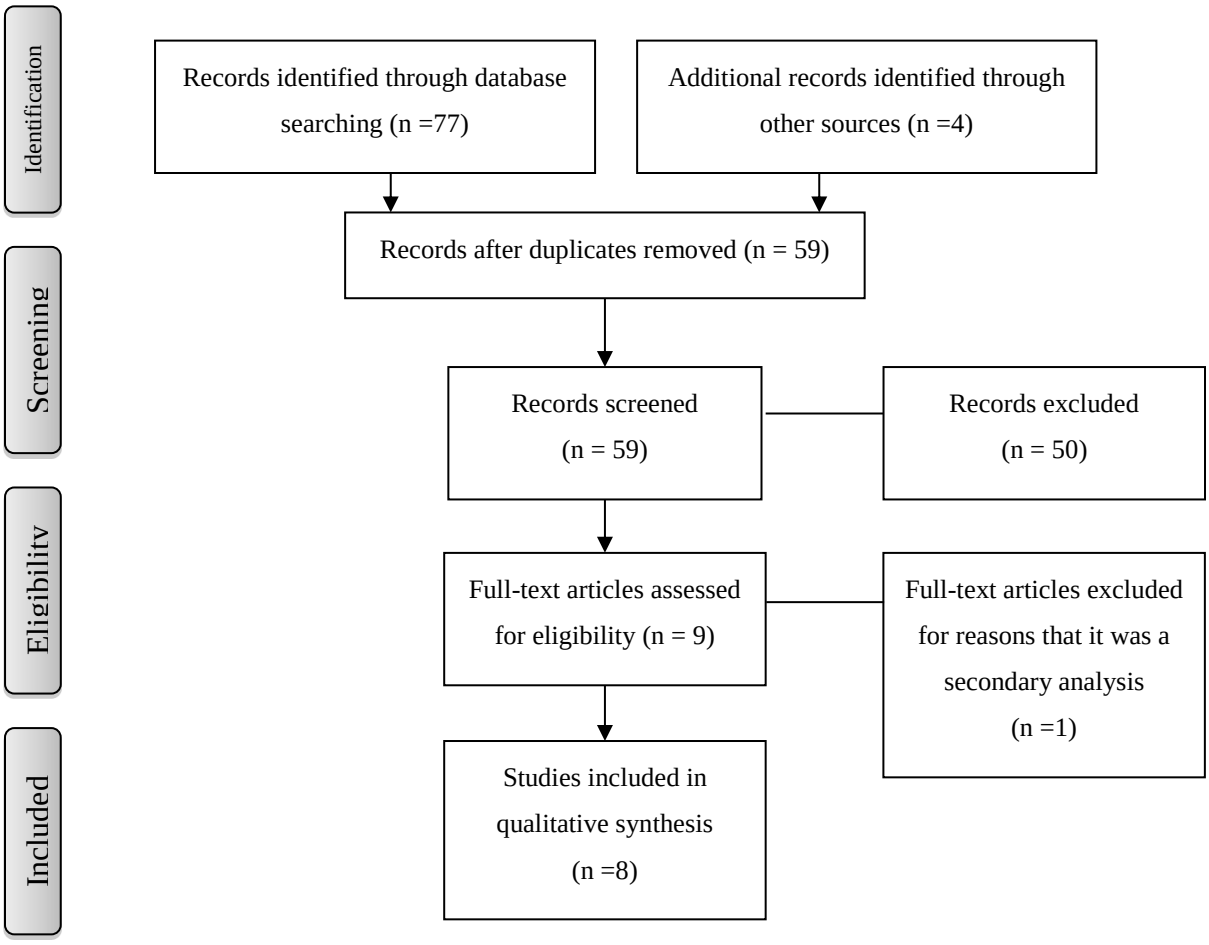


Figure 3: PRISMA 2009 Flow Diagram

Description of Participant Characteristics

A total of 2,062 nurses participated in the 8 studies investigating causes of stress, job satisfaction and performance outcome among nurses in Saudi Arabia. They were the sole participating professional group in all studies. The participating nurses were drawn from 3 university hospitals, 3 public hospitals, one military hospital and one specialist hospital. 6 out of the 8 studies involved participants from tertiary care hospitals. Among the 6 tertiary care hospitals nurses that were included in the studies, 213 nurses were from a specialist hospital, 831 nurses worked at the university hospitals and a total of 480 nurses worked in public hospitals. Table 15 provides a summary of specific details of articles used in the studies including the sample, population, and their setting.

Description of Instruments Used

The instruments used in these cross-sectional studies included:

- Two studies that used self-developed questionnaires,
- Three studies that used Maslach Burnout Inventory (MBI) and Individual-Based Questionnaire,
- One study that used Occupational Stress Indicators Questionnaire designed by Cooper et al. (1988),
- One study that used Occupational Stress Scale (a three-point Likert scale) and one study that used an expanded and updated revision of the Classic Nursing Stress Scale developed by Gray- Toft & Anderson (1981), and a Job Satisfaction Scale as shown in table 15.

Author (Year)	Aim	Sample, Population, and Settings	Measurements/ Instrument Used	Observations and Finding	Burnout	Stress	Nurses	Causes	Outcome
Al-Aameri (2003)	Assessing the different sources of job stress for nurses in a number of public hospitals in Riyadh	424 Nurses in a Public Tertiary Care Hospital	A cross-sectional study using Occupational Stress Indicators Questionnaire designed by Cooper et al. (1988)	Most stressors found were organisational structure and climate, the nursing job itself, and the managerial roles.	×	√	√	√	×
Zaghloul (2008)	Developing a reliable and valid tool for measuring nursing staff stress and burnout	260 registered senior nurses at The University Tertiary Care Hospital	A cross-sectional study using Occupational Stress Scale (a three-point Likert scale)	A short valid and reliable scale to assess the stressful areas for nurses.	√	√	√	√	×
Al-Turki (2010)	To find out the prevalence of Burnout syndrome (BS) in Saudi nurses	61 Female Saudi nurses at the University Tertiary Care Hospital	A cross-sectional study using Maslach Burnout Inventory (MBI) and Individual-Based Questionnaire	Saudi nurses had a higher frequency of Emotional Exhaustion and Depersonalization and most of them had low Personal Accomplishment.	√	√	√	×	×
Al-Turki *et al*. (2010)	To assess the prevalence of Burnout syndrome among a multinational nursing workforce in Saudi Arabia.	510 Nurses of multinational workforce at The University Tertiary Care Hospital	A cross-sectional study using Maslach Burnout Inventory (MBI) and Individual-based Questionnaire	Nursing staff were in a state of burnout with high frequency of Emotional Exhaustion and Depersonalization.	√	√	√	√	×
Abdelrahim *et al.* (2012)	To examine the relationship between stress and psychosomatic complaints among nurses in Tabarjal hospital	56 nurses in a Public Tertiary Care Hospital (Tabarjal Hospital)	A cross-sectional study using a Self-Developed Questionnaire	Confirmed the effect of stress on the prevalence of psychosomatic symptoms among nurses in Tabarjal hospital.	√	√	√	√	×
Saleh *et al.* (2013)	To determine the main stressors affecting nurses and its relationship with job satisfaction	213 Staff nurses in a Specialist Tertiary Care Hospital	A cross-sectional study using an expanded and updated revision of the Classic Nursing Stress Scale developed by Gray- Toft & Anderson (1981) and a Job Satisfaction Scale	Nurses were exposed to many kinds of job related stressors, which affected their level of job satisfaction.	×	√	√	√	√
Al-Homayan *et al.* (2013)	Evaluating the mediating effect of job stress on the relationship between job demand resources and nurses' performance	380 Nurses in a Public Tertiary Care Hospital	A cross-sectional study using Questionnaires	There is a direct significant relationship among the tested job demands and resource variables with nurses' job performance.	×	√	√	×	√
AlSuliman (2014)	Determining the prevalence of burnout, estimate the level of burnout and to identify the risk factors of burnout that could be linked to personal and working characteristics associated with the syndrome.	158 Staff nurses in Tabuk Military Hospital	A cross-sectional study using Maslach Burnout Inventory (MBI) and Individual-based Questionnaire	The prevalence of burnout among nurses was high (75.9%) and working as an inpatient nurse increases the risk of developing burnout more than working as an outpatient nurse.	√	√	√	√	√

Table 15: Specific details of included articles.
√ : Term Discussed, ×: No discussion of the term

4.4 SYNTHESIS OF FINDINGS

In the 8 published research papers available in Saudi Arabia, the method that was predominantly used across all the studies was of a quantitative cross-sectional design.

At the beginning of the research period, Al-Aameri (2003) used Cooper et al's (1988) format and instrument. The limiting factors in this study were mainly related to the population that was sampled: the study used a non-probability sampling technique with nurses drawn from only one city, Riyadh. Hence, the results could not merit being representative of the whole population of nurses in these hospitals (Al-Aameri, 2003).

In 2008, Zaghloul conducted a cross-sectional study using a three-point Likert scale as an instrument for data analysis. Al-Turki and colleagues 2010 cross-sectional study used the Maslach Burnout Inventory (MBI) individual-based questionnaire to analyse results of the two papers that investigated this area (Al-Turki, 2010) and (Al-Turki *et al.*, 2010). Al-Turki *et al.* (2010) identified that limitations of this study was dependent on the sampled population. Sampled nurses were from five nationalities and their tolerance level would vary due to their cultural and social experience. Furthermore, the limiting factor of sampled nurses who had just returned from holiday or leave could also interfere with the exhibition of Burnout Syndrome that was being investigated (Al-Turki *et al*., 2010).

For the study by Al-Turki (2010), the self-identified limiting factors of the study included the fact that the MBI was newly introduced and may not have been appropriate for the native language used in the questionnaire considering that it only had the English language version while surveyed nurses were mostly Arabic speakers. In addition, the small sample size was limited to one hospital and hence not representative of the whole population.

A total of three papers used the Maslach Burnout Inventory (MBI) with the latest being the article by AlSuliman & AlHablaini (2014). The only self-developed tool was used by Ibrahim Abdelrahim who made a descriptive questionnaire for rating stress, with a list containing the most common psychosomatic complaints (Humaida, 2012). Based on this study, a t-test that

was conducted to establish whether nurses score high or low on stress and this resulted in a statistically significant mean difference (0.000) indicating high stress scores among nurses (Humaida, 2012).

In 2013, Saleh Ahmed et al. used an updated version of the Nursing Stress Scale (NSS) developed by Gray-Toft & Anderson (1981) and a job satisfaction scale (JSS) to analyse data of their cross-sectional study (Saleh *et al.*, 2013). In this study, a negative significant relationship was established between stress and job satisfaction as indicated by the correlation test ($P< 0.05$) (Saleh *et al.*, 2013).

The findings on levels of stress and burnout show variation between the studies, which is to be expected given the different study settings. No study compared different organisational settings and the scales to examine other key outcomes varied, making any further comparison difficult. However, a narrative synthesis of the reported studies yielded important findings regarding stress among nurses in Saudi Arabia and three key themes emerged from the synthesis: work-related stress, job satisfaction, and nurses' performance. Although the available literature may arguably be deemed insufficient for a more robust conclusion, these are the available publications on the subject in this specific region. The themes are discussed in detail below.

4.4.1 Causes of Work-related stress in Saudi Arabia

The aforementioned studies reveal that stress is caused by the work environment and work content factors around the nursing profession. Accordingly, published studies on stress among nurses in Saudi Arabia indicate that nurses' stress emerges from the organisational structure in the hospitals and in the healthcare system. This source was identified by several researchers (Al-Aameri, 2003; Zaghloul, 2008 and Saleh *et al.*, 2013). According to these three studies which surveyed 887 nurses, nurses have inadequate guidance, consultation, and communication in the organisational structure.

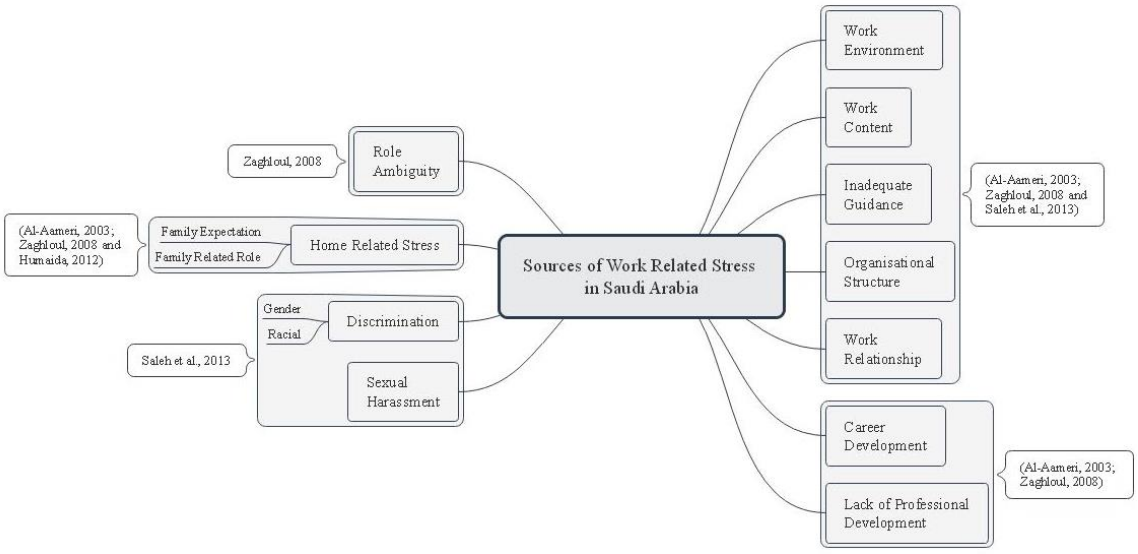


Figure 4: Summary of causes of Work-related stress in Saudi Arabia

Three out of the 8 studies (Al-Aameri 2003; Zaghloul 2008 and Saleh *et al.* 2013) highlight the sources of stress in Saudi nurses to be related to the job, which was itself reported to be stressful and demanding. The relationships between nurses and other healthcare staff, between nurses themselves, and between nurses and patients were also identified as one of the main sources of stress among nurses in Saudi Arabia.

Professional development and career advancement is a source of stress to nurses in Saudi Arabia as reported by Al-Aameri, 2003 and Zaghloul, 2008. These two studies also indicate the need for opportunity, the availability of opportunity, and the provision of career development as being the sources of stress among nurses in Saudi Arabia. Career development opportunities could include study sponsorship or on-the-job training provided by the hospitals. The provision of these career advancement opportunities varies according to the hospital types.

As well as workplace stressors, the studies identified additional sources of stress associated with home-related issues among nurses. The interface between work- and home-related stress among the nurses in Saudi Arabia was evident (Al-Aameri, 2003; Zaghloul, 2008 and Humaida, 2012). Family expectations and family-related roles provide an additional burden for nurses, which result in further stress. In particular, nurses that are mothers and wives are

expected to fulfil their maternal and spousal responsibilities in addition to their roles as hospital nurses.

Although not identified in these targeted research studies, it is worth noting that role ambiguity is reported in the wider research. For instance Zaghloul (2008) ascertains that the conflict of roles among nurses is a source of work-related stress among Saudi nurses. This is coupled with the unclear expectations that are set for the nurses by supervisors, which leads to ambiguity in roles resulting in conflict.

In the most recent study by Saleh *et al.*, 2013, gender discrimination and perceived racial discrimination due to profiling was an emerging and significant source of stress among Saudi nurses. On the same note, sexual harassment and the pains and distress of patient care were additional emerging sources of stress among nurses in Saudi Arabia. Saleh *et al*. (2013) confirm that the 213 nurses who took part in the study rated this to be the main source of work stress in Saudi Arabia.

Evidently, in the last decade, sources of stress among nurses in Saudi Arabia have been identified in the available literature on the topic. It is notable that these sources are based on research that is not representative of the whole country as there is a lack of published research done in the western region of Saudi Arabia. This is the region that houses the economic city of the country, Jeddah, and the Islamic holy cities, Makkah and Medina.

4.4.2 Studies on Nurses' stress in Saudi Arabia

According to the published studies, it is clear that there is an absence of data and research from a range of hospital types. Available data on stress has only been retrieved from the public, university, military and specialist tertiary care hospitals. Four out of the eight studies in Saudi Arabia on this subject were conducted in public hospitals with a total of 1,073 nurse participants. Three out of the remaining four studies in the available eight studies were conducted in university hospitals featuring a total of 719 nurses while one study was conducted

in a military hospital with 158 participants. None of the studies were conducted in private hospitals.

This clear lack of data on stress-related studies among nurses in private hospitals provides further rationale for the present study since the conditions of nurses in private hospitals are unlikely to be the same as the conditions of nurses in public hospitals and university hospitals. Private hospitals do not get any funding and support from the government hence the service is sustained by profit-business models, therefore affecting the nature of nurses' work and the environment of the hospitals. Since private hospitals are for profit, they are susceptible to competition with other private hospitals and public hospitals which makes them likely to have a heightened level of demands on the nurses' performance.

In order to be profitable and sustain the service of the hospitals, it is arguable that private hospitals may impose or implement policies and procedures that could expose nurses to the type and level of stress that is different from the level and type of stress observed amongst nurses who work in public hospitals.

Accordingly, the literature on the subject from 2003 to 2014 has identified factors that are related to the changes associated with the development of the country. Saudi Arabia has undergone a lot of changes in population, policy, and infrastructure that could affect the sources of stress in the nursing profession.

Among the first studies conducted in Saudi Arabia on stress among nurses, Al-Aameri (2003) outlines the key contributors of stress to be organisational structure and climate, the nursing job itself, and the managerial roles in MOH hospitals.

In more recent studies, there appear to be more patient types who range from those with a critical attitude and those with a short temper as being another source of stress to the nurses in hospitals in Saudi Arabia. It was also interesting to note that the level of stress depends on demographics. For instance, Saudi Arabian nurses were less likely to suffer from stress

associated with the patients' temperament than foreign nurses (Al-Otaibi *et al.*, 2012). This is predominantly because the Saudi Arabian nurses are well acquainted with the culture and the language of most patients.

According to the literature from the quantitative studies by Almalki (2012), nurses in Saudi Arabia were dissatisfied with their work life due to stress emerging from work and home life factors, work design factors, work context factors, and global work factors (Almalki, 2012). In addition, the region of origin of the nurse, the marital status of the nurse, and the lifestyle of the nurse contributed to the anxiety and depressive state of the nurses (Abbas *et al.*, 2013). Therefore, it is pertinent that stress levels appear related to the effectiveness of nurses in performing their tasks and responsibilities in regard to patient care (Al-homayan *et al.*, 2013c). In essence, the focus on stress among nurses in Saudi Arabia is gaining considerable attention as regards research. The recent studies that summed up the last two decades of research in this field reported that stress is increasing among nurses working in hospitals in Saudi Arabia because of the underlying physical, psychological, and social aspects of working in Saudi Arabia (Azeem *et al*., 2014).

4.4.3 Effects of work related stress in Saudi Arabia

In the eight selected studies, job satisfaction and job performance have generally been addressed as the consequences of work-related stress.

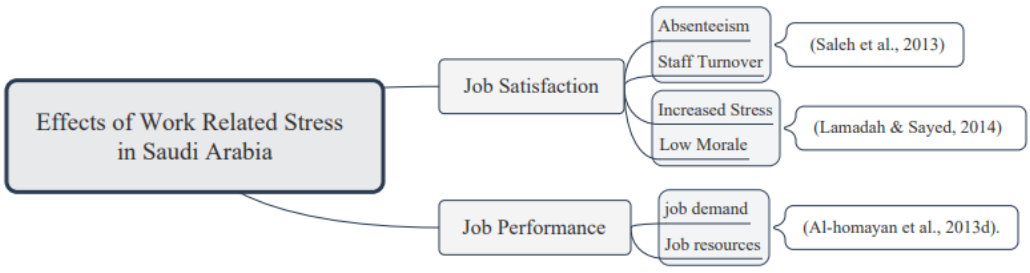


Figure 5: Summary of effects of work related stress in Saudi Arabia

4.4.3.1 Job Satisfaction

One of the eight studies examined the relationship between work-related stress, job satisfaction and job performance. According to Saleh *et al.*, 2013, in a cross-sectional study of 213 staff nurses in a Specialist Tertiary Care hospital, stressors resulted in increased absenteeism, job dissatisfaction, staff turnover and profoundly affected the quality of care given to the patients. Consequently, there was a negative significant relationship between the effect of stress and job satisfaction among staff nurses. Exposure of nurses to too many sources and types of stressors generates a significant level of job dissatisfaction (Saleh *et al*., 2013).

Lamadah & Sayed (2014) reported that the high nurse turnover was mainly as a result of job dissatisfaction. According to their study, nurses in Saudi Arabia quit their job due to increased stress, low morale, and lack of job satisfaction. Additional factors that impacted upon job satisfaction were discrimination on the basis of gender and sexual harassment. Saleh *et al*.'s investigation revealed that discrimination and perceived discrimination contributed to job dissatisfaction among nurses working in Saudi Arabia.

In brief, job dissatisfaction is a consequence of work-related stress and has its effects on the performance of nurses in Saudi Arabia. This is a finding from the only study that covers this area out of the 8 research studies that have been included in this review therefore it may not be generalisable to the nursing workforce in all of Saudi Arabia.

4.4.3.2 Performance Outcomes

According to the research conducted by Saleh *et al.* (2013) of 230 nurses in Dammam, it was concluded that there was a significant negative relationship between stress and job satisfaction among nurses in one specialist hospital hence this affected performance outcome. In the study by Al-homayan *et al*., (2013) the determinants of job performance among nurses were established especially those related to job demand and job resources. In their findings, job stress among nurses in Saudi Arabia was characterized by job demand and the resources. Although extensive studies have not been conducted to relate these factors clinically in Saudi Arabia, job stress among nurses in Saudi Arabia has a negative bearing on the performance of

nurses at work. The use of a job demand and resources model that is based on conservation of resources theory and other related theories, indicated that the level of nurses' job performance in Saudi Arabia was moderate and was directly related to the level of work stress (Al-homayan *et al*., 2013d).

4.4.4 Summary of Main Findings

The 8 studies demonstrated work-related stress among hospital nurses working in Saudi Arabia as summarized in table 15. In an effort to determine how much research has been performed all selected studies covered 'stress' as a key component of their research, therefore providing reported stress among the full sample size of 2,062 nurses. Five studies included 'burn out' as a key study component. The total sample size that was studied with burnout as an additional parameter was 1,045 nurses. Six studies among the 8 selected papers highlighted the causes of stress among nurses in Saudi Arabia. The total sample studied for causes of stress was 1,621 nurses. Additionally, 3 papers included outcomes in their study of stress among nurses in Saudi Arabia. The papers that evaluated the outcome of stress sampled a population of 751 nurses.

The quality appraisal of the articles indicated that all the articles ranked high on the assessment tool .Out of the 8 studies, (Al-Aameri, 2003) and (Al-Turki, 2010) ranked highest on the quality rating scale based on the 12 eligible criteria testig.Studies of (Humaida, 2012) and (AlSuliman & AlHablani, 2014) rated second highest,followed by (Zaghloul, 2008) and (Al-homayan et al., 2013d).

According to the available literature, a chronological approach to this subject showed that in the earliest study most stressors found were organisational structure and climate, the nursing job itself, and the managerial roles (Al-Aameri, 2003). Five years later, a related study was conducted to establish a tool that could be used to determine a scale for assessment of the existence of stress and its level among nurses (Zaghloul, 2008).

An additional study suggested that Saudi nurses had a high frequency of emotional exhaustion and depersonalization, and most of them had low personal accomplishment (Al-Turki, 2010).

The study on emotional exhaustion indicated that nursing staff were in a state of burnout with high frequency of emotional exhaustion and depersonalization (Al-Turki *et al.*, 2010). The study on the effects of stress on mental health confirmed that there is an effect of mental strain on the prevalence of psychosomatic symptoms among nurses (Humaida, 2012).

Moreover, nurses were exposed to many kinds of job related stressors, which affected their level of job satisfaction (Saleh *et al*., 2013). A study to establish the mediating effect of job stress on the relationship between job demand resources and nurses' performance concluded that there was a direct significant relationship between the tested job demands and resource variables with nurses' job performance (Al-homayan et al., 2013d). In the most recent study assessing the prevalence of burnout among nurses in Saudi Arabia, it was found that the prevalence of burnout among nurses was high (75.9%), and nurses working in inpatient clinics had a higher risk of developing burnout compared to nurses working in outpatient clinics (AlSuliman & AlHablani, 2014).

4.4.5 Limitations of The Literature and Implication for Further Research

Despite searching for an infinite publication period at the onset of the study, only eight studies have been published on work-related stress among nurses in Saudi Arabia, and all are cross-sectional studies within the period from 2003 to 2014. The published literature is not representative of the country population since only five hospitals drawn from five cities in three regions of the country are represented. Therefore, it can be concluded that there is lack of substantial literature for review on this subject in Saudi Arabia; for instance only one publication links stress to job dissatisfaction among nurses. Evidently, there is no published literature that relates the stress of nurses to their performance in Saudi Arabia. Even though several studies have been performed to establish causes of stress in the field of nursing, there is a need to correlate these causes to the nurses' performance so that a call for action is strengthened to alleviate the impacts of stress on nurses in Saudi Arabia. Notably, all the articles met the minimum quality rating criteria of the tool used to assess their eligibility, even though only four out of the eight articles were considered to have a substantial sample size, and all the articles generally passed the eligibility criteria.

4.5 CONCLUSION

In conclusion, the reviewed literature relates to studies done on work-related stress in the field of nursing, and this area of study has attracted international research over the last 50 years. Studies conducted have outlined stress definition, symptoms, causes of stress, and effects of stress. Among the notable effects are job satisfaction and burnout, whereas performance outcomes are discussed in relation to effect and not necessarily with an empirical link between stress, job satisfaction, and burnout.

The systematic review demonstrated that there are existing studies on work-related stress in the field of nursing in Saudi Arabia. However, there is lack of correlation between work-related stress and job satisfaction, burnout, and performance outcomes of the nurses in Saudi Arabia. It is also evident that while the central, eastern and northern regions of Saudi Arabia have been covered in the research, the vast majority of the population in the western region of the country has not been studied. Notably, this is a cosmopolitan region that houses the two holy sites of Islam and hosts millions of pilgrims annually.

As a result,many foreigners are settled in the region hence patients and nurses in the region originate from different countries.This fabric of the western Saudi Arabian community provides a different scenario to the nursing industry as the population is characterized by high presence of international community that are either the residents of the region or visitors of the of region's sources of pilgrims and pilgrimage services(Al-Otaibi et al., 2012).The region also boarders the red sea which provides an attraction for international community settlement in Saudi Arabia.In addition, the socio-cultural context and the religious context of this region differs significantly with regions that have been previously represented, hence the necessity to have a study to establish stress levels in relation to job satisfaction and performance outcomes among nurses serving this region.

This study will therefore attempt to bridge the existing gap in the literature by investigating the level of work-related stress and burnout among hospital nurses working in three different types of healthcare systems in western Saudi Arabia. The study will also examine the

relationship between work-related stress and burnout before assessing the effect of the hospital types on the level of work-related stress and burnout among hospital nurses working in Saudi Arabia. Since there is also no published literature in Saudi Arabia about the mediated and moderated impacts of these variables, this study will determine whether there is a mediated relationship between stress and performance/job satisfaction through burnout. Finally, the relationship between the level of work-related stress and burnout with the job performance and job satisfaction will be investigated and reported to reduce the existing evidence gap.

In essence, this review was limited to specific Saudi Arabia hospital settings and therefore care needs to be taken regarding its extrapolation to other healthcare settings in the region and internationally in comparative terms. Nevertheless, the literature portrays common issues across Saudi Arabia even though it is possible that different issues have greater significance in different regions and different countries due to the socio-cultural and religious contexts. By April 2018,there were no further published peer reviewed researches that met the inclusion criteria of this study.Therefore,depite the time span between the first search of related studies for the systematic review,by the end of this study,there are no additional publications that could have either changed and provided additional contribution to the study based on the inclusion criteria of the literature review.

CHAPTER V: STUDY RATIONALE AND HYPOTHESES

5.1 STUDY RATIONALE

Drawing on the evidence that identifies the role of organisational factors in contributing to work-related stress, and the distinct policies and practices of nurses working in different sectors of the healthcare system within Saudi Arabia, it is likely that nurses in Saudi Arabia have different sources and levels of stress than those reported more generally (Väänänen et al., 2012) because of the high foreign nurses in the healthcare sector(Elkahlout & Algaed, n.d.). Considering that Saudi Arabia is reported to have a nursing shortage and a lower ratio of nurses to patients than advanced nations (WHO, 2013), examining levels of stress and burnout among nurses in Saudi Arabia is an important first step for this research.

Rationale of Study Variables

As previously reported, the systematic review examined what was already known about work-related stress in Saudi Arabia. The notable gaps included lack of studies on work-related stress among nurses in the western region of Saudi Arabia and the studies assessing work-related stress, burnout, job satisfaction and performance among hospital nurses. Therefore, there was a need to establish the level of stress among nurses, the relationship between the level of stress and the level of burnout among nurses, then a need to investigate the relationship between stress, performance, and job satisfaction. The study variables that have been studied and reported only relate to causes of work-related stress, the outcomes of work-related stress, and finally burnout among nurses. The inter-relationship between these study variables have not been researched and the impacts of work-related stress on job satisfaction and job performance of nurses has not been explored in the literature according to the systematic review results.

Therefore, this study aimed to investigate whether work-related stress is prevalent among nurses in all types of hospital types in Saudi Arabia. Furthermore, the type of relationship between stress and job performance, burnout and job satisfaction was determined among nurses drawn from all three types of hospitals in Saudi Arabia: public hospitals, private hospitals and other governmental agency hospitals such as university hospitals. In the

literature, it has already been established that there exists a direct relationship between work-related stress and burnout among nurses working in all three hospital types around the world but no study has been conducted in the western region of Saudi Arabia that supports this finding. This finding contributes to the study hypothesis of this research that a positive relationship between levels of work-related stress and burnout among hospital nurses exist in Saudi Arabia. The studies relating the types of hospitals also develop the hypothesis that private hospital nurses experience higher work-related stress and burnout than public hospital nurses and that private hospitals nurses have direct and strongest relationships between levels of work-related stress, burnout, job performance, and the job itself.

It was also noted that the more stressed nurses are in hospitals, the less effective and satisfied they are. This relationship however needs to be investigated in context, hence the hypotheses that private hospitals nurses exhibit the strongest mediated relationship between levels of work-related stress, burnout, job performance, and job satisfaction moderated by hospital type.

Rationale of Study Setting

The study setting focuses on the three types of hospital categories in Saudi Arabia and a brief comparison between the three settings. The systematic review confirmed a lack of studies on stress and burnout among nurses in the whole of the western region of Saudi Arabia. Apart from the geographical setting of these studies, it is also notable that the hospital types that the previous studies have focused on, are only limited to the public hospital setting and university hospitals setting. There are a lack of studies in the private sector setting despite the fact that the private sector contributes to at least 20% of healthcare provided in Saudi Arabia (Al-Malki *et al*., 2011; MOH, 2010). In the private healthcare sector, the competition and the demands levied on nurses are greater than the demands on nurses working in other types of hospitals due to the fact that private hospitals are self-funded for profit unlike the government or institution funded hospitals. It is against this background that I made the prediction that private hospital nurses would exhibit stronger, direct and mediated relationships between levels of work-related stress, burnout, job performance, and job satisfaction.

5.2 RESEARCH AIM AND OBJECTIVES

Research Aim

The aim of this research is to examine work-related stress in Saudi hospitals and to provide empirical evidence and recommendations to the Saudi Arabia healthcare system that could facilitate the understanding and management of work-related stress and burnout vis-a-vis job satisfaction and performance, among hospital nurses working in different types of hospitals in Saudi Arabia.

Research Objectives

Based on the data to be gathered and the Saudi context, my research objectives are the following:

1. To measure levels of work-related stress and burnout among hospital nurses working in Saudi Arabia.
2. To determine the relationship between work-related stress and burnout.
3. To determine whether levels of work-related stress and burnout among hospital nurses working in Saudi Arabia differ by hospital type.
4. To determine the relationship between the level of work-related stress and burnout with job performance and job satisfaction.
5. To determine whether there is a mediated relationship between stress and performance/job satisfaction through burnout.
6. To determine whether the relationships in objectives 2, 4 and 5 differ by hospital type.
7. To recommend policies and operational guidelines that could improve performance and reduce work-related stress of nurses working in hospitals of Saudi Arabia.

Research Hypotheses

The following sections investigate data based on the study hypotheses, which are:

H_{1a}: There is a positive relationship between levels of work-related stress and burnout among hospital nurses in Saudi Arabia.

H_{2a}: There is a difference in levels of work-related stress and burnout among nurses at different types of hospitals in Saudi Arabia: private hospitals nurses experience higher work-related stress and burnout than public hospital nurses.

H_{3a}: There is a negative relationship between levels of work-related stress and job performance; a negative relationship between levels of work-related stress and job satisfaction but a positive relationship with burnout among nurses in Saudi Arabia.

H_{4a}: The direct relationships between levels of work-related stress, burnout, job performance and job satisfaction differ by hospital type. Private hospitals have the strongest direct relationship.

H_{5a}: The relationship between stress and job performance/job satisfaction is mediated by burnout.

H_{6a}: The mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction are moderated by hospital type. Private hospitals have the strongest mediated relationship.

CHAPTER VI: METHODOLOGY OF THE STUDY

6.1 INTRODUCTION

This section of the thesis focuses on the study methods in terms of the study context, the participants in the investigation, the measurements used to carry out the study, the procedure of the study (including the pilot study), the analysis of the data received and the ethical considerations undertaken.

The aim of the study was to investigate work-related stress among Saudi hospital nurses from the following healthcare sectors in Saudi Arabia: the Ministry of Health, other government agencies, and a private sector hospital. A cross-sectional approach was adopted to scrutinize the stress variables and to compare results across the various settings and tools. The sample taken from the three hospitals in Jeddah, Saudi Arabia was considered representative of the nursing population in Saudi Arabia: first, the nurses were drawn from each of the three categories of hospitals in Saudi Arabia; secondly, all the nurse specialities found in these hospitals were included; thirdly, both genders were included and their was no restriction to nationality and age. Finally, the total population of nurses across the three settings was 3,015, which represents 25.9% of nurses working in the western region and 2% of nurses working in Saudi Arabia.

The method of this study was through quantitative data collection, synthesis and analysis of data provided by a sample of hospital nurses in Saudi Arabia. The philosophical approach was positivism as it was intended to be deterministic, mechanistic, methodological, and empirical. Therefore, a quantitative methodology was chosen as a suitable approach as it measured the relationships between key variables associated with work-related stress in nursing as outlined in the research objectives. The quantitative survey approach was the most practical method as it enabled gathering of large amounts of data from nurses in a relatively short period of time. The hypotheses of the study were tested on the main study, which was conducted after the pilot study.

6.2 SETTING

Jeddah is the second largest city in Saudi Arabia with the highest cosmopolitan population in the country. It is a coastal city located in the western region of Saudi Arabia with a total population of 3.9 million. The total number of MOH hospitals in the western region is 37, representing 14% of the total MOH hospitals in Saudi Arabia. The total number of private hospitals in the western region is 44, which represents 32% of the total private hospitals in Saudi Arabia. There are 7 other governmental agencies hospitals in the western region, which represents 17% of other governmental hospitals in Saudi Arabia. In this research, a two-stage sampling process was used. Firstly, a purposive sample of organisations to ensure all three main types of hospitals were included and then all nurses from particular specialties within each organisation type were included as potential participants.

The first stage involved the selection of three hospitals and later the selection of nurses from hospital departments. The selection of these three categories of hospitals in Saudi Arabia was derived from the three types of hospitals in the healthcare system namely: governmental; private and; other governmental agency hospitals. The sampled hospitals were selected to provide the best representation of each category since they are the largest serving with the highest number of nurses in each category.

Governmental Category

King Fahad Hospital (KFH) was sampled for this category. It has a bed capacity of 1,300 and employs 1,286 nurses. This is the largest hospital in the western region of Saudi Arabia with well-furnished medical centres including the heart centre, the renal centre, the ear, nose and throat centre, laparoscopic centre and a dental centre.

Governement hospitals enjoys the funding from the Ministry of Health hence the recruitment of nurses prioritizes the government trained nurses from local programs which are predominatly Saudi nationals. Nearly half,48.8% of the sampled nurses in King Fahad Hospital (KFH) are between the age of 21 to 29 with 85.2% being female and 56.2% of them being foreigners.It is notable also that nearly half,48.9%, of the surveyed nurses had a bachelors

degree or higher with 62.7% of them having less than 10 years of experience in nursing.Out of the nurses working in this hospital,67.2% have worked in the same hospital for less than 10 years.

Private Sector

The International Medical Centre (IMC) was sampled for this category. The IMC has 300 beds and a population of 650 nurses. It is a host of more than 30 specialty centres furnished with modern equipment and has a reputation as the best private health provider in the region. It employs more than 150 western certified physicians serving in departments including Oncology, Orthopaedics, Cardiology, Children and Women's health.

Nurses that are recruited for private hospitals are highly qualified compared with nurses in public hospitals. Out of the sampled nurses, 75.9% of the sampled nurses in IMC hospital were above 30 years and none was over 60 yearsold. 14.8% of the nurses were male and 88.9% of total sampled nurses in this hospital being foreigners.It is notable also that the majority,90.7% of the surveyed nurses had a nursing degree or higher with 83.3% of them having more than 5 years of experience in nursing.Out of the nurses working in this hospital,74.1% have worked in the same hospital for more than 5 years.

The private hospitals are self-funded and they rely on income from the service provided hence the importance of quality service delivery. Recently,the western region of Saudi Arabia has had an increase in the number of private hospitals which poses a competitive atmosphere between the private hopstals.Nurses in these hospitals have a high expectation of their performance and the job security is not guaranteed for non performers.

Other Governmental Agency

King Abdul-Aziz University (KAU) hospital was sampled for this category. KAU is the largest teaching hospital in the region. At the start of this study it had a total of 568 beds but with the recent expansion in early 2016, KAU now has a capacity of 1,002 beds and a total of 1,079 nurses.73.6% of the sampled nurses in King Abdul-Aziz University (KAU) hospital are

between the age of 30 to 49 with 85.5% being female and 94.6% of them being foreigners.It is notable also that nearly half,48.3%, of the surveyed nurses had a nursing diploma or lesser with 63.4% of them having more than 10 years of experience in nursing.Out of the nurses working in this hospital,71.5% have worked in the same hospital for more than 5 years.

6.3 PARTICIPANTS

The sample of nurses was identified through each hospital's personnel department. The hospital management provided written approval for the hospitals' and nurses' participation in the study. The nurse participants provided individual consent after being debriefed on the purpose and protocol of the research.

In the selection of nurses from the hospital departments, the employment data of all those working in all sections identified from the hospital human resources department were screened for participation. Nurses who signed a consent form for participation in the study were included. The employment details in terms of demographics, working shifts, nursing units, hospital departments, total years of experience in nursing, and years of experience within the hospital were collected from the human resources department and the data was used for survey distribution and collection administration. The total population of nurses across the three settings is 3,015, which represents 25.9% of nurses working in western region and 2% of nurses working in Saudi Arabia.

The sample of participants was drawn from all the available specialties in the selected hospitals namely: Nursing Administration, Nurse Educator, Nursing Leadership, Nursing Informatics, Legal Nursing, Community Health Nursing, Gerontological Nursing, Clinical Nurse Specialist, Forensic Nursing, School Health Nursing, Adult Care Nursing, Nurse Anaesthetist, Adult ICU Nurse, Child & Family Health Nursing, Community Health Nursing, Psychiatric-Mental Health Nursing, and Geriatric Nursing depending on their availability in each facility.

The inclusion criteria outlined below were applied to all three selected hospitals: -
The inclusion criteria were as follows:

- All nurses, including trainees, working in the selected hospital settings from all the departments in the respective hospitals.
- both Saudi nationals and expatriate nurses.
- Male and female nurses
- No age limit was set for the participants

The exclusion criteria for the study were as follows:

- all other medical personnel that are not classified as nurses,
- nurses working outside the selected hospital setting.

The administration of the surveys was done by both paper and pencil, and online. All the surveys had a further consent page as the introduction and nurses were required to consent to their participation before continuing with the survey.

6.4 MEASURES

Four different measurement tools were used in the research. These tools were evaluated by their match with the objectives of the study, the reliability of the items in the tools, the construct validity of the tools, and the specificity of the tools to assess the target population. They were also selected after the systematic review results that indicated successful use of the tools. The selected tools were:

1. Health and Safety Executive (HSE) tool from United Kingdom (Health and Safety Executive, 2013)
2. Oldenburg Burnout Inventory (OBI) scale from the British Medical Association (Demerouti & Bakker, 2008)
3. McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989 (Tourangeau *et al.*, 2006) {Job satisfaction measurement tool}.
4. The Nurse Professional Competence (NPC) Scale (Nilsson *et al.*, 2014) {Performance level measurement tool by a self-reported competency scale}.

In addition to the combined tool derived from the above scales, demographics and employment details in terms of shift working, nursing units, hospital departments, total years of experience in nursing, and years of experience within the hospital were included as part of the survey. Demographic questions reported independent variables such as gender (male/female), age to the nearest year, contract type (full-time/part-time), position (qualified nurse, sister), nationality (Saudi/non-Saudi), marital status (single, married, separated, widowed and divorced), number of children, number of years as a nurse, and number of years in the current role at the hospital.

Notably, a longer version of The Nurse Professional Competence (NPC) Scale was included in the pilot study but a shorter version was used in the main study. The description of the pilot study and the rationale for shortening this scale in the main study is discussed in section 6.4.4 of this chapter.

The selected measurement tools in the following sections also include the reliability and validity analysis for each of the selected tools.

Health and Safety Executive (HSE) tool

This structured questionnaire consisted of demographic questions followed by the UK Health and Safety Executive's HSE Indicator Tool. This was selected as the most viable tool as it has consistently been the regulatory framework in the UK. In addition,a comparison of ten other tools that measured stress indicated that HSE was the most valid and reliable as depicted in the description and analysis of ten best stress management tools by Work-Life Solutions (Work-Life Solutions, 2017). It is also the among the oldest tools having been formed on 1 January 1975 (Health and Safety Executive, 2013).

The UK Health and Safety Executive's (HSE) Management Standards (MS) was used to find sources of work-related stress in this study. The tool’s indicators include: demands, control, managerial support, peer support, relationships, role, change, job satisfaction, job-related anxiety, job-related depression and errors/near misses (Kerr *et al.*, 2009). The five-point

frequency scale was used within the tool. Each question was linked to a management standard in the subscales below:

- Demands management standard
- Control management standard
- Support management standard
- Relationships management standard
- Role management standard
- Change management standard

The definition of stress used in this study is that it could be the deviation from the psycho-physiological balance between an individual's available resources and the required demands or needs as determined by his or her environment. Jourdain & Chênevert (2010) defined job stress as a situation where a person faces persistently higher demands compared with the actual work. This view correlates more theoretically to the "demand" subscale of the management standard on the HSE tool.

In an effort to ascertain whether a hypothesized factor structure is supported by the data in this tool, a multi-group confirmatory factor analysis (CFA) was carried out using IBM SPSS Amos 21 Graphics.

The Model 1 fit indices were less than adequate. An examination of the factor loadings revealed that although all of the items were significant, two items had loadings below .40. Looking back at the wording of original items, the misfit items indicated intensity of workload but not necessarily work-related stress. For example, Item 9 reads, "I have to work very intensely." However, this does not necessarily indicate work-related stress as defined in this study. Working quickly or intensely is not necessarily "stressful" unless the employee feels they are not meeting the expectations of the employer. As these items deviated theoretically from this study's definition of occupational stress and because they did not fit well with the other items on the scale (according to the CFA), they were removed from the scale and the CFA was re-

run with the remaining six items. The second model fit produced a perfect fit for the data (CFI .921; TLI .815; RMSEA.084) hence its adoption for the study.

Model No.	Test	CFI	TLI	RMSEA
Model 1	One factor analysis of HSE Subscales "Demand"	.734	.522	.121
Model 2	One factor analysis of HSE Subscales "Demand" without the low loaded items	.921	.815	.084

Table 16: Fit indices for the Health and Safety Executive's (HSE) management standards (MS) tool based on "Demand" confirmatory factor analysis (CFA).

The internal reliability of the revised six-item scale was acceptable for psychometric purposes ($\alpha = .72$). Consequently, it was categorical that the mean of the following 6 selected reliable variables was used for the study of work-related stress: 3, 6, 12, 16, 18 and 22 (See Appendix A).

Oldenburg Burnout Inventory (OBI) scale

After comparison and searchers of the most appropriate tool to measure burnout among nurses, the most valid and reliable tool was OBI as recommended and appraised by studies that have used the tool and most specifically by the validity analysis conducted specifically for the OBI instrument (Demerouti *et al.*, 2003) . This scale was acquired through direct correspondence with the author, Evangelia Demerouti, who provided the translated version from the original German tool. This scale consists of two main dimensions of burnout: exhaustion and disengagement. For both dimensions, four items are phrased negatively and four items are phrased positively.

The eight items of the exhaustion sub-scale are generic and refer to general feelings of emptiness, being overtaxed due to work, a strong need for rest, and a state of physical exhaustion (Demerouti & Bakker, 2007). As stated above, the tool has both positively and negatively worded items to represent two ends of the continuum. In the analysis, positively worded items were reverse coded in the assessment of burnout.

Eight out of the sixteen items that were reverse coded before the average scores for each sub-scale were calculated include:

1. There are days when I feel tired before I arrive at work *(Exhaustion)*
2. It happens more and more often that I talk about my work in a negative way *(Disengagement)*
3. After work, I tend to need more time than in the past in order to relax and feel better *(Exhaustion)*
4. Lately, I tend to think less at work and do my job almost mechanically *(Disengagement)*
5. During my work, I often feel emotionally drained *(Exhaustion)*
6. Over time, one can become disconnected from this type of work *(Disengagement)*
7. Sometimes I feel sickened by my work tasks (*Disengagement)*
8. After my work, I usually feel worn out and weary *(Exhaustion)*

Therefore, the recording of these items meant the following: (1 = 4, 2 = 3, 3 = 2, 4 = 1) where higher scores indicated greater exhaustion and disengagement.

In an effort to ascertain whether a hypothesized factor structure is supported by the data in this tool, a multi-group confirmatory factor analysis (CFA) was carried out using Amos Graphics software with the following sector combination: Model 1: Two Factor Analysis of Exhaustion & Disengagement; Model 2: Four Factor Analysis of Exhaustion & Exhaustion R & Disengagement & Disengagement R; Model 3: Two Factor Analysis of Positive & Negative Model 4: One Factor Analysis for Burnout (negative) as indicated in the table below:

Model No.	Test	CFI	TLI	RMSEA
Model 1	Two Factor Analysis of OBI subscale (Exhaustion & Disengagement)	.428	.245	.139
Model 2	Four Factor Analysis of OBI subscale (Exhaustion & Exhaustion R & Disengagement & Disengagement R)	.832	.767	.077
Model 3	Two Factor Analysis of OBI subscale (Positive & Negative)	.828	.773	.076
Model 4	One Factor Analysis of OBI subscale (Negative only)	.895	.811	.090

Table 17: Fit indices for the Oldenburg Burnout Inventory indicator tool based on confirmatory factor analysis (CFA).

The first method model referred to the two original subscales (Demerouti & Bakker, 2008) of the Oldenburg inventory. This model included 16 items, which have two subscales: disengagement and exhaustion. The results (CFI .428, TLI .245; RMSEA .139) were below the accepted fit. This result prompted the need to go further into the items and scoring methods of the subscales.

The second method model used the same two subscales with further distinction between the reversed weighted items and the positively worded items of both exhaustion and disengagement. Hence, letting the higher score reflect the higher level of exhaustion and disengagement in the reversed scored items. The reported results (CFI. .832; TLI.767; RMSEA. 077) were also below the expected fit hence this was deemed an unacceptable fit.

The third model focused on the negatively and positively scored and worded items from both exhaustion and disengagement subscales. Hence, the result covered the complete tool divided into reversed and unreversed items. The model fit results (CFI. 828; TLI .773; RMSEA.076) were also deemed unacceptable.

In general, items on the third model were positive statements for instance, “I always find new and interesting aspects in my work” and negative statements such as, “During my work, I often feel emotionally drained”. Since the study aimed to measure burnout, the items with negative statement seemed theoretically more related to the study’s construct of interest. Therefore, a new scale was created using only the eight negative items. In order to examine the factorial validity, the CFA was run with this model and it provided the best fit results (CFI. 895; TLI.811; RMSEA.090) hence it was adopted for the study.

The internal reliability of the modified burnout measure was good ($\alpha = .81$). Consequently, it was decided that the mean of the following 8 selected reliable items was used for the study of burnout: 2,3,4,5,6,7,9, and 10 (See Appendix B).

McCloskey/Mueller Satisfaction Scale (MMSS)

According to a systematic review on the relaiability and validity of instruments measuring job satisfaction,seven tools met the validity criteria and out of the seven,MMSS met the critical aspect of specificity to nurses working in hospitals and the highest reliabity and validity indicators on this category of specific target population instruments (van Saane, 2003).This tool was acquired and used to measure job satisfaction among nurses. The tool consists of 31 items divided into 8 domains namely: satisfaction with extrinsic rewards; scheduling; family/work balance; co-workers; interaction; professional opportunities; praise/recognition; and control/responsibility. The scale format used in the tool was a 5-point Likert scale (5 = very satisfied, 3 = neither satisfied nor dissatisfied, 1 = very dissatisfied). The scoring and interpretation was through the summed items of subscale.

Based on systematic review of reliability and validity of instruments measuring job satisfaction (van Saane *et al*., 2003) that evaluated 29 job satisfaction instruments, MMSS emerged to have adequate reliability and validity for use as an evaluative tool in the hospital environment. In an effort to ascertain whether a hypothesized factor structure was supported by the data in this tool, a multi-group confirmatory factor analysis (CFA) was carried out using Amos Graphics.

After the analysis, the fit could not be improved further hence the best fit result was adopted, which was the second order of the eight-factor analysis for the subscales whose best model fit results (CFI.754; TLI. 710; RMSEA.105) could not be improved any further. Therefore, this was the best way of using the data when compared with the other models and confirmed the final set of items that was to be used for the study.

Model No.	Test	CFI	TLI	RMSEA
Model 1	8 Factor Analysis of MMSS subscales	.779	.725	.102
Model 2	2nd order Factor Analysis of MMSS subscales	.754	.710	.105

Table 18: Fit indices for the MMSS indicator tool based on confirmatory factor analysis (CFA).

The internal reliability of the modified MMSS measure was good ($\alpha = .95$). Consequently, it was concluded that the mean of the following 30 selected reliable variables was used for the study of job satisfaction (See Appendix C).

The Nurse Professional Competence (NPC) Scale

This scale was adapted from a self-reported Nurse Professional Competence scale, which is divided into two broad themes with 8 main factors in 88 items (Kerr *et al*., 2009). It was the only available self reported nurse professional competence instrument that has been widely used with recommended guidelines from WHO as adopted by the Swedish Health and Welfare Board (Nilsson et al., 2014). The following response alternatives were developed and are used in the questionnaire: to a very low degree = 1; to a relatively low degree = 2; to a relatively high degree = 3; and to a very high degree = 4.

In an effort to ascertain whether a hypothesized factor structure is supported by the data in this tool, a multi-group confirmatory factor analysis (CFA) was carried out using Amos Graphics. After the analysis, the best fit result was adopted, which was the second order of the three-factor analysis for the subscales after the removal of the low loaded item (item number 31). The best model fit results (CFI.881; TLI. 859; RMSEA.094) could not be improved any further and therefore this was the best way of using the data when compared with the other models. Therefore, this was the confirmed final set of items that was used for the study.

Model No.	Test	CFI	TLI	RMSEA
Model 1	Three Factor Analysis of NPC subscale	.872	.850	.094
Model 2	Three Factor Analysis of NPC subscale without the low loaded items	.881	.859	.094
Model 3	2nd Order Factor Analysis of NPC subscale without the low loaded items	.881	.859	.094

Table 19: Fit indices for the NPC indicator tool based on confirmatory factor analysis.

Table 19 provides a comparison of the results from the three analysed models. After considering the results, Model 3 shows the perfect fit compared to the rest. In the CFI column, Model 3 is the closest score to the expected standard of 0.90, and the TLI results of Model 3 also shows the closest score to the expected (0.90) compared to the rest of the models. Considering the RMSEA variable, which requires the score to be closer to below 0.6, it shows the same score as the remaining models.

Therefore, it is with this rationale that Model 3 is considered the best model to be adopted for this analysis. The internal reliability of the modified nursing performance competency measure was good ($\alpha = .97$), hence the mean of the following selected 26 reliable variables was used for the study of job performance (See Appendix D).

6.5 PILOT STUDY

The pilot study was carried out between March and June 2015. The purpose of the pilot study was to test out the procedures and the questionnaire tools to be used in the main study. In the study, the whole of the study questionnaire was used in the pilot study, and only after the main data was collected did the confirmatory factor analysis take place. The study was piloted with 60 nurses selected from one of the three hospitals: King Abdul-Aziz University Hospital. Out of the 60 nurses who received the questionnaire, 44 responded and were included in the study. The purpose of the pilot was to test clarity, precision and relevance of the questions to the nursing group, as well as assessing acceptability and feasibility and to see how long the questionnaire would take to complete. The data collected from the pilot study was analysed to give preliminary figures about the study variables but were not included in the final analyses. One of the key changes that emerged from the pilot study was the alteration of the length of the questionnaire.

After evaluating the 16 items in the Oldenburg burnout scale used in the pilot study, it was apparent that the tool provided a high level of reliability with its distinctive feature that included both positively and negatively worded items. The exhaustion and disengagement subscales include items that refer to their opposites, vigour and dedication, which make the tool appropriate for measuring the burnout levels in nurses.

However, it was noted that the questions in the Oldenburg burnout scale and those of the HSE tools were also closely related despite the different points of view used in the questions. Thus, it was felt that these could be kept to avoid bias as they were specific to what was being measured: burnout and level of stress, respectively.

After shortening the nursing performance scale, I decided that there was no need to further abbreviate the others as they directly applied to the objectives. There was a substantial reduction in the number of items from a total of 170 items to just over 100 items, and it took a maximum of 20 minutes for slow readers to respond.

In the administration of the survey in the pilot study, it was noted that the paper version responses were completed quickly, the hospital management were very cooperative, there were no spoilt questionnaires, and all responses were clear and legible. However, it was later considered that the participants could have been drawn from all three hospitals. Furthermore, only two online surveys were completed in the pilot study hence the decision to include all the nurses using the paper format of the surveys during the final study. I also noted that some nurses' English language competency was too weak to respond accurately, hence the decision to have the bilingual questionnaires for the final study in order to avoid confusion in the understanding of the items in the study tools.

The first 15 items in the survey focus on specific tasks that are covered in the next 8 items. The items in the nursing care section are basic checkpoints that each nurse performs, and the value-based nursing items provide a holistic approach of the nursing care performance. For example, item 20 (show respect for different values and beliefs) covers a similar content or indicator as items 8, 9, 12 and 13 (meet patient's psychological and social needs; meet patient's cultural and spiritual needs; manage changes in patient's psychological status; document patient's psychological status), respectively. In addition, the responses for the items selected provided enough evidence for the selected objectives.

The medical technical care items focus on the general management, practice, support and follow-up of the medical care. These items are broad and cover similar indicators to those that are specified in teaching/learning and support (11 items) and documentation and information technology (4 items). For instance, item number 28 (support patients during examinations and treatments) is a broad indicator that is specified in items 34, 39, 43 and 44 (provide patients and relatives with support to enhance participation in patient care; motivate the patient to

adhere to treatments; educate and support patients and relatives individually to enhance health; educate and support patients and relatives in groups to enhance health), respectively. Moreover, the responses for the items selected provided substantial evidence for the selected objectives. Furthermore, the results of the pilot study showed a close correlation between the responses of the three subscales, which were both significant at $p < 0.001$.

In conclusion, out of the 88 items in this tool, 27 items were selected to cover the objectives that were intended in the survey. Even though the original subscales were 6 and the selected subscales were 3, it was evident that the three subscales represent and cover the objectives without redundancy and repetition.

6.6 PROCEDURE

Based on the experience from the pilot study, the decision to use these two methods of survey administration was necessary. It was noted during the pilot study that even though they had work email addresses, most nurses did not favour online responses. In total, during the pilot only two surveys were received online out of a potential fifty responses.

Consequently, surveys of the final study were administered through paper distribution to nurses in their work settings. This was the main target distribution method. The researcher contacted the hospital administration department, then received consent and the approval to distribute the paper surveys to all the nurses through their departmental heads. The surveys were printed with clear guidelines for participants.

An English-Arabic translation and back-translation technique was used by the researcher and the survey was checked by bilingual professionals at the Department of Medical Education at King Abdul-Aziz University. Both Arabic and English versions were used in this study and distributed according to the nurse's language. This process was learned from the experience of the pilot study, during which, the tools were all in English. Feedback of results showed that there was a language barrier as some respondents either skipped or answered inappropriately due to a lack of proper understanding of the English language.

The guidelines were embedded in the participants' information sheet, which included: the research project title and the description of the researcher and her supervisors; the reasons why the research was being carried out; the timeline of the research; the description of the target participants; the liberty to choose to take part or to decline participation; how to take part in the study; the length of the surveys in terms of time required to complete the survey; the description of the possible advantages and the risks of the participants who took part; the description of the societal benefits of the research as a whole; the assurance that the survey was confidential and the description of how the researcher would ensure confidentiality; how the results of the survey would be used; the description of the review process of the research prior to administration of the surveys; and the description of the procedure for participants who wished to seek more information or provide comments or concerns about the research or the researcher.

In addition to the participants' information sheet (see Appendix E), the research goals were also provided to the participants with a consent option for those who could decide to opt out. The researcher endeavoured to ensure that participants had all the relevant information to help them to make an informed decision as to whether or not to take part in the survey. This information was also verbally explained to the departmental leaders who subsequently conveyed the same information to the nurses before distributing the questionnaires.

On the same note, the online survey was administered through Surveymonkey© hosted on the investigator's research website: http://amqattan.com/. This information was passed to the nurses using the researcher's business card, which was dedicated to the research information. These cards were distributed to the nurses by the departmental heads. The same information with the link to the survey website was sent via e-mail to the departmental leaders who forwarded the e-mail to all the nurses. It was explained to the nurses that only one mode of submission was required and there was no need for duplication of information through both online and paper survey submission. The website was dedicated to provision of information relating to this research and hosted the online survey for those who were willing participate.

The information on the website included: the description of the research and the researcher; the goals of the study; the participants' information sheet, which had the same information as the paper based information sheet; and the survey itself, which was preceded by the consent form.

The researcher visited the hospitals to follow-up on paper surveys and reminded the nurses through their department heads to take part in the data collection. Reminders were in the form of business cards that provided the research detail, interactive non-formal sessions with the nurses during their breaks, and the researcher's announcement via the departmental heads of her availability in the hospital for any questions, concerns or comments on the research. The researcher also made herself available in the hospital transport buses and apartment housing and had interactive sessions with nurses (See Appendix I). On the other hand, the online surveys remained active on the research website for three months. Reminders were sent by e-mail to solicit the highest possible response rates for online surveys.

At the end of the administration period, the paper surveys were returned to the departmental heads that had set a collection box outside their offices. At the end of the day, the secretaries of the departmental heads took the returned surveys and put them in a dedicated file. Finally, the researcher collected the completed surveys from the department heads' offices in the three sampled hospitals. The online survey was downloaded after the closing date and the survey was rendered inactive on the 1st of January 2016.

6.7 DATA ANALYSIS

The rationale for using a quantitative research method of cross-sectional analysis and correlational study was detailed in the aim and objectives of the study, where there was both the need to study nurses from the three hospital settings and to associate the variables that are used in the study. The quantitative data, which entailed both cross-sectional and correlational data were collected and analysed concurrently. The strategy used for this quantitative approach was the use of a survey. This strategy ensured that the administration and data collection period was brief and could be done in a single study.

After the data collection was completed, the received surveys were checked and paper surveys that were not completed were removed before completed surveys were numbered. 418 paper surveys were collected from King Fahad General Hospital (government category) and 186 were collected from King Abdul-Aziz University hospital (another governmental agency). All 54 of the completed online surveys were from the International Medical Centre (private sector). Notably, despite all three hospitals being given both the paper survey and access to the online surveys, only participants from the International Medical Centre attempted the online survey with none of their nurses submitting the paper survey. The total number of surveys received was 659.

After ordering the surveys according to the hospital type, the researcher entered the data into IBM SPSS software, 22 version. The data was then rechecked and cleaned before the start of any analytical process. To begin with, the data was subjected to descriptive analysis in order to summarize and determine the key factors in the distribution of the data collected. The descriptive statistics mainly focused on the central tendency and spread of the data. Therefore, the central tendency was determined by the mean and median while standard deviation and interquartile range was used to determine the spread of the data variables. In addition, frequencies of the data sets were used for the categorical data in the study. Since the research objectives require comparable data, correlation tests were also performed. Concurrently, factor analysis tests were carried out with the intent to check reliability and calculate overall scale scores. The statistical hypothesis testing followed the working hypothesis statements. In the statistical hypothesis testing, a seven-step process was followed.

First the null hypothesis was stated. At this stage, the aim was to conclusively negate the working hypothesis if the available data provided evidence. Secondly, the alternative hypotheses were stated so that if the null hypothesis was rejected then multiple possibilities could be followed. Thereafter, the α was set in the third stage so that a contingency table was constructed with a typical α value of 0.05, with corresponding 95% confidence intervals. In the fourth stage, data was collected and the calculation of the test statistic was done in the fifth stage. In the sixth stage, the construct acceptance or rejection regions were established. Notably, the hypothesis $\mathbf{H_{6a}}$, was tested with One-way

ANCOVA, ANCOVA and PROCESS macro analysis tools. Finally, based on the calculation of the test statistic results and the construct acceptance or rejection region, the final conclusions were drawn.

6.8 ETHICAL ISSUES

In this study, the ethical considerations were ensured by the following collaborators and procedures in the next sections.

Sheffield University

Since King Abdul-Aziz University was among one of the overseas institutions that had already been judged and approved for its robustness in the ethics review procedure, there was no further requirement to get separate ethical approval from Sheffield University.

Ministry of Health of Saudi Arabia

The researcher contacted the Social Responsibility and Research Governance department of the MOH for ethical approval of the study in Saudi Arabian hospitals. The department granted permission to conduct the study after the researcher acquired further approval from the ethics committee and the head of departments in the concerned hospital categories.

6.8.1.1 King Abdul-Aziz University Hospital

The researcher applied for ethical consideration and approval to the Ministry of Higher Education in Saudi Arabia. The approval was processed through the Research Ethics Committee, which facilitated approval of the research from relevant institutions and departments. The project was then registered and granted approval on the 19th of March 2015 through the Biomedical Ethics Research committee (see Appendix F).

6.8.1.2 International Medical Centre

The researcher applied for ethical approval of the study to the Institutional Review Board of the International Medical Centre Research centre. The Institutional Review Board evaluated the research; confirmed the declaration of conflict of interest, the study abstract, the research proposal, the work plan and responsibilities, pharmaceutical and biological hazard; and the

bilingual informed consent. It then provided approval for the study on 20th of April 2015 (see Appendix H).

6.8.1.3 King Fahad General Hospital

The researcher applied for approval from the Medical Research and Studies department using the required documents, which were: the ethics application form, researcher written pledge for providing MOH with a copy of the research, and publication. The approval for the study was granted on 31st of March 2015 (see Appendix G).

In addition, the ethical consideration process reported the following terms of the research:

- Participation in the study was voluntary.
- The questionnaire was anonymous.
- The collected data was used for research purposes only and stored in a password-protected computer.

The research started in October 2014 when the investigator started the study and sought the aforementioned ethical approvals. The investigator performed a pilot study in King Abdul-Aziz University Hospital in March 2015 through April 2015 since the other hospitals had not completed the approval process of the research. Based on the experience of the pilot study, the researcher adjusted the research tools, recruited subjects and distributed the questionnaires to the selected hospitals before beginning the data collection process. The data were collected between September and December 2015.

CHAPTER VII: RESULTS

7.1 INTRODUCTION

This chapter presents the findings of the study performed in the three hospitals in Jeddah: King Abdul-Aziz University Hospital (KAUH), King Fahad Hospital (KFH), and International Medical Centre (IMC) representing Other Governmental Agencies hospitals (OGA), MOH hospitals (MOH), and private sector hospitals, respectively.

This chapter is divided into sections based on the study objectives. It begins with a description of data statistics and the distribution and socio-demographic data analysis before presenting the analysis of the results of each study objective.

Hypotheses

The following sections investigate data based on the study hypotheses; these hypotheses were introduced and discussed with their rationale in chapter 5:

H_{1a}: There is a positive relationship between levels of work-related stress and burnout among hospital nurses in Saudi Arabia.

H_{2a}: There is a difference in levels of work-related stress and burnout among nurses at different types of hospitals in Saudi Arabia: private hospitals nurses experience higher work-related stress and burnout than public hospital nurses.

H_{3a}: There is a negative relationship between levels of work-related stress and job performance; a negative relationship between levels of work-related stress and job satisfaction but a positive relationship with burnout among nurses in Saudi Arabia.

H_{4a}: The direct relationships between levels of work-related stress, burnout, job performance and job satisfaction differ by hospital type. Private hospitals have the strongest direct relationship.

H_{5a}: The relationship between stress and job performance/job satisfaction is mediated by burnout.

H_{6a}: The mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction are moderated by hospital type. Private hospitals have the strongest mediated relationship.

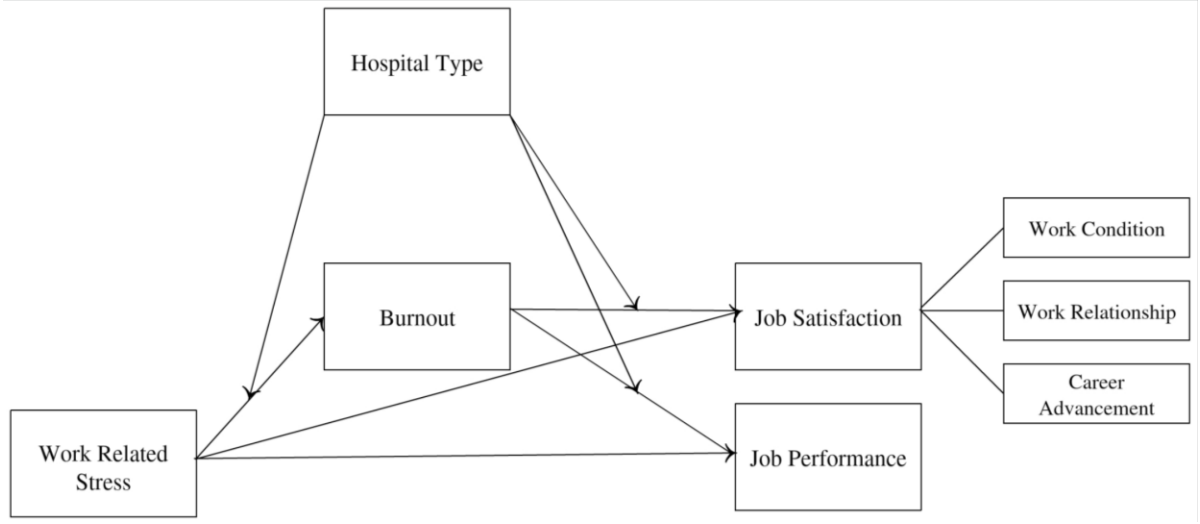


Figure 6: Hypothesized model for the study derived from Hayes Model 4 and 58 with additional subcategories

Analysis Methods

First, the descriptive analysis is presented, followed by tests of the hypotheses. The first objective was achieved using descriptive statistics where the mean and standard deviations were analysed to determine the levels of work-related stress and burnout among hospital nurses working in Saudi Arabia.

Hypothesis $\mathbf{H_{1a}}$ is tested using ANCOVA, with levels of work-related stress as independent variable and burnout as dependent variable, controlling for gender, nationality, experience, employment status, age and years practiced in the nursing profession.

Hypothesis $\mathbf{H_{2a}}$ is tested using ANCOVA, with type of hospital as the independent variable and stress or burnout as dependent variables, controlling for gender, nationality, experience, employment status, age and years practiced in this profession.

Hypothesis $\mathbf{H_{3a}}$ is tested using ANCOVA to determine whether there is a statistically significant difference between work-related stress on the dependent variables with controls for hospital type, citizenship, gender, employments status, age and years practiced in this profession. Later, an ANCOVA is conducted to determine whether there is a statistically

significant difference between burnout as a dependent variable when controlling for hospital type, citizenship, gender, employment status, age and years practised in this profession.

Furthermore, **H_{4a}** assesses the direct relationships between levels of work-related stress, burnout, job performance and job satisfaction and how they differ by hospital type. This was tested using ANCOVA to determine whether there is a statistically significant difference between work-related stress on the dependent variables with controls for hospital type, citizenship, gender, employment status, age and years practiced in this profession with the interaction included.

Hypothesis **H_{5a}** is tested using the PROCESS macro (Hayes, 2013) to determine whether there is a mediated relationship between stress and job satisfaction/ performance through burnout. It provides data reporting which hospital types had a mediation effect and those that did not. The PROCESS macro used Model 4 (see Appendix J) with statistical controls for hospital type, years of practice in the profession employment status, age, gender, and citizenship to determine the mediation.

Hypothesis **H_{6a}** is tested using PROCESS to test whether the relationships in the previously mentioned objectives differ by hospital type as modelled by PROCESS macro using both Models 58 (see Appendix K) and 75 (see Appendix L). The final section of the chapter indicates the recommendation of policies and operational guidelines that could improve performance and reduce work-related stress among nurses working in hospitals of Saudi Arabia.

7.2 LEVELS OF WORK-RELATED STRESS AND BURNOUT BY HOSPITAL TYPE

Descriptive Statistics

This study evaluates the socio-demographic characteristics of the study population and relates these to the study objectives. Generally, the socio-demographic variables include: the hospital

types (KAUH, KFH and IMC), gender (male or female), age and nationality of the nurses (Saudi Arabian or non-Saudi Arabia), their employment status (full-time, part-time, or trainee) and their experience in the profession (years of service). The understanding of these socio-demographic categories and their relationship with the objectives of the study are fundamental in the analysis.

In the total sample of 567 nurses, KFH had the highest number of respondents (359) followed by KAUH (164) and IMC (44) respondents. The lower responses from IMC are considered to be due to the hospital policy that restricts surveys to online surveys only hence reducing the effectiveness of manual follow-up of the unanswered respondents. Out of all the respondents, 62 were male while the remaining 505 were female. There were 159 Saudi nurses and 408 non-Saudi nurses. The employment status breakdown was: 552 full-time nurses; 13 part-time nurses; and 2 trainee nurses.

Means and Standard Deviations

Descriptive statistics for key study variables by hospital type

	KFH			***KAUH***			***IMC***		
	M	***SD***	***Skew***	***M***	***SD***	***Skew***	***M***	***SD***	***Skew***
Work-Related Stress	2.82	0.73	0.07	2.68	0.65	0.16	2.72	0.75	-0.08
Burnout	2.50	0.37	0.13	2.52	0.32	-0.08	2.64	0.51	0.11
Job Satisfaction Work Conditions	3.03	0.84	-0.37	3.00	0.64	-0.34	2.75	0.88	0.42
Job Satisfaction Work Relationship	3.41	0.85	-0.54	3.60	0.64	-0.42	2.50	0.75	0.83
Job Satisfaction Career Advancement	3.12	0.79	-0.34	3.33	0.65	-0.59	2.72	0.88	0.64
Job Performance	3.05	0.61	-0.67	3.35	0.49	-0.89	3.39	0.44	0.04

Table 20: Descriptive statistics for the study variables by hospital type.

The descriptive statistics above are limited to the basic computations and results of this basic ststistics are not used as final evidence for the rating of the variables in the study.Additional comprehensive statistics that followed in the study provide a basis for the conclusion and final findings of the study.

The report from the mean and standard deviation indicated in table 20 shows that there is a large negative skew in the job performance variable. Based on the work-related stress scale, KFH reported the highest mean (2.82) among the three hospitals. On the burnout scale, IMC

reported the highest mean (2.64), while for the job performance scale, IMC recorded the highest mean (3.39) compared to the other two hospitals. Based on the job satisfaction with work conditions scale, KFH reported the highest mean (3.03) while KAUH recorded the highest mean for both job satisfaction with work relationships (3.60) and career advancement (3.33).

On the contrary, the lowest mean based on the work-related stress scale was reported by KAUH (2.68). On the burnout scale, KFH reported the lowest mean (2.50), while for job performance scale, KFH recorded the lowest mean (3.03) compared to the other two hospitals. Based on the job satisfaction with work conditions, work relationship and career advancement scales, IMC recorded the lowest means of 2.75, 2.50, and 2.72, respectively.

King Fahad Hospital nurses had the highest mean (3.41) in job satisfaction with work relationships with a standard deviation of 0.85 which was also the highest among the tested variables as compared to other study variables.. Therefore, these nurses had the most varied views on job satisfaction with work relationships. The KFH nurses reported the lowest mean of 2.50 for burnout with a standard deviation of 0.37, which was the lowest among all the variables, hence, KFH nurses had the least varied responses to the burnout category. As with the full sample, all four variables were approximately normally distributed. The job performance variable had a slight non-significant negative skew.

Similarly, King Abdul-Aziz University hospital nurses also reported the highest mean of 3.60 in job satisfaction with work relationships and the lowest mean (2.52) for burnout as compared to other study variables. The highest standard deviation was in job satisfaction with career advancement while the lowest standard deviation was with burnout with a score of 0.65 and 0.32, respectively. Hence, KAUH nurses' responses demonstrated the least variability for burnout and the most varied responses for job satisfaction with career advancement. As with the full sample, all four variables were approximately normally distributed. The job performance variable had a slight non-significant negative skew.

The International Medical Centre nurses had the highest mean of 3.39 in job performance, and the lowest mean of 2.50 in job satisfaction with work relationships as compared to other study variables. Notably, job satisfaction with both career advancement and work conditions scored the highest standard deviation of 0.88 while job performance reported the lowest standard deviation of 0.44. Thus, IMC nurses reported the least varied responses for job performance and the most varied responses for job satisfaction with both career advancement and work conditions. As with the full sample, all four variables were approximately normally distributed. The work-related stress variable had a slight non-significant negative skew.

Summary distribution of variables for the full sample:

Study Variables	***M***	***SD***	***Skew***
Work-Related Stress	2.77	.71	0.10
Burnout	2.51	.37	0.16
Job Satisfaction Work Conditions	3.00	.79	-0.30
Job Satisfaction Work Relationship	3.40	.83	-0.52
Job Satisfaction Career Advancement	3.15	.77	-0.38
Job Performance	3.16	.59	-0.78

Table 21: Full sample distribution.

Generally, the highest total mean among all variables was reported for job satisfaction with work relationships with a score of 3.40 while burnout was the lowest in total mean with a score of 2.51. Similarly, job satisfaction with work relationships and burnout scored the highest and lowest standard deviation of 0.83 and 0.37, respectively. The job performance variable had a slight non-significant negative skew.

Comparing means across hospital types

Work-Related Stress

As shown in table 20, the comparative mean of work-related stress among hospital nurses in the three hospitals was varied. The highest mean score among the hospital was 2.82 and the lowest was 2.68 for King Fahad General Hospital and King Abdul-Aziz University Hospital, respectively.

In addition, one-way ANCOVA estimates and pairwise comparisons presented in tables 19 and 20, respectively were studied to determine whether there was a statistically significant difference between levels of stress and burnout in hospitals controlling for age and years practiced in this profession.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	3.00a	0.18	2.65	3.35
KAUH	3.03a	0.19	2.66	3.39
IMC	3.03a	0.21	2.62	3.44

Table 22: Work-related stress estimates.

a. covariates appearing in the model are considered at the following values: age = 1.95, years practiced this profession = 2.40.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	-0.03	0.07	1.00	-0.21	0.15
	IMC	-0.03	0.12	1.00	-0.31	0.24
KAUH	**KFH**	0.03	0.07	1.00	-0.15	0.21
	IMC	0.00	0.12	1.00	-0.29	0.28
IMC	**KFH**	0.03	0.12	1.00	-0.24	0.31
	KAUH	0.00	0.12	1.00	-0.28	0.29

Table 23: Work-related stress pairwise comparisons.

a. Adjustment for multiple comparisons using Bonferroni correction.

The pairwise comparisons of estimated marginal mean differences revealed that level of work-related stress among nurses was highest in IMC, KAUH, and KFH, respectively. The mean differences between IMC and KAUH was .00, IMC and KFH was .03 while KAUH and KFH was .003. The pairwise differences are non-significant and therefore do not directly support the level of work-related stress for hypothesis **H_{2a}:** There is a difference in levels of work-related stress and burnout among nurses at different types of hospitals in Saudi Arabia: private hospital nurses experience higher work-related stress and burnout than public hospital nurses.

Burnout

As indicated in table 20, the comparative mean level of burnout among hospital nurses in the three hospitals was varied . The highest mean score among the hospitals was 2.67 and the lowest was 2.50 for International Medical Centre nurses and King Fahad General Hospital

nurses, respectively. Therefore, International Medical Centre nurses experienced slightly higher levels of burnout compared to nurses in the other two hospitals.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	2.50a	0.10	2.31	2.69
KAUH	2.55a	0.10	2.35	2.75
IMC	2.67a	0.11	2.45	2.90

Table 24: Burnout estimates.

a. Covariates appearing in the model are considered at the following values: AGE = 1.95, YEARS PRACTICE IN THIS PROFESSION = 2.40.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	-0.05	0.04	0.77	-0.14	0.05
	IMC	-0.17*	0.06	0.02	-0.33	-0.02
KAUH	**KFH**	0.05	0.04	0.77	-0.05	0.14
	IMC	-0.13	0.07	0.17	-0.29	0.03
IMC	**KFH**	0.17*	0.06	0.02	0.02	0.33
	KAUH	0.13	0.07	0.17	-0.03	0.29

Table 25: Burnout Pairwise Comparisons

a. Adjustment for multiple comparisons using Bonferroni correction.

The pairwise comparisons of estimated marginal mean differences revealed that level of burnout among nurses was highest in IMC followed by KAUH and KFH, respectively. The mean difference between IMC and KAUH was .13, .17 for IMC and KFH while for KAUH and KFH it was .04. IMC hospital nurses recorded a significantly higher level of burnout ($p = 0.02$) compared with the level of burnout in KFH nurses, while other differences were not statistically significant. Thus, a significant pairwise difference was only observed between KFH and IMC hence this partially supported the level of burnout considered in hypothesis **H_{2a}**. There appears to be a difference in levels of work-related stress and burnout among nurses in different types of hospitals in Saudi Arabia: private hospital nurses experience higher work-related stress and burnout than nurses in public hospitals.

Job Satisfaction

Based on table 20, the mean score for job satisfaction with working conditions among hospital nurses in the three hospitals was varied . The highest mean score among the hospitals was 3.03 and the lowest was 2.75 for King Fahad Hospital and International Medical Centre nurses,

respectively. Therefore, King Fahad Hospital nurses experienced slightly higher levels of job satisfaction with working conditions compared to nurses in the other two hospital types.

As indicated in table 26 below, the comparative mean showed some differences with regards to job satisfaction with working conditions among hospital nurses in the three hospital types. The highest mean score among the hospitals was 2.62 and the lowest was 2.22 for King Fahad Hospital nurses and International Medical Centre nurses, respectively. Therefore, King Fahad Hospital nurses experienced slightly higher levels of job satisfaction with working conditions compared to nurses in the other two hospitals.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	2.62 [a]	0.20	2.22	3.01
KAUH	2.49 [a]	0.21	2.08	2.90
IMC	2.23 [a]	0.24	1.76	2.69

Table 26: Job satisfaction with working condition estimates.
a. Covariates appearing in the model are considered at the following values: AGE = 1.96, YEARS PRACTICE IN THIS PROFESSION = 2.40, Work Related Stress = 2.7923.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	0.12	.08	.42	-.08	0.33
	IMC	0.39*	.14	.01	.06	0.71
KAUH	**KFH**	-0.12	.08	.42	-.33	0.08
	IMC	0.26	.14	.17	-.07	0.60
IMC	**KFH**	-.39*	.14	.01	-.71	-0.06
	KAUH	-.26	.14	.17	-.60	0.07

Table 27: Pairwise comparisons of job satisfaction with working conditions.
*Based on estimated marginal means *. The mean difference is significant at the 0.05 level.*
b. Adjustment for multiple comparisons was made using Bonferroni correction.

The pairwise comparisons of estimated marginal mean differences in table 27revealed that the level of job satisfaction with working conditions among nurses was highest in KFH, followed by KAUH and IMC, respectively. The mean difference between KFH and KAUH was .12, .39 for KFH and IMC, while it was .26 for KAUH and IMC. KFH nurses recorded a significantly higher level of job satisfaction with working conditions ($p < .01$) compared with the level of job satisfaction with working conditions in IMC nurses, while the other differences were not statistically significant.

Based on table 20, the mean score of job satisfaction with working relationships among hospital nurses in the three hospitals was varied . The highest mean score among the hospitals was 3.60 and the lowest was 2.50 for King Abdul-Aziz University Hospital and International Medical Centre nurses, respectively. Therefore, King Abdul-Aziz University Hospital nurses experienced slightly higher job satisfaction with their working relationships compared with the nurses in the other two hospital types.

As indicated in table 28, the comparative mean for job satisfaction with workplace relationships among hospital nurses in the three hospital types was varied . The highest mean score among the hospitals was 3.22 for both KFH and KAUH while IMC reported a lower estimated mean of 2.11. Therefore, IMC nurses experienced the lowest levels of job satisfaction with workplace relationships compared to nurses in the other two hospital types.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	3.22[a]	0.19	2.84	3.60
KAUH	3.22[a]	0.20	2.82	3.62
IMC	2.11[a]	0.23	1.67	2.56

Table 28: Job satisfaction with workplace relationships pairwise comparisons.
a. Covariates appearing in the model are considered at the following values: AGE = 1.96, YEARS PRACTICE IN THIS PROFESSION = 2.41, Work Related Stress = 2.79.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	0.00	0.08	1.00	-0.20	0.20
	IMC	1.11*	0.13	0.00	0.79	1.42
KAUH	**KFH**	0.00	0.08	1.00	-0.20	0.20
	IMC	1.11*	0.13	0.00	0.78	1.43
IMC	**KFH**	-1.11*	0.13	0.00	-1.42	-0.79
	KAUH	-1.11*	0.13	0.00	-1.43	-0.78

Table 29: Job satisfaction with workplace relationships pairwise comparisons.
*Based on estimated marginal means *. The mean difference is significant at the 0.05 level.*
b. Adjustment for multiple comparisons was made using Bonferroni's correction.

The pairwise comparisons of estimated marginal mean differences in table 29 revealed that level of job satisfaction with workplace relationships among nurses was highest in both KFH and KAUH compared with IMC nurses. The mean difference between KFH and IMC nurses was 1.11, which was the same as KAUH and IMC, while for KFH and KAUH nurses, the difference was highly significant ($p < .01$). KFH and KAUH hospital nurses recorded the same

level of job satisfaction with workplace relationships (P < .01), which is higher compared to the level of job satisfaction with workplace relationships in IMC nurses.

Similarly, in table 20, the mean score for job satisfaction with career advancement among hospital nurses in the three hospitals was varied . The highest mean score among nurses in the hospitals was 3.33 and the lowest was 2.72 for King Abdul-Aziz University Hospital and International Medical Centre, respectively.

As indicated in table 30 below, the comparative mean score for job satisfaction with career advancement among hospital nurses in the three hospitals was varied . The highest mean score among the hospital nurses was 2.91 and the lowest was 2.32 for KAUH and IMC, respectively. Therefore, KAUH nurses experienced slightly higher levels of job satisfaction with career advancement compared with nurses in the other two hospitals.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	2.85 [a]	0.19	2.49	3.22
KAUH	2.91 [a]	0.20	2.52	3.29
IMC	2.32 [a]	0.22	1.89	2.75

Table 30: Job satisfaction with career advancement estimates.
a. Covariates appearing in the model are considered at the following values: AGE = 1.96, YEARS PRACTICE IN THIS PROFESSION = 2.40, Work Related Stress = 2.7923.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig. [a]	95% Confidence Interval for Difference [a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	-0.05	0.08	1.00	-0.24	0.14
	IMC	.54*	0.13	0.00	0.23	0.84
KAUH	**KFH**	0.05	0.08	1.00	-0.14	0.24
	IMC	.59*	0.13	0.00	0.28	0.90
IMC	**KFH**	-.54*	0.13	0.00	-0.84	-0.23
	KAUH	-.59*	0.13	0.00	-0.90	-0.28

Table 31: Job satisfaction with career advancement pairwise comparisons.
*Based on estimated marginal means *. The mean difference is significant at the 0.05 level.*
b. Adjustment for multiple comparisons was made using Bonferroni correction.

The pairwise comparisons of estimated marginal means difference in table 31 revealed that the level of job satisfaction with career advancement among nurses was highest in both KAUH and KFH compared with IMC nurses. KFH nurses had significantly higher levels of job satisfaction with career advancement than IMC nurses. Similarly, KAUH nurses also recorded a higher level of job satisfaction with career advancement compared with IMC nurses.

Therefore, King Abdul-Aziz University Hospital nurses experienced slightly higher levels of job satisfaction with career advancement compared with nurses from the other two hospital types. Generally, nurses in the International Medical Centre hospital were significantly less satisfied with their jobs than those in the King Fahad and King Abdul-Aziz University hospitals.

Job Performance

The comparative mean as shown in table 20 shows that the mean score for job performance among hospital nurses in the three hospitals was varied . The highest mean score among the hospitals was 3.39 and the lowest was 3.05 for International Medical Centre and King Fahad Hospital nurses, respectively.

As indicated in table 32, the comparative mean for job performance among hospital nurses in the three hospitals was varied . The highest mean score among the hospitals was 2.61 and the lowest score was 2.34 for IMC nurses and KFH nurses, respectively. Therefore, IMC nurses experienced slightly higher levels of job performance compared with nurses in the other two hospital types.

HOSPITAL NAME	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
KFH	2.34a	0.18	1.97	2.70
KAUH	2.58a	0.19	2.21	2.95
IMC	2.61a	0.20	2.21	3.01

Table 32: Job performance estimates

a. Covariates appearing in the model are considered at the following values: AGE = 1.96, YEARS PRACTICE IN THIS PROFESSION = 2.41, Work Related Stress = 2.7910.

HOSPITAL NAME	HOSPITAL NAME	Mean Difference	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
KFH	**KAUH**	-0.25*	0.06	0.00	-0.39	-0.11
	IMC	-0.27*	0.09	0.01	-0.50	-0.05
KAUH	**KFH**	0.25*	0.06	0.00	0.11	0.39
	IMC	-0.03	0.10	1.00	-0.26	0.20
IMC	**KFH**	0.27*	0.09	0.01	0.05	0.50
	KAUH	0.03	0.10	1.00	-0.20	0.26

Table 33: Job performance pairwise comparisons

Based on estimated marginal means
**. The mean difference is significant at the 0.05 level. b. Adjustment for multiple comparisons were made using Bonferroni correction.*

The pairwise comparisons of estimated marginal mean differences in table 33 revealed that the level of job performance among nurses was highest in IMC, followed by KAUH and KFH, respectively. The mean difference between KAUH and KFH was .24, .27 for IMC and KFH, while for IMC and KAUH it was .03. KAUH and IMC hospital nurses recorded a significantly higher level of job performance (p = .00) compared with the level of job performance in KFH nurses.

Therefore, International Medical Centre nurses were rated as having the highest score for job performance compared with nurses from the other two hospital types. The job performance rating for nurses in the King Fahad Hospital was significantly lower than that of the nurses in the King Abdul-Aziz University and International Medical Centre hospitals.

7.3 Relationship Between All the Study Variables

Correlations of variables in individual hospital type

King Fahad Hospital

Study Variables	*M*	*SD*	*1*	*2*	*3*	*4*	*5*
1. Work-Related Stress	2.82	0.73					
2. Burnout	2.50	0.37	0.15**				
3. Job Satisfaction Work Condition	3.03	0.84	-0.25**	-0.20**			
4. Job Satisfaction Work Relationship	3.41	0.85	-0.28**	-0.16**	0.65**		
5. Job Satisfaction Career Advancement	3.12	0.79	-0.25**	-0.16**	0.64**	0.63**	
6. Job Performance	3.05	0.61	-0.22**	-0.15**	0.17**	0.31**	0.15**

Table 34: King Fahad Hospital correlations of variables.
***. Correlation is significant at the 0.01 level (2-tailed) and n = between 395 and 413*

For King Fahad Hospital nurses, when the Pearson Correlation test was used, (Table 34) all the variables were significantly correlated with each other. Work-related stress was positively associated with burnout and negatively associated with the other outcome measures namely job satisfaction and job performance. Both burnout and work-related stress had weak negative correlations with job performance and job satisfaction among KFH nurses.

King Abdul-Aziz University Hospital

Study Variables	*M*	*SD*		Pearson Correlation Test Sig. (2-tailed)				
				1	*2*	*3*	*4*	*5*
1. Work-Related Stress	2.68	0.65						
2. Burnout	2.52	0.32		0.27**				
3. Job Satisfaction Work Condition	3.00	0.64		-0.10	-0.21**			
4. Job Satisfaction Work Relationship	3.60	0.64		-0.19*	-0.22**	0.51**		
5. Job Satisfaction Career Advancement	3.33	0.65		-0.20**	-0.12	0.61**	0.62**	
6. Job Performance	3.35	0.49		-0.04	-0.11	0.09	0.13	0.06

Table 35: King Abdul-Aziz University correlation of variables.
***. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed) and* n = between 177 and 182.

Based on the Pearson Correlation test for data in table 35, as with King Abdul-Aziz University nurses, work-related stress was positively correlated with burnout but negatively associated with the remaining variables. Burnout was negatively correlated with all variables. Job satisfaction and job performance had a positive correlation with other variables except for burnout and work-related stress.

International Medical Centre

Study Variables	*M*	*SD*	*1*	*2*	*3*	*4*	*5*
1. Work-Related Stress	2.72	0.75					
2. Burnout	2.64	0.51	0.58**				
3. Job Satisfaction Work Condition	2.75	0.88	0.52**	0.17			
4. Job Satisfaction Work Relationship	2.50	0.75	0.45**	0.22	0.81**		
5. Job Satisfaction Career Advancement	2.72	0.88	0.42**	0.25	0.82**	0.87**	
6. Job Performance	3.39	0.44	-0.21	-0.20	-0.19	-0.19	-0.24

Table 36: International Medical Centre hospital correlation of variables.
***. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed) and* n = between 40 and 46.

In the International Medical Centre, the Pearson Correlation test depicted that stress was significantly related to burnout. Surprisingly, stress was positively related to job satisfaction, meaning that nurses who were more stressed were actually more satisfied with their jobs. Notably, there was a weak negative correlation between job performance of the nurses and the remaining variables.

In conclusion, even though these were not individual results of the hypothesis tests, stress appeared to be beneficial to job satisfaction in the IMC hospital and burnout was not directly associated with job satisfaction in contrast to nurses in KFH and KAUH. The relationship between stress and job performance, although not significant in IMC, was in the same general direction and magnitude as what was observed in nurses at KFH and KAUH. In this respect, IMC nurses seem to follow the same general pattern towards the variables as those in the KFH and KAUH.

Full Sample Correlations

Study Variables	*1*	*2*	*3*	*4*	*5*
1. Work-Related Stress					
2. Burnout	0.22**				
3. Job Satisfaction Work Condition	-0.15**	-0.17**			
4. Job Satisfaction Work Relationship	-0.20**	-0.16**	0.62**		
5. Job Satisfaction Career Advancement	-0.18**	-0.12**	0.64**	0.66**	
6. Job Performance	-0.20**	-0.12**	0.11**	0.23**	0.11**

Table 37: Full sample correlation

***. Correlation is significant at the 0.01 level (2-tailed) and n = between 612 and 642.*

In summary, all of the variables correlated with each other. Burnout and work-related stress had a weakly positive correlation. Whereas, both burnout and work-related stress had a small negative correlation with job performance and satisfaction.

Relationships between stress and burnout

In this study, one-way analysis of covariance (ANCOVA) was used to test for significance and the relationship of work-related stress on burnout, with controls for hospital type, citizenship, gender, employment status, age, and years practiced in this profession. Based on the parameter estimates for work-related stress and burnout summarized in table 38 below, when the level of work-related stress increased by one unit, the level of burnout increased by an average of 0.12 units. Therefore, there was a positive relationship between levels of work-related stress and the level of burnout among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of work-related stress on burnout after controlling for Hospital Type, $F(2,540) = 3.72$, $p = 0.025$.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	-0.17 (-0.29 - -0.05)	0.01
Hospital Type KAUH	-0.13 (-0.26 - 0.00)	0.05
Citizenship: Saudi	-0.03 (-0.11 - 0.05)	0.50
Gender: Male	0.02 (-0.09 - 0.12)	0.78
Employment Status Full-Time	0.05 (-0.47 - 0.58)	0.84
Employment Status Part-Time	0.07 (-0.49 - 0.63)	0.81
Age (Years)	-0.01 (-0.06 - 0.03)	0.59
Years practiced in the profession	-0.01 (-0.05 - 0.02)	0.48
Stress	0.12 (0.08 - 0.16)	0.00

Table 38: Parameter estimates for work-related stress and burnout.

Note: Reference category for hospital type is IMC

The R^2 for the model was .06, indicating that 6.3% of the variance in nurse burnout could be explained by these predictors. Stress was a significant predictor ($p < .01$). This supports the hypothesis, **H_{1a}**: There is a positive relationship between levels of work-related stress and burnout among hospital nurses in Saudi Arabia. Based on the parameter estimates for work-related stress and job satisfaction with working conditions summarized in table 39 below, when the level of work-related stress increased by one unit, the level of job satisfaction with working conditions decreased by an average of 0.11 units. Therefore, there was a negative relationship between levels of work-related stress and job satisfaction with working conditions among nurses at the sampled hospitals in Saudi Arabia.

To determine the relationship between work-related stress and the dependent variables, a One-way ANCOVA was conducted to determine whether there was a statistically significant difference between work-related stress on the dependent variables with controls for hospital type, citizenship, gender, employment status, age and years practiced in this profession. Notably, there was a significant effect of work-related stress on job satisfaction with working conditions after controlling for hospital type, F (2-544) = 4,391, p = 0.013, and citizenship F (1-544) = 9,236, p = 0.002.

Parameter	**Coefficient (95% CI)**	**p-value**
Hospital Type KFH	0.39 (0.12 - 0.65)	0.00
Hospital Type KAUH	0.26 (-0.01 - 0.54)	0.06
Citizenship: Saudi	-0.27 (-0.44 - -0.09)	0.00
Gender: Male	0.10 (-0.13 - 0.33)	0.39
Employment Status Full-Time	1.22 (0.11 - 2.33)	0.03
Employment Status Part-Time	1.15 (-0.03 - 2.33)	0.06
Age (Years)	-0.07 (-0.16 - 0.03)	0.18
Years practiced in the profession	0.06 (-0.01 - 0.14)	0.11
Stress	-0.11(-0.21 - -0.02)	0.02

Table 39**:** Parameter estimates for work-related stress and job satisfaction (working conditions).
Note: Reference category for hospital type is IMC

The R^2 for the model is 0.05, indicating that 5% of the variance in nurse's job satisfaction in terms of working conditions was explained by these predictors. Based on the parameter estimates for work-related stress and job satisfaction with workplace relationships summarized in table 40 below, it was noted that when the level of work-related stress increased by one unit,

the level of job satisfaction with workplace relationships decreased by an average of 0.17 units. Therefore, there was a negative relationship between levels of work-related stress and job satisfaction with workplace relationships among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of work-related stress on job satisfaction with workplace relationships after controlling for Hospital Type, $F(2\text{-}541) = 38.63, p < .01$, citizenship $F(1\text{-}541) = 20.44, p < .01$, age $F(1\text{-}541) = 7.247, p < .01$, and years practiced in the profession $F(2\text{-}541) = 11.17, p < .01$.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	1.11(0.85-1.36)	0.00
Hospital Type KAUH	1.11(0.84-1.37)	0.00
Citizenship: Saudi	-0.38(-0.55--0.22)	0.00
Gender: Male	0.00(-0.22-0.22)	0.99
Employment Status Full-Time	0.57(-0.50-1.65)	0.29
Employment Status Part-Time	0.58(-0.56-1.72)	0.32
Age (Years)	-0.13(-0.22--0.04)	0.01
Years practiced in the profession	0.13(0.05-0.20)	0.00
Stress	-0.17(-0.27--0.08)	0.00

Table 40: Parameter estimates for work-related stress and job satisfaction (workplace relationships).
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.193, indicating that 19.3% of the variance in nurses' job satisfaction with workplace relationships was explained by these predictors. Based on the parameter estimates for work-related stress and job satisfaction with career advancement summarized in table 41 below, when the level of work-related stress increased by one unit, the level of job satisfaction with career advancement decreased by an average of 0.13 units. Therefore, there was a negative relationship between levels of work-related stress and job satisfaction with career advancement among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of work-related stress on job satisfaction with career advancement after controlling for Hospital Type, $F(2\text{-}542) = 10.94, p < .01$, and citizenship $F(1\text{-}542) = 26.66, p < .01$.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	0.54(0.29-0.78)	0.00
Hospital Type KAUH	0.59(0.34-0.84)	0.00
Citizenship: Saudi	-0.42(-0.58--0.26)	0.00
Gender: Male	0.04(-0.17-0.25)	0.71
Employment Status Full-Time	0.92(-0.11-1.94)	0.08
Employment Status Part-Time	1.14(0.05-2.24)	0.04
Age (Years)	-0.07(-0.16-0.02)	0.14
Years practiced in the profession	0.07(-0.01- 0.14)	0.07
Stress	-0.13(-0.22- -0.04)	0.00

Table 41: Parameter estimates for work-related stress and job satisfaction (career advancement).
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.124, indicating that 12.4% of the variance in nurses' job satisfaction with career advancement was explained by these predictors. Based on the parameter estimates for work-related stress and job performance summarized in table 42 below, when the level of work-related stress increased by one unit, the level of job performance decreased by an average of 0.12 units. Therefore, there was a negative relationship between levels of work-related stress and job performance among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of work-related stress on job performance after controlling for hospital type, $F(2\text{-}539) = 11.04, p < .01$, citizenship $F(1\text{-}539) = 4.00, p = 0.05$, and employment status $F(2\text{-}539) = 6.72, p < .01$.

Parameter	Coefficient (95% CI)	p-value
Intercept	1.96(0.87-3.04)	0.00
Hospital Type KFH	-0.27(-0.46--0.09)	0.00
Hospital Type KAUH	-0.03(-0.22-0.16)	0.78
Citizenship: Saudi	-0.12(-0.24-0.00)	0.05
Gender: Male	-0.13(-0.28-0.02)	0.09
Employment Status Full-Time	1.83(0.78-2.88)	0.00
Employment Status Part-Time	1.62(0.54-2.70)	0.00
Age (Years)	-0.06(-0.12-0.01)	0.09
Years practiced in the profession	0.03(-0.02-0.09)	0.20
Stress	-0.12(-0.19--0.06)	0.00

Table 42: Parameter estimates for work-related stress and job performance.
Note: Reference category for hospital type is IMC

The R^2 for the model is 0.152, indicating that 15.2% of the variance in nurses' job performance was explained by these predictors. Based on the parameter estimates for burnout and job satisfaction with working conditions summarized in table 43 below, when the level of burnout

increased by one unit, the level of job satisfaction with working conditions decreased by an average of 0.32 units. Therefore, there was a negative relationship between levels of burnout and job satisfaction with working conditions among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of burnout on job satisfaction with working conditions after controlling for hospital type, F (2-544) = 3.37, p = 0.035, and citizenship F (1-544) = 12.845, p < .01.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	0.34(0.07-0.60)	0.01
Hospital Type KAUH	0.22(-0.05-0.49)	0.11
Citizenship: Saudi	-0.30(-0.47--0.14)	0.00
Gender: Male	0.11(-0.12-0.33)	0.34
Employment Status Full-Time	1.27(0.17-2.37)	0.02
Employment Status Part-Time	1.20(0.02-2.37)	0.05
Age (Years)	-0.07(-0.16-0.03)	0.17
Years practiced in the profession	0.06(-0.02-0.13)	0.14
Burnout	-0.32(-0.49--0.15)	0.00

Table 43: Parameter estimates for burnout and job satisfaction (working conditions).
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.066, indicating that 6.6% of the variance in nurses' job satisfaction in terms of working conditions was explained by these predictors. Based on the parameter estimates for burnout and job satisfaction with workplace relationships summarized in table 44 below, when the level of burnout increased by one unit the level of job satisfaction with workplace relationships decreased by an average of 0.30 units. Therefore, there was a negative relationship between levels of burnout and job satisfaction with workplace relationships among nurses at the sampled hospitals in Saudi Arabia. Notably, there was a significant effect of burnout on job satisfaction with workplace relationships after controlling for hospital type, F (2-541) = 35.01,p < .01, citizenship F (1-541) = 29.09, p < .01, and years practiced in this profession F (1-541) = 10.56, p < .01.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	1.06(0.80-1.32)	0.00
Hospital Type KAUH	1.06(0.80-1.33)	0.00
Citizenship: Saudi	-0.45(-0.61--0.28)	0.00
Gender: Male	0.00(-0.22-0.22)	0.98
Employment Status Full-Time	0.64(-0.44-1.71)	0.25
Employment Status Part-Time	0.64(-0.50-1.78)	0.27
Age (Years)	-0.13(-0.22--0.03)	0.01
Years practiced in the profession	0.12(0.05-0.20)	0.00
Burnout	-0.30(-0.47--0.13)	0.00

Table 44: Parameter estimates for burnout and job satisfaction (workplace relationships).
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.190, indicating that 19.0% of the variance in nurses' job satisfaction in terms of workplace relationships was explained by these predictors. Based on the parameter estimates for burnout and job satisfaction with career advancement summarized in table 45 below, it was noted that when the level of burnout increased by one unit the level of job satisfaction with career advancement decreased by an average of 0.20 units. Therefore, there was a negative relationship between levels of burnout and job satisfaction with career advancement among nurses at the sampled hospitals in Saudi Arabia. Of particular interest, there was a significant effect of burnout on job satisfaction with career advancement after controlling for Hospital Type, $F(2\text{-}542) = 9.74, p < .01$, and citizenship $F(1\text{-}542) = 34.26$, $p < .01$.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	0.51(0.26-0.75)	0.00
Hospital Type KAUH	0.56(0.31-0.81)	0.00
Citizenship: Saudi	-0.47(-0.62--0.31)	0.00
Gender: Male	0.05(-0.16-0.26)	0.64
Employment Status Full-Time	0.97(-0.06-2.00)	0.07
Employment Status Part-Time	1.19(0.10-2.29)	0.03
Age (Years)	-0.07(-0.16-0.02)	0.15
Years practiced in the profession	0.06(-0.01-0.13)	0.08
Burnout	-0.20(-0.36--0.03)	0.02

Table 45: Parameter estimates for burnout and job satisfaction (career advancement)
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.119, indicating that 11.9% of the variance in nurse's job satisfaction with career advancement was explained by these predictors. Based on the

parameter estimates for burnout and job performance summarized in table 46 below, when the level of burnout increased by one unit, the level of job performance decreased by an average of 0.19 units. Therefore, there was a negative relationship between levels of burnout and job performance among nurses at the sampled hospitals in Saudi Arabia. There was a significant effect of burnout on job performance after controlling for hospital type, F (2-539) = 12.13, p < .01, citizenship F (1-539) = 7.57, p = 0.05, and employment status F (2-539) = 6.87, p < .01.

Parameter	Coefficient (95% CI)	p-value
Hospital Type KFH	-0.31(-0.49--0.12)	0.00
Hospital Type KAUH	-0.05(-0.24-0.14)	0.58
Citizenship: Saudi	-0.16(-0.28--0.05)	0.01
Gender: Male	-0.12(-0.27-0.03)	0.12
Employment Status Full-Time	1.86(0.80-2.91)	0.00
Employment Status Part-Time	1.64(0.56-2.73)	0.00
Age (Years)	-0.06(-0.12-0.01)	0.09
Years practiced in the profession	0.03(-0.02-0.08)	0.24
Burnout	-0.19(-0.31--0.07)	0.00

Table 46: Parameter estimates for burnout and job performance.
Note: Reference category for hospital type is IMC

The R^2 for the model was 0.146, indicating that 14.6% of the variance in nurses' job performance was explained by these predictors. Evidently, the results confirm the acceptance of the two study hypotheses: **H_{1a}:** There is a positive relationship between levels of work-related stress and burnout among hospital nurses in Saudi Arabia and **H_{3a}:** There is a negative relationship between levels of work-related stress, job performance and job satisfaction but a positive relationship with burnout among nurses at the sampled hospitals in Saudi Arabia. However, this study also partially confirms hypothesis **H_{2a}**: There is a difference in levels of work-related stress and burnout among nurses at different types of hospitals in Saudi Arabia: private hospital nurses experience higher work-related stress and burnout than public hospital nurses.

7.4 Mediated Relationship Between Stress and Performance/Job Satisfaction through Burnout

Mediation Analysis

Mediated analysis in this study uses statistical analysis based on the multicategorical

and multivariable conditions in the estimation of direct and indirect effects of a combination of conditions (Andrew F. Hayes & Preacher, 2014). A mediator was used to explain the relationship between an independent variable and a dependent variable.The following analysis was used to determine whether a mediated relationship exists between work-related stress and burnout, before assessing work-related stress and the three subscales of job satisfaction (work conditions, work relationship and career advancement) through burnout. In addition, a similar analysis was performed to determine whether a mediated relationship exists between work-related stress and job performance through burnout using the PROCESS macro Model 4 (see Appendix J).

Based on the following equation by Preacher & Kelley (2011), which measures the effect size of the mediator on the variables, the analysis summary was made and is shown in table 47 below.

$$P_M = \frac{ab}{c} = \frac{ab}{ab + c'}$$

Where “a” is the coefficient on the mediator; “b” is the coefficient of the mediator on the dependent variable; and “c'” is the coefficient of the independent variable (IV) on the dependent variable (DV).

	Coefficient on the mediator	Coefficient of the mediator	Coefficient of IV on the DV		Confidence Interval	Effect Size
	a	**b**	**C'**	**ab**		P_M
a: Work-related stress b: Burnout c': Job Satisfaction (Work Conditions)	0.12	-0.29	-0.08	-0.03	{(-0.07) – (-0.01)}	0.30
a: Work-related stress b: Burnout c': Job Satisfaction (Work Relationship)	0.12	-0.24	-0.15	-0.03	{(-0.06) – (-0.01)}	0.16
a: Work-related stress b: Burnout c': Job Satisfaction (Career Advancement)	0.12	-0.15	-0.11	-0.02	{(-0.05) - (0.01)}	0.14
a: Work-related stress b: Burnout c': Job Performance	0.12	-0.15	-0.11	-0.02	{(-0.04)- (0.00)}	0.15

Table 47: Effect size of the mediator on the variables.

There appears to be a relationship, as shown in table 47, between the independent variable but not for work-related stress and job performance. First, work-related stress had the highest effect on job satisfaction in terms of job conditions through burnout so 30% of the relationship between these two variables can be explained by burnout. Secondly, burnout affects the relationship between work-related stress and job performance by 15%. Thirdly, burnout mostly explains the relationship between work-related stress and job satisfaction in terms of working conditions. This implies that when a nurse experiences burnout, they would most likely relate it to the working conditions hence the mediated relationship between work-related stress and job satisfaction. Therefore, the mediated effect between work-related stress and job satisfaction through burnout was evident. The relationship between stress and job satisfaction could be explained by burnout in 30% of its occurrences, while the mediated effect between work-related stress and job performance through burnout was evident in 15% of the occurrences.

This mediation test result partially supports the fifth hypothesis that **H_{5a}**: The relationship between stress and job performance/job satisfaction is mediated by burnout among nurses at the sampled hospitals in Saudi Arabia.

7.5 Moderated Relationship Between Variables by Hospital Type

Differences in relationships between stress and burnout by hospital type

In this section, the relationship between work-related stress and burnout was evaluated according to the type of hospital. This was in order to partly test hypothesis **H_{4a}**: The direct relationships between levels of work-related stress, burnout, job performance and job satisfaction differ by hospital type. Therefore, a plot for two-way interaction effects with a three-level moderator was used to determine the interaction effect of variables using the moderator represented by two dummy variables having values of 0 and 1.

Interaction effect between burnout and stress.

Variable	Burnout	(95% CI)	p-value
Stress	0.38	(0.24 – 0.52)	0.00
KFH (1 = yes, 0 = no)	0.54	(0.07 – 1.02)	0.02
KAUH (1 = yes, 0 = no)	0.66	(0.23 – 1.09)	0.00
Interaction with KFH	-0.25	(-0.42 – -0.08)	0.00
Interaction with KAUH	-0.30	(-0.46 – -0.15)	0.00
Intercept / Constant	1.62	(0.45 – 2.79)	0.89

Table 48: Interaction effect between levels of work-related stress and burnout.

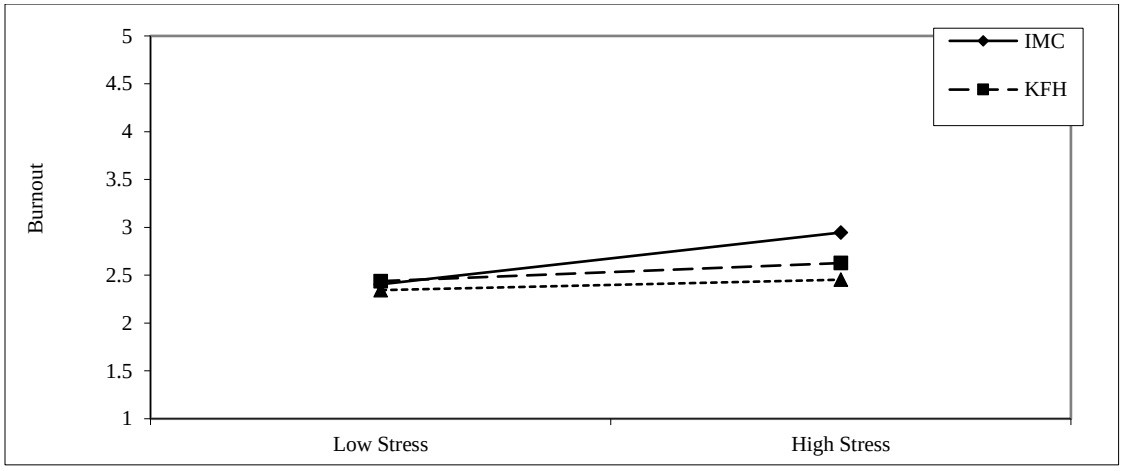


Figure 7: Interaction between hospital type, work-related stress level, and burnout.
Difference in slope between IMC and KFH is -0.25 (95% confidence interval (-0.42 to -0.08)). Difference in slope between IMC and KAUH is -0.30 (95% confidence interval (-0.46 to -0.15))(Dawson, 2014).

In figure 7 derived from table 48, IMC nurses showed a more positive relationship between stress and burnout. Furthermore, there was an equally positive relationship between low stress and low burnout levels among all hospital nurses. Moreover, high levels of burnout among nurses was associated with high levels of stress among all hospital nurses. Therefore, there was a significant association between stress and burnout levels.

Interaction between work-related stress and burnout with job satisfaction (work conditions)

Independent variable	Stress			Burnout		
	Coefficient	(95% CI)	p-value	Coefficient	(95% CI)	p-value
	0.58	(0.28 – 0.88)	0.00	0.30	(-0.16 – 0.75)	0.20
KFH (1 = yes, 0 = no)	2.09	(1.10 – 3.07)	0.00	1.97	(0.44 – 3.53)	0.12
KAUH (1 = yes, 0 = no)	2.54	(1.63 – 3.45)	0.00	2.25	(0.90 – 3.60)	0.00
Interaction with KFH	-0.67	(-1.03 – -0.32)	0.00	-0.67	(-1.26 – -0.08)	0.03
Interaction with KAUH	-0.79	(-1.11 – -0.47)	0.00	-0.73	(-1.24 – -0.23)	0.01
Intercept / Constant:	1.14	(-1.33 – 3.61)	0.99	1.90	(-0.84 – 4.64)	0.47

Table 49: Interaction effect between work-related stress and burnout levels with job satisfaction (work conditions).

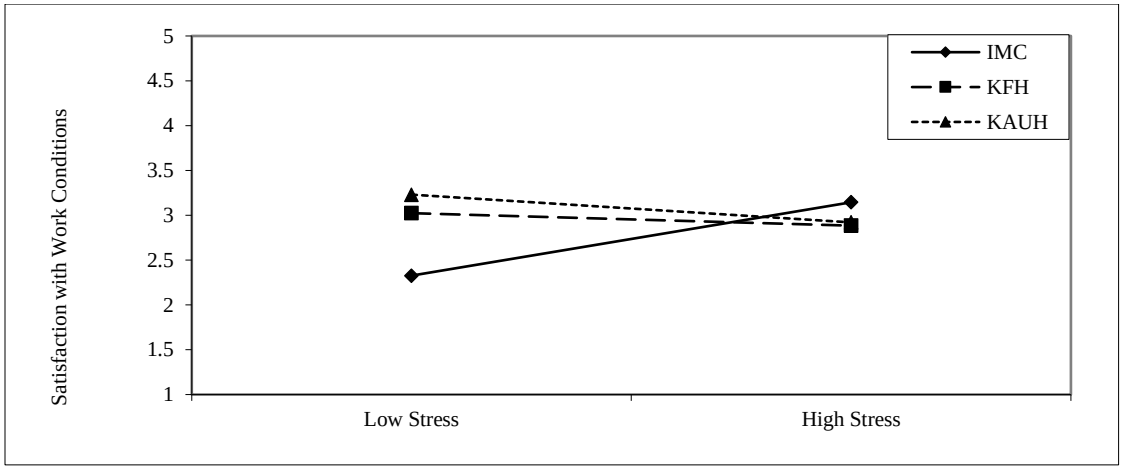


Figure 8: Interaction between hospital type, work-related stress level, and job satisfaction with work conditions.

Difference in slope between IMC and KFH is -0.67 (95% confidence interval (-1.03 – -0.32)). Difference in slope between IMC and KAUH is -0.79 (95% confidence interval (-1.11 – -0.47))(Dawson, 2014).

In figure 8 derived from table 49, IMC nurses showed a more positive relationship between stress and job satisfaction in terms of working conditions. Furthermore, high stress among nurses was associated with lower levels of job satisfaction in terms of working conditions among KFH and KAUH nurses.

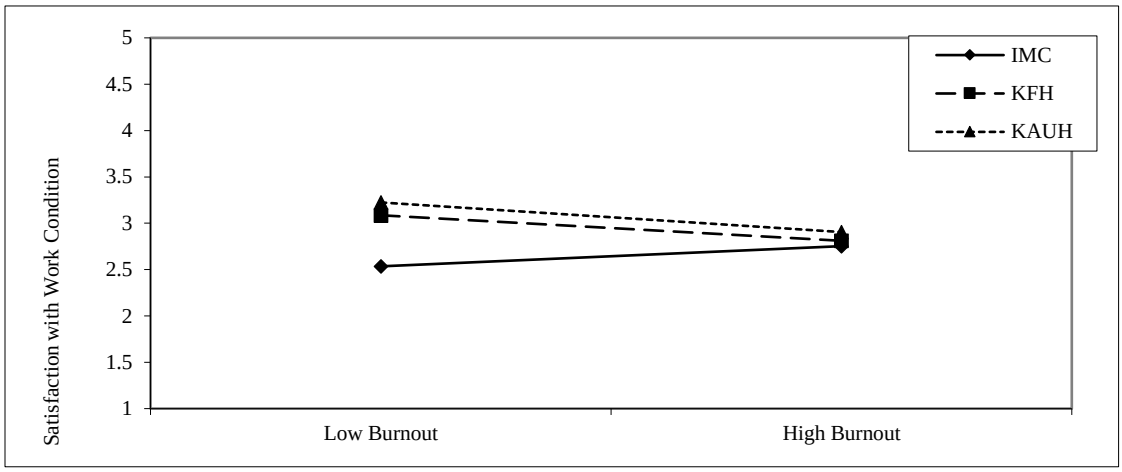


Figure 9: Interaction between hospital type, burnout level and job satisfaction with working conditions. *Difference in slope between IMC and KFH is -0.67 (95% confidence interval (-1.26 – -0.08)). Difference in slope between IMC and KAUH is -0.73 (95% confidence interval(-1.24 – -0.23)) (Dawson, 2014).*

Similarly, in figure 9, there was a more positive association between burnout and job satisfaction in terms of working conditions among IMC nurses. Moreover, high burnout among nurses was associated with lower levels of job satisfaction in terms of working conditions among KFH and KAUH nurses. Strikingly, the KFH and KAUH nurses showed a more negative association between low burnout and job satisfaction in terms of working conditions. Notably, among all the hospitals nurses, there was an equally strong relationship between high burnout level and job satisfaction in terms of working conditions**.** Therefore, there was a significant moderated relationship between work-related stress, burnout, and job satisfaction in terms of working conditions.

Independent variable	Stress			Burnout		
	Coefficient	(95% CI)	p-value	Coefficient	(95% CI)	p-value
	0.42	(0.13 – 0.71)	.01	0.34	(-0.11 –0.78)	0.14
KFH (1 = yes, 0 = no)	2.78	(1.82 – 3.74)	0.00	3.00	(1.48 – 4.52)	0.00
KAUH (1 = yes, 0 = no)	2.92	(2.04 – 3.80)	0.00	2.99	(1.68 – 4.31)	0.00
Interaction with KFH	-0.62	(-0.96 – -0.28)	0.00	-0.74	(-1.32 – -0.16)	0.01
Interaction with KAUH	-0.67	(-0.98 – -0.36)	0.00	-0.74	(-1.23 – -0.24)	0.00
Intercept / Constant:	1.27	(-1.12 – 3.67)	0.60	1.51	(-1.17–4.18)	0.53

Table 50: Interaction effect between work-related stress levels and burnout with job satisfaction (workplace relationship).

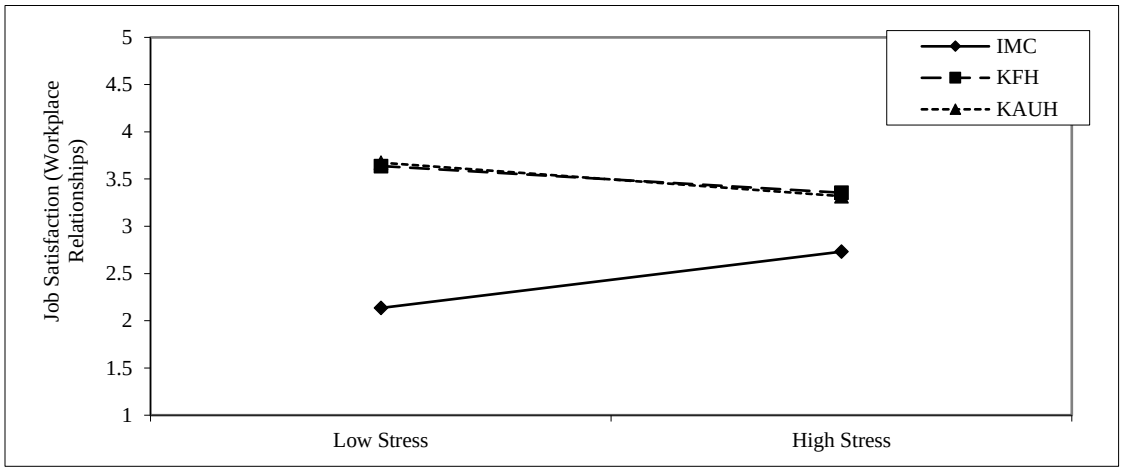


Figure 10: Interaction between hospital type, work-related stress level and job satisfaction with workplace relationship.

Difference in slope between IMC and KFH is -0.62 (95% confidence interval (-0.96 – -0.28)). Difference in slope between IMC and KAUH is -0,67 (95% confidence interval (-0.98 – -0.36))(Dawson, 2014).

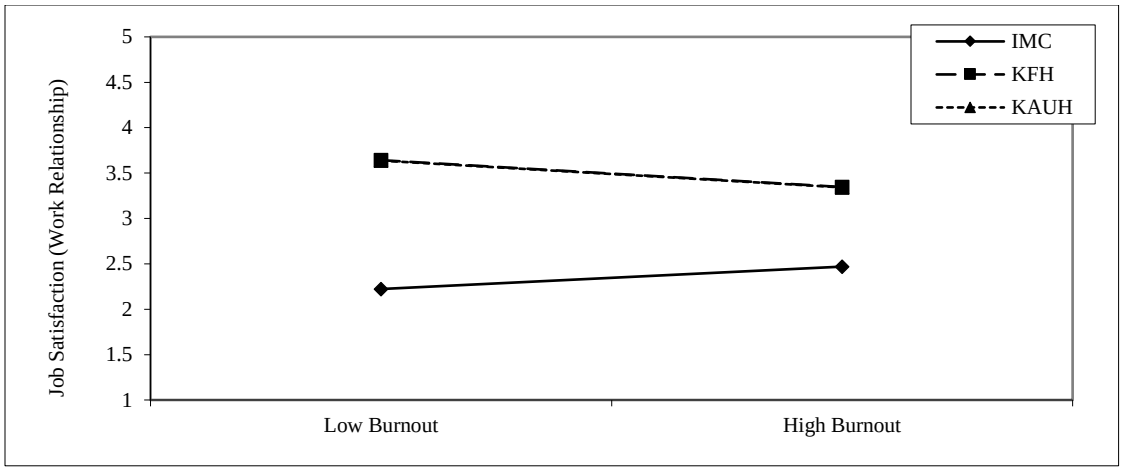


Figure 11: Interaction between hospital type, burnout level and job satisfaction with workplace relationship.

Difference in slope between IMC and KFH is -0.74 (95% confidence interval (-1.32 – -0.16)). Difference in slope between IMC and KAUH is -0.74 (95% confidence interval (-1.23 – -0.24))(Dawson, 2014).

In figure 10, IMC nurses showed a more positive relationship between stress and job satisfaction in terms of workplace relationships. Additionally, high stress among nurses was equally associated with lower levels of job satisfaction in terms of workplace relationship among KFH and KAUH nurses. Likewise, in figure 11, there was a more positive association between burnout and job satisfaction in terms of workplace relationships among IMC nurses. Furthermore, high burnout among nurses was associated with lower levels of job satisfaction in terms of workplace relationships among KFH and KAUH nurses equally. Both the KFH and KAUH nurses showed the same negative association between low burnout and job satisfaction in terms of workplace relationships. Therefore, there was a significant moderated relationship between work-related stress, burnout, and job satisfaction in terms of workplace relationships.

Independent variable	Stress			Burnout		
	Coefficient	(95% CI)	p-value	Coefficient	(95% CI)	p-value
	0.47	(0.19 – 0.75)	0.00	0.43	(-0.00 –0.85)	0.05
KFH (1 = yes, 0 = no)	2.41	(1.48 – 3.33)	0.00	2.23	(1.22 – 3.74)	0.00
KAUH (1 = yes, 0 = no)	2.30	(1.46 – 3.14)	0.00	2.48	(0.79 – 3.67)	0.00
Interaction with KFH	-0.67	(-1.00 – -0.35)	0.00	-0.63	(-1.18 – -0.08)	0.02
Interaction with KAUH	-0.65	(-0.95 – -0.35)	0.00	-0.75	(-1.22 – -0.28)	0.00
Intercept / Constant:	1.38	(-0.92 – 3.68)	0.54	1.50	(-1.17–4.18)	0.56

Table 51: Interaction effect between work-related stress level and burnout with job satisfaction (career advancement).

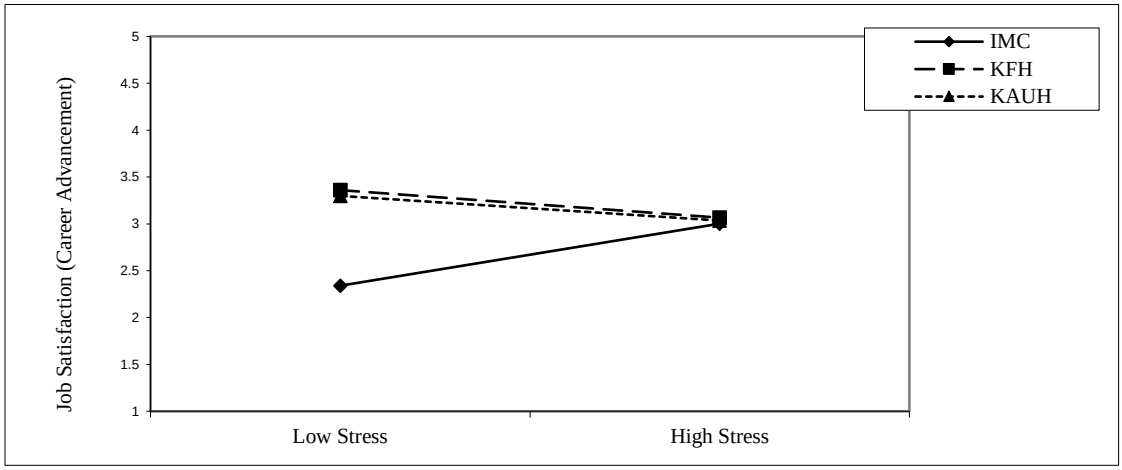


Figure 12: Interaction between hospital type, work-related stress level and job satisfaction in terms of career advancement.

Difference in slope between IMC and KFH is -0.67 (95% confidence interva(-1.00 – -0.35). Difference in slope between IMC and KAUH is -0.65 (95% confidence interval (-0.95 – -0.35)(Dawson, 2014).

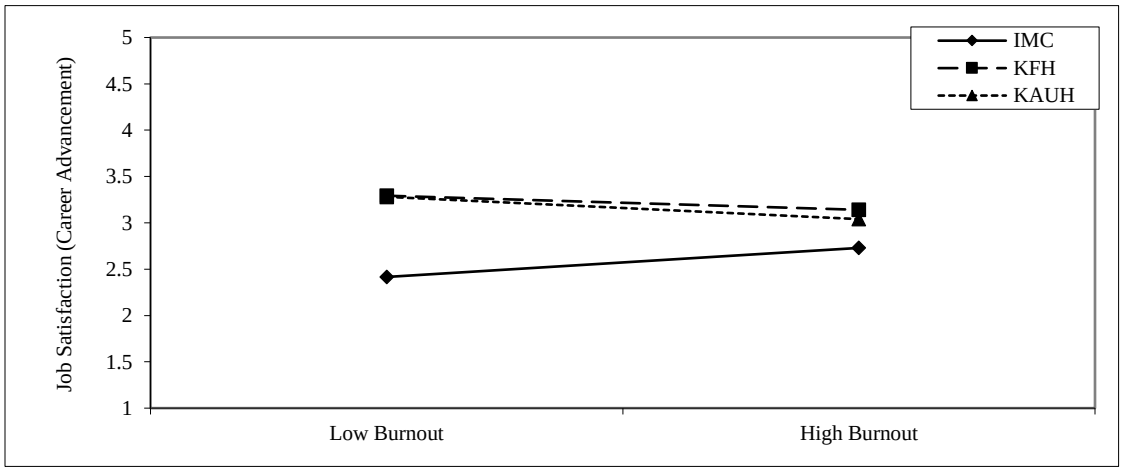


Figure 13: Interaction between hospital type, burnout level and job satisfaction in terms of career advancement.
Difference in slope between IMC and KFH is -0.63 (95% confidence interval (-1.18 – -0.08). Difference in slope between IMC and KAUH is -0.75 (95% confidence interval (-1.22 – -0.28)(Dawson, 2014).

In figure 12, IMC nurses showed a more positive relationship between stress and job satisfaction in terms of career advancement. Additionally, high stress among nurses was equally associated with lower levels of job satisfaction in terms of career advancement among KFH and KAUH nurses. Remarkably, among all the hospitals nurses, there was an equal relationship between high work-related stress level and job satisfaction in terms of career advancement.

Likewise, in figure 13, there was a more positive association between burnout and job satisfaction in terms of career advancement among IMC nurses. Furthermore, high burnout among nurses was associated with lower levels of job satisfaction in terms of career advancement among KFH and KAUH nurses. Both the KFH and KAUH nurses showed a positive association between low burnout and job satisfaction in terms of career advancement. Therefore, there was a significant moderated relationship between work-related stress, burnout and job satisfaction in terms of career advancement.

Independent variable	Stress			Burnout		
	Coefficient	**(95% CI)**	**p-value**	**Coefficient**	**(95% CI)**	**p-value**
	-0.19	(-0.33 – 0.90)	0.27	-0.18	(-0.50 – 0.14)	0.27
KFH (1 = yes, 0 = no)	-0.21	(-0.89 – 0.48)	0.55	-0.19	(-1.27 – 0.89)	0.73
KAUH (1 = yes, 0 = no)	-0.19	(-0.82 – 0.44)	0.56	-0.22	(-1.15 – 0.72)	0.65
Interaction with KFH	0.07	(-0.18 – 0.31)	0.59	0.05	(-0.35 – 0.46)	0.80
Interaction with KAUH	-0.03	(-0.25 – 0.19)	0.78	-0.04	(-0.39 – 0.31)	0.84
Intercept / Constant:	3.69	(1.45 – 5.95)	0.00	3.85	(1.43– 6.26)	0.01

Table 52: Interaction effect between work-related stress level and burnout with job performance.

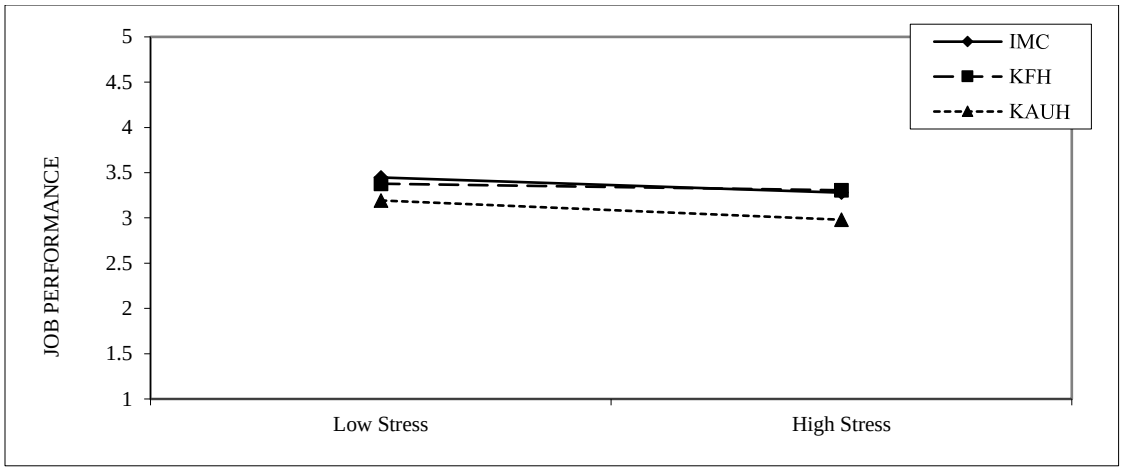


Figure 14: Interaction between hospital type, work-related stress level and job performance.
Difference in slope between IMC and KFH is 0.07 (95% confidence interval (-0.18 – 0.31). Difference in slope between IMC and KAUH is -0.03 (95% confidence interval (-0.25 – 0.19)(Dawson, 2014).

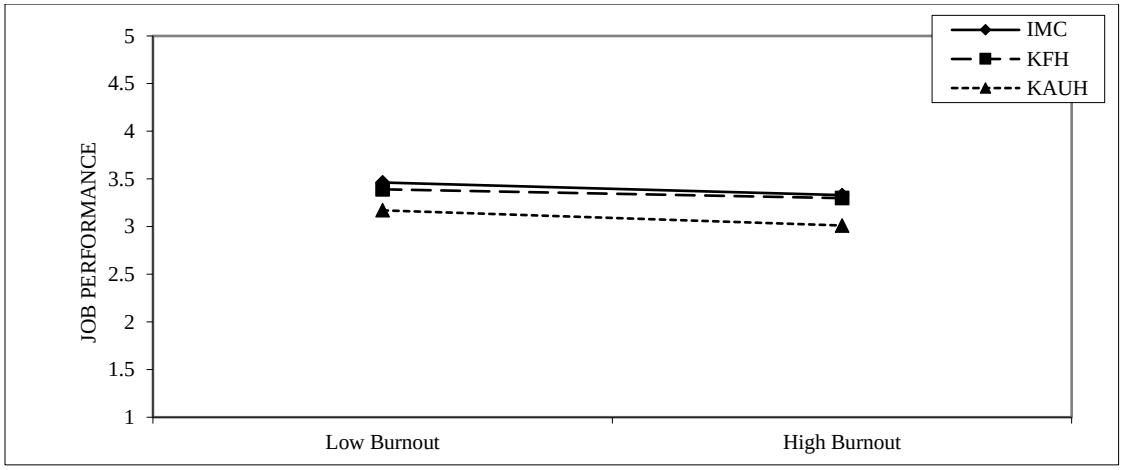


Figure 15: Interaction between hospital type, burnout level and job performance.
Difference in slope between IMC and KFH is 0.05 (95% confidence interval (-0.35 – 0.46). Difference in slope between IMC and KAUH is -0.04 (95% confidence interval (-0.39 – 0.31)(Dawson, 2014).

In both figures 14 and 15, the interactions are not significant. In figure 14, all hospital nurses showed a positive relationship between low stress and job performance. Additionally, high stress among nurses was associated with lower levels of performance among all hospital nurses. Markedly, this association was almost equal between IMC and KFH nurses. Similarly, in figure 15, all hospital nurses showed a positive relationship between low burnout and job performance. Additionally, high burnout among nurses was associated with lower levels of performance among all hospital nurses. Notably, this association was almost equal between IMC and KFH nurses.

Dependent Variable	Independent Variable			
	Work-related stress		Burnout	
	Coefficient (95% CI)	p-value	Coefficient (95% CI)	p-value
Job Satisfaction (Working Conditions)	0.58(0.28-0.88)	0.00	0.30(-0.16--0.75)	0.20
Job Satisfaction (Workplace Relationships)	0.42(0.13- 0.71)	0.01	0.34 (-0.11-0.78)	0.14
Job Satisfaction (Career Advancement)	0.47(0.19-0.75)	0.00	0.43 (-0.00--0.85)	0.05
Job Performance	-0.12(-0.33-0.09)	0.27	-0.18(-0.50-0.14)	0.27

Table 53: Parameter estimates for the dependent variables by hospital type.

It was evident that there was a significant positive association initially between low and high levels of stress and low and high levels of burnout, respectively. Secondly, there was a significant negative relationship between work-related stress, burnout, and job satisfaction in terms of working conditions, workplace relationships and career advancement. Finally, a positive relationship was noted between low stress and high job performance. Consequently, there was a moderated relationship between work-related stress, burnout, job satisfaction and job performance hence partially supporting hypothesis **H_{4a}**: The direct relationships between levels of work-related stress, burnout, job performance and job satisfaction differ by hospital type.

7.6 Moderated Mediated Relationship Between Variables by Hospital Type

Further investigation to determine whether the mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction were moderated by hospital type was conducted using moderated mediation analysis. This was to test the hypothesis **H_{6a}:** The mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction are moderated by hospital type.

Moderated Mediation

Model 58 Y = Dependent Variable, X = stress, M = Burnout, W =KAUH				
Y (Dependent Variable)	**Index**	**SE(Boot)**	**BootLLCI**	**BootULCI**
Job Satisfaction (Working Conditions)	-0.01	0.03	-0.09	0.04
Job Satisfaction (Workplace Relationships)	-0.02	0.03	-0.09	0.05
Job Satisfaction (Career Advancement)	0.00	0.03	-0.06	0.06
Job Performance	0.01	0.02	-0.03	0.05

Table 54: KAUH moderated mediation index of work-related stress (X) on the dependent variables (Y).

Model 58 Y = Dependent Variable, X = stress, M = Burnout, W = IMC				
Y (Dependent Variable)	**Index**	**SE(Boot)**	**BootLLCI**	**BootULCI**
Job Satisfaction (Working Conditions)	0.18	0.15	-0.05	0.48
Job Satisfaction (Workplace Relationships)	0.22	0.13	0.01	0.52
Job Satisfaction (Career Advancement)	0.23	0.15	0.01	0.56
Job Performance	-0.02	0.06	-0.15	0.09

Table 55: IMC moderated mediation index of work-related stress (X) on the dependent variables (Y).

Instead of testing this hypothesis with a hypothesis test for interaction for the moderated model combined with a hypothesis test for the unmoderated path, the recent Hayes (2015) method provides an effective path where a bootstrap confidence interval (CI) provides the index of moderated mediation. The index in this case provides a direct measure of the relationship between the indirect effect and the moderator (Hayes, 2017). The index indicates whether the indirect effect is dependent on the moderator or not. Therefore, in this case, the index shows whether the indirect effect between the dependent variables and stress is dependent on the hospital type. However, the aforementioned tests combine one hospital against the others combined in each case due to a limitation in the procedure since it is not yet able to test moderation across three categorical variables.

Based on the results of the moderated mediation, there was no significant moderated indirect effect between KAUH and other two hospitals, especially on the index in moderated mediation. Similarly, there seemed to be no general significant moderated effect between KFH and the two other hospitals. As observed in the PROCESS macro output, the relationship between stress and burnout was the same in KAUH as it was for KFH. However, the relationship between stress and burnout was significantly stronger in IMC hospital than it was in KFH.

However, the mediated effect in IMC was significantly different for job satisfaction with workplace relationships with a lower level confidence limit of 0.009 from KAUH and KFH. Burnout significantly mediated the relationship between stress and satisfaction with working conditions in KFH and KAUH. However, burnout did not mediate the relationship between stress and satisfaction with working conditions in IMC hospital.

IMC also recorded a significant difference in job performance between KAUH and KFH. Hence, IMC reported a stronger mediated effect than the other hospitals. The relationship between burnout and satisfaction with working conditions was the same in KAUH as it was in KFH. The relationship between burnout and satisfaction with working conditions was different in the IMC hospital than it was in KFH. Burnout appeared to decrease with satisfaction levels in KFH but it did not seem to negatively impact upon nurse satisfaction in IMC hospital. Therefore, it would appear that IMC nurses handled stress effectively and something else outside of the model was causing higher levels of dissatisfaction among IMC nurses. Therefore, the hospital type did appear to moderate this mediation effect in that the mediation effect occurred in both KFH and KAUH nurses but not in IMC nurses.

In essence, based on the results from the moderated relationship between variables by hospital type and the results from the moderated mediation analysis, a mediated relationship exists between variables, which is moderated by the hospital types. Work-related stress level and burnout; work-related stress level and job satisfaction with working conditions; burnout level and job satisfaction with working conditions; work-related stress level and job satisfaction with workplace relationships; work-related stress level and job satisfaction in terms of career advancement; burnout level and job satisfaction in terms of career advancement; work-related stress level and job performance; and burnout level and job performance are all important parameters. Therefore, these findings partially support hypothesis **H_{6a}**: the mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction are moderated by hospital type: private hospitals have the strongest mediated relationship.

7.7 CHAPTER CONCLUSION

Findings show that there was evidence of work-related stress among nurses in Saudi Arabia. The level of work-related stress varied depending on the type of hospital that the nurses worked in as evidenced in confirmation of hypothesis **H_{1a}**: There is a positive relationship between levels of work-related stress and burnout among hospital nurses in Saudi Arabia.

Furthermore, findings from the study show that there was a relationship between levels of work-related stress and burnout among hospital nurses working in Saudi Arabia hence also supporting hypothesis **H_{2a}**: There is a difference in levels of work-related stress and burnout among nurses in different types of hospitals in Saudi Arabia: private hospital nurses experience higher work-related stress and burnout than public hospital nurses.

However, the relationship between the levels of these variables varies according to the association. The findings in this study confirm hypothesis **H_{3a}**: There is a negative relationship between levels of work-related stress and job performance; a negative relationship between levels of work-related stress and job satisfaction but a positive relationship with burnout among nurses in Saudi Arabia.

For hypothesis **H_{4a}**: The direct relationships between levels of work-related stress, burnout, job performance and job satisfaction differ by hospital type, it was evident that private hospitals have the strongest direct relationship. In particular, IMC recorded the strongest direct relationship compared to the other hospital types.

The fifth hypothesis is also accepted based on the results that **H_{5a}**: The relationship between stress and job performance/job satisfaction is mediated by burnout among nurses at the sampled hospitals in Saudi Arabia. In addition, results show that there was a mediated relationship between work-related stress and burnout and a moderated mediation difference between the type of hospitals hence the hypothesis can be accepted **H_{6a}**: The mediated relationships between levels of work-related stress, burnout, job performance and job satisfaction are moderated by hospital type. Private hospitals have the strongest mediated relationship.

In essence, both work-related stress and burnout have shown an effect on the level of job satisfaction in nurses and their job performance. Therefore, it is necessary that recommendations are made to alleviate the work-related stress and burnout levels of nurses working in Saudi Arabia.

CHAPTER VIII: DISCUSSION

8.1 INTRODUCTION

This chapter presents a discussion of the central findings of this study with a view to relating them to the aims of this thesis and the wider literature.

- Initially, there is a discussion of the levels of work-related stress and burnout among hospital nurses working in Saudi Arabia.
- Secondly, there is an interpretation of the findings showing the relationship between work-related stress and burnout among hospital nurses working in the three selected hospitals.
- The third part of the section discusses the results that determine whether the levels of work-related stress and burnout among hospital nurses working in Saudi Arabia differ by hospital type.
- The fourth section presents the relationship between the level of work-related stress and burnout with job performance and job satisfaction among nurses in the selected hospitals.
- In the fifth section, the discussion on whether a mediated relationship between stress and performance/job satisfaction through burnout exists.
- Finally, the discussion on whether the relationships in the aforementioned objectives differ by hospital type is precipitated.

This discussion chapter also encompasses the strengths and limitations of the study and implications for further research. The final section of the chapter outlines recommendation for policies and operational guidelines that could improve performance of nurses and reduce the work-related stress of nurses working in hospitals of Saudi Arabia.

8.2 SUMMARY OF THE MAIN FINDINGS

The aim of this study was to determine the level and impact of work-related stress and burnout on job satisfaction and job performance among hospital nurses in Jeddah, Saudi Arabia.

Methods used for the study were firstly a systematic review of the existing literature on the subject and secondly a self-completion survey comprising four tools namely: the Health and Safety Executive (HSE) tool from the United Kingdom (Cousins *et al*., 2004); Oldenburg Burnout Inventory (OBI) scale from the British Medical Association (Demerouti & Bakker, 2008); McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989 (Tourangeau *et al*., 2006); and The Nurse Professional Competence (NPC) Scale (Nilsson *et al*., 2014).

Key findings from the systematic review

1. While there are existing studies on work-related stress in the field of nursing in Saudi Arabia, the correlation between work-related stress and job satisfaction, burnout and performance outcomes of the nurses in Saudi Arabia is not clear.
2. The central, eastern and northern regions of Saudi Arabia have previously been included in research but the vast majority of the population in the western region of the country has not been studied with respect to this area of research.
3. The socio-cultural and religious context of this region differs significantly with regions that have been represented, hence the necessity of having a study to establish stress levels in relation to job satisfaction and performance outcomes among nurses serving this region.

The above findings underscores an important omission in the existing studies of stress among nurses in Saudi Arabia.The omission of studies from the most socio-culturally diverse region of the country brings to the fore the missing literature on the impact of cosmopolitan western Saudi Arabian population on the stress of nurses.This region demonstrates the key demographical interaction and its influence on the work related stress of nurses working in the region.The study of this region,add to the literature the key correlation between work related stress,burnout,job satisfaction and job performance among nurses in a region that has not been previously studied.The importance of the findings and the contributions, provide a research based understanding of stress among nurses who work in the economically and scio-culturally diverse region of Saudi Arabia.

Key findings from the primary data collection were

1. Nurses who experienced work-related stress reported a corresponding level of burnout.
2. Nurses working in the public hospital reported the highest level of work-related stress comparatively.
3. Nurses who reported higher levels of stress had poor performance and lower levels of job satisfaction.
4. The positive relationship between the age of nurses and their job satisfaction and performance levels was evident, as was the effect of experience on the performance of nurses and their job satisfaction.

These findings have important implications for how MOH applies its policies on the welfare of the nurses in Saudi Arabia. This study adds to the existing literature the confirmation that there are varied levels of work-related stress and burnout among hospital nurses (Adriaenssens, De Gucht, & Maes, 2015).Nurses working in the sampled hospitals depicted a positive correlation between stress and poor performance and job disatisaction,just like other studies conducted in Saudi Arabia (Al-Omar, 2003; Al Hosis, Mersal, & Ismail Keshk, 2013; Azeem et al., 2014; Gulavani & Shinde, 2014) concured with this claim. According to the MOH (2012) report, there are a greater number of non-Saudi nurses currently working in the healthcare system (Saudi nurses: 50,554; non-Saudi nurses: 89,147),in this study in particular 159 participants were Saudi nurses and 408 non-Saudi nurses.

Specific reports indicate that there is a significant difference between the level of work-related stress in Saudi Nurses and non-Saudi nurses (Al-Omar, 2003) with Saudi nurses scoring a higher level of stress than non-Saudi nurses (Al-Otaibi et al., 2012). The nature of nursing work, which includes connection and responsiveness to patients with conflicting demands, elicits factors that could induce stress (Gandi *et al.*, 2011).

In this study, the first objective was to determine the level of work-related stress in three different hospital types in Jeddah, Saudi Arabia: King Fahad Hospital (KFH), King Abdul-Aziz University (KAU) hospital and the International Medical Centre (IMC). These hospital

types represent the public hospital (MOH), other governmental agency hospitals (Ministry of Higher Education hospitals), and private hospitals, respectively.

Findings from the survey showed that the level of work-related stress among nurses in these selected hospitals was generally similar despite the fact that they were from different sectors. This finding could be attributed to the fact that the selected hospitals are from the same socio-geographical locality of Jeddah, Saudi Arabia. The sampled hospitals are representative of the type of hospitals that exist in Saudi Arabia since their operations and statutes are similar to other hospitals in the same category namely: private hospitals, university hospitals, and public hospitals.

8.3 PRIVATE HOSPITALS

The sampled private hospital in Saudi Arabia, International Medical Centre (IMC) is a large, modern and well-equipped hospital. Out of the 44 private hospitals in western Saudi Arabia, IMC is among the largest with a population of 650 nurses distributed in more than 30 specialty centres.

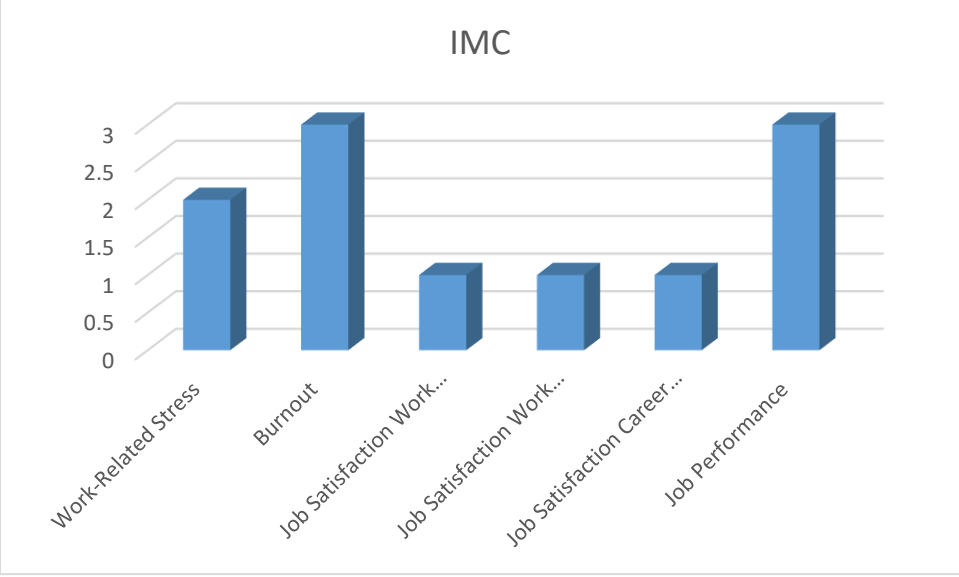


Figure 16: Comparative prevalence of study variables in IMC (not drawn to scale)

Stress and Burnout among private hospital nurses

Based on the study results, there was high work-related stress reported among the IMC nurses compared to other nurses from public hospitals. This could be due to the job expectations and role demands. Since it is the largest private for-profit hospital in the region, it poses higher expectations of the nurses. This expectation also applies to patients as being a relatively expensive hospital in the region, patients' demands are higher since they may have been pressured into paying higher costs for treatment.

As a private hospital, competition with other hospitals is obvious and the struggle to keep the competitive edge of its performance may provide additional stress to the nurses. As a ripple effect, nurses' job safety and security may be at risk since the rules and regulations are stringent in order to match hospital expectations. Tolerance for error is negligible. Furthermore, there are more nurse applicants to the IMC hospitals hence this attraction to the labour force increases the chances of nurses being replaced.

As with the findings on work-related stress, nurses from the private hospital reported the highest level of burnout compared to the public and Ministry of Education hospital nurses. Burnout can be described as the feeling of emotional exhaustion and depersonalization experienced at work. The results also show that there was a positive correlation between work-related stress and burnout among private hospital nurses. This finding concurs with other research which has found that nurses are especially susceptible to burnout (Wu, *et al.*, 2007).

Even though the mean difference for burnout was 0.14 between the highest and the lowest group of hospital nurses from the selected hospitals, this was statistically significant between the three organisations (Özlü *et al*., 2016). Furthermore, the trend was notably different from that of work-related stress. Of interest, private sector IMC nurses reported the highest level of burnout in comparison to nurses from the other two hospitals. The level of burnout in IMC may be related to the pressure at work, which is generated by high expectations. The total number of nurses in IMC was 650 serving a hospital with a 300 bed capacity, which exemplifies that the ratio of 47.8 nurses per 10,000 population in Saudi Arabia would severely

impact upon nurse work burden (MOH, 2012). This evidently shows an understaffed nursing unit, which increases the workload for the serving nurses through: long hours of duty, work shifts that are inflexible, shorter vacations and other absenteeism privileges. An additional consequence of a shortage of nurses is the expectation to take up multiple roles to cover the shortage i.e., backfill. As Azeem et al. (2014) observed, private hospitals have a higher tendency to have burnout among nurses because of the increased work load and role ambiguity.

In the private hospital (IMC), there was a positive association between work-related stress and burnout, in the sense that nurses who complained of work-related stress similarly displayed characteristics of burnout. Nevertheless, the IMC nurses reported a higher level of satisfaction with their jobs despite this increase in work-related stress. The private hospital implements international standards and has a large population of foreign nurses who use the opportunity to work at IMC as career development. In addition, the hospital is arguably the best equipped hospital in the western region, therefore it provides nurses with the opportunity to learn and work with efficiency. In terms of leadership, the IMC is managed by professionals who are mostly foreign nationals and are largely viewed as impartial in dealing with both Saudi-native and foreign nurses. These conditions may contribute to the high job satisfaction among the nurses in IMC.

However, there was no significant correlation between job performance and work-related stress, burnout, and job satisfaction among the nurses at the private hospital. This finding was also cited by Selye (1956,1977) and Selye (1985) who believes that the impact of stress is due to an individual's chosen reaction to a circumstance, which may not necessarily impact negatively on the job performance. It could be argued that the performance levels of nurses in the private sector and in IMC in particular were influenced by other factors and not the nurses' job satisfaction, burnout, or work-related stress.

In essence, there is a difference in the levels of work-related stress and burnout among nurses at different types of hospitals in Saudi Arabia: private hospital nurses experience higher work-related stress and burnout than public hospital nurses.

Job Satisfaction among private hospital nurses

Based on the results of this study, job satisfaction among nurses in terms of working relationships was predictably based on hospital type, citizenship, age and years of practice. In specific terms of job satisfaction with the working relationships, nurses from IMC reported the lowest satisfaction rate compared to those in the public hospitals. It may be that patients who are treated in private hospitals tend to be wealthier and because they pay for the service, are more prone to be considered 'demanding'. As reported in a similar study in the region among Palestinian nurses, patients and patients' relatives were the main source of aggression towards nurses hence the increase in nurse dissatisfaction with working relationships in the hospitals (Jaradat et al., 2016).

The findings demonstrated that the satisfaction of nurses in terms of career prospects at the hospitals was predicted by the hospital type, citizenship, age and years of practice. In support of this finding, a study in Riyadh, Saudi Arabia, reported a correlation between nurses job satisfaction and years of work experience, even though the study did not indicate a significant difference in job satisfaction according to age and nationality of the nurses (Al-ahmadi, 2002). This contradicts findings by Al-Aameri (2000) who found that the age of the nurses correlated with their job satisfaction (Al-Aameri, 2000). Analysis from the present research indicated that nurses from the private hospital (IMC) were less satisfied with their career advancement prospects than their counterparts in the University hospital (KAUH) and the public hospital (KFH). This can be attributed to the lack of educational funding in private hospitals in Saudi Arabia unlike the scholarship programs and grants that are availed in public and university hospitals. The private hospital is more focused on immediate service delivery and profitability hence career advancement prospects through education are limited. In addition, the private hospital are likely to hire managers from outside and not promote from within because of the lack of additional training for management positions such as the public hospitals' sponsored training by the MOH.

Job performance among private hospital nurses

The level of job performance among nurses was also predicted by the level of work-related stress, hospital type, the citizenship of the nurses, and employment status. For instance, nurses in the private hospital recorded a higher performance rate than those in the public and university hospitals. Similarly, nurses who were foreign nationals in Saudi Arabia performed better than nurses who were Saudi Arabian citizens, while full-time time nurses recorded a better performance than part-time or trainee nurses.

Nevertheless, their job performance was not associated with stress, burnout, or satisfaction specifically among IMC nurses. Findings from the private hospital (IMC), demonstrated that nurses displayed both stress and burnout. Similarly, an earlier study of 135 female nurses in private hospitals in northern India, which used both the Maslach Burnout Inventory (MBA-HSS) and the Occupational Stress Inventory (revised edition) indicated that nurses in these hospitals had moderate levels of burnout (Azeem *et al*., 2014). However, the performance of nurses in the IMC was not affected by their stress level or burnout. In fact, nurses who exhibited work-related stress expressed satisfaction with their jobs. This could be associated with other existing conditions such as fair distribution of tasks, positive reinforcement and constant motivation of nurses that may have mitigated the negative effect of stress on performance and satisfaction.

8.4 MINISTRY OF HEALTH HOSPITALS

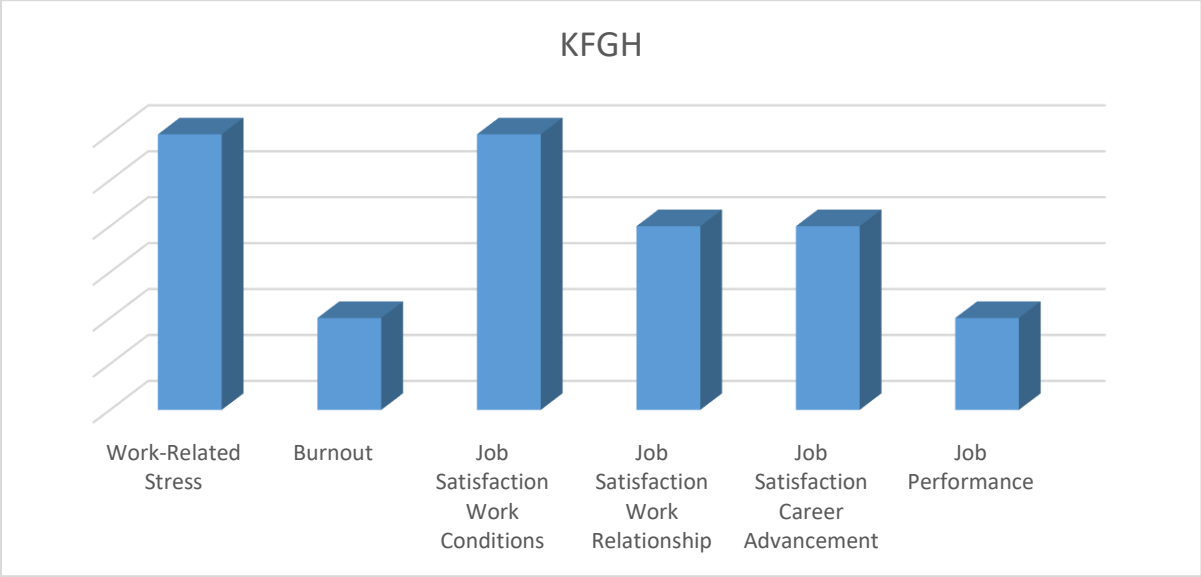


Figure 17: Comparative prevalence of study variables in KFH (not drawn to scale)

Stress and Burnout among MOH hospital nurses

In-depth analysis of the data indicated that there was a very small difference in the level of work-related stress between hospital nurses from the three selected hospitals. For example, on average, KFH nurses reported the highest work-related stress level (mean: 2.82) compared to the nurses from KAUH (mean: 2.68) and the IMC (mean: 2.75) hospitals. It could be argued that, as KFH is a government hospital which offers predominantly free healthcare and hence attracts a larger population of patients than the private hospitals, this relatively higher level of stress could be linked to the working environment, the resources, the workload, and the work time of the nurses (Yau *et al.*, 2012). This concurs with other research which has also shown that nurses working in public hospitals generally report a higher level of work-related stress than those working in private hospitals (Tyson & Pongruengphant, 2004).

In all the three types of hospitals, work-related stress among nurses was positively associated with burnout. In KFH, an increase in the level of work-related stress increased the level of burnout among the nurses and vice versa. Similar research carried out in Iran by Uzunboylu *et al*. (2013) also concluded that there was a positive correlation between work-related stress and burnout among hospital nurses.

On the other hand, both work-related stress and burnout had a negative association with job satisfaction and performance among KFH nurses. This finding supports other research, which also found that work-related stress and burnout had an inverse relationship with job satisfaction (Griffin *et al*., 2009) and job performance (Ashtari *et al*., 2009). The findings showed that nurses who were stressed due to their jobs reported a higher level of job dissatisfaction and inefficiency. Therefore, among public hospital nurses, work-related stress and burnout could lead to poor performance and dissatisfaction in the work place. This supports findings from a cross-sectional study in Taif government hospitals in Saudi Arabia, which also reported a significant negative relationship between work-related stress and job satisfaction among nurses (Kamal *et al*., 2012).

KFH nurses who exhibited work-related stress also exhibited burnout tendencies. Nurses who were stressed and/or experienced burnout were also dissatisfied with their jobs and performed poorly at work. This finding is supported by a study of 124 physicians sampled from 6 hospitals in Israel, which confirms that burnout negatively affects job satisfaction (Tziner *et al*., 2015).

Job Satisfaction among MOH hospital nurses

According to this study, job satisfaction in terms of working relationship among public hospital nurses is higher than job satisfaction with working relationships among nurses in private hospitals. Since KFH has the highest number of Saudi Arabian nurses, it is arguable that the cultural differences and language barrier that negatively affect job satisfaction and working relationships with foreign nurses is limited.

Notably, a cross-sectional study carried out among primary healthcare nurses in the Jazan region of Saudi Arabia indicated that the majority of nurses were satisfied with their working relationships with a significant difference reported between nationalities and age (Almalki *et al*., 2012).

In the present study, more experienced and older nurses were more satisfied with their relationships at work compared to younger and less experienced nurses. This finding is

supported by a recent study, which demonstrated that nurses with a greater experience displayed higher levels of satisfaction as tested by a moderator analysis of a controlled trial of 104 nurses working in five hospitals in Virginia, New York (Hersch *et al*., 2016). Specifically, Saudi nurses were less satisfied with career advancement projections in all of the hospitals in this study. More experienced and older nurses were more satisfied with career advancement possibilities compared to younger and less experienced nurses. This could be attributed to the fact that they are assigned minor leadership roles like training junior staff, temporarily leading a unit or group of nurses, or increased responsibilities and demands hence they are more positive towards career advancement (de Almeida *et al*., 2016).

Job performance among MOH hospital nurses

The level of job performance among nurses was also predicted by the level of work-related stress, hospital type, the citizenship of the nurses, and employment status. For instance, nurses in the public hospital recorded a low performance rate. It should be noted that KFH has the highest number of Saudi Arabian nurses compared to the other hospitals and 59% of the respondents were Saudi nurses. The job performance rating of Saudi nurses was less than foreign nurses hence the possible reason for less clinical effectiveness in the public hospital, KFH.

Findings from a study using a correlational descriptive survey indicated that there was a curvilinear relationship between work-related stress and work performance among nurses (Abualrub, 2004). This indicated that nurses who experienced a moderate level of stress were more effective in their performance compared to those who experienced low or high levels of stress. The present study's analysis outcome shows that nurses in the public hospital (KFH) were less effective in job performance compared to nurses from the private hospital (IMC).

8.5 MINISTRY OF EDUCATION HOSPITALS

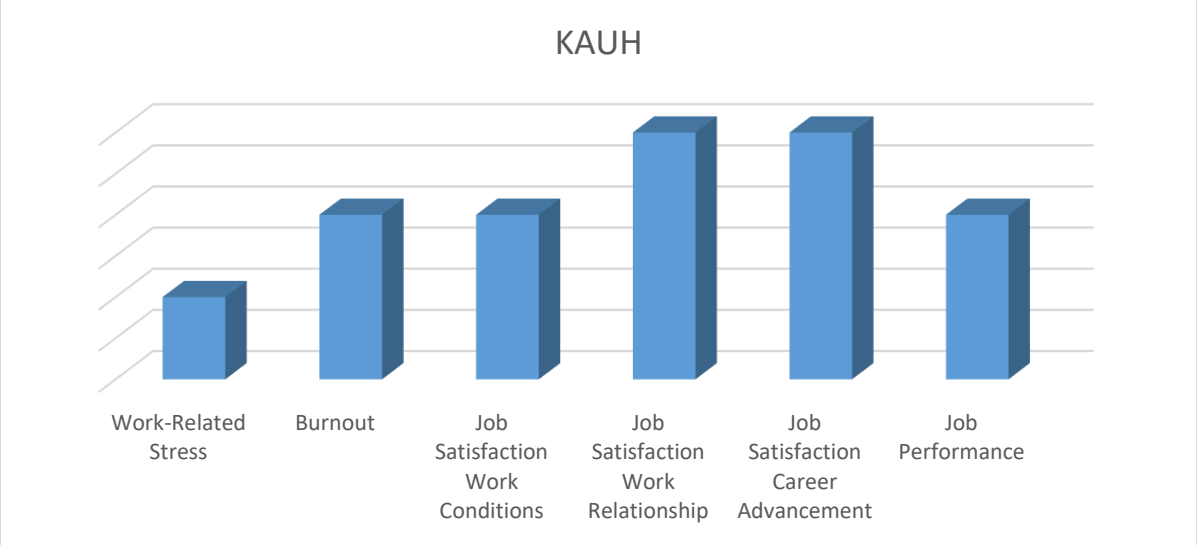


Figure 18: Comparative prevalence of study variables in KAUH (not drawn to scale)

Stress and Burnout among Ministry of Education hospital nurses

The lowest average level of work-related stress was experienced by the KAUH nurses (mean: 2.68). KAUH is managed by King Abdul-Aziz University under the Ministry of Education and MOH. Although the original target patient population was university stakeholders, the hospital also serves an additional local city population of both Saudi nationals and foreigners. Most of the non-nursing staff are employed by the university but nurses from the hospital are derived from multiple countries and are largely non-Saudi. University staff including nurses are generally characterized with a higher level of autonomy and a more robust social support system from colleagues than other staff (Winefield & Jarrett, 2001).

In KAUH, nurses who reported being stressed because of their work equally reported burnout. However, stressed nurses surprisingly reported to be satisfied with their career advancement prospects at the hospital. This could be due to the readily available educational training opportunities at King Abdul-Aziz University which sets them on the path to career advancement.

In addition, nurses who reported symptoms of burnout also exhibited their satisfaction with work conditions and relationships. Since university hospital staff have a formidable social support system, as reported in research conducted in an established Australian metropolitan university (Winefield & Jarrett, 2001), it is arguable that this could be the situation in KAUH. Hence, this collegial support may have increased their satisfaction despite the increase in work-related stress.

Job Satisfaction among Ministry of Education hospital nurses

Results of the study showed that the satisfaction of nurses in terms of the relationships between staff at the hospitals was predicted by the hospital type, citizenship, age and years of practice. The findings indicated that nurses from the University hospital (KAUH) were more satisfied with their work relationships than those working in the private hospital (IMC). In this specific hospital, Saudi nurses were less satisfied with working relationships in the hospital. More experienced and older nurses were more satisfied with their relationships at work compared to younger and less experienced nurses.

Findings from this research indicated that nurses' job satisfaction with the working conditions of the hospitals could be predicted by the type of hospital the nurses work in. For instance, nurses from the private sector hospital had different working conditions, such as the level of salary and number of working hours, compared with those from the public hospitals. Hence, the level of job satisfaction would differ according to the type of hospital the nurses work in. Therefore, one may speculate that the level of job satisfaction with work conditions can be predicted by examining the type of hospital the nurses work in. For instance, nurses working in private hospitals have longer shift times than those in public hospitals, and consequently this impacts upon their satisfaction with work conditions.

In addition, depending on whether the nurses are Saudi nationals or foreign nationals, this was another predictor of job satisfaction with the working conditions. For example, nurses who were Saudi nationals were more dissatisfied with the job conditions in the hospitals compared to their foreign counterparts in the same hospital; similarly the employment status, whether the

nurses were working full-time, part-time or as trainees, predicted the nurses' level of job satisfaction with the working conditions. For example, full-time nurses reported a higher level of job satisfaction than trainee and part-time nurses. Furthermore, nurses working in the University hospital (KAUH) and the public hospital (KFH) were more satisfied with their working conditions than those working in the private hospital (IMC). A similar study aimed at surveying 211 nurses in King Fahad Medical city in Saudi Arabia concurs with this finding that nurses from the Middle East experience greater dissatisfaction than those from other nationalities due to the high prevalence of anxiety and depression among them (Abbas *et al.*, 2013). In KAUH, nurses who were stressed were also burned out and dissatisfied. Therefore, nurses who reported burnout significantly portrayed dissatisfaction with their working conditions and their relationships with other nurses and staff at the hospital.

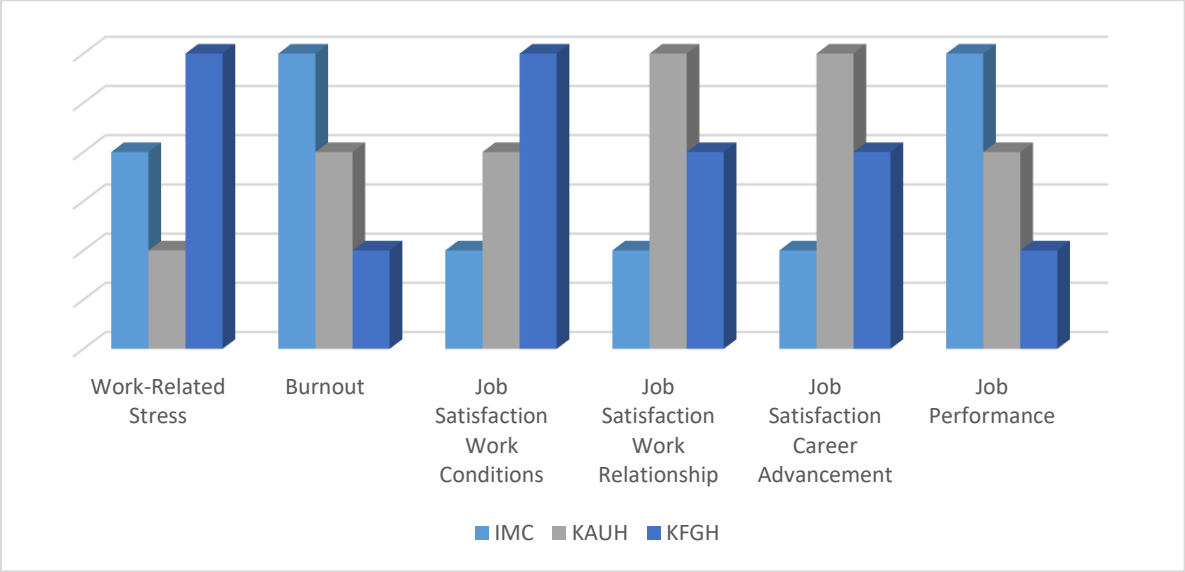
Job performance among Ministry of Education hospital nurses

Based on results from this study, the performance of the KAUH nurses had no casual link but an association with the level of work-related stress, burnout, or job satisfaction of the nurses. Since the University hospital nurses enjoy a high level of autonomy (Winefield & Jarrett, 2001), it is probable that this independence isolates their work performance from the other study variables.

8.6 SUMMARY OF THE DISCUSSION OF FINDINGS

Findings from this study have demonstrated that nurses who experienced work-related stress also experienced a level of burnout. The positive relationship between stress and burnout among nurses has also been confirmed by recent research in Israel (Tziner *et al*., 2015). However, unsurprisingly nurses who were stressed and/or burned out were neither satisfied with their jobs nor performed effectively in their tasks. In the selected samples from the three hospitals in this study, the relationship between these factors varied depending on the hospital types. On the same note, within the Saudi Arabian context, a cross-sectional descriptive study in the North West Armed Force Hospital in Jazan, Saudi Arabia reported a high prevalence (75.9%) of burnout among hospital nurses (AlSuliman & AlHablani, 2014), and found that

Saudi nurses were more highly prone to burnout syndrome than non-Saudi nurses (Al-Turki, 2010).



Work-related stress may not always lead to job dissatisfaction among private hospital nurses as evidenced by the results from the International Medical Centre. This is contrary to the assertion in public hospitals where studies show that work-related stress is directly related to job satisfaction (Visser *et al.*, 2003). Notably, there was a very weak positive relationship between work-related stress and job performance among private hospital nurses compared to the strength of this relationship in public hospital nurses.

When determining the predictors of the study variables and the significance of their associations, it was noted that stress was a significant predictor of burnout among nurses. This finding is supported by a study of 1002 nurses in China, which used the Conditions for Work Effectiveness Questionnaire II and Maslach Burnout Inventory to explore the relationship between job stress and burnout, showing that job stress strongly influenced burnout (Guo *et al.*, 2016). This directly and negatively impacted upon the supervisor's perception of the employees performance (Parker & Kulik, 1995). Specifically, it was work-related stress rather than health or life stress that significantly predicted burnout among nurses (Hao *et al.*, 2015; Meyer *et al.*, 2015). In the present study, it was possible to predict occurrences of burnout based on the instances of stressed nurses in the sampled hospitals.

The analysis outcome revealed that work-related stress had the highest impact on job satisfaction in terms of work conditions among nurses as facilitated by burnout. Therefore, when nurses were stressed because of their work, they recorded the highest job dissatisfaction with the conditions of their work place. In one such study, work-related stress was determined to be negatively correlated with job satisfaction in a hospital in India (Gandhi *et al.*, 2014). Since stressed nurses are prone to burnout, their level of job satisfaction with the working conditions is highly influenced by the prevalence of work-related stress. On the same note, burnout provided the strongest descriptor of the relationship between work-related stress and job satisfaction among nurses. Therefore, those that are dissatisfied with their working conditions would most likely relate the dissatisfaction to burnout, which is closely linked to their work-related stress.

Additionally, there was a consistent link between low stress and low burnout and vice versa among hospital nurses in the sampled hospitals. Therefore, a hospital with a higher level of stressed nurses subsequently reported a high level of burnout among these individuals. Among the nurses working in the public (KFH) and university (KAUH) hospitals, those that reported high levels of stress and burnout also depicted low levels of job performance and high levels of dissatisfaction in terms of the hospital working conditions, work place relationships, and career advancement. This relationship concurs with a recent finding from a cross-sectional study, which found that staff stress and burnout compromised work productivity and job performance among nurses (Khamisa *et al.*, 2015).

In determining the moderated relationship between work-related stress and job satisfaction, Hayes (2012) moderated mediation analysis test was conducted. Consequently, the type of hospital moderated the mediation effect between burnout and all subscales of job satisfaction in both the public (KFH) and the university hospital (KAUH) but not the private hospital (IMC). In support of this finding, a recent study reported that burnout mediates work-related stress and job satisfaction to some extent (Tziner *et al*., 2015) .

Similarly, the moderation analysis test was conducted to determine the moderated relationship between work-related stress and job performance (Hayes, 2012). The results showed that the type of hospital moderated the mediation effect between burnout and job performance in all three types of hospital.

8.7 IMPLICATIONS

This thesis presents findings, which contribute to the existing knowledge base. In the region, particular additional contribution has been made on the prevalence of burnout among nurses in Saudi Arabia (AlSuliman & AlHablani, 2014), the effect of stress on job satisfaction among nurses (Saleh *et al*., 2013), and the mediated effect of variables on performance of nurses in Saudi Arabia (Al-homayan *et al*., 2013d).

In the general literature on the subject, this study adds knowledge on the subject of stress being a significant predictor of burnout among nurses as earlier noted by Guo *et al.* (2016), Hao *et al*. (2015) and Meyer *et al.* (2015). The importance of this contribution regards the context of this study as it is the first study on the specific subject in the region of Jeddah.

Although this study adopts two of Hayes' moderated mediation models, 58 and 75 (Hayes, 2013), the research has added to the literature new variables that may be tested and may be evaluated using these models. The study goes further to confirm the mediated and moderated relationships between variables. The study has provided additional mediators and variables that these base models could be used to test.

It confirms the prevalence of work-related stress and burnout in the three healthcare sectors: private, public and other-governmental agency hospitals in Jeddah, Saudi Arabia. Based on the results of the systematic review that was conducted prior to this study, this research is the first of its kind on this subject in Jeddah, Saudi Arabia. Previously, there was no existing research on work-related stress and burnout among hospital nurses working in Jeddah, Saudi Arabia.The significance of this addition lies in the unique socio-cultural characteristic of the region which hosts an international population of Islamic background, which also characterises

the population of nurses in the hospitals.Therefore,the interaction between the fabric of this population and the nursing services provides a unique setting where findings from other studies elsewhere would certainly pose limitations in applicability.

In addition, this study has expanded on the knowledge that work-related stress and burnout among nurses have a significant negative impact on the job performance and job satisfaction in Jeddah, Saudi Arabia. This study goes further to provide evidence of the existing positive relationship between work-related stress and burnout among the hospital nurses, work-related stress, and job satisfaction and job performance as mediated through burnout. In addition, it has determined that the levels of work-related stress and burnout have a negative effect on the job satisfaction and job performance of nurses in Jeddah, Saudi Arabia.

Methodologically, the use of a combination of four existing tools in the creation of the employed study tool provides evidence for further study. The tools synthesized for use were: the Health and Safety Executive (HSE) tool from the United Kingdom (Cousins *et al.,* 2004); Oldenburg Burnout Inventory (OBI) scale from the British Medical Association (Demerouti & Bakker, 2008); McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989 (Tourangeau *et al.,* 2006); and The Nurse Professional Competence (NPC) Scale (Nilsson *et al.,* 2014). The resultant tool may be used in a similar investigation in a similar context.

Furthermore, this research contributes to the existing knowledge base that the relationship between work-related stress and job performance/job satisfaction exists among nurses in Jeddah, Saudi Arabia and is mediated by burnout. The study determined how work-related stress, burnout, job satisfaction and job performance is affected by the type of hospital that the nurses work in. This was made possible by the cross-sectional sampling of hospital types in Jeddah, Saudi Arabia.

This study provides a starting point for further research on the relationship between work-related stress and job satisfaction, burnout and performance outcomes of the nurses in other regions of Saudi Arabia and the Middle East. The socio-cultural contextual uniqueness of

Jeddah City and the western region of Saudi Arabia provides an impetus for researchers to further elucidate the subject in other socio-cultural contexts and demographic groups in the healthcare sector.

Based on the evidence herein, the prevalence of work-related stress and burnout among nurses in Jeddah hospitals provides healthcare stakeholders with the need to address this phenomenon especially because of its relationship with job performance and job satisfaction among nurses. Even though the evidence emanates from the nurses' population and not from other hospital personnel, findings from this study may be used to provide evidence of mediated and moderated relationships between work-related stress and job satisfaction/job performance through burnout.

The unique phenomenon of the role of stress on nurses working in private hospitals such as the IMC could be investigated further to either ascertain the findings corroborated in this study or to explore the differences that may emerge. A similar study on other healthcare practitioners such as physicians could also suggest a significant relationship between the effects of these variables on the healthcare population. The relationship between work-related stress and job satisfaction in private hospitals need further investigation as the initial findings in this study indicate a new positive association, which contradicts the normal theoretical, construct or expectations that work-related stress has a negative impact on job satisfaction.

Implications for Practice and further research

The first practical contribution of this study is to offer researchers and practitioners a tool to measure the relationship between work-related stress and job performance, work-related stress and job satisfaction amongst nurses. This study has merged key features of four tools to generate a singular tool that could be used to measure the relationship between: work-related stress and burnout, work-related stress and job satisfaction, work-related stress and job performance, and the moderated and mediated effects of these relationships.Therefore,the combined tool that has been tested and applied in this study could be adopted for the practical use in healthcare administration.

The findings of this study also provide practical implications to local healthcare administrators and researchers. The nursing administrators would benefit from the data provided in this study on the effects of stress on the performance and satisfaction of the nurses. Being the only study, to date, that specifically focuses on nurses in Jeddah, administrators would be able to use the data to improve the working conditions of nurses, working relationships among hospital personnel, and enhance career advancement prospects and policies to improve the performance of nurses.This study would provide a reference point for managers of private hospitals,public hospitals and university hospitals in the understanding of how to elevate performance and satisfaction through reduction of stress and burnout.

The study findings on the effect of the type of hospital on the nurses' performance, job satisfaction, level of work-related stress, and burnout provides key data to the policymakers to utilize the standards and practice of these hospitals to improve those that are negatively affected. Those who work within hospital management may find it useful to consider the available data in this study to determine the best practices based on the impact of the aforementioned hospital categories and their impact upon nurses.Therefore,findings from the study may be used to provide a variance to the audit indicators for the three types of hospitals used.For instance the boards of private hospitals may use the findings of this study to evaluate the stress levels,burnout,satisfaction and performance of their nurses.

Healthcare managers would benefit from this study by evaluating their institutional work-related stress management programs and burnout interventions practices. This study provides managers with comparative data nationally and regionally that could be critical for initiating intervention programs. Based on this study, managers would develop strategies to reduce stress among nurses through better staffing and balanced workload so that the quality of nursing services improves. It would also be prudent for the managers to structure policies that would address and take into consideration the nursing characteristics including but not limited to: part-time versus full-time nurses; experienced versus inexperienced nurses; and Saudi versus non-Saudi nurses.

It should be noted that by the end of this study, the Saudi Arabian government unveiled a vision 2030 blueprint. In this plan, the healthcare sector is geared towards corporatization to enable the public hospitals to enhance transparency and competitiveness. In this plan, the government healthcare centres and hospitals shall be owned by public companies, which shall compete with each other and the private sector (Tobergte & Curtis, 2016). Therefore, the findings of this study shall provide a threshold for understanding the effect of work-related stress and burnout on the performance and job satisfaction of the nurses. This information shall be relevant to hospital managers since the hospitals will become a field of competition between corporations and private sector hospitals, which are largely staffed by nurses.

8.8 STRENGTHS AND LIMITATIONS

A key strength of this study is the strong response rate of the sampled nursing population, which resulted in the collation of 659 responses. The nurses from the selected hospitals provided substantial data through their responses in the data collection period. Secondly, the use of the systematic review of previous studies on work-related stress among nurses in Saudi Arabia prior to the full study enabled data-driven decisions as to the focus of the study. The gap identified in the existing evidence base lay in the setting of the study and the methods of the studies conducted in the region.

Limitations of the study include:

1. There is a possible sampling bias as the study was done in one city hence a singular source of data. In addition,data collected from the private hospital was from a limited response rate in comparison to the other hospitals. This limitation could have been overcome by sampling hospitals from different cities, otherwise, the method used poses the risk of inflation of results by common method variance. However, this was unavoidable, as most of these variables could only be gathered by self-reported data but the author has mitigated the extent of this by determining adequate discriminant validity between the variables using confirmatory factor analysis.
2. In addition, sampling was done across hospital types in the existing sectors of the MOH hospitals. However, only one representative hospital was used as a sample. This leaves

the possibility that the conditions in the specific sampled hospital may vary considerably from the conditions in other hospitals from the same hospital type.

3. The generalisability and study design are cross-sectional and only provide a snapshot within the study period. With a different time-frame, differing results may be reported. It is therefore the intention of the author to use this research as a threshold for further investigation into the subject. Since the study's context was in the western province of Saudi Arabia, in the city of Jeddah, it would be useful to investigate the possibility of replicating this study in other sections of Saudi Arabia for a comparative observation, and also to use longitudinal research to examine whether there is evidence of changes over time. Reverse relationships between variables could also be investigated in future research.
4. A less than perfect measurement of some variables resulted in some lower fit statistics. The author recognizes that there are many other potential factors that might also impact on these variables and relationships that were beyond the scope of this study. However, the author used the best fit possible in cases when it could not be improved any further, and therefore this was the best way of using the data.
5. There are several ongoing changes in Saudi Arabia e.g., it is a country that has just survived the Arab spring (Rosza *et al.,* 2012) around its neighbouring countries, a country at that is at war with Yemen (Popp, 2015), and a country that has actively invested in an ambitious vision 2030 (Tobergte & Curtis, 2016). Consequently, researchers may consider these contemporary factors at the time of the study when they replicate these methods. This study is limited to Saudi Arabia hospital settings hence care should be taken regarding its extrapolation to other international healthcare settings.

8.9 RECOMMENDATIONS FOR POLICY AND PRACTICE

Recommendations to review the MOH policies and operation guidelines in Saudi Arabia have been advocated for by previous studies on this subject (Almalki *et al.*, 2011). This study provides additional evidence for the impact of work-related stress and burnout on job performance and satisfaction in all three sectors of the MOH hospitals.

1. There is a need to establish the causes of work-related stress and mitigate them as they impact negatively on the performance of nurses in public and private hospitals.This study provide a negative correlation between work related stress and job performance in public hospitals and other governemental agencies' hospitals hence the need to provide ways to reduce the level of work related stress among nurses in order to increase performance. A recommendation to review the allocation of tasks and responsibilities of nurses (Mahfouz *et al.*, 2004) is put forward. In effect, improved motivation may also increase nurses' job satisfaction, hence increasing retention and performance (Al-ahmadi, 2002).

2. Even though this study was conducted in Jeddah, which has some unique factors, the findings may be applied to all nurses working in Saudi Arabia since the study sampled hospitals from all sectors of healthcare providers. Key issues have been noted regarding the impact of the type of hospital and the performance of the nurses, the relationship between the age of the nurses and their job satisfaction and performance levels, the effect of experience on the performance of nurses, and their job satisfaction and the vulnerability of the nursing fraternity to burnout. These aspects have important implications on the way the MOH applies its policies to the welfare of nurses. Previous research findings have indicated that with the few welfare-related policies that exist in the MOH, nurses report that those policies are rarely followed by the nursing management (Mitchell, 2009). Therefore, it is the recommendation of this study that the MOH establishes a section that devotes its emphasis on compliance with hospital management to the existing policies and regulations through random spot checks and systematized standardization visits that focus on the nurses' welfare conditions

especially in relation to job satisfaction with work conditions, career advancement prospects, and working relationships.

3. This study also recommends increasing the number of Saudi Arabian nurses and providing stress management programs to target these nurses. This study found that the ratio of nurses to sampled public hospital beds in Jeddah was one to one . With an increase of Saudi Arabian nurses from the current 36% of the nursing population, there would be less shortage and a ready supply of these skilled nursing personnel, hence reducing the current need for nurses (WHO, 2013) to be recruited from other countries, which can contribute to the instability of staffing. In addition, employment of Saudi Arabian nurses would cut the costs of healthcare staffing, hence investing more on quality improvement programs in order to meet the Saudi Arabian vision 2030 (Tobergte & Curtis, 2016).
4. However, the findings from the literature review during this study indicate that Saudi Arabian nurses are less effective and more dissatisfied with their jobs than expatriate nurses. Therefore, the MOH should consider this challenge and implement targeted training and performance improvement programs to reverse the situation to target native nurses, inexperienced nurses, and part-time nurses. This would reduce the dependence on foreign nurses who have previously dominated the healthcare services in Saudi Arabia (Lingawi *et al*., 2014).
5. Currently, Saudi Arabia spends only 4% of its total GDP on healthcare, which is less than half of what the UK spends and about 20% of what the USA spends (WHO, 2013). Another recommendation of this study is that the government increases the allocation of spending on the healthcare system to improve the working conditions of the nurses in Saudi Arabia, which would in return attract more Saudi Arabian nurses to the profession and increase their productivity. This study provided findings that the work conditions and career advancement positively impacts performance hence the need for the government to invest in programs and facilties that elevate the work conditions and professional advancement of nurses.
6. Findings from this study provides effect of work relationship on performance and satisfaction of nurses.This nrelationship deteriorates when nurses are in abusive

environments.Other research has reported a significant number of nurses experience both verbal and physical abuse from patients. 50% of the sampled nurses in the study described feeling helpless in responding to the alleged abuse (Almalki, 2012) due to the existing policies that disadvantage the nurses' position. More than half of the nurses report policies and procedures that are unsupportive to their plight (Almalki *et al*., 2012). Such working conditions and relationships have a significant negative impact on the performance of the nurses hence risking the healthcare service provided to the population.

7. It is the recommendation of this study that an integrated stress prevention and management program be developed in the healthcare system of Saudi Arabia with both a personal and organisational centred approach to address the prevailing concern of work-related stress, burnout, job satisfaction and job performance. The intervention would be most effective if it involves input from nurses and the hospital management as well as the MOH.

8.10 CONCLUSION

This study has used a cross-sectional survey design to examine work-related stress in Saudi hospitals and to provide empirical evidence and recommendations to the Saudi Arabia healthcare system that could facilitate the understanding and management of work-related stress and burnout vis-a-vis job satisfaction and performance among hospital nurses working in different types of hospitals in Saudi Arabia.

Findings from this study have provided empirical evidence that there is evidence of work-related stress among nurses in Jeddah, Saudi Arabia. The level of work-related stress varied depending on the type of hospital that the nurses worked in, the age of the nurses, the experience of the nurses, the citizenship of the nurses, and the employment status of the nurses. Furthermore, there was a relationship between levels of work-related stress and burnout among hospital nurses working in Jeddah, Saudi Arabia. In addition, there is a mediated relationship between work-related stress and burnout and a moderated mediation difference between the

type of hospitals. Both work-related stress and burnout have shown an effect on the level of job satisfaction of nurses and their job performance.

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Appendix A : Health and Safety Executive (HSE) tool

HSE MANAGEMENT STANDARDS INDICATOR TOOL

Instructions: It is recognised that working conditions affect worker well-being. Your responses to the questions below will help us determine our working conditions now, and enable us to monitor future improvements. In order for us to compare the current situation with past or future situations, it is important that your responses reflect your work in the last six months.

		Never	Seldom	Sometimes	Often	Always
1	I am clear what is expected of me at work	☐1	☐2	☐3	☐4	☐5
2	I can decide when to take a break	☐1	☐2	☐3	☐4	☐5
3	Different groups at work demand things from me that are hard to combine	☐5	☐4	☐3	☐2	☐1
4	I know how to go about getting my job done	☐1	☐2	☐3	☐4	☐5
5	I am subject to personal harassment in the form of unkind words or behaviour	☐5	☐4	☐3	☐2	☐1
6	I have unachievable deadlines	☐5	☐4	☐3	☐2	☐1
7	If work gets difficult, my colleagues will help me	☐1	☐2	☐3	☐4	☐5
8	I am given supportive feedback on the work I do	☐1	☐2	☐3	☐4	☐5
9	I have to work very intensively	☐5	☐4	☐3	☐2	☐1
10	I have a say in my own work speed	☐1	☐2	☐3	☐4	☐5
11	I am clear what my duties and responsibilities are	☐1	☐2	☐3	☐4	☐5
12	I have to neglect some tasks because I have too much to do	☐5	☐4	☐3	☐2	☐1
13	I am clear about the goals and objectives for my department	☐1	☐2	☐3	☐4	☐5
14	There is friction or anger between colleagues	☐5	☐4	☐3	☐2	☐1
15	I have a choice in deciding how I do my work	☐1	☐2	☐3	☐4	☐5
16	I am unable to take sufficient breaks	☐5	☐4	☐3	☐2	☐1
17	I understand how my work fits into the overall aim of the organisation	☐1	☐2	☐3	☐4	☐5
18	I am pressured to work long hours	☐5	☐4	☐3	☐2	☐1
19	I have a choice in deciding what I do at work	☐1	☐2	☐3	☐4	☐5

20	I have to work very fast	Never ☐5	Seldom ☐4	Sometimes ☐3	Often ☐2	Always ☐1
21	I am subject to bullying at work	Never ☐5	Seldom ☐4	Sometimes ☐3	Often ☐2	Always ☐1
22	I have unrealistic time pressures	Never ☐5	Seldom ☐4	Sometimes ☐3	Often ☐2	Always ☐1
23	I can rely on my line manager to help me out with a work problem	Never ☐1	Seldom ☐2	Sometimes ☐3	Often ☐4	Always ☐5
24	I get help and support I need from colleagues	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
25	I have some say over the way I work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
26	I have sufficient opportunities to question managers about change at work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
27	I receive the respect at work I deserve from my colleagues	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
28	Staff are always consulted about change at work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
29	I can talk to my line manager about something that has upset or annoyed me about work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
30	My working time can be flexible	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
31	My colleagues are willing to listen to my work-related problems	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
32	When changes are made at work, I am clear how they will work out in practice	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
33	I am supported through emotionally demanding work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5
34	Relationships at work are strained	Strongly disagree ☐5	Disagree ☐4	Neutral ☐3	Agree ☐2	Strongly agree ☐1
35	My line manager encourages me at work	Strongly disagree ☐1	Disagree ☐2	Neutral ☐3	Agree ☐4	Strongly agree ☐5

Thank you for completing the questionnaire.

Appendix B : Oldenburg Burnout Inventory (OBI) scale

Oldenburg Burnout Inventory

Instructions: The following statements refer to your feelings and attitudes during work. Please indicate to what extent you agree with each of the following statements by selecting the number that corresponds with the statement.

	Strongly Agree	Agree	Disagree	Strongly Disagree
	1	2	3	4
1. Bei meiner Arbeit entdecke ich immer wieder neue, interessante Aspekte. *(Disengagement)*				I always find new and interesting aspects in my work
2. Es gibt Tagen, daß ich mich schon vor der Arbeit müde fühle. *(Exhaustion) R*				There are days when I feel tired before I arrive at work
3. Es passiert mir immer öfter, daß ich mich abwertend über meine Arbeitstätigkeit äußere. *(Disengagement) R*				It happens more and more often that I talk about my work in a negative way
4. Nach der Arbeit brauche ich jetzt oft längere Erholungszeiten als früher, um wieder fit zu werden. *(Exhaustion) R*				After work, I tend to need more time than in the past in order to relax and feel better
5. Die Belastung durch meine Arbeit ist ganz gut zu ertragen. *(Exhaustion)*				I can tolerate the pressure of my work very well
6. Ich neige in letzter Zeit vermehrt dazu, bei meiner Arbeit wenig zu denken, sondern sie fast mechanisch zu erledigen. *(Disengagement) R*				Lately, I tend to think less at work and do my job almost mechanically
7. Meine Arbeit stellt viele Herausforderungen an mich. *(Disengagement)*				I find my work to be a positive challenge
8. Ich habe bei der Arbeit immer häufiger das Gefühl, emotional ausgelaugt zu sein. *(Exhaustion) R*				During my work, I often feel emotionally drained
9. Mit der Zeit verliert man die innere Beziehung zur eigenen Arbeit. *(Disengagement) R*				Over time, one can become disconnected from this type of work
10. Nach der Arbeit bin ich in der Regel noch ganz fit für meine Freizeitaktivitäten. *(Exhaustion)*				After working, I have enough energy for my leisure activities
11. Manchmal bin ich von meiner Arbeitstätigkeit richtiggehend angewidert. *(Disengagement) R*				Sometimes I feel sickened by my work tasks
12. Nach der Arbeit fühle ich mich in der Regel schlapp und abgespannt. *(Exhaustion) R*				After my work, I usually feel worn out and weary

13.	Ich kann mir für mich keinen anderen Beruf vorstellen. *(Disengagement)*	This is the only type of work that I can imagine myself doing.
14.	In der Regel kann ich meine Arbeitsmenge gut schaffen. *(Exhaustion)*	Usually, I can manage the amount of my work well
15.	Mit der Zeit engagiere ich mich immer mehr bei meiner Arbeit. *(Disengagement)*	I feel more and more engaged in my work
16.	Während meiner Arbeit fühle ich mich total belebt. *(Exhaustion)*	When I work, I usually feel energized

Explanations

1. The OLBI measures the two core dimensions of burnout, namely exhaustion and disengagement. For both dimensions, four items are phrased negatively, and four items are phrased positively.

2. The answer categories in German are 1 = völlig zutreffend (strongly agree) to 4= völlig unzutreffend (strongly disagree).

3. Items marked with an R have to be reversed before the average scores for each sub-scale are calculated. This means the following recoding (1=4, 2=3, 3=2, 4=1). In this way higher scores indicate higher exhaustion and disengagement.

Please refer to the following source:

Demerouti, E., Bakker, A.B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment, 19*, 12-23.

Remark

The OLBI can be used for free for scientific studies, under the agreement that the authors may use the data for further validation of the instrument. Please send the data, including information on gender, age, education, organizational tenure, and type of occupation, to:

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Appendix C : McCloskey/Mueller Satisfaction Scale (MMSS)

NURSING WORK-RELATED STRESS, BURNOUT, PERFORMANCE AND JOP SATISFACTION SURVEY

McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989 (Neal 2012)

Please read each of the following statements. Put a Tick in the block along the disagree-agree scale that indicates your feelings today. How satisfied are you with the following aspects of your current job? **Please circle the number that applies**. used on your unit (e.g. functional, team, primary).

1.		Very Satisfied	Moderately Satisfied	Neither Satisfied nor Dissatisfied	Moderately Dissatisfied	Very Dissatisfied
2.	Salary	5	4	3	2	1
3.	Vacation	5	4	3	2	1
4.	Benefits package (insurance, Retirement)	5	4	3	2	1
5.	Hours that you work	5	4	3	2	1
6.	Flexibility in scheduling your hours	5	4	3	2	1
7.	Opportunity to work straight days	5	4	3	2	1
8.	Opportunity for part-time work	5	4	3	2	1
9.	Weekends off per month	5	4	3	2	1
10.	Flexibility in scheduling your weekends off	5	4	3	2	1
11.	Compensation for working weekends	5	4	3	2	1
12.	Maternity leave time	5	4	3	2	1
13.	Child care facilities	5	4	3	2	1
14.	Your immediate supervisor	5	4	3	2	1
15.	Your nursing peers	5	4	3	2	1
16.	The physicians you work with	5	4	3	2	1
17.	Opportunities for social contact at work	5	4	3	2	1
18.	Opportunities for social contact with your colleagues after work	5	4	3	2	1
19.	Opportunities for interact professionally with other disciplines	5	4	3	2	1
20.	Opportunities to interact with faculty of the College of Nursing	5	4	3	2	1
21.	Opportunities to belong to department and institutional committees	5	4	3	2	1
22.	Control over what goes on in your work setting	5	4	3	2	1
23.	Opportunities for career advancement	5	4	3	2	1

24.	Recognition for your work from superiors	5	4	3	2	1
25.	Recognition of your work from peers	5	4	3	2	1
26.	Amount of encouragement and positive feedback	5	4	3	2	1
27.	Opportunities to participate in nursing research	5	4	3	2	1
28.	Opportunities to write and publish	5	4	3	2	1
29.	Your amount of responsibility	5	4	3	2	1
30.	Your control over work conditions	5	4	3	2	1

Appendix D : Nurse Professional Competence (NPC) Scale

Table 1
Factor loadings of principal component analysis after varimax rotation.

Items (n = 88) Ability to …	Factors								Communalities	Cronbach's alpha
	1	2	3	4	5	6	7	8		
Nursing care, 15 items									0.72	0.90
–Enhance patient health	**.41**	.15	.11	.32	.01	.03	.16	.03		
–Independently apply the nursing process (assessment)	**.69**	.14	.28	.08	.08	.06	.14	.11		
–Independently apply the nursing process (nursing diagnosis)	**.66**	.08	.24	.08	.04	.08	.16	.15		
–Independently apply the nursing process (nursing intervention)	**.63**	.06	.26	.13	.04	.03	.14	.08		
–Independently apply the nursing process (planning, implementation and evaluation)	**.66**	.12	.27	.08	.06	.04	.12	.13		
–Meet patient's basic physical needs	**.57**	.19	.28	.13	.13	.02	.13	.02		
–Meet patient's specific physical needs	**.55**	.12	.31	.15	.02	.09	.14	.11		
–Meet patient's psychological and social needs	**.60**	.11	.10	.35	.04	.21	.16	.03		
–Meet patient's cultural and spiritual needs	**.41**	.07	.19	.34	.01	.31	.22	.07		
–Manage changes in patient's physical status	**.56**	.02	.43	.13	.10	.15	.13	.15		
–Document patient's physical status	**.50**	.10	.39	.04	.32	.04	.07	.02		
–Manage changes in patient's psychological status	**.61**	.07	.03	.24	.03	.25	.18	.11		
–Document patient's psychological status	**.56**	.13	.04	.15	.12	.24	.09	.01		
–Recognise patient's experiences and suffering	**.43**	.26	.08	.34	.15	.09	.09	.01		
–Alleviate patient's experiences and suffering	**.43**	.11	.20	.40	.11	.14	.13	.03		
Value-based nursing care, 8 items									0.46	0.85
–Respectfully communicate with patients, relatives and staff	.25	**.42**	.08	.28	.26	.01	.01	.01		
–Perform nursing care based on humanistic values	.10	**.68**	.09	.05	.13	.03	.23	.04		
–Show respect for patient autonomy, integrity and dignity	.13	**.78**	.11	.02	.08	.00	.06	.04		
–Enhance patients' and relatives' knowledge and experiences	.12	**.64**	.10	.26	.04	.13	.14	.07		
–Show respect for different values and beliefs	.09	**.76**	.05	.09	.03	.12	.10	.05		
–Act upon patients' and relatives' wishes and needs	.14	**.66**	.07	.24	.03	.11	.17	.09		
–Use principles of research ethics	.06	**.40**	.11	.03	.01	.19	.41	.10		
–Contribute to a holistic view of the patient	.17	**.52**	.14	.12	.08	.09	.34	.10		
Medical technical care, 10 items									0.69	0.85
–Manage drugs and clinical application of knowledge in pharmacology	.29	.03	**.57**	.07	.12	.09	.03	.08		
–Independently perform or participate in examinations and treatments	.19	.05	**.56**	.14	.11	.12	.15	.20		
–Independently administer prescriptions	.23	.04	**.56**	.11	.00	.11	.09	.16		
–Pose questions about unclear instructions	.09	.06	**.42**	.25	.19	.10	.19	.12		
–Support patients during examinations and treatments	.18	.23	**.41**	.34	.17	.10	.22	.04		
–Follow up on patient's conditions after examinations and treatments	.20	.15	**.53**	.23	.12	.14	.18	.01		
–Handle medical/technical equipment according to legislation and safety routines	.16	.14	**.61**	.08	.13	.20	.14	.07		
–Apply hygienic principles and routines	.10	.39	**.40**	.10	.11	.14	.15	.07		
–Prevent complications in relation to care	.29	.04	**.38**	.18	.04	.20	.33	.01		
–Prevent transmission of pathogenic microorganisms	.21	.24	**.40**	.10	.12	.22	.22	.10		
Teaching/learning and support, 11 items									0.61	0.89
–Provide patients and relatives with support to enhance participation in patient care	.26	.27	.05	**.55**	.21	.05	.12	.10		
–Inform and educate individual patients and relatives	.20	.19	.24	**.56**	.22	.03	.17	.23		
–Inform and educate groups of patients and relatives	.10	.08	.07	**.66**	.08	.17	.07	.35		
–Make sure that information given to the patient is understood	.19	.23	.17	**.49**	.18	.07	.11	.04		
–Pay attention to patients who do not themselves express information needs	.29	.18	.17	**.38**	.10	.07	.24	.09		
–Motivate the patient to adhere to treatments	.11	.12	.35	**.49**	.07	.12	.23	.05		
–Identify and prevent risk factors for ill health	.18	.04	.20	**.42**	.00	.14	.34	.04		
–Motivate changes in lifestyle	.17	.06	.14	**.57**	.04	.16	.27	.03		
–Identify and assess patient's ability to self-care	.21	.09	.14	**.49**	.08	.18	.33	.11		
–Educate and support patients and relatives individually to enhance health	.23	.14	.16	**.58**	.03	.19	.32	.12		
–Educate and support patients and relatives in groups to enhance health	.14	.04	.04	**.65**	.06	.22	.19	.28		
Documentation and information technology, 4 items									0.71	0.75
–Make use of relevant data in patient records	.29	.09	.43	.10	**.53**	.07	.06	.04		
–Scrutinise the quality of own documentation	.25	.12	.31	.21	**.56**	.04	.14	.01		
–Use information technology as a support in nursing care	.07	.19	.31	.00	**.41**	.19	.18	.08		
–Document according to current legislation	.33	.05	.39	.05	**.39**	.15	.08	.09		
Legislation in nursing and safety planning, 9 items									0.59	0.84
–Comply with current legislation and routines	.14	.27	.39	.09	.20	**.41**	.22	.11		
–Handle sensitive personal data in a safe way	.10	.35	.28	.09	.28	**.34**	.06	.01		
–Advocate patients' rights	.17	.25	.21	.19	.13	**.45**	.14	.01		
–Provide contact with the right authority regarding patients' rights	.21	.06	.17	.24	.05	**.55**	.16	.12		
–Comply with safety routines and notify according to current legislation	.12	.10	.17	.12	.07	**.60**	.18	.09		
–Act adequately in the event of unprofessional conduct among employees	.10	.05	.13	.28	.04	**.56**	.20	.15		
–Manage violent and/or threatening situations	.15	.05	.06	.16	.03	**.51**	.15	.31		
–Act according to regulations in case of a fire or other devastating events	.07	.07	.25	.06	.02	**.52**	.24	.31		
–Apply principles of disaster medicine	.14	.06	.17	.08	.04	**.43**	.28	.38		
Leadership in and development of nursing, 26 items									0.75	0.94
–Participate in continuous quality assurance and patient safety work	.09	.04	.17	.09	.21	.40	**.41**	.14		
–Act based on an environmentally friendly perspective	.08	.15	.16	.03	.05	.35	**.42**	.09		
–Motivate and contribute to a good care environment	.19	.16	.01	.11	.15	.26	**.56**	.04		
–Care for an esthetical care environment	.21	.17	.06	.18	.04	.25	**.47**	.09		
–Participate in improvement of work environments	.09	.06	.01	.09	.13	.29	**.61**	.05		
–Observe work-related risks and prevent them	.07	.07	.10	.14	.04	.33	**.61**	.12		
–Critically reflect upon current routines and methods	.12	.11	.11	.05	.37	.10	**.53**	.12		
–Inspire dialogue for implementation of new knowledge	.11	.02	.02	.19	.32	.15	**.56**	.22		
–Search and review relevant literature for evidence-based nursing	.11	.20	.19	.02	.41	.01	**.52**	.05		

Table 1 (*continued*)

Items (n = 88) Ability to …	Factors								Communalities	Cronbach's alpha
	1	2	3	4	5	6	7	8		
–Implement new knowledge for evidence-based nursing	.13	.07	.11	.14	.26	.13	**.56**	.21		
–Initiate, participate in and/or carry out development activities for improved care	.11	.04	.04	.13	.21	.14	**.61**	.30		
–Initiate and participate in research	.07	.10	.04	.02	.22	.10	**.56**	.23		
–Independently analyse own professional strength and weaknesses	.08	.31	.16	.12	.22	.02	**.39**	.10		
–Continuously engage in professional development	.09	.34	.12	.09	.23	.01	**.42**	.08		
–Lead and develop health staff teams	.28	.08	.36	.19	.06	.06	**.46**	.22		
–Evaluate actions taken by the health staff teams	.18	.05	.22	.20	.01	.06	**.53**	.16		
–Develop groups and manage conflicts	.13	.06	.06	.29	.13	.25	**.47**	.25		
–Motivate the team and give feed-back	.08	.16	.13	.25	.01	.12	**.53**	.22		
–Involve staff in how to develop patient care	.08	.16	.11	.21	.01	.01	**.55**	.16		
–Provide person-centred care with focus on quality	.12	.16	.27	.17	.05	.01	**.61**	.03		
–Provide person-centred care with focus on economy	.06	.03	.18	.22	.16	.14	**.55**	.05		
–Enhance research and development	.07	.08	.08	.07	.07	.02	**.65**	.17		
–Lead and provide nursing care based on best knowledge	.13	.15	.31	.17	.11	.03	**.55**	.16		
–Participate in strategic planning and evaluation	.11	.07	.16	.13	.09	.11	**.55**	.26		
–Interact with other professionals in care pathways	.21	.26	.39	.04	.03	.00	**.45**	.20		
–Enhance information and communication to obtain continuity, effectiveness and quality	.16	.18	.37	.09	.06	.07	**.46**	.12		
Education and supervision of staff/students, 5 items									0.78	0.88
–Participate in supervision of staff/students in development activities for improved care	.12	.06	.10	.09	.18	.10	.37	**.56**		
–Teach, supervise and assess students	.09	.07	.12	.13	.07	.15	.27	**.70**		
–Supervise and educate staff	.10	.05	.16	.13	.04	.12	.33	**.71**		
–Development of health-care teams	.14	.07	.11	.12	.01	.12	.38	**.60**		
–Enable multi-professional education activities to optimise patient care?	.18	.01	.01	.14	.03	.19	.42	**.49**		

Bold text in the table indicates the highest loadings within each factor.

Appendix E : Participant information sheet

PARTICIPANT INFORMATION SHEET

You are invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. There are contact details in this document if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Research Project Title:
The Effect of Work-Related Stress and Burnout on Nursing Performance and Job Satisfaction: A Study of Saudi Arabia Hospitals.

Why is the research being carried out?
The aim of this research is to examine levels of work-related stress among nurses who work in different types of Saudi Arabian hospitals, and the impact this might have on job performance and work satisfaction.

The research is taking place between 2013 and 2017.

Why have I been Chosen?
You have been asked to take part because you currently work as a nurse in King Abdulaziz University Hospital.

Do I have to take part?
It is up to you whether or not to take part. If you do decide to take part you are still free to withdraw at any time and without giving a reason. We will ask you what to do with the data we have collected if you withdraw.

What do I have to do?
If you decide to participate, you will be asked to complete an online questionnaire. An invitation from the researcher containing a link to the survey will be sent to your email address. You can complete this in your own time, on any computer. The questionnaire will take approximately 20 minutes to complete. The questions ask about stress at work, job satisfaction and performance, and consist mainly of statements that you will be asked to agree to or not. You will not be expected to type lots of text, although you will be given the opportunity to provide your own comments at the end of the survey.

How long will the study last?
The research is taking place between March 2015 until May, 2015.

What are the possible disadvantages and risks of taking part?
We do not anticipate that there will be any risks or disadvantages to taking part.

What are the possible benefits of taking part?
Although there are no direct benefits associated with taking part in the research, the information you provide will lead to a better understanding of the relationship between work-related stress and job satisfaction and performance. This evidence will be used to make recommendations to the Saudi Arabia health care system about how to manage work-related stress, and the resources and facilities that might be required to do so.

Will my taking part in this project be kept confidential?
We are collecting anonymous data that will be analysed to tell us about the levels of stress among nurses in Saudi Arabia hospitals, and how this relates to job satisfaction and

performance. We will not ask for your name or other personal details as part of completing the survey.
To ensure that you can withdraw from the study at a later date, we will link your name and email address to the survey data using a unique identifying number. This information will be stored in an encrypted file held by the research team. No-one else will have access to this information. Other than the research team, no-one will know that you have taken part. We will not provide the names of participants to the organisation for which they work.

All information collected during this survey shall remain secure and confidential. Data will be stored on password protected devices.

What will happen to the results of the research project?
Ultimately, the result of the research shall serve as a threshold for recommendations for policy and procedure in the field of Nursing in Saudi Arabia. Publication of results may be found in King Abdulaziz University Library, Saudi Arabia and Sheffield University Library, United Kingdom.
At the onset, the findings will be written a thesis for the researcher's PhD. These findings will also be availed in publications accessed by other researchers and healthcare professionals. In addition, the research may be presented or may be part of a presentation at conferences.

Who is organising and carrying out the research?
This research is being carried out by Ameerah Qattan, a PhD student at the University of Sheffield in England and King Abdulaziz University in Saudi. As well as being a student, Ameerah works as a lecturer at King Abdulaziz University and has many years of experience working in hospitals.
The research is being supervised by Dr. Jeremy Dawson, Dr. Sarah Barnes and Prof. Tanwir Abdullah.

Who has reviewed the project?
The research has been closely reviewed by the project supervisors, and also by two independent academic assessors. The project has also been approved by The University of Sheffield ethics committee, and by each participating hospital.

What if I want to know more or wish to make a complaint about the research.
If you have any questions about the study, or about taking part, please contact the researcher,
Ameerah M.N. Qattan, BSc, MHA
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The University of Sheffield
Lecturer, Healthcare Services & Hospital Administration,
Faculty of Economic & administration, King Abdulaziz University
P. O. Box 40464
Jeddah 21499, Saudi Arabia
Email address: amqattan1@sheffield.ac.uk
Phone: +966 555614031

You may also contact the project supervisor:
Dr. Jeremy Dawson
School of Health and Related Research,
The University of Sheffield
Email: J.F.Dawson@Sheffield.ac.uk
Phone: +44 (0)114 222 3238

Appendix F : KAUH's ethical approval

KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
KING ABDULAZIZ UNIVERSITY
Faculty of Medicine

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك عبد العزيز
كلية الطب

Ref.FM: ..... الرقم: .....
Date: / / التاريخ: / / ١٤هـ
Encl.: ..... المرفقات: .....

UNIT OF
BIOMEDICAL ETHICS
Research Committee

To: Principal Investigator: Ameerah M.N Qattan
Supervisor: Jeremy Dawson
Local Supervisor: Prof.Mohammed Tanwier Abdullah

From: Professor. Hasan Alzahrani
Supervisor: Dr.Sarah Barnes

Date: Thursday, March 19, 2015 CC: Vice-Dean, University /Hospital Director & File & Expedite approval File

RE: The effect of work-related stress and burnout on nursing performance and job satisfaction: a study in Saudi Arabian hospitals. (Reference No 72-15)

The above titled research/study proposal has been examined with the following enclosures:
- The Study Protocol
- Questionnaire

The REC recommended granting permission of approval to conduct the project along the following terms:

1. Provide to committee" Continuing Review Progress Report "each 6 months.
2. Any amendments to the approved protocol or any element of the submitted documents should NOT be undertaken without prior re-submission to, and approval of the REC for prior approval.
3. Monitoring: the project may be subject to an audit or any other form of monitoring by the REC.
4. The PI is responsible for the storage and retention of original data of the study for a minimum period of five years.
5. The PI must inform / report REC & Sponsor by any SAE "Serious Adverse Event" within one working day.
6. The PI is expected to submit a final report at the end of the study.
7. To follow all regulations issued by the National Committee of Bio & Med ethics - King Abdul Aziz City for Science and Technology.
8. If the study is RCT the PI must registrer the study within one the RCT International Organizationsand and provide to the committee registration number within 4 weeks.

The Organization & operating procedure of the KAU. Faculty of Medicine - Research Ethics Committee(REC) are based on the Good Clinical Practice (GCP) Guidelines.

PLEASE NOTE THAT THIS APPROVAL IS VALID FOR ONE YEAR COMMENCING FROM THE DATE OF THIS LETTER.

Professor Hasan Alzahrani

Chairman of the Research Ethics Committee

(HA-02-J-008) No of Registration At National Committee of Bio. & Med. Ethics.
Yasser Alshreaah (Reference No 72-15)

Appendix G : KFH's ethical approval

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
إدارة البحوث والدراسات الطبية

وزارة الصحة
Ministry of Health

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى الملك فهد العام بمحافظة جدة

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث كالتالي:

اسم الباحثة:	أميرة محمد نور عبد الرحمن قطان
رقم البحث:	٥٨٣-
رقم الموافقة:	A-٢٤٩
عنوان البحث	أثر ضغوط العمل والإرهاق على أداء التمريض والرضا الوظيفي ، دراسة في مستشفيات المملكة العربية السعودية.
مدة الموافقة:	٦ أشهر

وبعد الاطلاع ودراسة منهجية البحث من قبل اللجنة العلمية ولجنة اخلاقيات البحث العلمي المسجلة لدى اللجنة الوطنية للأخلاقيات الحيوية والطبية برقم (H-٢-J-٠٠٢) وجد انه لا مانع من إجراء البحث.

على تسهيل مهمة الباحث في إجراء البحث مع مراعاة الآتي:

١. اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.
٢. في حال أي تغيير في خطة البحث يجب الحصول على موافقة إدارة الأبحاث.
٣. عدم تأثر الخدمة في المرافق المعنية.
٤. المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.
٥. استخدام المعلومات لأغراض البحث العلمي فقط.
٦. تقديم تقرير عن سير الدراسة لإدارة البحوث كل ثلاثة أشهر.

شاكرين تعاونكم.

ولكم تحياتي،،

مدير إدارة البحوث والدراسات الطبية
د/ محمد عبد الرؤوف توفيق
١٤٣٦/٦/١١هـ

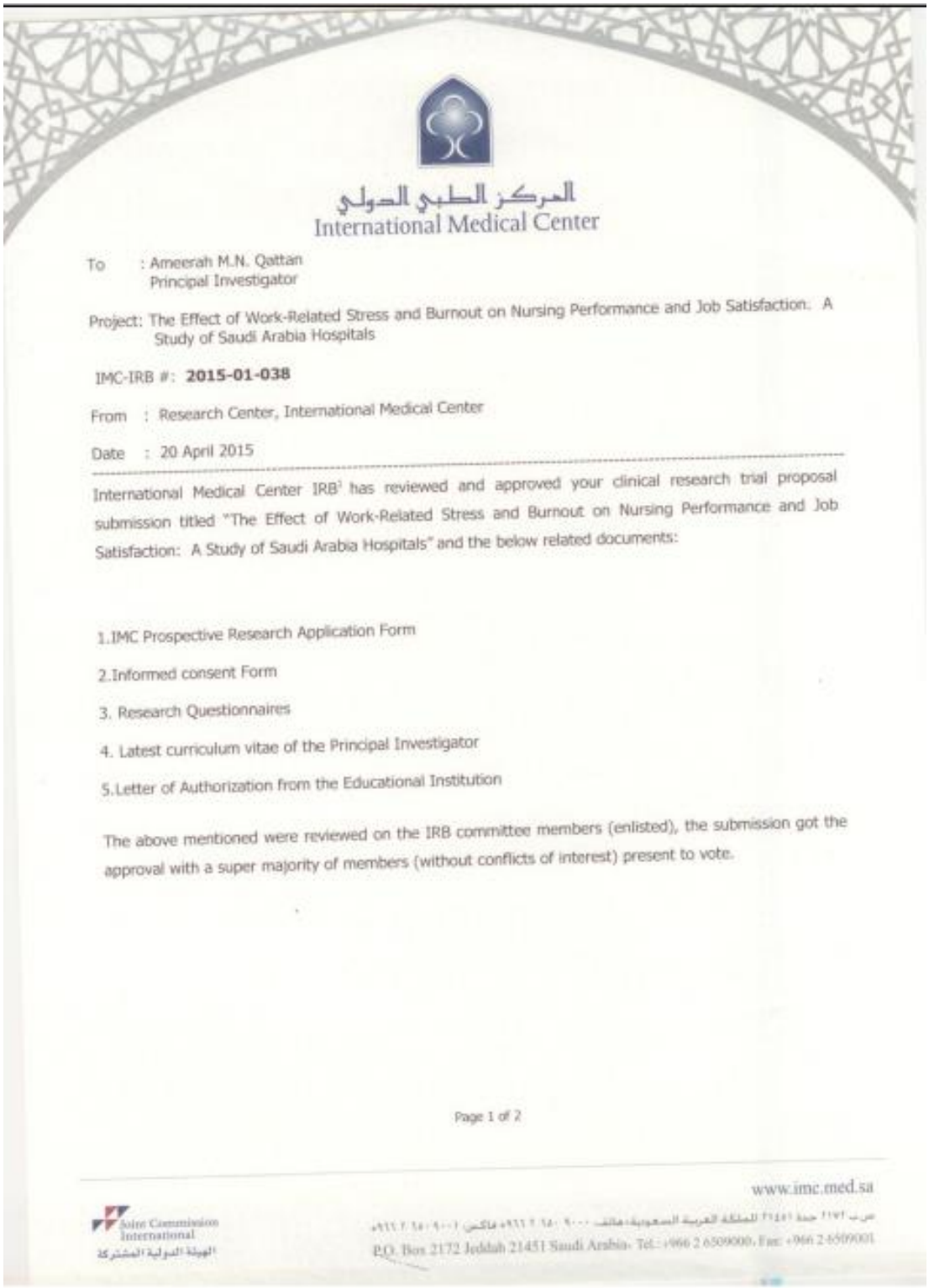
مساعد مدير الشؤون الصحية للتخطيط والتطوير
بمحافظة جدة
٦/١٣
١٤٣٦هـ
د/ محمود مدني العلي

الرقم: ٢٢٤٢٩٥٠٦ التاريخ: ١٤٣٦/٦/١٧هـ المشفوعات:

هاتف: ٠٢٦٥٣١٣٧ / ٠٢٦٥٣١٣٧ فاكس: ٠٢٦٥٣٣٣٣١ ص.ب: ١٢٤٩٣ جدة: ٢١٢٧٦
Tel.: 02-6651377 /02-6675806 Fax : 02-6622961 P.O. Box : 12493 Jeddah 21276

موقع الكتروني: www.moh.gov.sa

Appendix H : IMC's ethical approval



المركز الطبي الدولي
International Medical Center

To : Ameerah M.N. Qattan
Principal Investigator

Project: The Effect of Work-Related Stress and Burnout on Nursing Performance and Job Satisfaction. A Study of Saudi Arabia Hospitals

IMC-IRB #: **2015-01-038**

From : Research Center, International Medical Center

Date : 20 April 2015

International Medical Center IRB' has reviewed and approved your clinical research trial proposal submission titled "The Effect of Work-Related Stress and Burnout on Nursing Performance and Job Satisfaction: A Study of Saudi Arabia Hospitals" and the below related documents:

1.IMC Prospective Research Application Form

2.Informed consent Form

3. Research Questionnaires

4. Latest curriculum vitae of the Principal Investigator

5.Letter of Authorization from the Educational Institution

The above mentioned were reviewed on the IRB committee members (enlisted), the submission got the approval with a super majority of members (without conflicts of interest) present to vote.

Page 1 of 2

www.imc.med.sa

Joint Commission International
الهيئة الدولية المشتركة

P.O. Box 2172 Jeddah 21451 Saudi Arabia. Tel.: +966 2 6509000. Fax: +966 2 6509001

المركز الطبي الدولي
International Medical Center

IMC IRB Member Attendees to Vote

S. No	Name	Position/Title
1	Abdul Hameed Hassan	Consultant, Family Medicine
2	Hamzah I. Al Arqan	Associate Consultant, Internal Medicine
3	Ibrahim Mansoor	Consultant, Anatomical Pathology & Clinical Chemistry
4	Mohammad A. Alber	Consultant, Islamic Medicine
5	Mohammed Janish	Clinical Research Coordinator
6	Mohammed K. Ali	Oncology Clinical Pharmacist
7	Nadia Ghannam	Consultant, Endocrine
8	Nawal R. abul khoudoud	Consultant, Internal Medicine
9	Neil L. McCaskill	Manager, Respiratory

Good luck and we wish you all the success. Please be reminded to submit a bi-annual progress report as per IRB policy.

Regards,

Executive Director, Research Center

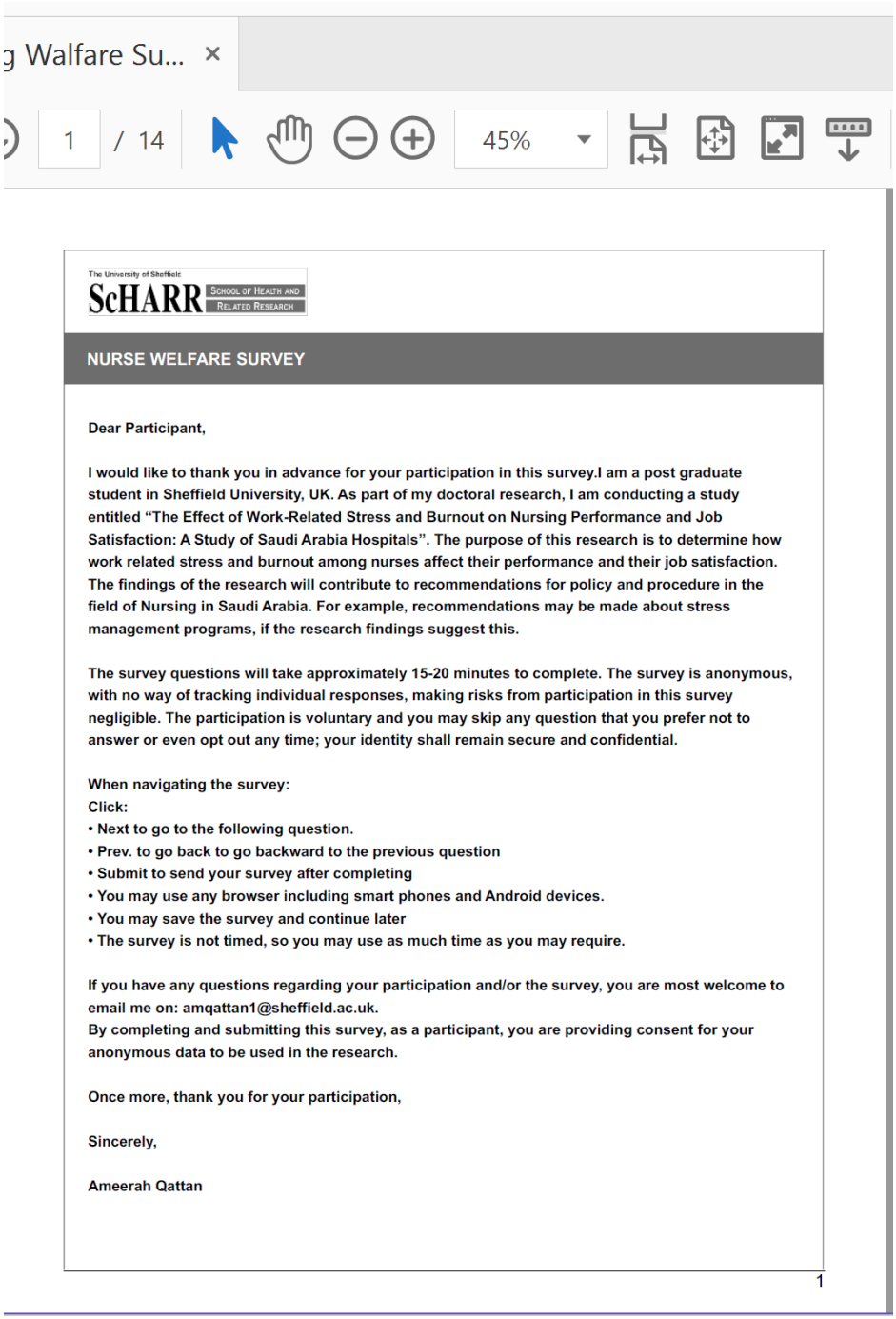
'International Medical Center IRB is an Institutional Review Board, established in accordance with 7 CFR 1.107, 10 CFR 745.107, 14 CFR 1230.107, 15 CFR 27.107, 16 CFR 1028.107, 21 CFR 56.107, 22 CFR 225.107, 24 CFR 60.107, 28 CFR46.107, 32 CFR 219.107, 34 CFR 97.107,38 CFR 16.107, 40 CFR 26.107, 45CFR 46.107, 45 CFR 690.107, or 49 CFR 11.107 and in compliance to ICH GCP.

Cc:
- Dr. Walid Fithahi
- Prof. Ezzadin Ibrahim
- Research Center file

Joint Commission International
الهيئة الدولية المشتركة

www.imc.med.sa
ص.ب ٢١٧٢ جدة ٢١٤٥١ المملكة العربية السعودية، هاتف ٩٠٠٠ ٦٥٠ ٢ ٩٦٦+ فاكس ٦٥٠٩٠٠١ ٢ ٩٦٦+
P.O. Box 2172 Jeddah 21451 Saudi Arabia. Tel.: +966 2 6509000. Fax: +966 2 6509001

Appendix I : NURSING WELFARE SURVEY



عزيزي المشارك

أود أن أشكرك مقدما على مشاركتك في هذا الاستبيان. فانا طالبة في جامعة شفيلد ، المملكة المتحدة. وكجزء من برنامج الدكتوراه، فإنني أقوم بإجراء بحث عن " أثر ضغوط العمل والإجهاد على الأداء التمريضي والرضا الوظيفي: دراسة في مستشفيات المملكة العربية السعودية". والغرض من هذا البحث هو الحصول على المعلومات المتعلقة بكيفية تأثير ضغوط العمل والإجهاد بين الممرضات على أدائهم ورضائهم الوظيفي
ستكون نتيجة البحث في نهاية المطاف بمثابة توصيات للسياسات والإجراءات في مجال التمريض في المملكة العربية السعودية. وبالإضافة إلى ذلك، توصية بشأن الحد من الضغوطات بين الممرضات، من خلال برنامج إدارة الضغوط بين الممرضين، وتحديد نتائج البحوث التي تدعم هذه الفرضية

يتألف الاستبيان من مجموعة من الأسئلة تستغرق حوالي **15- 20** دقيقة للإجابة. وسيكون الاستبيان مجهولا ولن يتم المكافأة على المشاركة. وهو ما يجعل خطر المشاركة في هذه الدراسة ضئيلا. فالمشاركة تطوعية ويمكنك تخطي أي سؤال تفضل عدم الإجابة عنه أو حتى الانسحاب في أي وقت، وستبقى كافة معلوماتك امنه وسرية

عند التنقل بين أسئلة الاستبيان انقر على:

- التالي للانتقال إلى السؤال التالي
- السابق: العودة إلى الوراء لسؤال السابق
- إرسال: لإرسال الاستبيان الخاص بك بعد الانتهاء
- يمكنك استخدام أي متصفح بما في ذلك الهواتف الذكية
- يمكنك حفظ الاستبيان والاستمرار فيما بعد
- ليس هناك توقيت محدد للمسح، لذلك يمكنك استخدام الكثير من الوقت قدر ما تحتاج اليه

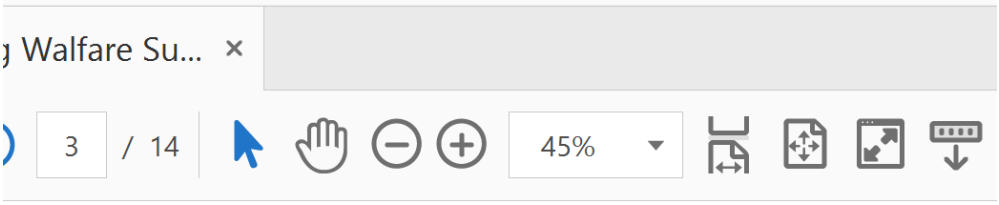
إذا كان لديك أي أسئلة بخصوص مشاركتك و / أو الاستبيان، فأرحب بمراسلتي عبر البريد الإلكتروني

amqattan1@sheffield.ac.uk

عن طريق تعبئة وتقديم هذه الدراسة، كمشارك، تقدم فيه موافقتك المسبقة والمساهمة في الأبحاث. مرة أخرى، أشكركم على مشاركتكم

مع خالص التقدير

أميرة قطان



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NURSE WELFARE SURVEY

Please respond to question 1-10 below on your general information:

Age العمر

- 21-29
- 30-39
- 40-49
- 50-59
- 60 or older 60 و ما فوق

Gender الجنس

- Male ذكر
- Female أنثى

Marital Status الحالة الاجتماعية

- Married متزوج
- Single, never married أعزب
- Widow أرمل
- Separated مطلق

If Non-Saudi please specify إذا كنت غير سعودي فالرجاء التحديد

Citizenship الجنسية

- Saudi Arabian سعودي
- Non-Saudi Arabian غير سعودي

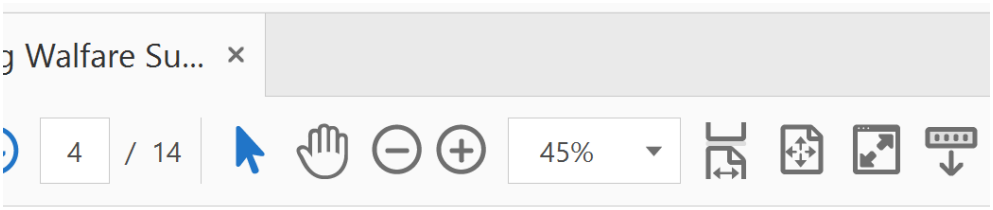
If Non-Saudi please specify إذا كنت غير سعودي فالرجاء التحديد

* Which hospital do you work?

- King Fahd General Hospital مستشفى الملك فهد العام
- King Abdualaziz University Hospital مستشفى الملك عبدالعزيز الجامعي
- International Medical Center المركز الطبي الدولي
- Other أخرى

Other, please specify أخرى ، يرجى التحديد

3



Level of Education التعليم

- Nursing Diploma الشهادة المتوسطة في التمريض
- Bachelor Degree in Nursing درجة البكالوريوس في التمريض
- Associate Degree in Nursing درجة مساعد في التمريض
- Master Degree in Nursing درجة الماجستير في التمريض

Other, please specify أخرى ، يرجى التحديد

Current occupation وظيفتك الحالية

- Nursing Administration إدارة التمريض
- Forensic Nursing التمريض في الطب الشرعي
- Nurse Educator تثقيف المرضى
- School Health Nursing تمريض الصحة المدرسية
- Nursing Leadership قيادة التمريض
- Adult Care Nursing تمريض العنايه بالكبار
- Nursing Informatics مسؤول معلومات التمريض
- Nurse Anesthetist ممرضة التخدير
- Legal Nursing التمريض القانوني
- Adult ICU Nurse ممرضة وحدة العناية المركزة للبالغين
- Community Health Nursing تمريض صحة المجتمع
- Child & Family Health Nursing.تمريض الطفل وصحة الأسرة.
- Geriatric Nursing تمريض الشيخوخة
- Psychiatric-Mental Health Nursing الأمراض النفسية تمريض الصحة العقلية
- Clinical Nurse Specialist أخصائي التمريض السريري
- Other, please specify أخرى ، يرجى التحديد

Employment status الحالة الوظيفية

- Full-time دوام كامل
- Part-time دوام جزئي
- Trainee متدرب

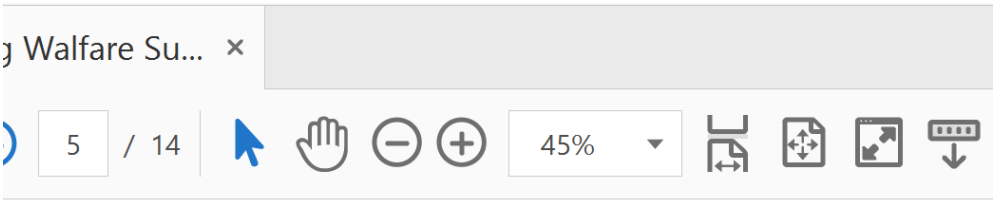
Years practiced in this profession سنين خبرتك في التمريض

- Between 1-5 years مابين
- Between 10-15 years مابين
- Less than 12 months اقل من
- Between 5-10 years مابين
- 15 years an above ومافوق

Years practiced in this hospital سنين الخبره في هذه المستشفى

- Between 1-5 years مابين
- Between 10-15 years مابين
- Less than 12 months اقل من
- Between 5-10 years مابين
- 15 years an above ومافوق

4



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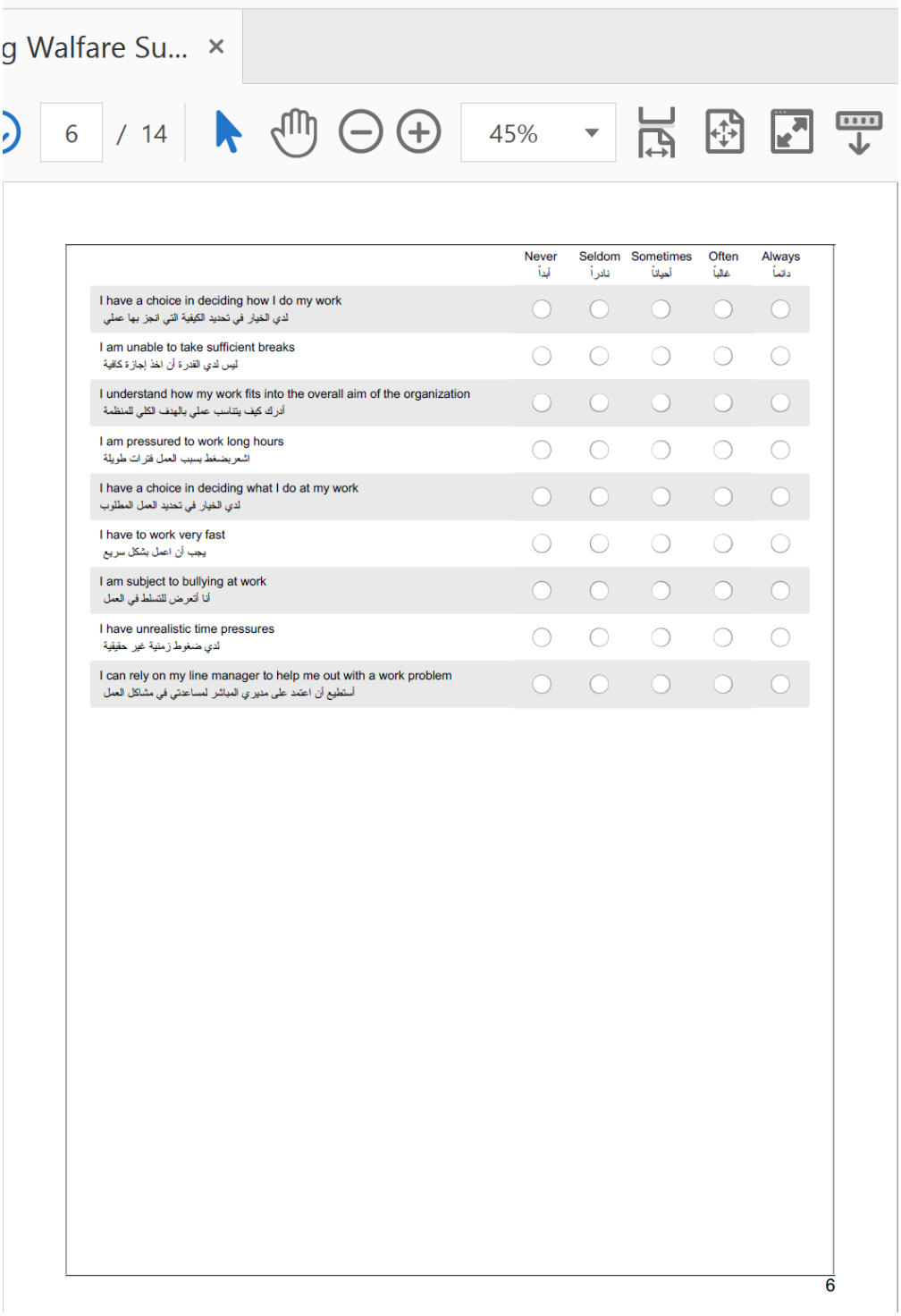
NURSE WELFARE SURVEY

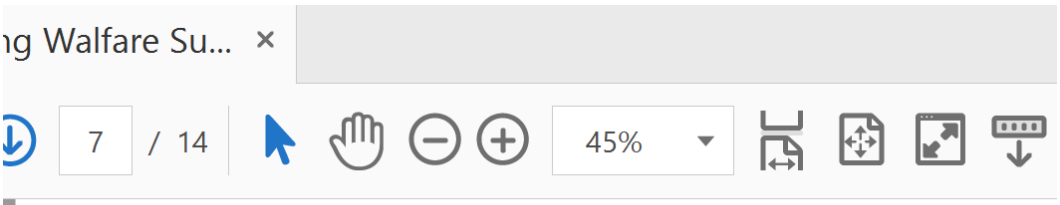
Below are prompts on work related stress, kindly state the frequency level of occurrence (according to your nursing work)with the statements given, where 1 is Never, 2 is Seldom, 3 is Sometimes, 4 is Often and 5 is Always.

أدناه بعض الدوافع حول ضغوط العمل، يرجى تحديد مستوى تكرار الحدث وفقا لعملك في مجال التمريض من خلال النقاط التالية حيث أن 1 أبداً، 2 نادراً، 3 أحياناً 4 غالباً 5 دائماً

	Never أبداً	Seldom نادراً	Sometimes أحياناً	Often غالباً	Always دائماً
I am clear what is expected of me at work أنا أدرك ما يتوقع مني في العمل	○	○	○	○	○
I can decide when to take a break أستطيع أن أقرر متى يمكنني أخذ قسط من الراحة	○	○	○	○	○
Different groups at work demand things from me that are hard to combine تتطلب مجموعات العمل المختلفة أشياء من الصعب الجمع فيما بينها	○	○	○	○	○
I know how to go about getting my job done أنا أعرف كيفية إنجاز عملي	○	○	○	○	○
I am subject to personal harassment in the form of unkind words or behavior أنا أتعرض للتحرش الشخصي على شكل كلمات أو سلوك سيئ	○	○	○	○	○
I have un-achievable deadlines لدي بعض الأعمال الغير منجزه	○	○	○	○	○
If work gets difficult, my colleagues will help me يساعدني زملائي، إذا كان العمل صعبا	○	○	○	○	○
I am given supportive feedback on the work I do احصل على بعض التوجيهات الداعمة في العمل الذي أقوم به	○	○	○	○	○
I have to work very intensively يجب أن اعمل بشكل مكثف	○	○	○	○	○
I have a say in my own work speed يمكنني القول إنني سريع في عملي	○	○	○	○	○
I am clear what my duties and responsibilities are أدرك مهامي ومسئولياتي	○	○	○	○	○
I have to neglect some tasks because I have too much to do أهمل بعض المهام بسبب العمل الكثير الذي لدي	○	○	○	○	○
I am clear about the goals and objectives for my department أدرك أهداف القسم الذي اعمل به	○	○	○	○	○
There is friction or anger between colleagues يوجد احتكاك وتوتر بين زملاء العمل	○	○	○	○	○

5


g Walfare Su...
6 / 14
45%
Never أبداً
Seldom نادراً
Sometimes أحياناً
Often غالباً
Always دائماً
I have a choice in deciding how I do my work
لدي الخيار في تحديد الكيفية التي انجز بها عملي
I am unable to take sufficient breaks
ليس لدي القدرة أن اخذ إجازة كافية
I understand how my work fits into the overall aim of the organization
أدرك كيف يتناسب عملي بالهدف الكلي للمنظمة
I am pressured to work long hours
اشعر بضغط بسبب العمل فترات طويلة
I have a choice in deciding what I do at my work
لدي الخيار في تحديد العمل المطلوب
I have to work very fast
يجب أن اعمل بشكل سريع
I am subject to bullying at work
أنا أتعرض للتسلط في العمل
I have unrealistic time pressures
لدي ضغوط زمنية غير حقيقية
I can rely on my line manager to help me out with a work problem
أستطيع أن اعتمد على مديري المباشر لمساعدتي في مشاكل العمل
6



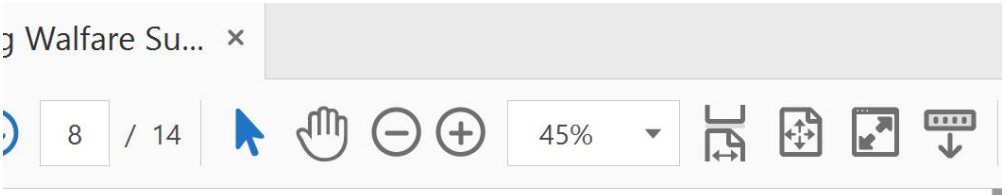
Below are prompts on work related stress, kindly state the frequency level of agreement or disagreement (according to your nursing work)with the statements given where 1 Strongly Disagree , 2 Disagree 3 Neither Agree or Disagree, 4 Agree, 5 Strongly Agree

إلى أي مدى أنت مقتنع بالجوانب التالية في عملك الحالي؟ الرجاء الإجابة وفقا لمدى موافقتك والذي يحدده شعورك الحالي حيث أن 1 راضي للغاية، 2 راضي 3 غيرمحدد 4 غير راضي 5 غير راضي إطلاقاً

	Strongly Disagree غير راضي إطلاقاً	Disagree غير راضي	Neither Disagree Nor Agree غيرمحدد	Agree راضي	Strongly Agree راضي للغاية
I get help and support I need from colleagues احصل على المساعدة والدعم الذي احتاجه من زملائي	○	○	○	○	○
I have some say over the way I work لدي بعض الملاحظات على طريقة العمل التي أقوم بها	○	○	○	○	○
I have sufficient opportunities to question managers about change at work لدي فرص كافية لأسأل الإداريين عن التغيير في العمل	○	○	○	○	○
I receive the respect at work I deserve from my colleagues أحظى بالاحترام في العمل من قبل زملائي	○	○	○	○	○
Staff are always consulted about change at work يستشار كادر العمل دائما حول التغيير في العمل	○	○	○	○	○
I can talk to my line manager about something that has upset or annoyed me about work أستطيع التحدث مع مديري مباشرة حول أي شيء يقلقني في العمل	○	○	○	○	○
My working time can be flexible أوقات عملي فيها مرونة	○	○	○	○	○
My colleagues are willing to listen to my work-related problems يستمع زملائي إلى مشاكلي في العمل	○	○	○	○	○
When changes are made at work, I am clear how they will work out in practice عند إجراء التغييرات في العمل، أدرك كيف ستعمل هذه التغييرات عمليا	○	○	○	○	○
I am supported through emotionally demanding work أشعر بالدعم لإحتياجاتي العاطفيه في العمل	○	○	○	○	○
Relationships at work are strained العلاقات في العمل متصنعة	○	○	○	○	○
My line manager encourages me at work يشجعني مديري المباشر على العمل	○	○	○	○	○

Do you have any other comments, questions, or concerns? هل لديك اي ملاحظه او سؤال؟

7



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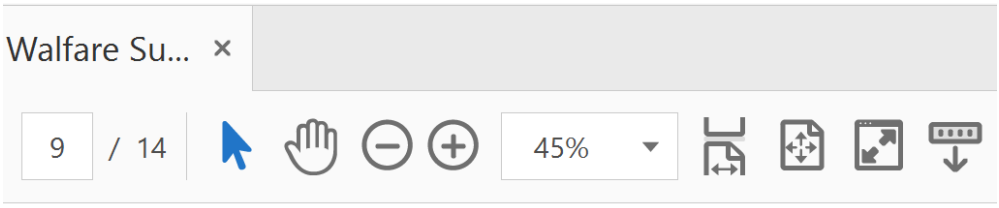
NURSE WELFARE SURVEY

The following statements refer to your feelings and attitudes during work. Please Indicate to what extent you agree with each of the following statements by selecting the number that corresponds with the statement where 1 Strongly Agree, 2 Agree, 3 Disagree, 4 Strongly Disagree

إلى أي مدى أنت مقتنع بالجوانب التالية في عملك الحالي؟ الرجاء الإجابة وفقا لمدى موافقتك والذي يحدده شعورك الحالي حيث أن 1 راضي للغاية، 2 راضي 3 غير راضي 4 غير راضي إطلاقاً

	Strongly Agree غير راضي إطلاقاً	Agree راضي	Disagree غير راضي	Strongly Disagree راضي للغاية
I always find new and interesting aspects in my work أنا دائما أجد جوانب جديدة وممتعة في عملي	○	○	○	○
There are days when I feel tired before I arrive at work هناك أيام اشعرفيها بالتعب حتى قبل أن أصل إلى العمل	○	○	○	○
It happens more and more often that I talk about my work in a negative way يحدث غالبا أن اتحدث عن عملي بطريقة سلبية	○	○	○	○
After work, I tend to need more time than in the past in order to relax and feel better بعد العمل، احتاج إلى المزيد من الوقت أكثر من الماضي لكي اشعر بالراحة	○	○	○	○
I can tolerate the pressure of my work very well أستطيع أن أتحمل الضغط في عملي جيدا	○	○	○	○
Lately, I tend to think less at work and do my job almost mechanically مؤخراً أميل إلى التفكير قليلاً بالعمل حيث اصبحت أقوم به بصورة ميكانيكية تقريبا	○	○	○	○
I find my work to be a positive challenge أجد في عملي تحدياً إيجابياً	○	○	○	○
During my work, I often feel emotionally drained أثناء عملي، اشعر بالاستنزاف العاطفي	○	○	○	○
Over time, one can become disconnected from this type of work بمرور الزمن، يصبح الشخص غير قادر على هذا النوع من العمل	○	○	○	○
After working, I have enough energy for my leisure activities بعد العمل، لدي الطاقة الكافية لنشاطاتي الترفيهية	○	○	○	○
Sometimes I feel sickened by my work tasks بعض الأوقات تزعجني المهام العملية	○	○	○	○
After my work, I usually feel worn out and weary بعد العمل، اشعر بإجهاد وتعب شديد	○	○	○	○
This is the only type of work that I can imagine myself doing هذا هو نوع العمل الذي أستطيع أن أتخيل نفسي أقوم به	○	○	○	○

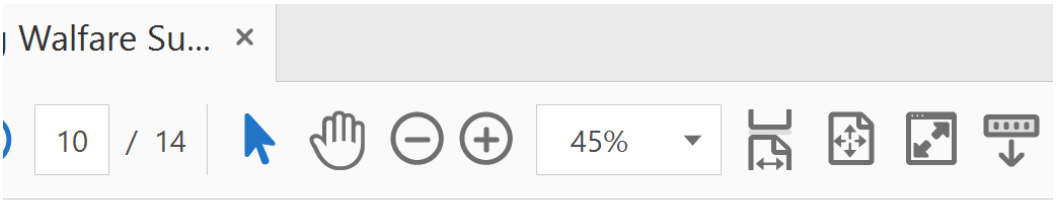
8



	Strongly Agree غير راضي إطلاقاً	Agree راضي	Disagree غير راضي	Strongly Disagree راضي للغاية
Usually, I can manage the amount of my work well عادةً ما أستطيع أن أدير كمية العمل جيدا	○	○	○	○
I feel more and more engaged in my work اشعر بالإرتباط اكثر فأكثر بالعمل	○	○	○	○
When I work, I usually feel energized عندما اعمل، اشعر عادة بالطاقة والحيوية	○	○	○	○

Do you have any other comments, questions, or concerns? هل لديك اي ملاحظه او سؤال؟

9



The University of Sheffield
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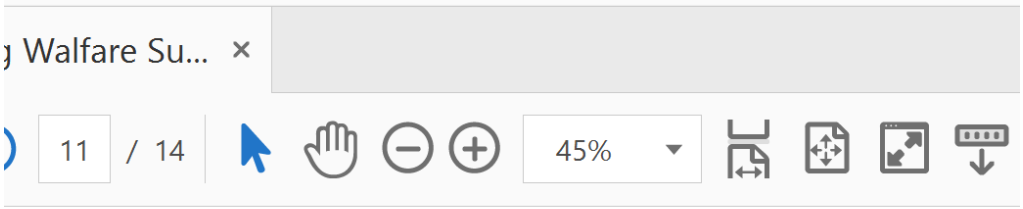
NURSE WELFARE SURVEY

How satisfied are you with the following aspects of your current job? Please indicate to what extent you agree with each of the following statements where 1 Strongly Satisfied , 2 Satisfied, 3 Neither Satisfied or Dissatisfied, 4 Dissatisfied, 5 Strongly Dissatisfied

أدناه بعض الدوافع حول ضغوط العمل، يرجى تحديد مستوى تكرار الحدث وفقا لعملك في مجال التمريض من خلال النقاط التالية الرجاء اختيار اجابتك حسب رضاك عن الأسئلة التالية حيث أن 1 راضي للغاية 2 راضي 3 طبيعي 4 غير راضي 5 غير راضي مطلقاً

	Very Satisfied راضي للغاية	Moderately Satisfied راضي	Neither Satisfied nor Dissatisfied طبيعي	Moderately Dissatisfied غير راضي	Very Dissatisfied غير راضي مطلقاً
Salary الراتب	○	○	○	○	○
Vacation الإجازة	○	○	○	○	○
Benefits package (insurance, Retirement) (الفوائد (التامين والتقاعد	○	○	○	○	○
Hours that you work ساعات العمل	○	○	○	○	○
Flexibility in scheduling your hours المرونة في جدولة ساعات العمل	○	○	○	○	○
Opportunity to work straight days فرصة العمل أيام طويلة	○	○	○	○	○
Opportunity for part-time work فرصة العمل بدوام جزئي	○	○	○	○	○
Weekends off per month عطلات الأسبوع في كل شهر	○	○	○	○	○
Flexibility in scheduling your weekends off المرونة في جدولة عطلات الأسبوع	○	○	○	○	○
Compensation for working weekends التعويض عن عطلات الأسبوع التي يتم العمل فيها	○	○	○	○	○
Maternity leave time إجازة الحمل والولادة	○	○	○	○	○
Child care facilities مرافق رعاية الأطفال	○	○	○	○	○
Your immediate supervisor مشرفك المباشر	○	○	○	○	○
Your nursing peers مرافقيك الممرضين	○	○	○	○	○
The physicians you work with الأطباء الذين تعمل معهم	○	○	○	○	○
Opportunities for social contact at work فرص التواصل الاجتماعي في العمل	○	○	○	○	○
Opportunities for social contact with your colleagues after work فرص التواصل الاجتماعي مع زملائك بعد العمل	○	○	○	○	○
Opportunities for interact professionally with other disciplines فرص التفاعل المهني مع الأنظمة الأخرى	○	○	○	○	○

10



	Very Satisfied راضي للغاية	Moderately Satisfied راضي	Neither Satisfied nor Dissatisfied طبيعي	Moderately Dissatisfied غير راضي	Very Dissatisfied غير راضي مطلقاً
Opportunities to interact with faculty of the College of Nursing فرص التفاعل مع كلية التمريض					
Opportunities to belong to department and institutional committees فرص حضور لجان الأقسام واللجان المؤسسية					
Control over what goes on in your work setting التحكم فيما يجري في عملك					
Opportunities for career advancement فرص التقدم في الجانب المهني					
Recognition for your work from superiors الاعتراف بعملك من قبل الإداريين					
Recognition of your work from peers الاعتراف بعملك من قبل الزملاء					
Amount of encouragement and positive feedback مقدار الشجاعة والتوجيه الإيجابي					
Opportunities to participate in nursing research فرص المشاركة في بحوث التمريض					
Opportunities to write and publish فرص الكتابة والنشر					
Your amount of responsibility حجم المسؤولية الملقاة على عاتقك					
Your control over work conditions التحكم بظروف العمل					
Your participation in organizational decision making مشاركتك في صنع القرار التنظيمي					

Do you have any other comments, questions, or concerns? هل لديك اي ملاحظه او سؤال؟

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NURSE WELFARE SURVEY

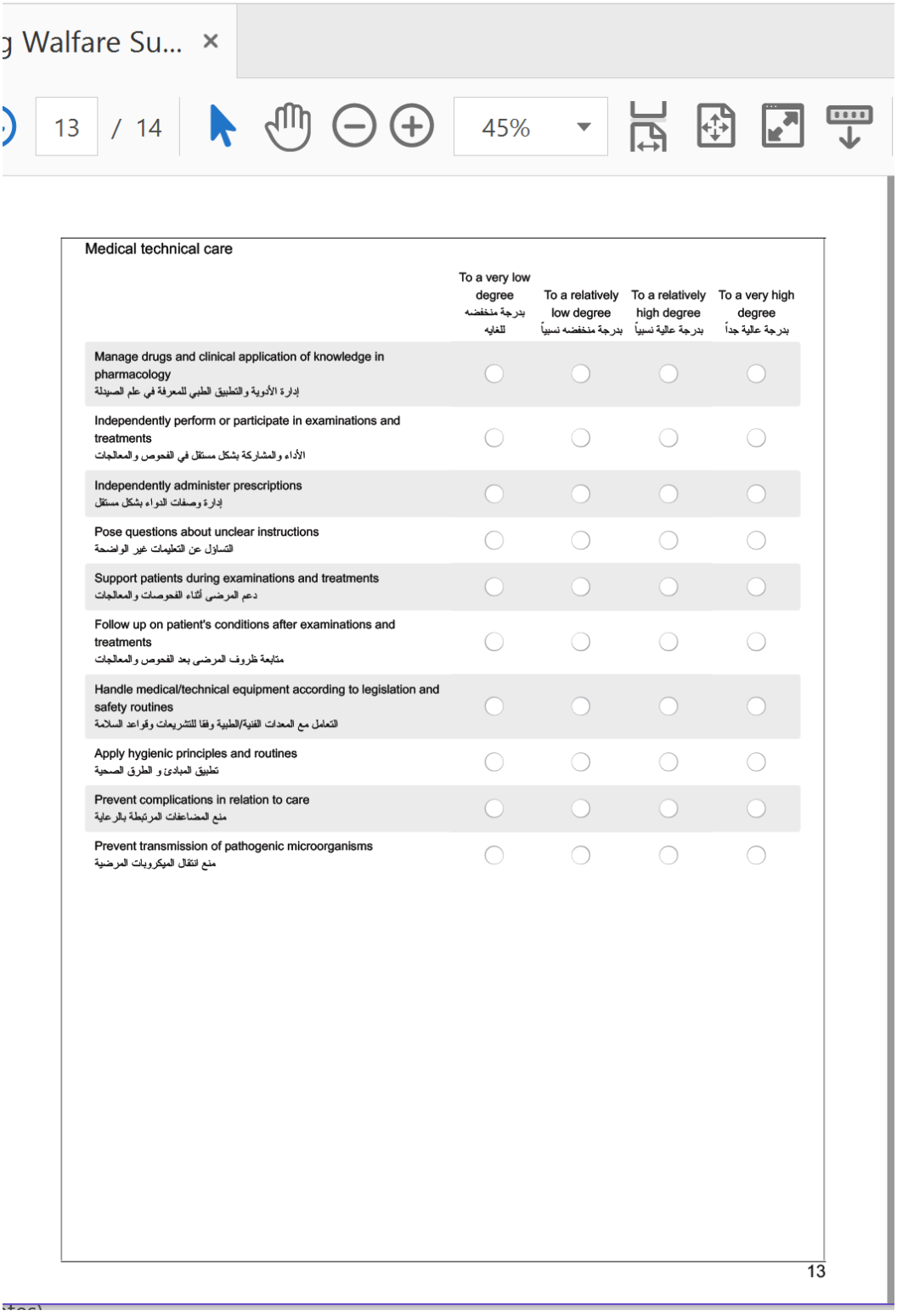
The following questions investigates your nursing practice.Please check the description according to your rating of the nursing features provided.

أدناه تقييم ذاتي لأدائك وفقا لعملك في مجال التمريض، يرجى تحديد مستوى تكرار الحدث من خلال النقاط التالية، الرجاء اختيار اجابتك حسب رضاك عن الأسئلة التالية حيث أن 1 بدرجة منخفضه للغايه، 2 بدرجة منخفضه نسبياً 3 بدرجة عالية نسبياً 4 بدرجة عالية جداً

Value-based nursing care
قيم الرعايه التمريضيه

	To a very low degree بدرجة منخفضه للغايه	To a relatively low degree بدرجة منخفضه نسبياً	To a relatively high degree بدرجة عالية نسبياً	To a very high degree بدرجة عالية جداً
Respectfully communicate with patients, relatives and staff التواصل باحترام مع المرضى وأقاربهم وكادر العمل الأخرين	○	○	○	○
Perform nursing care based on humanistic values إنجاز خدمات رعاية التمريض بناء على القيم الإنسانية	○	○	○	○
Show respect for patient autonomy, integrity and dignity إظهار الاحترام لسلامة وصحة وكرامة المرضى	○	○	○	○
Enhance patients' and relatives' knowledge and experiences تعزيز معرفة وممارسات المرضى وأقاربهم	○	○	○	○
Show respect for different values and beliefs إظهار الاحترام لمختلف القيم والاعتقادات	○	○	○	○
Act upon patients' and relatives' wishes and needs العمل وفقا لرغبات واحتياجات المرضى	○	○	○	○
Use principles of research ethics ستخدام مبادئ البحث الأخلاقية	○	○	○	○
Contribute to a holistic view of the patient المساهمة بالرؤية الشاملة للمرضى	○	○	○	○

12


g Walfare Su...
13 / 14
45%
Medical technical care
To a very low degree
بدرجة منخفضه للغايه
To a relatively low degree
بدرجة منخفضه نسبياً
To a relatively high degree
بدرجة عالية نسبياً
To a very high degree
بدرجة عالية جداً
Manage drugs and clinical application of knowledge in pharmacology
إدارة الأدوية والتطبيق الطبي للمعرفة في علم الصيدلة
Independently perform or participate in examinations and treatments
الأداء والمشاركة بشكل مستقل في الفحوص والمعالجات
Independently administer prescriptions
إدارة وصفات الدواء بشكل مستقل
Pose questions about unclear instructions
التساؤل عن التعليمات غير الواضحة
Support patients during examinations and treatments
دعم المرضى أثناء الفحوصات والمعالجات
Follow up on patient's conditions after examinations and treatments
متابعة ظروف المرضى بعد الفحوص والمعالجات
Handle medical/technical equipment according to legislation and safety routines
التعامل مع المعدات الفنية/الطبية وفقا للتشريعات وقواعد السلامة
Apply hygienic principles and routines
تطبيق المبادئ و الطرق الصحية
Prevent complications in relation to care
منع المضاعفات المرتبطة بالرعاية
Prevent transmission of pathogenic microorganisms
منع انتقال الميكروبات المرضية
13

Legislation in nursing and safety planning
قوانين التمريض و خطط السلامة

	To a very low degree بدرجة منخفضه للغايه	To a relatively low degree بدرجة منخفضه نسبياً	To a relatively high degree بدرجة عالية نسبياً	To a very high degree بدرجة عالية جداً
Comply with current legislation and routines الالتزام بالقوانين و الإجراءات المتبعة	○	○	○	○
Handle sensitive personal data in a safe way التعامل مع البيانات الشخصية بسرية تامة	○	○	○	○
Advocate patients' rights حماية حقوق المرضى	○	○	○	○
Provide contact with the right authority regarding patients' rights إمكانية التواصل مع الجهات المعنية بحقوق المرضى.	○	○	○	○
Comply with safety routines and notify according to current legislation الإلزام بتعليمات السلامة و الوعي التام بمتطلباتها.	○	○	○	○
Act adequately in the event of unprofessional conduct among employees القدرة على التعامل مع بعض السلوكيات والمواقف التي قد تحدث بين العاملين.	○	○	○	○
Manage violent and/or threatening situations معالجة المواقف العنيفة أو المهددة	○	○	○	○
Act according to regulations in case of a fire or other devastating events التصرف وفقا للقوانين في حالة نشوب حريق أو غيره من الحوادث.	○	○	○	○
Apply principles of disaster medicine تطبيق مبادئ طب الكوارث	○	○	○	○

Thank you for completing this questionnaire.
شكرا لكم على إكمال استبيان هذه الدراسة

If you have any further comments you would like to make about your work, please state your comments below:

إذا كان لديك اي ملاحظه او سؤال الرجاء كتابتها أدناه:

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Appendix J : Hayes Conceptual Diagram Model 4

Model Templates for PROCESS for SPSS and SAS
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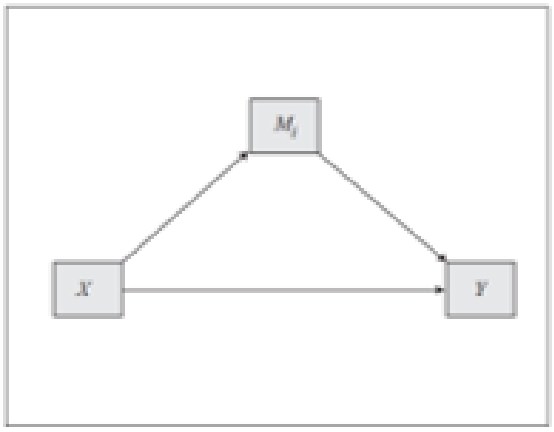
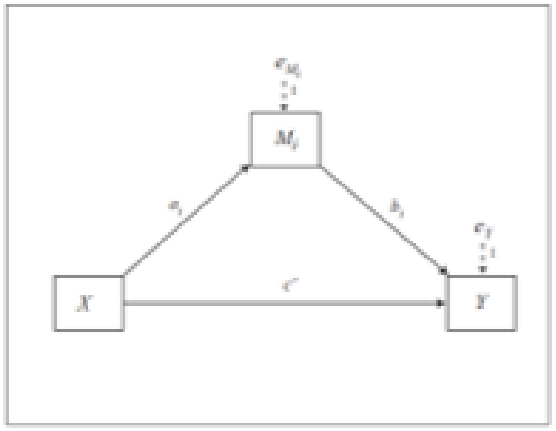
Model 4

Conceptual Diagram



Statistical Diagram



Indirect effect of X on Y through $M_1 = a_1 b_1$
Direct effect of X on $Y = c'$

Note: Model 4 allows up to 10 mediators operating in parallel.

Appendix K : Hayes Conceptual Diagram Model 58

Model Templates for PROCESS for SPSS and SAS
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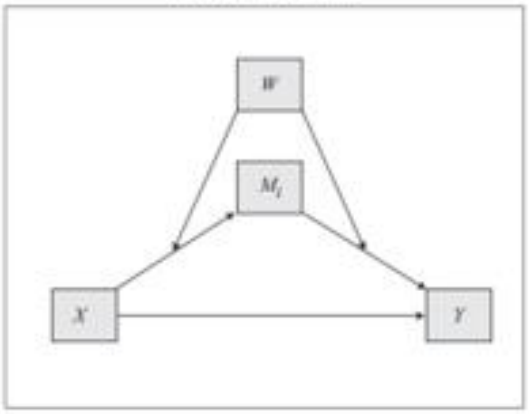
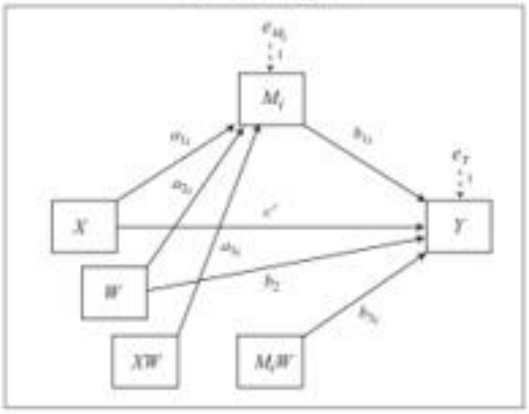
Model 58

Conceptual Diagram



Statistical Diagram



Conditional indirect effect of X on Y through $M_1 = (a_{11} + a_{31}W)(b_{11} + b_{31}W)$
Direct effect of X on $Y = c'$

Note: Model 58 allows up to 10 mediators operating in parallel.

Appendix L : Hayes Conceptual Diagram Model 75

Model Templates for PROCESS for SPSS and SAS
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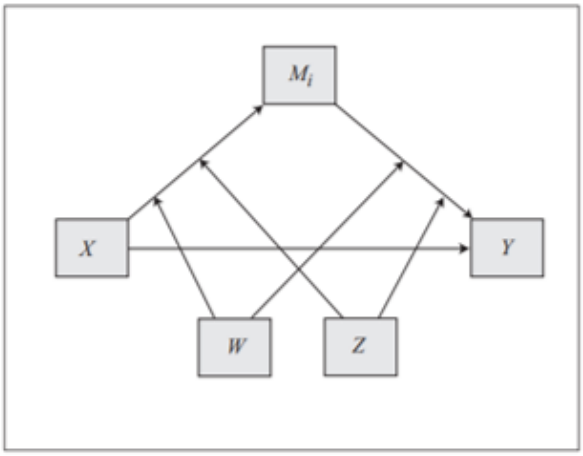
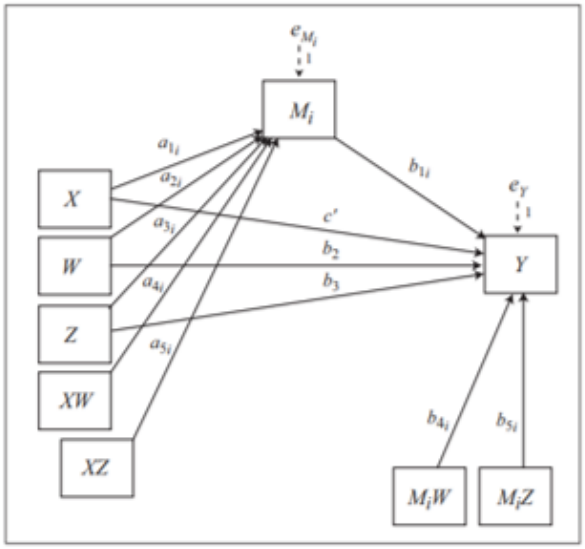
Model 75
(PROCESS v2.10 or later)

Conceptual Diagram



Statistical Diagram



Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{4i}W + a_{5i}Z)(b_{1i} + b_{4i}W + b_{5i}Z)$

Direct effect of X on $Y = c'$

*Model 75 allows up to 10 mediators operating in parallel