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Job Strain, Coping Strategies, and Work Performance among Oncology Nurses Working in Saudi Oncology Care Settings

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Nursing

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JOB STRAIN, COPING STRATEGIES, AND WORK PERFORMANCE AMONG
ONCOLOGY NURSES WORKING IN SAUDI ONCOLOGY CARE SETTINGS

(Thesis format: Integrated-Article)

By

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Graduate Program in Nursing

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Nursing

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ABSTRACT

A review of literature has revealed that although a great deal of research has been conducted internationally about job strain, coping strategies, and work performance in nurses, very little of this research has included nurses in the Kingdom of Saudi Arabia (KSA), and in particular oncology nurses. The purpose of this predictive correlational study was to investigate the relationship between job strain, coping strategies, and work performance among oncology nurses working in Saudi oncology care settings. The study also explored the possible mediating effects of coping strategies on the job strain and work performance relationship. A hypothesized model of nurse job strain was tested based on Karasek's Demand–Control Model and Lazarus and Folkman's Transactional Model of Stress and Coping.

A total of 241 oncology nurses from five hospitals in KSA completed a survey instrument, based on pre-existing standardized tools, including demographic and work items. The data were analyzed using Statistical Package for the Social Sciences (SPSS 22) (IBM Corp, 2013), and AMOS 21.0 (Arbuckle, 2012) software package. Structural equation modeling (SEM) was used to test the study model.

Study findings demonstrated that there were significant differences in levels of job strain, coping strategies, and work performance between the KSA publicly and privately funded hospitals. Oncology nurses in the publicly funded hospitals reported higher levels of job strain and lower levels of work performance. There were significant negative relationships between job strain and work performance, and between job strain and coping strategies. Coping strategies was shown to partial mediate the relationship between job strain and work performance.

Knowledge gained from this study may be useful in improving the work environments of oncology nurses and for developing policies to assist nursing management in the KSA. Future research is needed to examine best practices for human resource managers to improve oncology nurses' coping strategies and their work performance in the KSA hospitals.

Key words: job strain, outcomes of job strain, coping strategies, work performance, oncology nurses, Kingdom of Saudi Arabia, work environment, nursing management.

CO-AUTHORSHIP STATEMENT

Dhuha Youssef Wazqar performed the work under the supervision of Dr. Mickey Kerr, Dr. Carole Orchard, and Dr. Sandra Regan who will be co-authors on the publications resulting from Chapter 2, 3, and 4 of this dissertation. All authors provided final approval of each articles prior to submission for publication.

DEDICATION

I firstly honor and am eternally grateful to the inspiration of Allah for enabling me to complete this work.

Commitment, effort, and dedication were fundamental elements for the completion of my doctoral dissertation, but even more was the support of my family. To my mom, sisters (Ruba and Duaa), and the three greatest projects of my life: my sons Faisal and Mohammed, and my daughter Retal, today I dedicate them this important professional achievement because without their presence, support, and comprehension I would have not achieved my goal. I love you.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

Introduction

This study investigated the relationship between job strain, coping strategies, and work performance among oncology nurses working in oncology care settings, using a sample of registered nurses working in different oncology units from five hospitals in the Kingdom of Saudi Arabia (KSA). In this chapter the background, significance, purpose, and the primary research question of the study will be presented.

Background and Significance

The KSA is experiencing a critical shortage of Saudi-trained healthcare professionals, particularly nurses from different specialities, and this shortage has been reported as being associated with high levels of job turnover among nurses (Abu-Zinadah, 2004; Al-Turki et al., 2010; World Health Organization (WHO), 2006). Internationally educated nurses (registered and licensed nurses who were formally educated and trained in countries other than the KSA) account for a significant percentage (68.2%) of nursing staff in Saudi healthcare organizations (Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013; Ministry of Health (MOH), 2010; Mitchell, 2009). Statistics from the KSA-Ministry of Health (2010) records also indicate that the total number of nurses working in all public and private healthcare organizations is approximately 129,792, however only 41,256 (31.8%) of these are Saudis. This dependence on internationally educated nurses is even more pronounced in the KSA private healthcare industry where Saudi nurses are believed to comprise only 5.81% (n=1624) of the workforce (n=27,934) (MOH, 2010). The KSA Ministry of Planning reports (MOP) (2005) indicated that the low percentage of Saudi-educated nurses

working in privately funded hospitals may be associated with issues related to low pay, long hours of work, and limited developmental or promotional opportunities within the KSA health system. These issues may have caused Saudi-educated nurses to find the terms of employment within the privately funded hospitals as falling below their expectations (Ministry of Planning (MOP), 2005). However, within the KSA healthcare organizations, discrimination can be seen in the way salary tiers are designed based on the nurses' country of origin and standard of living (Alswaid, 2014; Mitchell, 2009).

Cancer prevalence is increasing in the KSA, while the exact etiology of this trend is unknown, it can perhaps be partially attributed to an increased life expectancy, changes in lifestyle habits, and disease patterns (Al-Ahmadi, Al-Zahrani, & Al-Ahmadi, 2013). Al-Shahri (2009) posited that since most Saudi patients who are diagnosed with cancer in the KSA are diagnosed at late stages, it can be assumed that the lack of screening for cancer is a significant issue in the country. In 2010, the Saudi Cancer Registry (SCR) reported that the total number of all cancer cases among Saudi nationals and non-Saudis in the KSA was 10,230 (74.6%) and 3,476 (25.4%), respectively (SCR, 2014). Moreover, Al-Shahri (2009) indicated that KSA reports about 8,000 cancer cases yearly, providing a prevalence rate of "37.8 for every 100,000 and an age-standardised rate of 60.9 for every 100,000" (p. 2). However, in a study of 2,364 healthcare professionals, including nurses, Almuzaini et al. (1998) found that oncology nurses in the KSA constantly reported work overload as a result of staff shortages and a lack of other resources and that their hospitals were overcrowded with terminally ill cancer patients. The severe stress experienced by these nurses due to high nurse patient ratios had negative effects on their health and the quality of their nursing care (Almuzaini, Salek, & Nicholls, 1998). Job dissatisfaction has been extensively studied by Aiken et al. (2002) in a study that associated higher patient-

to-nurse ratios with higher burnout, exhaustion, and dissatisfaction. Moreover, another study indicated that all MOH hospital administrators and healthcare specialists, including oncology nurses, in Riyadh, a city in KSA, strongly agreed with the assertion that they experienced high levels of stress in their work settings (Al-Omar, 2003).

Oncology nursing is an area of practice concerned with the care of patients who experience different types of cancer across a wide range of settings. The responsibilities of oncology nurses include managing symptoms of the disease while carrying out treatments, managing the adverse reactions to medications, and providing psychosocial support to patients and their families (Escot, Artero, Gandubert, Boulenger, & Ritchie, 2001; Sabo, 2008). Oncology nurses require specialized skills and a comprehensive knowledge base to deliver physical, psychological, and spiritual care to patients with severe life-threatening diseases (Aycock & Boyle, 2008; Isikhan, Comez, & Danis, 2004; Sabo, 2008). However, there are particularly difficult circumstances (cultural and religious beliefs) surrounding the experience of cancer care that can be uncomfortable and upsetting for both oncology nurses and their patients in the KSA. For example, in the event of a dying relative, Saudi social norms dictate that family members and close friends should show support, and try to comfort the dying individual through prayer (Almostadi, 2012; Baddarni, 2010). While Baddarni (2010) indicated that the hospital environment is not conducive to family gatherings and loud recitation of prayers, or other activities believed significant by families in their efforts to care for the dying relative. Saati (2013) also reported that certain Saudi family traditions, such as too many visitors and long visiting hours for sick relatives, could potentially affect quality of nursing care.

Moreover, cultural and social norms in the KSA play a key role towards providing bad news and truth-telling about the diagnosis, management, and prognosis of cancer (Al-

Amri, 2010; Almostadi, 2012; Younge, Moreau, Ezzat, & Gray, 1997). Family members of Saudi patients with cancer consider that providing the truth to patients may lead to harm and more suffering. Research has suggested that communication with patients and families can be especially difficult for internationally educated oncology nurses, specifically with their Saudi patients where families play a major role in disease management and treatment decision-making because of nurses' alternative cultural norms (Al-Ameri, 2010; Halligan, 2006; Younge et al., 1997). These issues create ethical dilemmas and stressful situations in nurses from Western countries and may add to their stress (Halligan, 2006; Mitchell, 2009; Van Rooyen, Telford-Smith, & Strumpher, 2010).

Based on North American and European studies, oncology nursing is recognized as a challenging, emotionally demanding, and stressful specialty area (Aycock & Boyle, 2008; Hawkin, Howard, & Oyeboode, 2007; Potter et al., 2010; Vachon, 2006). There are numerous challenges for oncology nurses to balance their workloads of providing curative, palliative, and end-of-life care to a variety of patients, as well as the ethical issues associated with cultural practice. In addition, oncology nurses are confronted with the task of offering specialized care (palliative and end-of-life care) for patients with cancer, many of whom may be dying and in an environment that is not ideal for the patient, their family or the nurse (Aycock & Boyle, 2008). The surroundings of a busy oncology unit or other practice setting may present difficulties for dying patients as the main focus in these places is often on illness management and curative intervention (Aycock & Boyle, 2008). Oncology nurses also experience highly emotional work due to their frequent contact with the same patients and their families over the course of their illness (Hawkin et al., 2007). They may develop strong connections to their clients that can take an emotional toll on nurses leading to emotional distress and depression as the

cancer progresses (Hawkin et al., 2007). While many oncology nurses feel their work is rewarding and meaningful, they also acknowledge that it can be emotionally demanding (Dunn, Otten, & Stephens, 2005).

Previous research also indicated that there are many factors leading to job strain among oncology nurses, such as burnout, compassion fatigue, and job dissatisfaction (Medland, Howard-Ruben, & Whitaker, 2004; Potter et al., 2010; Sherman, Edwards, Simonton, & Mehta, 2006). Among oncology nurses, lack of control over work and heavy workload were common job-related stressors resulting in poor health status and work performance, including diminished nursing care quality (Medland et al., 2004; Sherman et al., 2006; Sveinsdottir, Biering, & Ramel, 2006).

Job strain is described as a pattern of responses that occur when a disparity exists between job demands and the level of control employees have to satisfy those demands, challenging their ability to cope (Karasek, 1979; Karasek & Theorell, 1990). Job strain is a recognized issue within the nursing profession, and many studies albeit from other than KSA, have indicated that it may be increasing in severity (Antigoni, Pediaditaki, & Dimitrios, 2011; Lavoie-Tremblay et al., 2008; Makie, 2006). Among nurses in other than KSA, job strain has also been identified as a major contributing factor to increased job turnover, attrition rates, and job dissatisfaction (Hasson & Arnetz, 2007; Hasselhorn et al., 2008; O'Brien-Pallas et al., 2005). Job strain has been reported to impact work performance and job satisfaction among nurses, thus affecting nursing care quality and possibly impacting patients' lives (Hasson & Arnetz, 2007; Nabirye, Brown, Pryor, & Maples, 2011). Therefore, job strain could critically affect the provision of both the quality and the efficiency of patient care and health services delivery in the KSA as well as the countries where previous studies have been carried out (Laschinger, Shamian,

&Thomson, 2001; Nabirye et al., 2011). Job strain has also been shown to cause stress which is associated with how well nurses are able to cope with their work situations (Beh & Loo, 2012).

Coping can diminish an individual's duress within a stressful situation (Beh & Loo, 2012). Coping is described as an event that changes an individual's way of thinking and behaving in response to a stressful environment (Lazarus, 2000). Several studies have described the diversity of coping strategies utilized by oncology nurses to deal with stressful situations in their work settings, such as seeking social support, avoidance, and positive reappraisal (e.g. Florio, Donnelly, & Zevon, 1998; Isikhan et al., 2004; Rodrigues & Chaves, 2008). In a study carried out in five oncology hospitals in Turkey, it was ascertained that coping strategies used most by oncology nurses were self-confidence, seeking social support, and planful problem solving (Isikhan et al., 2004). Long exposure to job strain can result in use of dysfunctional approaches such as complaining, escape-avoidance, aggressive behaviours, and detachment or separation from the condition (Liu, Pan, Wen, Chen, & Lin, 2010; Snow, Swan, Raghavan, Connell, & Klein, 2003). When negative coping is used over long periods of time, it can impact on nurses' work performance (Beh & Loo, 2012; Lim, Bogossian, & Ahern, 2010). In contrast, when positive forms of coping are used, such as finding alternative solutions and using self-control these can help to combat stress in the workplace and enable nurses to control their emotional and improve their work performance (Beh & Loo, 2012).

While there is some evidence to suggest that oncology nurses in the KSA might be experiencing job strain, there is only limited research examining job strain and its effects among oncology nurses in the KSA. Also, most literature reviews on job strain, coping strategies, and work performance are merely based on the Western experience and

possibly may not be applicable in the Saudi healthcare context. This issue needs to be further explored in order to help reduce risks to the health and well-being of oncology nurses in the KSA, and to help improve work performance and nursing care quality. In addition, this study could provide guidance for future nurse researchers regarding coping strategies of oncology nurses in response to job strain. Moreover, the study findings may serve as a resource for developing policies, guidelines, and practices to improve work environments for oncology nurses in the KSA.

Statement of Purpose and Research Question

The purpose of this study was to investigate the relationships among job strain, coping strategies, and work performance in a sample of oncology nurses working in KSA oncology care settings. The study explored the possible mediating effects of coping strategies on the relationship between job strain and work performance. The specific research question was: Do coping strategies mediate the effect of job strain on work performance among oncology nurses working in Saudi oncology care settings?

Format of the Dissertation

The organization of this thesis is based on the integrated-article format regulated by the School of Graduate and Postdoctoral Studies at University of Western Ontario, Canada with five chapters comprising this dissertation. The first chapter is the introductory chapter, which provides the background, significance, purpose, and primary research question of the study. The second, third, and fourth chapters represent three manuscripts of publication quality. The length of these manuscripts at the moment exceeds the expected 25-30 pages; however, they are presented in their current format to demonstrate the student's understanding of the methodology, analyses, and implications of findings. The fifth chapter provides concluding remarks related to the study findings.

and implications for oncology nursing education, leadership, practice, and future research.

More specifically, Chapter Two entitled *Overview of Cancer Care and Oncology Nursing in the Kingdom of Saudi Arabia*, the context for the thesis provides an overview of cancer care and oncology nursing in the KSA by discussing the Saudi Arabian healthcare system, nursing education, Saudi culture, cancer care, and challenges that face oncology nurses delivering cancer care in the Kingdom of Saudi Arabia.

Chapter Three entitled *Integrative Review of the Influence of Job Strain and Coping Strategies on Nurses' Work Performance: Understanding the Gaps in Oncology Nursing Research*, consists of an integrated literature review summarizing empirical and/or theoretical evidence concerning job-related stressors in oncology nurses, and the interrelationships among job strain, coping strategies, and work performance in this population.

Chapter Four entitled *Relationships between Job Strain, Coping Strategies, and Work Performance among Oncology Nursing Working in Saudi oncology Care Settings*, provides the findings from the investigation of the relationship between the study's main variables among oncology nurses working in Saudi oncology care settings. The study also explored the possible mediating effects of coping strategies on job strain and work performance relationship. It also describes the conceptual framework of the study.

In Chapter Five, the key findings are summarized. Implications and importance of the findings for oncology nursing education, leadership, practice, and directions for future research are discussed.

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CHAPTER TWO

OVERVIEW OF CANCER CARE AND ONCOLOGY NURSING IN THE KINGDOM OF SAUDI ARABIA

Abstract

Aim: This article provides an overview of cancer care and oncology nursing in the Kingdom of Saudi Arabia (KSA) by first reviewing the Saudi Arabian healthcare system and cancer care services, and then presenting some challenges that nurses reported in previous studies when delivering cancer care in the KSA.

Background: Cancer prevalence is increasing in the KSA. While the exact etiology of this trend is unknown, it can perhaps be partially attributed to an increased life expectancy and changes in lifestyle habits. Most Saudi patients with cancer present with advanced stages of disease (stage 4 of cancer). One of the main challenges to the provision of appropriate cancer and palliative care is the critical shortage of oncology healthcare professionals, including nurses. The KSA is characterized by its Islamic faith, culture, and unique traditions that may contribute to uniquely stressful situations for oncology nurses working in KSA oncology care settings.

Methods: Published literature on cancer care and oncology nurses in the KSA were identified through a search of publicly available databases such as Medline, CINAHL, and Google Scholar as well as government sources. Search terms were Kingdom of Saudi Arabia, Saudi Arabian healthcare system, nursing education, nursing, Saudi nurses, oncology nursing, cancer, and cancer care.

Conclusion and Nursing Implications: While many steps have been undertaken by the Ministry of Health (MOH) to reform the KSA healthcare system, a number of challenges remain. The need for improve cancer care services in Saudi hospitals and availability of

cancer care and palliative care settings in all KSA regions is strongly indicated. The common challenges facing oncology nursing in KSA are related and connected to high job demands, staff shortages, communication and language barriers, and cultural differences. Nursing administrators/managers should take these factors into consideration to enhance the nursing work environment and to improve the quality of nursing care for patients with cancer and their families in KSA oncology care settings.

Keywords: Kingdom of Saudi Arabia, cancer, cancer care, staff shortages, oncology nursing, Saudi culture, communication, work environment

Introduction

The Kingdom of Saudi Arabia (KSA) is the largest country in the Middle East at 2.24 million square kilometers (World Health Organization– Eastern Mediterranean Region [WHO-EMRO], 2004) and retains one of the largest accessible oil reserves in the world (Albejaidi, 2010). Its oil capital has caused a rapid socio-economic shift over the past 50 years leading to a noticeable influence on the population's health and lifestyle (Aldossary, While, & Barriball, 2008). Most recent population figures indicate that the KSA has reached a population of 27,447,000 with 10,690,000 being under the age of 18 years (WHO, 2013). The annual population growth rate is 2.7% and the total fertility rate is 3.8%. Due to improvements in both healthcare and community services, life expectancy among the Saudi population increased from 69 years in 1990 to 76 years in 2012 (WHO, 2013). The KSA government has dedicated a vast amount of resources towards enhancing healthcare, with the principle aim of offering free and accessible health services to every Saudi citizen and to every foreign individual employed within the public sector (Aldossary et al., 2008; WHO, 2013). According to the WHO the KSA is ranked 26th in the world's healthcare systems (WHO, 2000). Despite these achievements, the KSA healthcare system still faces many challenges which need new Ministry of Health (MOH) strategies and policies, as well as effective collaboration with other healthcare sectors (Almalki, FitzGerald, & Clark, 2011). The purpose of this paper is to provide an overview of cancer care and oncology nursing in the KSA by discussing the Saudi Arabian healthcare system, nursing education, Saudi culture, cancer care, and challenges that face oncology nurses delivering cancer care in the KSA.

Saudi Arabian Healthcare System

The KSA healthcare system comprises hospitals, primary healthcare, and

community health centers that are operated by governmental organizations, non-governmental organizations, and the private sector. The hospitals are classified as national referral, regional referral or district/rural hospitals. The MOH, as the chief governmental organization, assumes major accountability for the KSA's preventive, curative, and rehabilitative facilities in its healthcare system. The system includes a total of 249 hospitals (34,370 beds) and 2094 primary healthcare centres (Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013; Ministry of Health (MOH), 2010). The MOH is the principal government organization accountable for strategic planning, health policies, management, and assessment of all health-related services within the KSA (Aldossary et al., 2008). In addition, it is responsible for directing other government agencies and the private sector on the means to accomplish the government's health goals (Mufti, 2000). Other governmental organizations providing healthcare directly to their staff and selected members of the general population include: the Ministry of Defense and Aviation, the Ministry of the Interior, the Saudi Arabian National Guard, and the University Teaching Hospitals (Aldossary et al., 2008; Almalki et al., 2011). The KSA MOH offers primary healthcare through a network of primary healthcare centers whose services emphasize health education in immunization, nutrition, smoking, prevention of motor vehicle accidents, and other public health issues (Mufti, 2000). Primary healthcare centres' staff refer their patients to acute and advanced healthcare through both general and specialist hospitals.

The delivery of healthcare through the private sector has increased in the KSA in recent years and is organized within a referral system comprising a total of 127 hospitals (12, 817 beds) and 2362 dispensaries, polyclinics, private clinics, company clinics, and pharmacies (Al-Homayan et al., 2013; MOH, 2010). The private sector offers healthcare

services to the Saudi population and foreign insured individuals through their own organizations and other health insurance plans (Mufti, 2000). A growing number of foreign individuals seek treatments at privately funded hospitals due to increasing access problems to MOH facilities (WHO, 2012). Consequently, MOH delivers 60% of national healthcare services, with the private sector and other governmental organizations together comprise the remaining 40% (WHO, 2012).

Globalization, modernization, and economic growth in the KSA have a significant effect upon Saudis' health-related behaviours. These behaviours are influenced by their access to foods. For example, meat supply/person/day during the period of 2001-2007 increased to 130g from only 26g./person/day consumed in 1961-1971 demonstrating a 435% increase (Adam, Osama, & Muhammad, 2014). Many of these foods contain high sugar and sweeteners has increased by more than 2.5 times per person between 2000-2007 than from 1961-1971 (Adam et al., 2014). Furthermore, the consumption of soft drinks and the spending on dining out has also increased (Adam et al., 2014).

Compounding this situation, Al-Hazzaa (2004) indicated that the total rate of physical inactivity among Saudi citizens ranged from 43.3% to 99.5%. Obesity has increased among both Saudi adults and children (Amin, Al-Sultan, & Ali, 2008). The Saudi Diabetes and Endocrine Association in 2010 estimated the indirect and direct costs of obesity problems in the KSA population to be about five billion dollars per year (Adam et al., 2014). Furthermore, hypertension, hypercholesterolemia, type 2 diabetes, arthritis problems, and cancer have increased dramatically in recent years among Saudi citizens (WHO, 2010a). At the same time the rising burden of cancer is one of the fastest growing health concerns in the KSA due to unhealthy diets, smoking, lack of sufficient physical activity, chronic viral infections, and lack of knowledge about cancer and its prevention

and screening methods (Abdo, Sanai, & Al-Faleh, 2012; Radi, 2013; WHO, 2011) (see Cancer Epidemiology section for further information). Based on this finding, there is a need for cancer prevention based on healthy lifestyle programming and educational activities for the Saudi population.

Cancer Epidemiology

A review of the literature revealed that 80% of cancer patients in the KSA presented with advanced stages of cancer (Gray & Ezzat, 1997). Advanced stage cancer includes the most serious metastatic cancers. At this stage, the cancer has spread to distant sites of the body, such as the liver, lungs, bones, brain, and/or other sites (Cancer Research UK, 2014). In 2014, the Saudi Cancer Registry (SCR) reported that the total number of all cancer cases among both Saudi nationals and non-Saudis in the KSA was 10,230 (74.6%) and 3,476 (25.4%) as of 2010, respectively. Overall cancer was more prevalent among women (7,127, 52%) than men (6,579, 48%), with a male to female ratio of 92:100 (SCR, 2014). The overall age-standardized incidence rate (ASR) for all Saudis (using a world standard population reference) was 84/100,000 (76.7/100,000 in males and 91.2/100,000 in females) (SCR, 2014). The top five malignancies in Saudi females are breast cancer, thyroid cancer, colorectal cancer, non-Hodgkin lymphoma, and leukaemia, while among Saudi males top malignancies are colorectal cancer, non-Hodgkin lymphoma, leukaemia, liver cancer, and lung cancer (SCR, 2014).

According to the Saudi Consumer Protection Society (SCPS) chairman, the incidence of malignancy cases, such as liver and lung cancers, in the KSA is four times higher than average global levels (Fakkar, 2011). Furthermore, Al-Ahmadi et al. (2013) indicated that an increase in wealth has been accompanied by a change in the lifestyle,

Table 2.1

Ten Most Common Cancers among Saudi, 2010 (All Ages) (SCR, 2014)

Cancer Type	Number	Percentage
Breast	1497	15.0
Colo-rectal	1033	10.4
NHL	703	7.1
Thyroid	697	7.0
Leukemia	616	6.2
Liver	483	4.8
Lung	397	4.0
Hodgkin disease	336	3.4
Skin	319	3.2
Stomach	291	2.9

Note: Figure presenting total number of cancer incident cases among Saudis during the year 2010.

Table 2.2

Ten Most Common Cancers among Saudi by Sex, 2010 (SCR, 2014)

Cancer Type	Male (4593) Number/percentage	Cancer Type	Female (5378) Number/ percentage
Colo-rectal	541/11.8%	Breast	1473/27%
NHL	407/ 8.9%	Thyroid	548/10.2%
Leukemia	359/7.8%	Colo-rectal	492/9.1%
Liver	329/7.2%	NHL	296/5.5%
Lung	292/6.4%	Leukemia	257/4.8%
Prostate	280/6.1%	Corpus Uteri	220/4.1%
Hodgkin Disease	194/4.2%	Ovary	175/3.3%
Bladder	193/4.2%	Liver	154/2.9%
Skin	168/3.7%	Skin	151/2.8%
Kidney	167/3.6%	Hodgkin Disease	142/2.6%

Note: Figure presenting total number of cancer incident cases among Saudis by sex during the year 2010.

smoking, dietary habits, and disease patterns as well as an increase in life expectancy; all of these changes may have influenced the incidence of certain types of cancer in the KSA.

The Saudi Cancer Registry (SCR) (2014) reported a rising proportion of breast cancer among Saudi women of all ages, from 10.2% in 2000 to 27.4% in 2010. The incidence of breast cancer in KSA accounts for 27.4% of all newly diagnosed female cancers (5,378) as of 2010 (SCR, 2014), which has been theorized to be related to low vitamin D exposure due to the cultural pattern of women covering their total bodies with their black abayas, a lack of knowledge about the common risk factors of breast cancer, and lack of understanding of the importance of breast self-examination and effective screening methods (Awatif, 2006; Dandash & Al-Mohaimed, 2007; Radi, 2013; Yousef et al., 2013). Similarly to other countries, breast cancer in the KSA is the most common cancer in women (Jesneck, Lo, & Baker, 2007). Breast cancer also occurs at an earlier age in Saudi women (the average age is 46 years) versus in other Western countries such as USA (the average age is 61 years) (SCR, 2014).

In 2010, there were 483 cases of liver cancer accounting for 4.8% of all newly diagnosed cases (SCR, 2014). This incidence of liver cancer in the KSA is not unexpected due to the high prevalence of chronic infections with hepatitis B and hepatitis C viruses among the Saudi population which is a precursor for liver cancer (Abdo, Al Abdul Karim, Al Fuhaid, Sanai, & Kabbani, 2006; Mohamed, Elsheikh, Ghandour, & Al-Karawi, 1998). This cancer ranked fourth in males and eighth in females and affected 329 (68.1 %) males and 154 (31.9%) females with a male to female ratio of 213:100. Moreover, the prevalence of lung cancer has increased considerably in the recent years, accounting for 4% of all newly diagnosed cancers, primarily caused by the increased

incidence of cigarette smoking among Saudi men and women (SCR, 2014; Siddiqui & Ogbeide, 2001). In 2014, the KSA Saudi Cancer Registry (SCR) reported that lung cancer ranked fifth in males and thirteenth in females as of 2010. It affected 292 (73.6%) males and 105 (26.4%) females with a male to female ratio of 279:100. Alamoudi (2006) has also indicated that lung cancer was the fourth leading cause of hospitalization among Saudi male patients admitted for respiratory diseases.

Nursing Education in Kingdom of Saudi Arabia

There are many KSA training schools and universities offering diploma and degree programs for healthcare professionals (Miller-Rosser, Chapman, & Francis, 2006). Two-thirds of these institutions are administered by the government and the remaining third by either Nongovernmental Organizations or private industry (Almalki et al., 2011). For example, there are three Bachelor of Nursing programs that were initiated by the KSA government in 1976 at the King Saud University in Riyadh, followed by the King Abdul-Aziz University in Jeddah in 1977 and finally at the King Faisal University in Dammam in 1987 (Tumulty, 2001). There are also about 44 private health institutes and five privately funded health training schools providing nursing training and educational programs (Saudi Committee for Health Specialists (SCFHS), 2005). Nurses' training schools are distributed among the various regions throughout the country (Al-Thagafi, 2006).

Nursing education encompasses many programs leading to different cadres of nurses depending upon their admission educational level to the program and the program's length. The KSA nursing programs offer educational learning leading to associate, bachelor, master, and doctoral degrees. The three-year associate degree or diploma registered nurses level of training for students who have a high school certificate

in natural sciences. Graduates at this level can become registered general nurses (RN), midwives (RM), pediatric nurses (RPN) or mental health nurses (RMN) (Abu-Zinadah, 2006; Al-Thagafi, 2006). The bachelor of nursing degree programs (BSN) require four years of university level study and an additional one year internship in nursing practice. The BSN program also prepares nurses for careers in nursing, midwifery, primary healthcare (community nursing), and research (Abu-Zinadah, 2006; Al-Thagafi, 2006). Admission to these university programs is limited to students with high school preparation in sciences. In addition since 1987, the Ministry of Higher Education has offered a master of science in nursing program at the King Saud University. This program was the first of its kind in the Gulf region's universities (Alamri, Rasheed, & Alfawzan, 2006). In 1994, a PhD program was also established in King Abdul-Aziz University through cooperative arrangements with British universities to facilitate career development for Saudi female nurses who are unable to study abroad (Abu-Zinadah, 2004).

Nurses who receive their BSN are categorized as registered nurses (RN), while nurses obtaining a master of science in nursing are categorized as clinical nurse specialists (SCFHS, 2007). Nurses with PhDs and three years of clinical experience are recognized as advanced practice registered nurses (SCFHS, 2007). To accommodate the emergent need for nurses in the KSA, international scholarship programs are also provided by numerous organizations including universities, the Ministry of Higher Education, the Ministry of Health, and large Saudi hospitals such as the King Faisal Specialist Hospital and Research Centre, and the King Abdul-Aziz University Hospital (Almalki et al., 2011; WHO, 2013). The aim of these international graduate scholarship programs is to prepare highly educated and experienced Saudi-educated nurses to lead the

nursing profession in the KSA (Almalki et al., 2011).

Currently, Saudi-educated nurses comprise approximately 32% of the nursing population (Al-Homayan et al., 2013). Sixty-seven percent of this group hold a diploma in nursing from health institutes; 30% hold an associate degree from junior colleges; and 3% hold a bachelor's degree from universities (Abu-Zinadah, 2006; Alsaqri, 2014).

Based on the last available information, there are only 28 Saudi-educated nurses with a master's degree, and seven nurses with a doctoral degree (Abu-Zinadah, 2006). Alsaqri (2014) indicates that while there is anecdotal evidence of more Saudi-educated nurses gaining PhDs (e.g. Villanova University in Pennsylvania, US), there are no statistics tracking the number of Saudi PhDs in nursing fields working in the KSA. It is therefore anticipated that the number of Saudi-educated nurses who hold master and PhD degrees has increased dramatically in recent years. These increases are likely due to international scholarship and internal postgraduate nursing programs offered from healthcare organizations and universities in the KSA, although exact data are unavailable.

Nursing in the KSA has recorded notable advancements within areas of education, workforce composition, and practice. Nonetheless, the KSA is challenged by a serious shortage of Saudi-educated nurses. This serious shortage, along with the major growth in public and private healthcare organizations, has subsequently led to an increased demand for and reliance on internationally educated nurses (IENs) from countries such as India, China, Philippine, South Africa, Australia, and North America to meet the health system service delivery needs (Aldossary et al., 2008; Alsaqri, 2014; Gazzaz, 2009).

Nursing Workforce in the Kingdom of Saudi Arabia

The KSA, as with many other countries globally, has for some time and continues to be confronted with a nursing shortage. To augment this shortage the number of IENs

represents about 68.2% of the total nursing workforce, while Saudi-educated nurses represent 31.8% (AlGhamdi & Urden, 2015; MOH, 2012). Thus, there is a gap in the number of Saudi-educated nurses to meet the KSA health system. Research suggests that the shortage of Saudi-educated nurses and reliance on IENs is related to a number of factors including: socio-cultural issues reinforcing the prevailing negative images and perceived low prestige of nursing within KSA; family conflict over women entering nursing; social and cultural beliefs about the role of women in society; long working hours of nurses; nurses having to deal with male patients; and the concern of Saudi women about not being "marriageable" once employed as nurses (Almalki et al., 2011; Miligi & Selim 2013). In short, the unattractive image of nursing as a profession in the KSA and the cultural opposition toward female employment explain the low number of Saudi-educated female nurses and why KSA is relying on foreign workers in the nursing sector (Al-Homayan et al., 2013).

The KSA MOH is the chief provider of public healthcare in the KSA, and employs a total of 75,978 nurses representing 58.5% of the total KSA nursing workforce of 129,792 nurses (Al-Homayan et al., 2013). However, there are no statistics tracking the number of nurses, including Saudi-educated nurses, in oncology nursing fields working in the KSA. Of the MOH employed nurses, 45,875 (55.3%) are Saudis, while the remainder come from international countries (AlGhamdi & Urden, 2015; MOH, 2012). Overall in KSA the majority of nurses work in publicly funded hospitals (58.5%), while the remainder work in primary healthcare centers and other related sectors. While the portion of Saudi-educated nurses relative to IENs working in public healthcare organizations has increased from 9% in 1996 to 21.5% in 2002 and 31.8% in 2010 (Al-Homayan et al., 2013), this growth, while substantial, is insufficient to meet the country's

needs. The overall ratio of nurses in the KSA different healthcare sectors is 48/10000 people (WHO, 2013); of this ratio 32.2/10,000 work in MOH facilities and the remainder 7.8/10,000. Although this ratio is higher than in other Arabic countries such as Egypt (34/10,000), Bahrain (36/10,000), Jordan (40/10,000), and the UAE (41/10,000) it is still lower than in Western countries such as the United Kingdom (95/10,000), the USA (98/10,000), France (93/10,000), and Canada (105/10,000) as compared with the global average of 86/10,000 (WHO, 2013).

An important contributing factor to the KSA nursing shortage crisis relates to the high dependency on IENs (Al-Ahmadi, 2006; Al-Homayan et al., 2013; Almalki et al., 2011; Gazzaz, 2009). The majority of the IENs come from India, Philippine, Malaysia, South Africa, Australia, and other countries in the Middle East (Al-Yousuf, 2002). While the KSA has been one of the most preferred destinations for IENs, because of benefits, such as high tax-free salaries, bonuses, free accommodation and medical care, long annual vacations, and yearly round trip airfare tickets to their homeland (Almalki et al., 2011; Alshmemri, 2014). Most of them tend to use the Saudi healthcare organizations as a transitory setting to acquire training and experience. After a period of time, they leave the KSA with their acquired experiences and skills to work in developed countries such as the USA, the UK, Canada, and Australia (Al-Amri et al., 2006; Almalki et al., 2011). While there are currently no statistics available to report the extent of this pattern, it has become apparent that IENs' turnover is often a main source of distress for managers in the KSA healthcare organizations (Aldossary et al., 2008). Closing the gap between Saudi-educated nurses and the need for IENs cannot be achieved in the short-term. On the national level, there are currently an inadequate number of Saudi-educated nurses graduating from KSA nursing schools, coupled with an increasing number of nurses who

drop out or leave the nursing workforce shortly after gaining employment (Al-Mahmoud, 2007; Al-Mahmoud, Mullen, & Spurgeon, 2012). Hence, the ability to increase the Saudi nursing workforce is challenged by the above factors.

Other factors that contribute to the KSA nursing shortage include lack of awareness about nursing opportunities among high school students, the nature of nursing work (high workload, long working hours, night shifts, and working over public holidays and weekends), poor salary, gender/cultural issues, lack of social support, lack of professional growth, and conflict with others cited earlier (Abu-Zinadah, 2004; Almalki et al., 2011; Al-Sa'd, 2007; Al-Turki et al., 2010; Gazzaz, 2009). Almalki et al. (2011) indicated that to reduce the impact of nursing shortages, healthcare and nursing long-term strategies are needed including retaining more Saudi-educated nurses in the workforce and improved retention of the current IENs' workforce.

Cancer Care in the Kingdom of Saudi Arabia

Healthcare services for patients with cancer fall under the umbrella of the MOH whether delivered in public or private health institutions. Specialized oncology care settings are located in cities where about 80% of the Saudi population live (Roche, 2014). Previously, cancer care services could only be found in the larger cities, such as Jeddah, Riyadh, and Dammam. Recently, more settings have been established in smaller towns, including Madina, Qaseem, and Makkah with further planned (Al-Ahmadi et al., 2013). However, nursing and other health professional expertise in cancer care is still lacking in the vast remote or rural areas of KSA where 20% of patients with cancer live (Al-Ahmadi, Al-Zahrani, & Al-Ahmadi, 2013). Thus, healthcare services for patients with cancer in these rural and remote areas are commonly delivered by non-oncology specialist health professionals such as general and family physicians or gynecology-

obstetrics unit staff (Roche, 2014). As a result many patients with cancer living in remote or rural areas experience delays in their diagnosis, or are referred to an oncology care settings in a KSA major city only when their cancers is in very advanced stages (stage 4 of cancer) leading to a higher mortality rates from cancer (Al-Ahmadi et al., 2013; Roche, 2014).

Despite accessibility of expert oncologists and advanced treatment options in the KSA, many Saudi patients with cancer, only seek medical assistance when their disease is in its advanced stages which makes treatment difficult (Almostadi, 2012). Furthermore, Saudi family's request non-disclosure of cancer diagnosis and prognosis to their family member may delay treatment and make the patient's condition difficult to manage (Aljubran, 2010). Researchers suggest that delays seem to be attributed to the low knowledge level and health literacy, about cancer and its prevention, among the Saudi population living in rural and remote areas, and lack of educational activities provided through local healthcare organizations (Dandash & Mohaimeed, 2007). This late diagnosis and treatment pattern may therefore be related to inadequate awareness about cancer prevention and screening programs available in these Saudi communities (Ravichandran, Al-Hamdan, & Mohamed, 2011). Gray et al. (1995) and Alshammary et al. (2014) found that a great number of Saudis, although being worried about malignancy, had inadequate accurate health information about risk factors for and treatments of cancers. They also had various misconceptions regarding supportive palliative care and the use of narcotic drugs for pain relief.

Currently, there are more than 15 oncology care settings in the KSA offering a variety of services including: intensive cancer care management units, consultation services, routine screening, cancer therapy, rehabilitation, home healthcare programs,

outpatient clinics, and supportive care services (diet center, physical therapy, patient education, pharmacy, and both institutional units for palliative care with translation and religious authorities to attend the spiritual needs of the terminally ill cancer patients) as well as home-based care (Al-Ahmadi et al., 2013; Abu Zeinah, Al-Kindi, & Hassan 2013; Nixon, 2003). Home-based care programs in the KSA comprise formal, regulated cancer care programs to promote, restore, and maintain a person's maximum level of comfort, function, and health including care towards a dignified death, provided by a variety of health care professionals in the patient's home (Alkurashi, 2006). The first palliative care program began more than 20 years ago at King Faisal Specialist Hospital and Research Center, Riyadh and programs are now available in a number of hospitals serving more than 5,000 patients annually (WHO, 2010b). These programs provide services for both outpatients and terminally ill patients with cancer both as inpatients and in their homes via home healthcare services.

Education Preparation in Oncology Nursing

Overall, the KSA has made a notable investment in the training of healthcare professionals in cancer and palliative care. Most oncologists in the KSA now are educated and trained in North America (ASCO Connection, 2013). In the Saudi oncology care settings such as King Faisal Specialist Hospital and Research Center, palliative care members offer a structured postgraduate program for physicians to pursue subspecialty training in palliative care (Al-Shahri, EldalI, & Al-Zahrani, 2012). Health sciences schools have also recently begun teaching oncology care to nursing, medical, and other healthcare professionals to help offset the predicted shortages of staff and meet future needs of patients with cancer (ASCO Connection, 2013). In addition, the WHO Regional Office has conducted a series of training sessions for physicians and healthcare staff

connected with cancer and palliative care. Training focused on the use of the WHO's protocol for integration of cancer and palliative care in primary health care to expand the services and empower primary health care staff based on preliminary assessment of country needs and resources (WHO, 2011). A similar approach to training was also provided for staff in home-based palliative care programmes and organized through the KSA Regional WHO Collaborating Centre (WHO, 2011).

In spite of these improved training for cancer and palliative care, there remains a limited number of oncology healthcare professionals, including oncology nurses, leading to limitations in patient access to specialized oncology diagnosis, treatment, and care (Al-Ahmadi et al., 2013; Abu Zeinah et al., 2013; Almuzaini, Salek, & Nicholls, 1998).

Islam, Saudi Cultural and Social Aspects in Cancer Care

Islam is the predominant religion influencing the Saudi culture. The Arabic word Islam means total submission to the will of Allah (the creator of the universe) by conforming inwardly and outwardly to His law (Al-Shahri & Al-Khenaizan, 2005). This belief is constantly expressed in the life of the Saudi population and is reflected in the flag of the country and the legal system. It also relates to the Saudi people's activities of daily living (Al-Shahri, 2002). In addition, like other Muslim people, Saudi individuals believe that health, illness, and death all come from God (Allah) (Alshmemri, 2014). The Saudi patient is perceived as a member of an extended family. The family is accountable to protect and provide care to the patient. These close family members combined with a strong Islamic belief, have a responsibility to offer care for their relative in situations of need, by helping make their lives as happy and comfortable as possible (Younge, Moreau, & Ezzat, 1997). Most major decisions in Saudi families are taken by, or at least involve the most senior male member of the family (Younge et al., 1997). Patient

treatment decisions or consents for any medical procedures usually involve the extended male family members, who assume their role to prevent emotional distress to the patient (Gray & Ezzat, 1997; Younge et al., 1997). Therefore, the Saudi family has a significant influence on the patients' care decision making (Almostadi, 2012; Halligan, 2006; Younge et al., 1997). Hence, at times Saudi patients may not have direct decision-making authority for their own care during their disease process.

Saudi's belief in destiny and life after death helps them cope with the diagnoses of cancer or terminal illness (Al-Shahri, 2002). Breaking bad news about a person's health is therefore influenced by the cultural and social norms of KSA and has a considerable impact on the patient and his/her family (Al-Shahri, 2002). Thus, these cultural norms affect truth-telling to patients about the diagnosis, management, and prognosis of cancer (Al-Amri, 2010; Almostadi, 2012; Younge et al., 1997). Family members may believe that their relative, who is patient with cancer, should have the truth about their condition withheld as it may be perceived to lead to more harm and suffering. Furthermore, some family members believe their relatives are not well-educated and lack understanding about their health condition; consequently, they may ask healthcare professionals, particularly physicians, to withhold or limit information provided to their family members (Al-Amri, 2010; Younge et al., 1997). Consequently, some family members of Saudi patients with cancer believe they should protect their loved ones by not informing them about their diagnosis and prognosis of cancer, and manage the care without them knowing why or consenting for treatments (Al-Amri, 2010). Subsequently, withholding information about a Saudi cancer patient's prognosis (impending death) may cause communication problems between healthcare professionals and patients. These limitations can prevent oncology nurses from discussing and supporting their patients'

emotional feelings about their condition (Almostadi, 2012). This barrier further challenges nurses' ethical values of veracity.

Truthful communications is a necessary requirement for developing successful nurse-client relationships that lead to the establishment of trust (Bishara, Loew, Forest, Fabre, & Rapin, 1997). Truth-telling then is considered to be an ethical concern as well as a moral responsibility by many healthcare providers, including KSA oncology nurses (Al-Amri, 2010; Halligan, 2006; Younge et al., 1997). Disclosure of truth fosters trust and is crucial for establishing respectful nurse/patient relationships (Hebert, Hoffmaster, Glass, & Singer, 1997).

Oncology Nursing Care in the Kingdom of Saudi Arabia Context

Research evidence suggests that KSA patients with cancer participate with health care teams in their care at varying levels due to previously discussed cultural and social norms (Al-Amri, 2010; Halligan, 2006; Younge et al., 1997). Studies suggest that these limitations in open communication with patients about their prognosis and potential death frequently creates challenges to ethical values held by both Saudi and internationally educated oncology nurses, and contributes to a stressful work environment (Halligan, 2006; Mitchell, 2009; Van Rooyen, Telford-Smith, & Strumpher, 2010).

Communications with the family about care to only family and excluding the input of their patients in disease management and treatment decision-making also create ethical dilemmas for IENs (Al-Amri, 2010; Ford & Vandvik, 2005; Halligan, 2006; Younge et al., 1997).

A further limitation in nurse-patient interactions relates to language. Although the majority of patients with cancer and their families speak Arabic as their native language, most healthcare professionals including oncology nurses are either non-English and non-

Arabic speakers (Simpson, Butler, Al-Somali, & Courtney, 2006). The language barrier between non-Arabic speaking KSA nurses and their patients leads to further stress and tension between both parties (Halligan, 2006) and increasing incidents of language and cultural misunderstanding (Wyk, 2012). In contrast when patients are communicated to in Arabic by KSA born-nurses there is increased patient and family satisfaction and better healthcare outcomes (Mebrouk, 2008).

Across the KSA, several research studies have been conducted investigating job strain, working conditions, and job satisfaction among Saudi and IENs working in both privately and publicly funded hospitals. These studies focused on individual nurse-variables such as burnout and intention to stay and organizational variables, such as leadership style, organizational commitment, recognition, and hospital performance (Al-Ahmadi, 2002; Al-Ahmadi, 2009; Al-Dossary, Vail, & Macfarlane, 2012; Al-Omar, 2003; Alsaqri 2014; Alshmemri, 2014; Mitchell, 2009; Zaghloul, Al-Hussaini, & Al-Bassam, 2008). According to these studies, the difficult working conditions experienced by nurses practicing in KSA commonly lead to burnout, job strain, and job dissatisfaction are associated with work overloads, lack of recognition, organizational support, and poor salaries. Strategies to overcome the above findings focused on improving the work environment, offering competitive wages, support for nursing personnel and a positive work environment with the goal of higher job satisfaction, retention of nursing staff, and reduction of job-related stressors.

Conclusion

In a climate of international nursing shortages, and in view of the present and expected future growth in the number of KSA healthcare organizations, the Saudi population, and the increasing number of cancer cases, organized and continuing efforts

to reduce stress in the workplace and increase both the number and proportion of Saudi nurses are needed. The need for improve cancer care services in the Saudi hospitals and the availability of oncology care settings and palliative care in all regions in the KSA and not just in larger cities is being addressed. However to overcome the gap in nursing personnel needs the KSA depends on IENs to provide healthcare services to meet its population's health needs. With the continued shortage of nurses, including oncology nurses, and an international competition for nurses, the Saudi Arabian healthcare system is at risk. This article highlighted some challenges that internationally educated oncology nurses face in the KSA that may lead to stressful work environments and reduce the quality of patient care provided. Nursing administrators/managers should take these factors into consideration to enhance the work environments of oncology nurses and to improve their work performance in KSA oncology care settings.

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CHAPTER THREE

**AN INTEGRATIVE REVIEW OF THE INFLUENCE OF JOB STRAIN AND
COPING STRATEGIES ON NURSES' WORK PERFORMANCE:
UNDERSTANDING THE GAPS IN ONCOLOGY NURSING RESEARCH**

Abstract

Purpose: The purpose of this review was to summarize empirical and theoretical evidence concerning job-related stressors in nurses, particularly oncology nurses, and the interrelationships among job strain, coping strategies, and work performance in this population.

Background: Nursing is known to be a stressful profession that can lead to physical and psychological health issues and behavioural problems. In oncology, where workload among nurses is believed to be increasing in conjunction with rapidly increasing number of patients with cancer and staff shortages worldwide, it is essential to sustain a quality oncology nurse workforce. Numerous studies have presented evidence on job strain, effects of coping strategies, and nurses' work performance within healthcare settings, but few have focused on oncology settings and none of these on nurses working in the Kingdom of Saudi Arabia.

Research Method: This review was conducted using the integrative review process defined by Whittemore and Knafl (2005). Search strategies identified studies published on nurses in peer-reviewed journals from 2004 to 2014. Multiple keywords were used to search for literature in a variety of electronic databases.

Findings: Twenty-five nursing studies were found examining the relationships among the concepts of interest. Common job-related stressors among oncology nurses were high job demands (work overload), dealing with death/dying, lack of job control, lack of

recognition, and interpersonal conflicts at work. Job strain was found to be significantly linked to coping strategies, and negatively associated with work performance among nurses in general. Job demands and job control were identified as potential predictors for nurses' work performance. There is no existing empirical evidence to support the relationship between coping strategies and work performance among oncology nurses.

Conclusions and Implication: This review has examined the interrelationships among job strain, coping strategies, and work performance. Mediators (coping strategies) affecting the relationship between job strain and work performance among oncology nurses are also not well examined. The present evidence is limited, and a considerable amount of research is required in the future to expand oncology nursing literature. Research is needed to investigate job-related stressors and their effects on oncology nurses in hospital settings. This issue needs to be further explored in order to reduce job strain and to improve oncology nurses' coping skills and their work performance.

Key words: integrative review, job strain, work performance, coping strategies, oncology nurses, nurses

Introduction

Whittemore and Knafl's (2005) integrative review process was used to search literature for studies focusing on the concepts of job strain, coping strategies, and work performance. This integrative process framework involved identifying the research problem, conducting an organized search of the published studies, evaluating the quality of data, extracting and analyzing data, and critiquing and presenting the findings to improve the rigour of the process when conducting an integrative review (Whittemore & Knafl, 2005). This review process permits the inclusion of studies utilizing different research designs, including both non-experimental and experimental research to more fully understand the relationships between job strain, coping strategies, and work performance. Theoretical and empirical literature on job strain, coping strategies, and work performance in nursing and seminal literature was summarized and analysed based on this framework to synthesize what is known about this phenomenon in professional oncology nursing practice.

One important source of job stress is job strain. Job strain is identified as a chronic problem among nurses internationally. Nurses work independently and in collaboration with other healthcare professionals within teams to help people to achieve optimal health and functioning (Thian, Kannusamy, & Klainin-Yobas, 2015). Certainly, nurses are exposed to a wide range of job-related stressors that may impact their job satisfaction, leading to poor work performance, absenteeism, and intention to leave their position or even the nursing profession (AbuAlRub & Al-Zaru, 2008; Lim, Bogossian & Ahern, 2010; Nabirye, Brown, Pryor, & Maples, 2011). Job strain has been widely investigated and refers to a pattern of responses that occur when a disparity exists between job demands and the level of control the employees have to satisfy those demands,

challenging their ability to cope (Karasek, 1979; Karasek & Theorell, 1990). Researchers found that job strain may lead to some forms of physical and mental diseases, and behavioural problems including cardiovascular diseases, hypertension (Slopen et al., 2012), burnout, emotional exhaustion (Bourbonnais, Comeau, & Vezina, 1998), sleep disturbance (Karhula et al., 2013), breast cancer (Kuper, Yang, Theorell, & Weiderpass, 2007), and substance use (Gomes, Santos, & Carolino, 2013) among nurses working in different specialities and healthcare settings.

Previous research has suggested that nurses use a variety of coping strategies when facing stressful situations in their work settings (Beh & Loo, 2012; Cai, Li, & Zhang, 2008; Gomes et al., 2013). Coping strategies are actions or steps employed by an individual to reduce or rectify the harmful effects of stress (Lazarus & Folkman, 1984). How individuals use coping strategies is, in part, determined by their external and internal resources encompassing individuals' beliefs, health, support, social skills, responsibilities, and available material resources (Schmidt, Dantas, Marziale, & Laus, 2009). Lazarus and Folkman (1984) have documented two fundamental coping strategies, problem-focused (PFCs) and emotion-focused (EFCs) (see Table 3.1), based on transactions between the individual and their work environment. However, research findings indicate that individuals utilize both PFCs and EFCs when experiencing demanding and stressful conditions (Lazarus & Folkman, 1987; Nabirye et al., 2011). Research suggested that EFCs can lead to problems for individual's growth, health and well-being, and could impact their quality of service delivery (Lazarus & Folkman, 1987; Lu, Kao, Siu, & Lu, 2010; Sun & Chiou, 2011). Undoubtedly, these outcomes are critical for nursing administrators/managers when dealing with work performance in light of nurse retention difficulties.

Table 3.1

Definition of Concepts

<p>Job strain (JS)</p> <ul style="list-style-type: none"> The combination of a high level of psychological workload demands and low work-related decisional latitude (Karasek, 1979).
<p>Job Demands (JD)</p> <ul style="list-style-type: none"> Psychological stressors present in the work setting such as workload demand, time constraints, conflicts and ambiguities about obligations and needed skills in a job (Karasek, 1979).
<p>Job Control (JC)</p> <ul style="list-style-type: none"> The ability of an employee to make decisions about his/her own work (Karasek, 1979).
<p>Coping strategies (CSs)</p> <ul style="list-style-type: none"> Actions or steps employed by an individual to reduce or rectify the harmful effects of stress (Lazarus & Folkman, 1984).
<p>Emotion-focused coping strategies (EFCs)</p> <ul style="list-style-type: none"> Actions that an individual takes to change individual attitudes towards emotions caused by external stimuli, such as complaining and escape-avoidance (Lazarus, 2000; Lazarus & Folkman, 1987).
<p>Problem-focused coping strategies (PFCs)</p> <ul style="list-style-type: none"> Adjusting actions that include altering or managing the problem within the individual or the environment, such as problem-solving and self-control (Lazarus, 2000; Lazarus & Folkman, 1987).
<p>Work performance (WP)</p> <ul style="list-style-type: none"> The effectiveness of the individual in carrying out his/her roles and responsibilities related to direct patient care (AbuAlrub, 2004)
<p>Contextual performance (CP)</p> <ul style="list-style-type: none"> Activities that are not directly associated with individuals' core tasks but form the institutional, social or/and psychological environment (Borman & Motowidlo, 1993).
<p>Task performance (TP)</p> <ul style="list-style-type: none"> The individual's capability with which he/she carries out accomplishments which add to the institution's practical core (Borman & Motowidlo, 1993).
<p>Oncology nurse (ONs)</p> <ul style="list-style-type: none"> A nurse who specializes in treating and caring for people who have cancer (National Cancer Institute, 2014).

Work performance in nurses can be viewed as the effectiveness of the nurse in carrying out his/her roles and responsibilities related to direct patient care (AbuAlrub, 2004). Borman and Motowidlo (1993) hypothesized that work performance can be divided into two distinct categories: contextual performance (CP) and task performance (TP) (see Table 3.1). There are many factors reported by nurses that may affect their work performance, including high levels of job strain that have been discussed above, lack of skills and training, inadequate feedback, poor communication, and supervisor support (Drach-Zahavy, 2004; Roud, Giddings, & Koziol-McLain, 2005). The relationship between work performance, coping strategies, job strain, and individual characteristics has been documented in non-nursing groups, such as physicians (Wetzel et al., 2010), college teachers (Struthers, Perry, & Mehec, 2000), aviation ground crews (Sun & Chiou, 2011), and athletes (Nicholls, Polman, & Levy, 2012). Theoretically, job strain and EFCSs are perceived to negatively correlate with work performance (Sun & Chiou, 2011). However, little is known about the interrelationship among job strain, coping strategies, and work performance in the nursing profession, especially among oncology nurses.

The nursing literature needs to be examined to help provide an understanding of current oncology nurses' work environment and its impact on job strain in oncology nurses' work outcomes. Given the increasing complexity of today's healthcare work environment, the significant nursing shortage, the increasing numbers of cancer cases, and the recognition of the oncology nurses' role in relation to patient safety (Bakker et al., 2013), a better understanding of the effects of job strain and coping strategies on oncology nurses' work performance is vital to sustaining an adequate oncology nurses workforce and safe environments for practice. This is particularly relevant to a country

such as the Kingdom of Saudi Arabia (KSA) that depends on the internationally educated nurses to meet its healthcare needs for care of patients with cancer. This integrative review aims to identify common job-related stressors experienced by oncology nurses and nurses working in other specialities and to summarise empirical and theoretical evidence concerning the relationships among job strain, coping strategies, and work performance to provide a more comprehensive understanding of this phenomena. This knowledge is significant, as it may provide the foundation for the development of programs and workplace interventions to help oncology nurses deal with their job strain more effectively and therefore strengthen their coping strategies and enhance nurse work performance.

Problem Identification

The focus of this integrative review was to provide information on job-related stressors in nurses, particularly oncology nurses, and the interrelationships among job strain, coping strategies, and work performance in this population. This integrative review synthesizes existing nursing studies in the area of job strain and work performance, and will also identify gaps in oncology nursing scholarship to guide future research. The following research question guided this review: What is the relationship between job strain, coping strategies, and work performance among registered nurses, particularly oncology nurses?

Data Search Strategy

The literature search strategy adopted was designed to capture published empirical and theoretical literature related to job strain, coping strategies, and work performance among nurses, and particularly with oncology nurses. To retrieve related articles, searches were conducted of the following electronic databases: Cumulative

Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, SCOPUS, PUBMED, and PsycINFO and used the following keywords in combination: “job strain”, “job stress”, “coping”, “coping strategies”, “work performance”, “nurses”, “nursing”, “oncology”, and “oncology nurses”, and were limited to the English-language. Some electronic databases did not specifically identify oncology nurses as a subject title; thus, oncology as a keyword was used within articles during searching in these databases in an effort to include all related studies. To ensure current literature, the researcher looked at studies within the 10-year period from 2004 to 2014. Studies addressing both oncology and non-oncology nurses were included. Unpublished studies, documents, editorials, and descriptive reports limited to discussing ideas and experiences about job strain, coping strategies, and work performance, articles about instrument development, and studies published in other languages were excluded because of limitations in time and translation resources. Also, studies that focused on job strain, coping strategies, and work performance among academic nursing staff, nursing managers/administrators, nursing students, other healthcare professionals, patients with cancer, and informal care-givers, such as family members were excluded. Focusing on studies conducted among nurses allowed the researcher to better identify gaps in nursing scholarship and highlight opportunities for improving both nursing research and practice in the future.

The electronic database searches yielded 828 possible citations utilizing the extensive subject headings (see Table 3.2). Eliminating identical citations resulted 673 articles that examined job strain/job stress and coping strategies, job strain and work performance.

Table 3.2

Electronic Search of Databases

Database	Search Key Terms Used in all Databases	No. of Titles & Abstracts
CINAHL, MEDLINE-OVID, SCOPUS, PUBMED, and PsycINFO	Job strain Or job stress & coping strategies & nurses	8
	Job strain OR job stress & work performance & nurses	38
	Coping strategies & work performance & nurses	259
	Job strain & coping strategies & work performance & nurses	419
	Job strain OR job stress & coping & oncology nurses OR oncology	103
	Job strain OR job stress & work performance & oncology nurses OR oncology	
Total no. of citations		828

All abstracts or article citations found through the computerized search were reread either in print or online, and full study articles were saved if they met the following inclusion criteria: (i) published in an English language journal, (ii) studies focused on oncology nursing or nurses practice, (iii) described or examined the phenomena of job strain, coping strategies, and work performance among nurses or included one or more tools to collect information on job strain, coping strategies, and work performance in nurses, and (iv) selected studies could be either qualitative or quantitative or mixed methods. The reference lists of included articles were also reviewed to identify additional related studies. There was no direct follow-up with the investigators of any study to retrieve supplementary data.

Data Quality Evaluation

Research studies that met the inclusion criteria were assessed for their quality by comparing their relevance to the primary review question by individually evaluating each

for quality of data through utilization of either the Qualitative Assessment and Review Instrument (Pearson, 2004) or the Checklist for Assessing the Validity of Descriptive/Correlational Studies from the Joanna Briggs Institute (Pearson, 2006) (see Appendix I). Quantitative research studies were evaluated for the presence of: (1) sample recruitment procedure, (2) representativeness and sufficient sample size, (3) inclusion criteria, (4) a connection between the theoretical framework and hypothesis, (5) instruments validity and reliability, (6) ability to compare groups, (7) suitable statistical data analysis, (8) a link between theoretical framework and findings, and (9) generalizability of results. On the other hand, qualitative research studies were evaluated on: (1) methodological congruency with the indicated philosophical view, (2) study questions, (3) data collection procedures, (4) data analysis methods, (5) results interpretation, (6) ethical considerations of the study process, and (7) basis for existing conclusions.

Each abstract was reviewed to determine if the publication met the inclusion criteria. The majority of research publications were completed on populations other than nurses and did not address the core question of this review resulting in 650 articles being eliminated. Twenty-three abstracts primarily met the inclusion criteria and the studies were retrieved and reviewed. Manual searching of the reference lists of these 23 articles identified two additional references not previously identified from electronic searches (see Figure 3.1). Therefore, the organized literature search yielded 25 articles that met the inclusion criteria for this review, of which 19 were quantitative research studies (AbuAlRub, 2004; AbuAlRub & Al-Zaru, 2008; Azizollah, Zaman, & Khaled, 2013; Bianchi, 2004; Cai et al., 2008; Chang et al., 2006; Chen et al., 2009; Donker, 2013; Gholamzadeh, Sharif, & Rad, 2011; Gomes et al., 2013; Hays et al., 2006; Lambert & Lambert, 2008; Lambert, Lambert, & Ito, 2004; Muazza, 2013; Nabirye et al., 2011; Rodrigues & Chaves, 2008; Sudhaker & Gomes, 2010; Umann, Silva, & Guido, 2014;

Wang, Kong, & Chair, 2011), three were mixed methods article (Beh & Loo, 2012; Fathi, Nasae, & Thiangchanya, 2012; Ida et al., 2009), two qualitative research studies (Jannati, Mohammadi, & Seyedfatemi, 2011; Moola, Ehlers, & Hattingh, 2008), and one systematic review study (Lim et al., 2010) (Table 3.3).

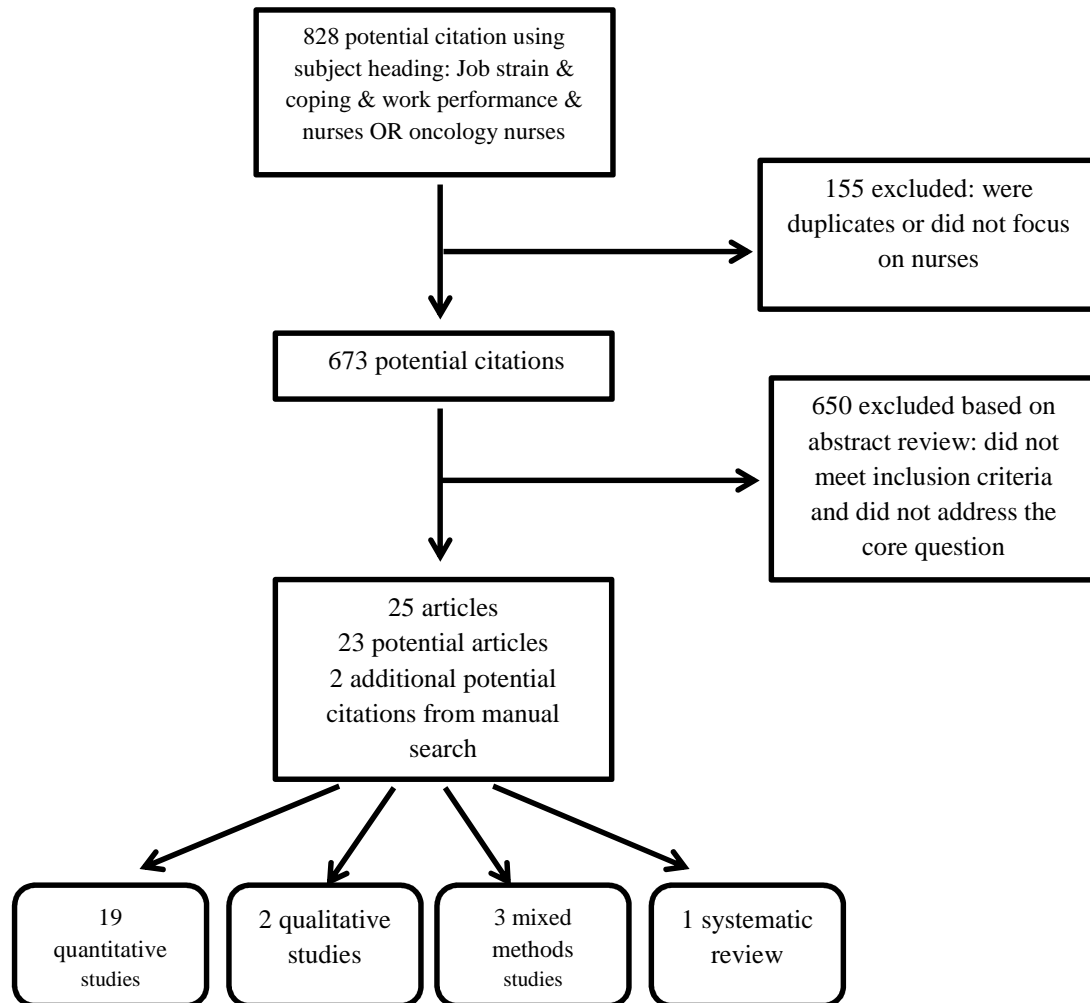


Figure 3.1. Summary of Search Strategy and Selection of Relevant Literature

The 25 articles represent nursing studies from the following countries: three each articles from Iran and Brazil, two articles each from China, Japan, Australia, Indonesia, and one

article each from Canada, United Kingdom, Hong Kong, Taiwan, Malaysia, India, Uganda, Ghana, Portugal, South Africa, the United States, and Jordan.

Data Extraction and Analysis

Data extracted from each article encompassed the study objective, design, setting, sample, and data collection procedures. Also, the results and discussion sections were reread, and research findings that investigated the relationships among job strain, coping strategies, and work performance and individual characteristics among nurses, were extracted. Data extracted from theoretical studies encompassed study type, objective, and explanations or conclusions examining interrelationships among concepts of interest. Then, extracted data from the included research studies were reviewed and consolidated into groups according to the similarities in meaning and/or descriptions. Data were grouped, and then compared, summarized, and finally findings were interpreted across and within research studies to recognize themes or concepts that found relationships between job strain, coping strategies, and work performance among nurses in general, including oncology nurses.

The quantitative studies data quality items were rated as (1) yes, (0) no, or (0) unclear, and an entire data quality score was tabulated. According to their evaluation score, research studies were ordered as high (7-10), average (4-6), and low (1-3) quality. The qualitative studies were rated from average quality (4 out of 10) (Jannati et al., 2011) to high quality (6 out of 10) (Moola et al., 2008). Assessment of the qualitative studies using the critical appraisal tool (Pearson, 2004) found an absence of reflexivity, limitations in purposive sampling (Jannati et al., 2011; Moola et al., 2008), and lack of clear discussion regarding coping strategies (Moola et al., 2008).

Table 3.3

Summary of Included Studies that Examined Job Strain, Coping Strategies and Work Performance among Nurses

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
AbuAlRub (2004) (USA, Canada & UK)	Descriptive, correlational, Cross- sectional Design	Convince sample of nurses from different units of hospitals	303	Nursing Stress Scale (NSS) (Gray- Toft & Anderson, 1981) Six Dimension Scale of Nursing Performance (6-DSNP) (Schwirian, 1978) Social Integration Scale(SIS) (McCloskey, 1990)	Cronbach's alpha reliability testing (.65 to .95) Pearson's correlation Hierarchical regression	A curvilinear (U-shaped) relationship was found between JS and WP. Significant negative correlation was found between job strain and social support from co-workers ($r = -.14$, $p < .05$). 20% of the variation in WP was explained by background variables, social support from coworkers, JS and interaction between JS and social support from coworkers. Perceived social support from coworkers moderated the relationship between JS & WP.
AbuAlRub and Al-Zaru (2008) (Jordan)	Correlational, Cross- sectional Design	Convince sample of nurses from medical, surgical, pediatric, emergency, renal and Obs/Gyn units of 4 public hospital	206	Nursing Stress Scale (NSS) (Gray- Toft & Anderson, 1981) McCain's Intent to stay Scale (McCloskey & McCain, 1987) Recognition Scale (RS) (Blegen et al., 1992)	Cronbach's alpha reliability testing (.75 to .93) Chi-squared test Hierarchical regression	Non-significant negative relationship between JS and WP was found ($r = -0.11$, $p = 0.13$). Significant negative correction was found between JS and intension to stay at work ($r = -2.4$, $p = 0.01$). Significant positive correction was found between WP and intension to stay at work ($r = 2.3$, $p = 0.02$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Azizollah et al. (2013) (Iran)	Descriptive, Correlational Design	Stratified random sample of nurses from hospitals	491	Job Stress Survey Questionnaire (HSE) Job Performance (William & Anderson, 1991)	Cronbach's alpha reliability testing (.84 to .89) Pearson's correlation Regression analysis	Significant negative correction was found between JS and WP ($r = -0.42$, $p = 0.001$). Significant negative correction was found between job demands and WP ($r = -0.44$, $p = 0.000$). Significant negative correction was found between job control and WP ($r = -0.39$, $p = 0.000$).
Beh and Loo (2012) (Malaysia)	Mixed Methods	A random sample of female nurses from different units of a publicly funded hospital	185	Questionnaire developed by the researcher based on the literature review Structured interview	Absolute frequencies (n) and relative frequencies (%) Analysis method of qualitative data Was not reported	The three major job-related stressors were heavy workload (64.2%), poor working conditions (67.9%), and repetitive work (73%). Social support (38%), control (45%), symptom management (30%) and escape (19%) were the most used CS.
Bianchi (2004) (Brazil)		Nurses from cardiovascular units of a publicly funded hospital	76	Nursing Stress Evaluation Questionnaire (NSEQ) (Bianchi, 1990) Ways of Coping Questionnaire (WOCQ) (Folkman & Lazarus, 1988)	Cronbach's alpha reliability testing (.80 to .95) Mean (M) and standard deviation (SD) Spearman's correlations Fisher test	The four major job-related stressors were working conditions ($M = 4.07$, $SD = 1.26$), personnel management ($M = 3.90$, $SD = 1.39$), nursing care ($M = 3.58$, $SD = 1.29$) and coordination of unit ($M = 3.56$, $SD = 1.34$). Positive reappraisal ($M = 1.87$, $SD = 0.47$), seeking support ($M = 1.81$, $SD = 0.50$), and self- controlling ($M = 1.79$, $SD = 0.43$) were most used CSs. No demographic characteristics were related to sources of stress. Statistically significant relationships between job-related stressors and CSs ($p < .05$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Cai et al. (2008) (China)	Correlational, Cross- sectional Design	A convenience sample of nurses from psychiatric units of 3 hospitals	188	Nursing Stress Scale (NSS) (Gray- Toft & Anderson, 1981) Simple Coping Strategies Questionnaire (SCSQ) (Xie, 1998)	Cronbach's alpha reliability testing (.84 to .90) Mean (M) and standard deviation (SD) Correlations	High job demands ($M= 6.16$, $SD=3.241$) and dealing with death/dying ($M= 5.627$, $SD= 2.780$) were the highest of all the job-related stressors. Nurses tended to use PFCSS ($M=22.069$, $SD=6.185$) more frequently than they use EFCSS ($M= 9.255$, $SD= 4.0477$). A significant positive relationship between job strain and PFCSS ($r= .39$, $p < 0.01$).
Chang et al. (2006) (Australia)	Predictive, correlational, Cross- sectional Design	Sample of Nurses from different units of acute care publicly funded hospitals	320	Nursing Stress Scale (NSS) (Gray- Toft & Anderson, 1981) Ways of Coping Questionnaire (WCQ) (Folkman et al., 1986) Short-Form (SF)-36 Health Survey Version 2 (Ware et al., 2002)	Pearson's correlation Forward stepwise regressions Stepwise regressions	The most common sources of nursing stress were high job demands ($M= 11.29$, $SD=3.95$), followed by death and dying ($M= 8.58$, $SD=4.35$), and conflict with colleagues ($M= 6.35$, $SD=2.78$). Planful problem solving was the most used CS, accounting for 18% of the coping, followed by self- control (16%) and seeking social support (16%). Strong significant correlations were found between JS, CSs, and mental and physical health ($R^2= .35$, $F (10.24) =14.8$, $p<.001$).
Chen et al. (2009) (Twain)	Correlational, Cross- sectional Design	Sample of nurses from OR of 7 teaching hospitals	112	Stressor Scale Stress Coping Strategy Scale	Cronbach's alpha reliability testing (.61 to .94)	Interpersonal relationship ($M = 2.64$, $SD = 0.67$), patient safety ($M = 3.39$, $SD = 1.01$) and work environment ($M = 3.11$, $SD = 0.80$) were the most job- related stressors.

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Chen et al. (2009) (Twain)				Job satisfaction scale Developed by researchers for the study purpose	Independent <i>t</i> test, Analysis of variance (ANOVA) Pearson's correlation	Job Stressors were positively related to destructive coping strategies ($r = .24, p < 0.01$).
Donkor (2013) (Ghana)	Descriptive, Cross- sectional Design	A systematic random sample of nurses from different units	70	Developed by the researcher for the study purpose Semi-structured interview	Absolute frequencies (n) and relative frequencies (%) Bar charts	The most common sources of nursing stress were high job demands (44.2%), followed by conflicts with supervisors (17%) and conflict with colleagues (17%). 56% of nurses strongly agreed that JS affects nurses' performance. 70 nurses said JS has negative relationship with performance.
Fathi et al. (2012) (Indonesia)	Mixed Methods	Stratified random sample of nurses from 3 units (medical, surgical & ICU) of two tertiary public hospitals	126	Nursing Stress Scale (NSS) (Gray- Toft & Anderson, 1981) Brief COPE (Caver, 1997) Semi-structured focus group interview	Cronbach's alpha reliability testing (.86 to .98) Pearson & Spearman's correlations Analysis of qualitative data Was not reported	Sources of stress included dealing with death/dying ($M = 2.07$, $SD = 0.57$), high job demands ($M =$ 1.96 , $SD = 0.51$) and lack of social support ($M = 1.69$, $SD = 0.57$). Most commonly CSs used were EFCs (e.g. religion) ($M = 3.51$, $SD = 0.66$). Significant relationship between JS and CSs ($p < .05$). Positive relationship was found between job demands and EFCs.
Gholamzadeh et al. (2011) (Iran)	Descriptive, Cross- sectional Design	Sample of nurses from emergency units of 3 teaching hospitals	90	Nursing Stress Scale (NSS) (Gray- Toft et al., 1981) Ways of Coping Questionnaire (Folkman et al., 1986)	Cronbach's alpha reliability testing (.88) Chi-squared test Absolute Frequencies (n) and relative frequencies (%)	Sources of stress included dealing with patients or their relatives, high job demands and lack of social support. EFCs were more used ($M = 59.4$, $SD = 16.1$) than PFCs ($M = 18.9$, $SD = 16.1$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Gomes et al. (2013) (Portugal, Europe)	Descriptive- exploratory, Cross- sectional Design	Nurses from oncology head and neck surgery units of 3 central public hospitals	96	General Health Questionnaire (GHQ) (Laranjeira, 2008) Occupational Stress Inventory (OSI) (Santos et al., 2011) Brief COPE (Caver, 1997)	Cronbach's alpha reliability testing (.70 to .87) Absolute frequencies (n) and relative frequencies (%) Bivariate analysis Independent samples <i>t</i> test Pearson correlation	Female oncology nurses had a greater degree of JS ($p=0.49$). The most common sources of JS included High job demands (52%, $n=50$), death./dying (47%, $n=45$) and lack of recognition (45%, $n=43$). Most commonly CSs used by oncology nurse when dealing with JS were planning (48%, $n=46$) ($M=5.55$, $SD=1.60$), active coping (56%, $n=54$) ($M=5.41$, $SD=1.43$), acceptance (49%, $n=47$) ($M=5.06$, $SD=1.38$) and self-distraction (40%, $n=38$) ($M=4.94$, $SD=1.59$). Statistically significant differences are only found regarding substance use, with the male group having higher values ($p = 0.011$). Significant negative correlation between general health and avoiding coping strategies (avoidance, Self-distraction and Denial) ($p < .05$).
Hays et al. (2006) (USA)	Descriptive, Cross- sectional Design	Convince sample of nurses from a variety of ICUs of 7 acute public hospitals	135	The Ways of Coping Questionnaire (WCQ) (Folkman et al., 1986) ICU Stressors Scale was developed by researchers	Cronbach's alpha reliability testing (.93) Pearson's correlation Analysis of variance (ANOVA)	Dealing with death/dying (53%), inadequate preparation (52%) and staff shortages (50%) were the most common stressors. Escape-avoidance (62 %) and confrontive coping (60%) were common CS used. Statistical significance was not found among demographic variables and stressors or coping.

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Ida et al. (2009) (Japan)	Mixed Methods Design	Convince sample of nurses of a major publicly funded hospital	502	JCQ (Karasek <i>et al.</i> , 1988) Sense of Coherence (SOC) (Yamazaki, 1991)	Cronbach's alpha (.73 to .86) Factor analysis Pearson's correlation	Significant relationship was found between JS and WP ($r = -0.61$, $p < 0.01$). Job demands and lack of skills were the most sources of JS.
Jannati et al. (2011) (Iran)	Descriptive, Qualitative Design	A purposive Sample of nurses from different units of 5 teaching hospitals	28	Semi-structured interview Observation	Ground theory approach	Job demands, lock of control and interpersonal relationship were common job-related stressors among nurses. Symptom management, control, and emotional were common used CSs.
Lambert et al. (2004) (Japan)	Predictive, correlational, Cross- sectional Design	Nurses from different units of six teaching and private hospitals, located in the central, western, and southern	310	Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981) The Ways of Coping Questionnaire (WCQ) (Folkman et al., 1986) Short-Form (SF)- 36 Health Survey (Ware et al., 1992)	Cronbach's alpha reliability testing (.84 to .92) Multiple correlation Stepwise multiple regression	The most common sources of JS included high job demands, lack of social support, conflict with colleagues and death/dying. Significant positive correlation was found between JS and CSs ($p = .01$). Significant positive relationships were found between age, years of nursing experience, level of income, and nursing education and job-related stressors ($p < .05$).
Lambert and Lambert (2008) (China)	Descriptive, Correlational Design	Convince sample of nurses from a variety of ICUs of 4 public hospitals	102	Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981) Brief COPE (Caver, 1997)	Cronbach's alpha reliability testing (.82 to .90) Spearman's correlation	High job demands was the most cited job stressor ($M = 11.0$, $SD \pm$ 3.72 ; range, 4-18), while planning was the most frequent CS used ($M = 5.14$, $SD \pm 1.04$; range, 3-8). High job demands were positively correlated with EFCSs ($p < .05$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Lim et al. (2010) (Australia)	Systematic Review	Sample of nurses from different units	27 Articles	Databases Search Manual Search		High job demands, lack of social support, role conflict, role ambiguity and interpersonal relationships were identified as the most common job-related stressors in reviewed studies. Nurses used a variety of CSs: planful problem solving, seeking social support, self-controlling, escape-avoidance and self-distraction. The uses of PFCSSs are associated with good mental health and well-being outcomes.
Moola et al. (2008) (South Africa)	Exploratory, Descriptive and Contextual, Qualitative	A purposive sample of nurses from CCUs of 5 hospitals	10	Semi-structured Focus group interviews Field notes	NUD*IST 4 software	CCNs experienced stressful situations due to high job demands and lack of social support. Avoidance-escape was the most common CS used.
Muazza (2013) (Indonesia)	Correlational, Cross- sectional Design	sample of female nurses from different units of a publicly funded hospital	60	Developed by the researcher for the study purpose	Absolute frequencies (n) and relative frequencies (%) Correlations Regression analysis	The most common sources of JS included role conflicts (72%), workload (76.8%), and relationships with supervisors and colleagues (59%). Headache (65.5%), hypertension (37.9%) and respiratory problems (50%) were the most common symptoms associated with JS among nurses. Significant negative relationship was found between JS and WP ($r = -0.64, p = 0.000$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Nabirye et al. (2011) (Uganda)	Correlational, Cross- sectional Design	Convince sample of nurses from medical, surgical, pediatric and Obs/Gyn. units of 4 private and public hospital	333	Nurse Stress Index (NSI) (Harris, 1989) Job Satisfaction Survey (JSS) (Spector, 1997) Six Dimension Scale of Nursing Performance (6-DSNP) (Schwirian, 1978)	Cronbach's alpha reliability testing (.81 to .93) Mean (M) and standard deviation (SD) Pearson's correlation One-way analysis of variance (ANOVA) Post-hoc test	Nurses experienced high levels of JS with mean scores ranging from 75.5 to 90.3. Significant difference in JS and WP mean scores among the different hospitals, ($F=14.46$, $p < 0.001$). Significant negative relationship was found between JS and WP ($r = -0.13$, $p = 0.02$).
Rodrigues and Chaves (2008) (Brazil)	Descriptive- exploratory, Cross- sectional Design	Nurses from different oncology units of 5 public hospitals	77	Demographic data Inventory developed by authors Coping Strategies Inventory (CSI) (Folkman & Lazarus, 1984)	Cronbach's alpha reliability testing (.54 to .75) Mean (M) and standard deviation (SD)	The most common sources of JS included death/dying (29%), conflict with colleagues (17%) and high job demand (16%). Positive reappraisal (0.75) ($M = 10.34$, $SD = 4.96$, problem solving (0.73) ($M = 9.91$, $SD = 3.94$), and Escape-avoidance (0.73) ($M = 6.07$, $SD = 4.62$) were the most used CSs. Most commonly CSs used by oncology nurse were PFCSSs.
Sudhaker and Gomes (2010) (India)	Correlational Design	Convince sample of nurses from different units of 2 tertiary hospitals	60	Performa of nurses Job Stress Index Coping checklist Developed by study's researchers	Absolute frequencies (n) and relative frequencies (%) Correlation matrix	Seeking social support was the most used CS, accounting for 95% of the coping, followed by problem-solving (93%) and symptom management (93%). Strong negative correlation between JS and CSs ($r = -0.92$, $p < .05$).

Authors/Year/ Country	Research Design	Participants	Sample Size	Instruments	Data Analysis	Findings
Wang et al. (2011) (Hong Kong)	Descriptive, Correlational, Cross- sectional Design	Sample of nurses from acute surgical units of 3 hospitals	98	Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981) Jalowiec Coping Scale (JCS) (Jalowiec, 1991)	Mean (M) and standard deviation (SD) Pearson's correlation	Surgical nurses experienced moderate level of job strain. Most common job stressors included high job demands ($M=15.36$, $SD= 2.95$), lack of support ($M=13.32$, $SD= 2.92$) and inadequate preparation ($M=12.33$, $SD= 2.92$). Evasive ($M=19.23$, $SD= 5.66$), confrontive ($M=17.46$, $SD= 4.79$) and optimistic ($M=15.81$, $SD= 3.94$) were the most used CSs. Significant negative correlation was found between JS and optimistic ($r= -.432$, $p < .01$) and confrontive CSs ($r= -.401$, $p < .01$).
Umann et al. (2014) (Brazil)	Descriptive, Cross- sectional Design	Nurses from nephrology units of teaching hospital	129	Inventory of Stress in Nurses (ISN) (Stacciarini et al., 2000) Occupational Coping Scale (OCS) Work Limitations Questionnaire (WLQ) (Soarez et al., 2007)	Cronbach's alpha reliability testing (.79 to .95) Mean (M) and standard deviation (SD)	Sources of JS included high job demands ($M=3.47$, $SD= 0.67$), interpersonal relationships ($M= 3.51$, $SD= 0.78$), and role conflicts ($M=3.45$, $SD= 0.73$). Most CSs commonly used were management of symptoms ($M= 3.44$, $SD=0.59$), self-control ($M= 2.79$, $SD= 0.59$) and avoidance ($M=2.63$, $SD=0.32$).

❖ (JS) job strain, (CSs) coping strategies, (PFCSSs) problem-focused coping strategies, (EFCSSs) emotion-focused coping strategies, work performance (WP)

Three mixed methods research studies (Beh & Loo, 2012; Fathi et al., 2012; Ida et al., 2009) were rated as average quality, Beh and Loo (2012), and Fathi et al. (2012) were rated as 5/10, and Ida et al. (2009) was rated as 4/10.

Three quantitative studies were rated as high (Chang et al., 2006; Lambert et al., 2004; Nabirye et al., 2011), eight were average (AbuAlRub, 2004; AbuAlRub & Al-Zaru, 2008; Azizollah et al., 2013; Bianchi, 2004; Donkor, 2013; Gomes et al., 2013; Hays et al., 2006; Lambert & Lambert, 2008), and eight were low quality (Cai et al., 2008; Chen et al., 2009; Gholamzadeh et al., 2011; Muazza, 2013; Rodrigues & Chaves, 2008; Sudhaker & Gomes, 2010; Umann et al., 2014; Wang et al., 2011). Some of these studies did not use random sampling (Chang et al., 2006; Donkor, 2013), and did not explicitly study hypotheses or they attributed importance to findings that were not statistically significant (AbuAlRub & Al-Zaru, 2008; Gholamzadeh et al., 2011). Other researchers used non-validated tools (e.g. questions developed by researchers) (Chen et al., 2009; Donkor, 2013; Muazza, 2013; Sudhaker & Gomes, 2010) to assess the main study variables. Still others chose only one or two items from other psychometrically tested scales without re-assessing their psychometric properties (AbuAlRub & Al-Zaru, 2008). In a further set of studies, data collection procedures (Azizollah et al., 2013; Bianchi, 2004; Gholamzadeh et al., 2011; Muazza, 2013; Sudhaker & Gomes, 2010; Umann et al., 2014) and data analytic techniques (Gholamzadeh et al., 2011; Rodrigues & Chaves, 2008) were either unclear or inadequate.

The sample sizes of the 19 quantitative studies ranged from 70 to 491 nurse participants representing different specialities: nephrology, medical, surgical, pediatric, psychiatric, Obs/Gyn, operation room (OR), emergency, critical care, intensive care unit (ICU), oncology, and out-patient clinics. In the qualitative and mixed methods studies,

the sample sizes ranged from 10 to 28 nurses in the former and from 126 to 502 nurses in the latter. Participants in the studies were primarily clinical nurses offering direct care to patients. Findings proposed three themes: (i) job strain in nursing, (ii) coping strategies and job-related stressors among nurses, and (iii) work performance and job-related stressors among nurses.

Data Presentation

Data presentation is the last phase in this integrative review process and focuses on the evidence that supports the review's conclusion (Whittemore & Knafl, 2005) (see Table 3.3).

Job Strain in Nursing

Nursing is commonly perceived as a demanding, challenging, and stressful profession. Based on the reviewed studies, high job demands, lack of job control, and social support were the most often-cited job-related stressors reported by nurses (AbuAlRub, 2004; Azizollah et al., 2013; Chang et al., 2006; Donkor, 2013; Faith et al., 2012; Ida et al., 2009; Gholamzadeh et al., 2011; Gomes et al., 2013; Jannati et al., 2011; Lambert et al., 2004; Lim et al., 2010; Nabirye et al., 2011; Umann et al., 2014; Wang et al., 2011). Eight studies reported that job demands/work overload were identified as the best predictors of mental and physical health resulting in emotional exhaustion, depression, and anxiety among nurses in nursing speciality practice (Beh & Loo, 2012; Chang et al., 2006; Gomes et al., 2013; Ida et al., 2009; Lambert et al., 2004; Lim et al., 2010; Moola et al., 2008; Muazza, 2013). Work settings may pose varying levels of job demands. For instance, nurses who worked in critical care, emergency, oncology, and nephrology units reported higher levels of job demands and lower levels of job control than those working in other nursing specialities (Gholamzadeh et al., 2011; Gomes et al.,

2013; Rodrigues & Chaves, 2008; Umann et al., 2014). These results may be attributed to increased workload and emotional exhaustion experienced by nurses working in acute care units required nurses to have comprehensive knowledge and skills to provide the necessary level of care to these patients (Gholamzadeh et al., 2011; Gomes et al., 2013; Umann et al., 2014).

Furthermore, researchers reported that nurses working in publicly funded hospital had the highest mean stress score ($M = 88.27$, $SD = 20.87$) while those working in privately funded not-for-profit hospitals' means scores ranged from 73.35 ($SD = 16.4$) to 76.09 ($SD = 23.5$), reportedly due to high job demands and excessive workload (Nabirye et al., 2011). Further analysis of the previous study indicated a significant difference in mean stress scores reported in publicly versus privately funded hospitals ($F = 14.46$, $p < 0.0001$) (Nabirye et al., 2011). On the other hand, another study conducted by Fathi et al. (2012) explored workplace stressors and coping among 126 publicly funded hospital nurses, found that most nurse participants ($n = 89$, 71%) experienced low levels of stress in their workplace resulting from their ratings on overall job-related stressor subscales (inclusive of job demands) ($M = 61.69$, $SD = 14.12$, min-max= 33-132).

Six studies found that role conflict, role ambiguity, and lack of recognition for professional competence are significant sources of stress among nurses, and may be associated with negative consequences at the organizational and individual nurse levels (AbuAlRub & Al-Zaru, 2008; Gomes et al., 2013; Lim et al., 2010; Muazza, 2013; Nabirye et al., 2011; Umann et al., 2014). Role ambiguity arises when there is a lack of clarity in the roles an employee is expected to fulfill, while role conflict occurs when an employee is subject to competing or conflicting sets of expectations and demands in the organization (Kahn, Wolfe, Quinn, Shoek, & Rosenthal, 1964). Interpersonal relationship

problems were also recognized as another important job-related stressor among nurses in the reviewed studies. Different types of interpersonal problems encountered were conflict with co-workers, physicians, and supervisors (Donkor, 2013; Chang et al., 2006; Chen et al., 2009; Jannati et al., 2011; Lambert et al., 2004; Lim et al., 2010; Muazza, 2013; Rodrigues & Chaves, 2008; Umann et al., 2014). These conflicts could be another source of stressor affecting nurses' mental and physical health (Chang et al., 2006; Lambert et al., 2004; Muazza, 2013) and quality of nursing care (Donkor, 2013; Muazza, 2013; Umann et al., 2014), and leading to job dissatisfaction (Lambert & Lambert, 2008). In two cross-sectional studies that examined the most common job-related stressors experienced by oncology nurses, high job demands, dealing with death/dying, communication issues, emergency situations, interpersonal staff conflicts, lack of recognition, inadequate preparation, and low salaries were identified as high sources of stress among oncology nurses in both Portugal (Gomes et al., 2013) and in Brazil (Rodrigues & Chaves, 2008).

The reviewed studies used different instruments to measure nurses' job strain, including: Inventory of Stress in Nurses (ISN) (Stacciarini, & Troccoli, 2000), Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981), Job Stress Index (Sudhaker & Gomes, 2010), Nursing Stress Evaluation Questionnaire (NSEQ) (Bianchi, 1990), Occupational Stress Inventory (OSI) (Santos, Frazao, & Ferreira, 2011), Nurse Stress Index (NSI) (Harris, 1981), Job Stress Survey Questionnaire (HSE), and Job Content Questionnaire (JCQ) (Karasek et al., 1988). The Nursing Stress Scale (NSS) developed by Gray-Toft and Anderson (1981) was the most common job strain measure used, which accounted for 50% of articles (AbuAlRub & Al-Zaru, 2008; AbuAlRub, 2004; Cai et al., 2008;

Chang et al., 2006; Gholamzadeh et al., 2011; Lambert et al., 2004; Lambert & Lambert, 2008; Fathi et al., 2012; Wang et al., 2011).

Coping Strategies and Job-related Stressors among Nurses

Out of the 25 reviewed studies, 18 studies (72%) examined the influence of and perception of coping strategies and experiences of job strain in nurses who were working in healthcare settings (Beh & Loo, 2012; Bianchi, 2004; Cai et al., 2008; Chang et al., 2006; Chen et al., 2009; Fathi et al., 2012; Hays et al., 2006; Gholamzadeh et al., 2011; Gomes et al., 2013; Jannati et al., 2011; Lambert et al., 2004; Lambert & Lambert, 2008; Lim et al., 2010; Moola et al., 2008; Rodrige & Chaves, 2008; Sudhaker & Gomes, 2010; Umann et al., 2014; Wang et al., 2011). Twelve studies (48%) (seven cross-sectional, two mixed methods, two qualitative studies, and one systematic review) explored the relationship between job-related stressors and coping strategies among nurses in different hospital units in Iran, Hong Kong, China, Brazil, South Africa, USA, Malaysia, and Indonesia (Cai et al., 2008; Beh & Loo, 2012; Bianchi, 2004; Fathi et al., 2012; Hays et al., 2006; Gholamzadeh et al., 2011; Gomes et al., 2013; Jannati et al., 2011; Lim et al., 2010; Moola et al., 2008; Rodrige & Chaves, 2008; Wang et al., 2011). Four cross-sectional studies (16% of total studies) assessed the relationships between job-related stressors, coping strategies, individual characteristics, and mental and physical health among nurses in Brazil (Umann et al., 2014), Australia (Chang et al., 2006), Japan (Lambert et al., 2004), and India (Sudhaker & Gomes, 2010), while two cross-sectional studies (8% of the total) examined relationships between job-related stressors, coping strategies, individual characteristics, and job satisfaction among ICU nurses in Chinese nurses (Chen et al., 2009; Lambert & Lambert, 2008).

Only two studies described the diversity of coping strategies utilized by oncology

nurses to deal with stressful situations in their work settings and linked them with nurses' health and well-being (Gomes et al., 2013; Rodrige & Chaves, 2008). Researchers reported that oncology nurses used more PFCs than EFCs, such as positive reappraisal, problem-solving, planning, and acceptance (see Table 3.3). However, many researchers found that increased job strain levels among nurses are significantly associated with increased utilization of EFCs, such as escape-avoidance, denial, venting, and symptom management coping strategies in seven studies (Chen et al., 2009; Fathi et al., 2012; Hays et al., 2006; Lambert & Lambert, 2008; Moola et al., 2008; Sudhaker & Gomes, 2010; Umann et al., 2014), and confirmed a significant positive relationship between job demands and EFCs among 228 Indonesian and Chinese nurses from different units (Fathi et al., 2012; Lambert & Lambert, 2008). In addition, six studies provided evidence that EFCs are frequently related to increased stress, mental and physical problems, and job dissatisfaction (Beh & Loo, 2012; Chang et al., 2006; Gomes et al., 2013; Lambert & Lambert, 2008; Lim et al., 2010; Moola et al., 2008). In contrast, some researchers noted that in none of their studies was one coping strategy recognized as being any better than another by study's participants (Gholamzadeh et al., 2011; Rodrige & Chaves, 2008).

As shown in Table 3.3, instruments used to assess and to identify the common coping strategies included: Jalowiec Coping Scale (JCS) (Jalowiec, 1991), Occupational Coping Scale (OCS) (Umann et al., 2014), Simple Coping Strategies Questionnaire (SCSQ) (Xie, 1998), Coping Strategies Inventory (CSI) (Lazarus & Folkman, 1984), Brief COPE (Caver, 1997), Coping Checklist (Sudhaker & Gomes, 2010), Ways of Coping Questionnaire (WCQ) (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986), and open Semi-structured Interview (12%) (Jannati et al., 2011; Moola et al., 2008). Ways of Coping Questionnaire (WCQ) (Folkman et al., 1986) was the most

commonly used instrument to assess coping strategies among nurses (Bianchi, 2004; Chang et al., 2006; Gholamzadeh et al., 2011, Hays et al., 2006; Lambert et al., 2004). Data were analyzed using univariate and multivariate analyses in order to understand the relationships between study variables.

Work Performance and Job-Related Stressors among Nurses

Out of the 25 reviewed studies, seven studies (28%) explored the relationship between work performance and job-related stressors among nursing populations in Uganda (Nabirye et al., 2011), Ghana (Donkor, 2013), Japan (Ida et al., 2009), Indonesia (Muazza, 2013), the USA, Canada, Britain (AbuAlRub, 2004), Iran (Azizollah et al., 2013), and Jordan (AbuAlRub & Al-Zaru, 2008), using randomized and non-randomized sampling methods. Two of these studies included samples of nurses who had more than 9-year's nursing experience (AbuAlRub, 2004; Ida et al., 2009), and three included nurses who had more than one year's nursing experience (AbuAlRub & Al-Zaru, 2008; Muazza, 2013; Nabirye et al., 2011). Only one study enrolled nurses working in different units and countries and held a diploma, an associate, or bachelor degree in nursing (AbuAlRub, 2004). Three were cross-sectional studies carried out among nurses from different units, where data were collected through self-reported questionnaires (AbuAlRub, 2004; AbuAlRub & Al-Zaru, 2008; Nabirye et al., 2011). Only one of these studies used a mixed methods design to examine 502 nurses across different units in a major hospital in Japan and reported relationships between job strain, work performance, and individual characteristics (Ida et al., 2009). Data were collected through self-reported questionnaires and semi-structured interviews, and analyzed using univariate and bivariate statistics, and factor analysis.

Findings revealed that nurses' perceived barriers to better work performance

included high job demands (usually exacerbated by staff shortages), lack of control over work, lack of social support, lack of skills and knowledge, insufficient rewards and lack of recognition for professional competence. Five studies confirmed a significant negative relationship between work performance and job strain among nurses from different units (Azizollah et al., 2013; Donker, 2013; Ida et al., 2009; Muazza, 2013; Nabirye et al., 2011). Several studies reported conflicting findings. In a study of 206 Jordanian nurses working in four publicly funded hospitals, researchers found a non-significant negative relationship between work performance and job strain ($r = -0.11$, $p = 0.13$) (AbuAlRub & Al-Zaru, 2008), while in an earlier study of 3030 nurses from different units found that job strain was negatively correlated with work performance ($r = -0.10$, $p < .05$), and that the squared term of job strain was positively correlated with work performance ($r = 0.01$, $p < .05$) (AbuAlRub, 2004). Researchers in all seven reviewed studies suggested that developing programs and workplace interventions should concentrate on reducing the above-mentioned job-related stressors to help enhance nurses' work performance.

As shown in Table 3.3, these reviewed studies used the following instruments to measure work performance: the Six Dimension Scale of Nursing Performance (6-DSNP) (Schwirian, 1978), Job Performance (William & Anderson, 1991) and Recognition Scale (RS) (Blegen et al., 1992). The 6-DSNP (Schwirian, 1978) was used in two studies (AbuAlRub, 2004; Nabirye et al., 2011), while one study used two performance indicators (medical quality and sickness-absence) to assess work performance among 502 Japanese nurses (Ida et al., 2009).

Demographic and Work-Related Variables

Individual nurse and work characteristics, such as age, gender, educational backgrounds, years of experience, family situation, and type of hospital were found to

have an impact on nurses' perception of stressful situations, work performance, and their capacity to exercise coping strategies. In six studies, examining job-related stressors and individual characteristics among Japanese nurses (Ida et al., 2009; Lambert et al., 2004), Chinese (Cai et al., 2008; Lambert & Lambert, 2008), Twine (Chen et al., 2009), and Ugandan nurses (Nabirye et al., 2011), researchers noted that older nurses with more work experience and higher levels of nursing education were more likely to experience higher levels of job strain. In contrast, in a study carried out with nurses in Hong Kong found moderate levels of job strain among 66 % of younger nurses with a mean age of 30 years ($n=65$, $SD = 6.5$) who reported work overload/ high job demands ($M = 15.61$, $SD = 2.95$), lack of social support ($M = 13.32$, $SD = 2.92$), and moderate levels of job strain ($M = 76.7$, $SD = 14.9$) (Wang et al., 2011). Nursing education was found to be positively correlated with seeking social support, acceptance, and self-blame as ways of coping with job strain, while negative correlations between age and nursing experience and these coping strategies were found ($p < 0.05$) (Lambert et al., 2004; Lambert & Lambert, 2008). Furthermore, only one study (6%) conducted by Gomes et al. (2013) indicated that statistically significant differences were found regarding substance abuse with the male nurse group having higher levels when working in head and neck surgery oncology units (Mann-Whitney U ($p = 0.01$)). In addition, Nabirye et al. (2011) found significant differences in job strain and work performance means by type of hospital with publicly-funded hospitals having the highest mean score for job strain ($F = 14.46$, $p < .0001$), and the lowest mean score for work performance ($F = 7.95$, $p < 0.001$) among Uganda nurses, indicating that nurses when working in publicly funded hospitals had significantly poorer work performance than those who worked in privately funded hospitals ($t = -3.425$, $p < 0.05$).

Limitations of Included Studies

The included studies in this integrative review have some serious theoretical and methodological limitations. First, most reviewed studies used a cross-sectional research design and, therefore, an inference regarding casual relationships among study variables cannot be drawn (Polit & Beck, 2012). Future research should consider alternative methods, such as longitudinal studies, that would then temporality to be determined, providing stronger evidence for causal relationships between study variables in organizations (Polit & Beck, 2012; Spector, 1994). Second, this review found that most studies used a non-random sampling method. In addition, nurses who had participated in the reviewed studies were working in different units and had varying work experiences potentially causing to bias due to their volunteer participation. Third, most studies did not report how sample sizes were determined (e.g. power analysis). Therefore, this may limit the ability to achieve statistical power of the study if the sample size was inadequate (Polit & Beck, 2012). While a theoretical framework was mentioned, only six studies (24%) (Beh & Loo, 2012; Chen et al., 2009; Fathi et al., 2012; Hays et al., 2006; Jananti et al., 2011; Nabirye et al., 2011) described the model that included study variables and their relationships. Of the theoretical frameworks provided, just one (4%) research study (Nabirye et al., 2011) used the Karasek's Demand-Control Model (1979) and the Lazarus and Folkman's Transaction Model of Stress and Coping (1984). Unlike most of the included studies, only one study (4%) by Fathi et al. (2012) provided theoretical definitions that were not only well stated, but also were consistent with the theoretical framework supporting the work.

The absence of theoretical definitions of constructs and the lack of adequate information about theoretical frameworks, made it difficult to identify the consistency

between operational definitions, theoretical definitions, and their link to theory in most of the studies. Observation of these issues is consistent with earlier findings in an integrative review of job strain and coping strategies in nurse managers research (Shirey, 2006).

Hence 48% of the included studies (n=12) were either atheoretical or failed to report a theoretical framework to support the study work. It should also be noted that all reviewed studies were published in English. Non-English articles, which may contain useful information, were excluded, therefore potentially hindering a more comprehensive understanding of the relationships between the concepts of interest in this review.

Discussion

This review aimed to summarize empirical or theoretical research regarding job strain in nursing and its relationship among the job-related stressors, coping strategies, and work performance among nurses, particularly those working in oncology units. From the review, it is clear that studies examining the relationships between these variables are predominantly non-experimental quantitative studies using self-reported instruments. A potential cause for investigators' preference for conducting non-experimental studies rather than experimental and interventional studies may be due to problems related to access to subjects or research expertise of researchers (Thian et al., 2015). However, while most studies utilized valid and reliable instruments, other researchers utilized self-developed tools (e.g. Performance of Nurses [Sudhaker & Gomes, 2010] and Stress Coping Strategy Scale [Chen et al., 2009]). The Nursing Stress Scale (Gray-Toft & Anderson, 1981), which was used in 50% of the stress measurements, was the most used instrument. Furthermore, most studies reported internal consistency reliability coefficients (Cronbach's alpha) for their instruments, which are in acceptable ranges ($\alpha > 0.70$) (see Tables 3.3). However, there was only limited qualitative research

conducted in this area, with only two qualitative studies conducted by Jannati et al. (2011) and Moola et al. (2008) included in this review, possibly because the construct of job strain is relatively easily measured by existing stress and coping strategies survey tools.

Evidence from the reviewed studies indicated that nurses experience moderate to high levels of job strain, particularly nurses who worked in oncology, ICU, emergency, and nephrology units. The majority of the studies recognized high job demands to be the most prominent job-related stressor among nurses. This was followed by lack of social support, dealing with death and dying, lack of job control, role stress, interpersonal relationships, and lack of recognition. Even though the settings of these studies varied, the findings were similar in terms of job-related stressors and the effects of job strain on nurses' health, job satisfaction, and work performance. However, the review found a need for further understanding of stressors related to interpersonal relationships in work settings, mainly associated with supervisors and physicians (Chang et al. 2006; Umann et al., 2014).

The included studies found that individual nurses may perceive stress quite differently and choose to implement associated coping strategies accordingly (e.g. see Lambert & Lambert, 2008; Lambert et al., 2004). It was noted that although nurses recognized the same four highest job-related stressors (job demands/work overload, lack of job control and social support, and dealing with death/dying), there were differences in coping strategies adopted. The most frequently used reported coping strategies in stressful situations by those hospital nurses, irrespective of country, were: escape-avoidance, seeking social support, denial, symptom management, planful problem-solving, and self-control, although not always in that order. The majority of the studies

highlighted that nurses utilize EFCSs more than PFCSs which can lead to greater risks for mental and physical health issues. This finding is supported in a systematic review conducted by Lim et al. (2010), examining stress and coping in Australian nurses. However, oncology nurses use mainly PFCSs, such as positive reappraisal and problem-solving, to deal with stressors in their work settings (Rodrigues & Chaves, 2008). Positive reappraisal coping described as an individual's effort to produce positive meaning by concentrating on personal development and may have a spiritual dimension (Lazarus & Folkman, 1984). This type of coping may be utilized more frequently when oncology nurses view their faith as valuable in their nursing practice, therefore they do not lose their faith when encountered with stressful situations (Ekedahl & Wengstrom, 2009). Consequently, it may allow them to change something about themselves to cope when they face a similar situation again they will recognize what to do.

Among seven of the included studies, six potential predictors for work performance were reported among nurses. These predictors included high job demands, lack of job control, lack of social support, insufficient rewards, lack of skills and knowledge, and lack of recognition (Azizollah et al., 2013; AbuAlRub, 2004; AbuAlRub & Al-Zaru, 2008; Donkor, 2013; Ida et al., 2009; Muazza, 2013; Nabirye et al., 2011). Some of these predictors, such as job demands, job control, and job resources (social support), were recognized in a recent non-experimental study among nurses working in Saudi Arabian publicly funded hospitals (n=380) (Al-Homayan, Shamsudin, Subramoniam, & Isalm, 2013). However, different results have been reported in other studies regarding the relationship between job strain and work performance. High job strain was reported to lead to low work performance (Azizollah et al., 2013; Donkor, 2013; Ida et al., 2009; Muazza, 2013; Nabirye et al., 2011), and nurses with moderate

levels of job strain perform better than do those with high or low levels of job strain (AbuAlRub, 2004).

Finally, a significant gap in the nursing literature appears to exist regarding job strain, coping strategies, and work performance among oncology nurses, given that there are only two published studies addressing the relationship between job strain and coping strategies among oncology nurses from Portugal (Gomes et al., 2013) and Brazil (Rodrigues & Chaves, 2008). This researcher has not found any study examining the relationships between job strain and work performance among oncology nurses. Only one published study examined the relationship between job strain, work performance, and intention to stay at work among nurses in one of the Middle-East counties (Jordan) (AbuAlRub & Al-Zaru, 2008). Consequently, the relationship between coping strategies and work performance among oncology nurses remains unknown, given that the researcher was unable to find any published studies in this area. In addition, no study has been conducted about the above relationship in the Kingdom of Saudi Arabia. Thus, future research is required to examine the effects of job strain and coping strategies on oncology nurses' health and work performance.

Nursing Implications

This review contributes to the body of knowledge regarding job strain, coping strategies, and work performance, and identifies knowledge gaps in the nursing literature. Our review indicated that there is a lack of knowledge about job strain and its influence on coping strategies and work performance in current oncology nurses. Although a small body of literature exists to explain the relationship between job strain and coping strategies in oncology nurses, little current research exists regarding oncology nurses within the Middle-East context to provide a distinct understanding of oncology nurses'

work environments and interrelations of these variables of interest. Identifying the effects of job strain and making use of effective coping strategies (PFCSSs) may play a crucial role in decreasing job strain and enhance oncology nurses' work performance.

Findings from this review may also increase awareness among nurse managers and administrators about the impact of job-related stressors experienced by nurses, particularly oncology nurses, and the means that help to alleviate stressors in the workplace and promote healthy work environments. It is also important for nursing administrators/managers to understand why some nurses are coping effectively when facing stressful situations in the workplace while others are not. Findings may provide support for, enhanced organizational coping resources, and development of programs to help nurses use effective coping strategies to stay mentally and physical well within today's healthcare environment. These strategies may be delivered at both the organizational and individual levels.

At the organizational level, attention to retention of existing nurses by reduction of job demands/work overload may be achieved by hiring new nurses to reduce nurse/patient loads, enhancing communication among healthcare professionals to reduce frustration in trying to gain clarity when transmitting information, providing support from nurse supervisors to nurses, and increasing rewards and recognition. Knowing job-related stressors that exist in healthcare settings and developing management strategies to decrease these stressors may be beneficial. At the individual level, providing in-service education and training for nurses through workshops, and counselling regarding job strain management can assist nursing staff to enhance their coping skills when dealing with stressful workplace situations.

Further qualitative and quantitative studies are needed to examine the

interrelationships among job strain, coping strategies, and work performance among nurses across healthcare settings and countries, such as Middle-East countries. Future nursing research studies are needed to discover the best coping strategies for each group of nurses (e.g. oncology nurses) in different healthcare settings. It is also be important to discover which coping strategies used by nurses lead to better work performance.

Furthermore, since there were significant differences between the privately and publicly funded hospitals for all the concepts of interest in this review, more studies should be carried out to recognize the factors that might account for these differences. Eventually, a longitudinal research study is warranted to help draw conclusions about causal relationships among various conceptual and demographic variables, such as age, educational background, and oncology nursing experience. Ideally, future experimental studies can be conducted to test workplace interventions for oncology nurses.

Conclusion

This integrative review has highlighted the most common relationships between job-related stressors among nurses and their coping strategies to support their performance, and suggests that nurses who experience high levels of job strain in combination with higher levels of EFCSs will tend to have lower levels of work performance. Nurses reported a higher use of EFCSs when dealing with the stressful situations in the workplace. Six significant predictors of work performance were found including: high job demands, lack of job control and social support, lack of skills and knowledge, insufficient rewards, and lack of recognition for professional competence. This vital information is important for nursing administrators/managers to increase their awareness about the contributing factors to job strain and their effects on nurses' work performance, and the need for successful strategies to build a healthy work environment.

However, evidence to support the relationships among job strain, coping strategies, and work performance in oncology nurses is extremely limited. Therefore, additional research is needed to expand the existing literature in this area. Evidence-based workplace interventions may help nurses better manage their job strain, increase positive coping resources, and enhance work performance.

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CHAPTER FOUR
RELATIONSHIPS BETWEEN JOB STRAIN, COPING STRATEGIES,
AND WORK PERFORMANCE AMONG ONCOLOGY NURSES
WORKING IN SAUDI ONCOLOGY CARE SETTINGS

Abstract

Purpose: To investigate the relationship between job strain, coping strategies, and work performance among oncology nurses working in Saudi oncology care settings. The study tested a model that proposed a mediating effect for coping strategies on the job strain and work performance relationship.

Background: Job strain is reported to affect coping strategies and work performance among nurses, thus compromising oncology nursing care and placing patients' lives at risk. A review of the literature has revealed that although a great deal of research has been conducted internationally about job strain, coping strategies, and work performance in nurses, very little of this research has included oncology nurses or nurses in the Kingdom of Saudi Arabia (KSA).

Methods: A predictive, correlational cross-sectional study was conducted with 241 oncology nurses from five hospitals in the KSA. A survey instrument, based on pre-existing standardized tools, including demographic and work items, was used. The data were analyzed using Statistical Package for the Social Sciences (SPSS 22) (IBM Corp, 2013) and AMOS 21.0 software package (Arbuckle, 2012). Structural equation modeling (SEM) was used to test the study model that proposed a mediating effect for coping strategies on job strain and work performance.

Findings: Study findings demonstrated that participants experienced low to high levels of job strain. The SEM analysis indicated a good fit for the hypothesized model. Coping

strategies significantly partially mediated job strain/ on work performance among KSA oncology nurses. There were also significant differences in levels of job strain, coping strategies, and work performance between nurses from KSA's publicly and privately funded hospitals, type of oncology units, and oncology nursing education/preparation.

Conclusion: Coping strategies are important mechanisms through which job strain can impact oncology nurses' work performance.

Implications for Nursing Management: Knowledge gained from this study may be useful in improving oncology nurses work environments and in assisting nurse managers policy development in the KSA. Nursing managers must be aware of the role of coping strategies in reducing job strain and improving work performance among oncology nurses.

Key words: job strain, outcomes of job strain, coping strategies, work performance, oncology nurses, Kingdom of Saudi Arabia, work environment, nursing management.

Introduction

The extent to which an employee is exposed to a variety of job factors such as work overload, lack of job security, poor social support, professional conflict, and excessive emotional demands of the job (Driscoll et al., 2004), and ethical dilemmas when working within a cross-cultural context (Silen, Tang, Wadensten, & Ahlstrom, 2008) can result in job strain. For the purpose of this study, job strain is theorized as a pattern of responses that occur when a disparity exists between job demands and the level of control employees have to satisfy those demands, thereby challenging their ability to cope (Karasek, 1979; Karasek & Theorell, 1990).

Job strain and its increasing severity was reported in a number of nursing studies (Antigoni, Pediaditaki, & Dimitrios, 2011; Lavoie-Tremblay et al., 2008; Makie, 2006). Among nurses, job strain has also been identified as a major contributing factor to job dissatisfaction, attrition rates, and job turnover (Hasson & Arnetz, 2007; Hasselhorn et al., 2008). In addition, job strain was reported to reduce work performance leading to interference in how effective nurses are in accomplishing their direct patient care tasks and responsibilities (AbuAlRub, 2004). Furthermore, a reduced quality of nursing care delivery as a result of job strain and inadequate coping resources is a risk factor for patient safety (Mojoyinola, 2008; Nabirye, Brown, Pryor, & Maples, 2011; Beh & Loo, 2012). Job strain has been shown to cause stress that can be associated with how well nurses are able to cope with their work situations (Beh & Loo, 2012). Research has also indicated that individual differences such as age, educational background, and nursing experience affect perceptions about stressful situations, including strategies used to cope with work performance (Lambert, Lambert, & Ito, 2004; Nabirye et al., 2011).

There is an increasing demand for cancer care and oncology nursing services in the Kingdom of Saudi Arabia (KSA) due to population growth and increased life expectancy and, more significantly, due to the increasing number of cancer cases (Al-Ahmadi, Al-Zahrani, & Al-Ahmadi, 2013; Almuzaini, Salek, & Nicholls, 1998). Cancer is one of the leading causes of death in the KSA (Al-Ahmadi, Al-Zahrani, & Al-Dossari, 2013). It falls to oncology nurses to provide the bulk of care for these KSA patients with cancer. According to Almuzaini et al. (1998) these nurses have reported work overload due to overcrowding with terminally ill cancer patients in their hospitals, leading to staff and other resource shortages. Other research has shown that oncology nurses working in KSA Ministry of Health (MOH) hospitals in Riyadh city, strongly agreed with the assertion that they experienced high levels of strain in the workplace (Al-Omar, 2003). Among oncology nurses, job strain has an impact on nurses' coping and work performance, including diminished nursing care quality (Escot, Artero, Gandubert, Boulenger, & Ritchie, 2001; Sveinsdottir, Biering, & Ramel, 2006). The perception of job strain and its effects on coping strategies and nurses' work performance may differ significantly in different work settings (Evans, 2002). There is a paucity of studies outside of Western nations that focus on understanding the impact of job strain on oncology nurses. Hence a study of oncology nurses working in the KSA would extend understanding of this phenomenon.

Statement of Purpose and Research Question

The purpose of this study was to investigate relationships among job strain, coping strategies, and work performance in a sample of oncology nurses working in the KSA. This study explored the possible mediating effects of coping strategies on the relationship between job strain and work performance. The specific research question

was: Do coping strategies mediate the effect of job strain on work performance among oncology nurses working in KSA oncology care settings?

Theoretical Frameworks

The present study was guided by Karasek's Job Demand-Control (JDC) Model (1979) and Lazarus and Folkman's Transactional Model of Stress and Coping (1984). The contributions from both of these theoretical models to the foundation of this study are outlined below.

Job Strain

According to Karasek's JDC model (1979), job strain is theorized as the combination of a high level of psychological workload demands and low work-related decision latitude (control) (see Appendix A). Job demand refers to the psychological stressors present in the work setting such as workload demand, time constraints, conflicts, ambiguities about the obligations and needed skills in a job (Karasek, 1979). Decision latitude or control, which refers to one's ability to influence work tasks, has two constructs – decision authority and skill discretion (Karasek, 1979). Decision authority, frequently relates to autonomy, and refers to the ability of an employee to make decisions about his/her own work (Karasek, 1979). Skill discretion relates to the level of competency needed in practice; the capability to learn, improve skills or utilize analytical thinking on the job, and the range of skills used by employees (Karasek, 1979).

High-strain jobs are defined by working conditions of high job demands combined with low decision latitude (Karasek, 1979). Workers may experience excessive time pressures, work overload, ambiguities, and conflicts, resulting in high levels of stress (Karasek, 1979). In this situation, high job demands can generate high stress reactions, such as increased heart and breathing rates. In Karasek's model (1979), the

resulting stress can be reduced if employees have enough decision authority and the ability to utilize a range of skills in their job (skill discretion). Long-term exposure to high strain conditions can lead to low work performance and health related problems, such as fatigue, emotional exhaustion, anxiety, depression, and physical disorders (Karasek, 1979; Karasek & Theorell, 1990).

Karasek's JDC model (1979) has been tested in numerous populations including nurses. A significant correlation between job strain and diastolic blood pressure during work was found. It was concluded that diastolic blood pressure during work was a more significant predictor than body mass index, family history, age, and emotional state (Theorell, Ahlberg-Hulten, Jodko, Sigala, & de la Torre, 1993). Furthermore, a significant effect between job strain and emotional exhaustion and symptoms of psychological distress (Bourbonnais, Comeau, & Vezina, 1998) was also linked to a decrease in functional and psychological health status in a longitudinal study of Canadian nurses (Cheng, Kawachi, Coakley, Schwartz, & Colditz, 2000). Significant relationships were also found among Ugandan hospital nurses' job strain and lower levels of work performance (Nabirye et al., 2011); and work performance with job demand/decision latitude (control) (Steen et al., 1998). However, some cross-sectional studies among workers, including nurses, have not consistently demonstrated a predicted interaction between job demands and job control (Hall, Johnson, & Tsou, 1993; Hlatky et al., 1995; Proost, De Witte, De Witte, Karel & Evers, 2004; Lavoie-Tremblay et al., 2008). Inconsistent results in relationships between job demands and control may be due to different theorization or methods being used to test interaction effects (e.g. Hall et al., 1993; Lavoie-Tremblay et al., 2008).

Coping Strategies

Lazarus and Folkman (1984) have documented two fundamental coping strategies carried out by individuals within their work environments, emotion-focused (EFCs) and problem-focused (PFCs). Problem-focused coping strategies involve adjusting actions that include altering or managing the problem within either the individual or the environment, alternatively it may represent actions or activities that are considered to directly resolve the problem (Lazarus & Folkman, 1984). Examples of PFCs including: defining and analyzing the problem, identifying the individual's role in resolving the problem, evaluating the problem, finding alternative solutions, and using self-control (Lazarus & Folkman, 1984). Problem-focused coping strategies assist the individual to deal with an environmental situation by identifying the source of stress, decreasing stress manifestations related to the condition, or changing one's thinking about the situation (e.g. discovering different ways of satisfaction, or forming new ideals of behaviour, shifting his/her level of ambition, decreasing ego involvement) (Lazarus & Folkman, 1984).

On the other hand, EFCs refer to actions that an individual takes to change individual attitudes towards their emotions caused by external stimuli (Lazarus & Folkman, 1984). Emotion-focused coping strategies may include activities such as complaining, escape-avoidance, aggressive behaviours, and detachment, all resulting in negative outcomes for decreasing the sense of stress (Lazarus & Folkman, 1984). A wealth of literature provides evidence that EFCs are frequently related to increased stress and job dissatisfaction among nurses (Chen, Lin, Wang, & Hou, 2009; Fathi, Nasae, & Thiangchanya, 2012; Lambert & Lambert, 2008). In addition, EFCs may also be a problem for individual growth and could impact nurses' work performance (Lim,

Bogossian, & Ahern, 2010).

Coping strategies have also been shown to be mediators of the relationship between burnout, psychological illness, job strain, job dissatisfaction, and work performance in many disciplines (Chou, Chao, Yang, Yeh, & Lee, 2011; Sun & Chiou, 2011; Snow et al., 2003; Teo, Pick, Newton, Yeung, & Chang, 2013). For example, in a USA longitudinal study examining the effect of job-related stressors and coping strategies on mental health problems among 239 workers, found that coping strategies mediated the relationship between job strain and psychological problems (Snow et al., 2003). While in another quantitative study among aviation ground crews, found that employees who perceived a high level of stress and low coping tended to have lower work performance (Sun & Chiou, 2011).

In summary, the JDC model and the Lazarus's Transactional Model of Stress and Coping offer compelling evidence of the impacts of job strain on individuals' work performance. There is also evidence of a mediating effect of coping strategies on the relationship between job strain and work performance.

Model Tested in Study

The proposed model tested in this study (Figure 4.1) was hypothesized that oncology nurses who experienced high levels of job strain in combination with lower coping levels (EFCSSs) tend to have lower work performance. As the model illustrates, job strain is defined as the combination of a high level of psychological job demands and low decision latitude (control). Job strain among oncology nurses was anticipated to have a negative effect on work performance in the presence of EFCSSs.

Research Hypotheses

Based on the model shown in Figure 4.1, the following hypotheses were tested in this study:

Hypothesis 1: Job strain is negatively correlated with work performance.

Hypothesis 2: Job strain is negatively correlated with coping strategies.

Hypothesis 3: Coping strategies are positively correlated with work performance.

Hypothesis 4: Coping strategies have a partial mediating effect on the relationship between job strain and work performance.

Research Methods

A non-experimental, predictive, cross sectional design was used to test the hypothesized study model. Convenience, non-probability sampling was used to select the study participants. A probability sampling method was not practical or feasible due to a lack of any accessible pre-existing computerized rosters of oncology nurses in the KSA.

Sample Size

The study was designed to test a mediated model through the use of structural equation modeling (SEM). Although there is no universal agreement on the minimum acceptable sample size or calculation of sample size estimates for the SEM analysis (Marsh & Hau, 1999), researchers have recommended that a minimum sample size of 200 is required for SEM statistical analyses (Kline, 2005). Therefore, a sample of 200 registered oncology nurses working in Saudi oncology care settings was deemed to yield adequate power in this study. Ethics approval was obtained from the University of Western Ontario (UWO) (Appendix B), and from participating KSA hospitals research ethics boards (Appendix C).

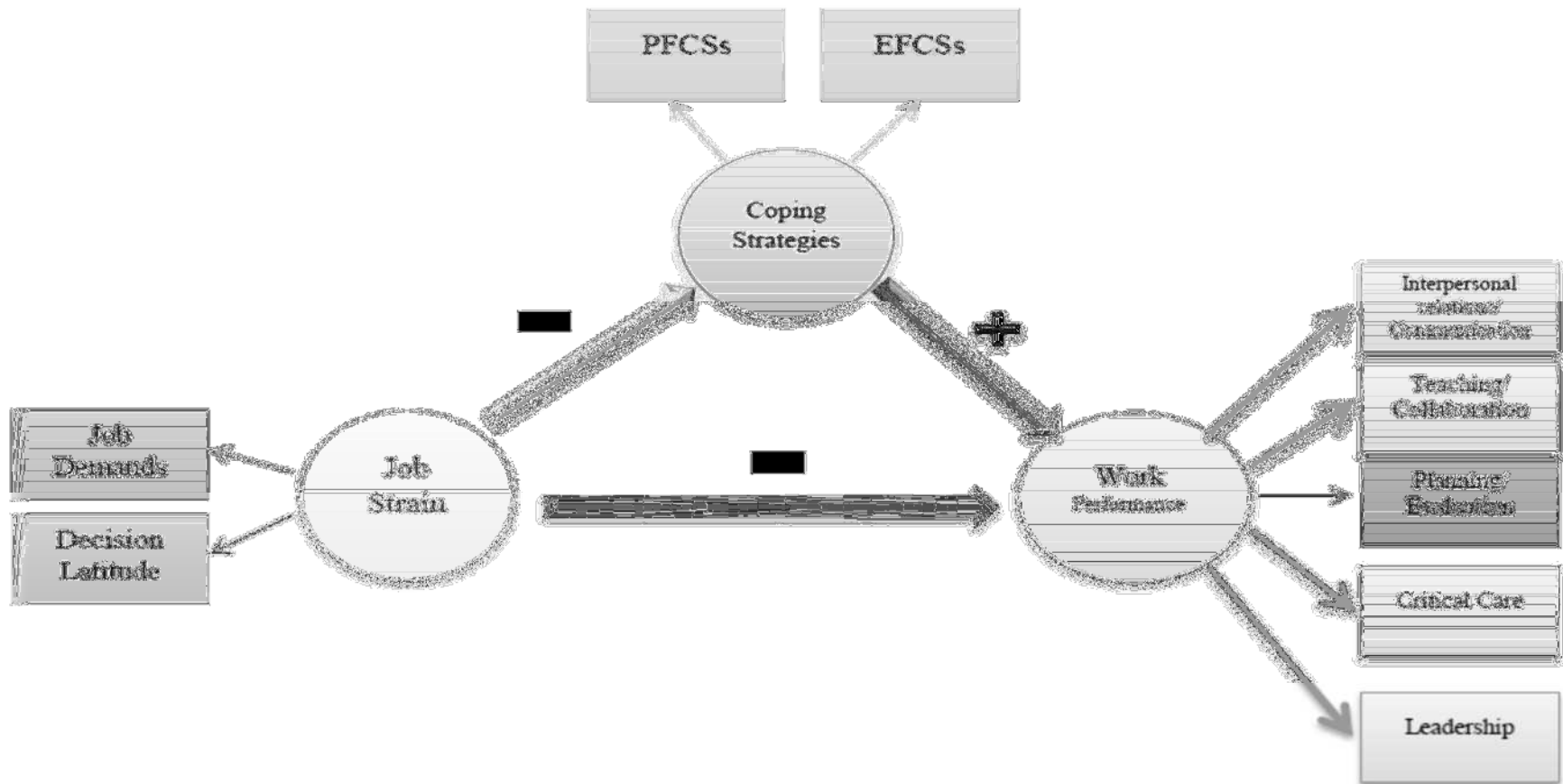


Figure 4.1. Hypothesized Study Model for Job Strain, Coping Strategies and Work Performance

Inclusion/Exclusion Criteria

Participants in this study were selected based on the following criteria: (a) must be a qualified registered nurse, (b) work as full-time staff for at least six months in the KSA's oncology care setting, (c) provided direct care as an oncology staff nurse in outpatient or inpatient oncology unit, (d) work in any of following oncology units and clinics: medical, pediatric, surgical, hematology, palliative and radiation, and chemotherapy treatment area/daycare, (e) read, understand and speak English fluently, and (f) willing to participate in the study. The following categories of nurses were excluded from the study: (a) part-time staff, (b) staff on leave (sick, injury and maternity leave), and (c) nurses not working in oncology areas (d) non-direct care nursing employees. These criteria were selected to ensure that participants be familiar with the healthcare setting, past the initial stress of working in a different or new setting, and be employed in similar direct patient care conditions (Blaug, Kenyon, & Lekhi, 2012). Nurses working in non-direct care positions were excluded because of differences in stressors related to their largely non-clinical job responsibilities.

Setting and Sample

The sampling frame was drawn from five large hospitals (four public and one private) that provide adult and pediatric cancer care in the KSA cities of Makkah and Jeddah. The four public hospitals included a total of six inpatient oncology units and clinics (medical, surgical, pediatric, hematology, palliative and radiation) and a chemotherapy treatment area/daycare. The private hospital included adult, pediatric, and hematology oncology inpatient units, and chemotherapy treatment area/daycare. The total number of oncology nurses in each hospital varied between 40 - 197 nurses.

Initial contact to potential participants was made through a researcher developed e-mail that was distributed by nursing directors to all nurses working in their hospital's

oncology units. An e-mail follow-up and/or personal meeting with the researcher occurred to ensure questions regarding the study were answered satisfactorily before obtaining participants' agreement to proceed. Consent to participate in the research study was constituted by oncology nurses' return of their completed questionnaires (i.e. implied consent) (see Appendix D).

In some organizations, meetings were also held with the nurse director and/or nursing research coordinator to obtain their organization's agreement to participate in the study. A total of 429 questionnaires were distributed to oncology nurses across the participating hospitals. A total of 241 of the 429 questionnaires were completed and returned for a completion rate of 56%.

The majority of participants were female ($n = 212$, 88%), aged between 26 and 35 ($n=152$, 63%) ($M = 32.46$, $SD = 7.77$). Most of the questionnaires ($n=217$, 90%) were completed by non-Saudi nationals, with only 10 % ($n=24$) completed by Saudis. About 67.6% ($n = 163$) of the participants held a bachelor degree in nursing, 30.7% ($n = 74$) held a diploma in nursing, and 1.7% ($n = 4$) held a master degree in nursing. More than half of the participants had advanced preparation/specialized education in oncology nursing ($n=136$, 56.4 %) with hospital provided in-service training ($n = 63$, 46.3%) identified as the most common type of specialized oncology education reported by the participants. Of the respondents' oncology practice location more nurses were employed on medical ($n=55$, 22.8), and pediatric units ($n = 48$, 19.9%), than on surgical oncology units ($n = 43$, 17.8%) or hematology oncology and bone marrow transportation (BMT) units ($n = 38$, 15.8%).

Approximately 81.3% ($n=196$) of the participants were working in publicly funded hospitals and the remaining participants were working in the privately funded

Table 4.1

Demographic and Work Characteristic of Oncology Nurses

Variable		Number of Participants	
		N	%
Gender	Female	212	88.0
	Male	29	12.0
Age	25 or less	23	9.5
	26-35	152	63.1
	36-45	47	19.5
	46-55	15	6.2
	56 or more	4	1.7
Country of Origin	Philippines	92	38.2
	India	77	32.0
	Saudi Arabia	24	10.0
	Lebanon	12	5.0
	Jordan	9	3.7
	Other*	27	11.2
Nursing Education	Bachelors of Nursing	163	67.6
	Nursing Diploma	74	30.7
	Master Degree in Nursing	4	1.7
Advanced Preparation in Oncology Nursing	No	105	43.6
	Yes	136	56.4
	In-service Training in Hospital	63	46.3
	Certified Courses in Oncology Nursing	60	44.1
	Oncology Nursing Diploma	9	6.6
	Graduate Degree in Oncology Nursing	4	2.9
Oncology Unit	Medical Oncology	55	22.8
	Surgical Oncology	43	17.8
	Pediatric Oncology	48	19.9
	Hematology Oncology and PMT	38	15.8
	Other**	57	23.7
Type of Hospital	Public	196	81.3
	Private	45	18.7
		M	SD
Age		32.46	7.77
Years in Nurse Experience		10.04	7.06
Years Oncology Nurse Experience		5.41	3.55
Years in Oncology Nurses in the KSA		4.32	3.42
Years in Current Unit		3.79	0.90
Years in Living in the KSA		5.88	5.96

Notes: N=421, Bone Marrow Transportation (BMT); * USA, Canada, South Africa, Egypt, Pakistan; **Chemotherapy area, Palliative & Radiation, Oncology clinics

hospital ($n = 45$, 18.7%). Participants had an average of 10.04 years ($SD = 7.06$) of experience in nursing and 5.41 years ($SD = 3.55$) of experience in oncology nursing, with an average of 4.32 years ($SD = 3.42$) of experience in oncology nurses in the KSA, and 3.79 years ($SD = 2.90$) in the current oncology unit. On average, the non-Saudi participants had been living in the KSA for an average of about 6 years ($M = 5.88$, $SD = 5.96$). Additional details of the demographic and work characteristics of the participants are found in Table 4.1.

Data Collection Procedures

Data were collected from registered nurses who provided direct care to patients with cancer in oncology inpatient units and outpatient clinics. The study questionnaire (Appendix E) was in English and comprised of five sections: demographic variables including age, gender, country of origin, and nursing education, and work characteristics including nursing experience, oncology training/education, oncology unit, and type of hospital, as well as three open-ended questions at the end of the questionnaire to capture any additional information regarding other sources of job strain that may be relevant to oncology nurses' experience in the KSA. A sealed box was placed at each oncology unit to facilitate completed questionnaire collection. Questionnaires took on average 30 minutes for nurses to complete.

Instrumentation

The study survey included three standardized instruments related to the main study variables: *job strain* assessed by the Job Content Questionnaire (JCQ) (Karasek, 1979), *coping strategies* assessed by the Revised Ways of Coping Questionnaire (RWCQ) (Folkman & Lazarus, 1985), and *work performance* as assessed by the Six Dimension Scale of Nursing Performance (6-DSNP) (Schwirian, 1978). The three main study instruments are described below.

The Job Content Questionnaire (JCQ)

Karasek's (1979) JCQ is a 14-item questionnaire used to measure psychological job demands and decision latitude (control) rated on a 4-point Likert scale (strongly disagree, disagree, agree, and strongly agree). It is comprised of four subscales: psychological job demands (5 items) and decision latitude (9 items) comprising decision authority (3 items) and skill discretion (6 items). Internal consistency coefficients were acceptable for both men ($\alpha = 0.74$) and women ($\alpha = 0.73$), and the internal consistency results for decision latitude ranged from $\alpha = 0.80$ to 0.84 , and for psychological job demands ranged from $\alpha = 0.62$ to 0.72 (Karasek et al., 1998; Sale & Kerr, 2002; Storms et al., 2001). The CFA results have also confirmed the content, convergent, discriminant, criterion-related, and predictive validity of the uni-dimensional structure of the psychological job demands and the two-dimensional structure of decision latitude (Sale & Kerr, 2002; Storms et al., 2001). The job strain score was calculated using the difference between mean psychological job demands and mean decision latitude (i.e. the strain by subtraction method as proposed by Courvoisier and Perneger, 2010). Higher scores reflected higher levels of job strain.

The Revised Ways of Coping Questionnaire (RWCQ)

The RWCQ is a 50-item instrument used to measure the pathways individuals utilize to cope or deal with the external and/or internal demands of particular stressful conditions rated using a 4-point Likert scale (0 "does not apply and/or not used," 1 "used somewhat," 2 "used quite a bit," and 3 "used a great deal") (Folkman & Lazarus, 1985). The RWCQ contains two constructs PFCs and EFCs. The problem-focused coping construct contains four subscales: self-controlling (7 items); accepting responsibility (4 items); planful problem-solving (6 items); and positive reappraisal (7 items). The emotion-focused coping construct contains a further four subscales: confrontive coping (6

items); distancing (6 items); seeking social support (6 items); and escape-avoidance (8 items). The RWCQ internal consistency estimates for subscales ranged from 0.61 to 0.79 and in a CFA the scree plot indicated an eight factor solutions, which explained 46.2% of the variance (Folkman et al., 1986). To score the RWCQ, all items in each sub-scale are summed to obtain a coping strategy score, these eight scores are termed the “raw scores” (Folkman & Lazarus, 1985). High raw scores show the dominant coping strategy used by individuals in stressful situations. A combined score (PFCSS/EFCSS sub-scales’ scores) was used to measure coping strategies among oncology nurses in this study. The RWCQ can typically be completed in about ten minutes, depending on the subjects responding (Folkman et al., 1986).

The Six Dimension Scale of Nursing Performance (6-DSNP)

The 6-DSNP is used to assess and evaluate nurses’ work performance in client-care settings contains 52 items measuring six subscales: Interpersonal Relations/Communication (IRR/C 12-items), Leadership (5-items), Critical Care (CC 7-items), Teaching/Collaboration (T/C 11-items), Planning/Evaluation (P/E 7-items), and Professional Development (PD 10- items) and uses a 4-point rating scale to rate the items as to how often (column A quality) and how well (column B frequency) they carried out the behaviour/item (Schwirian, 1978). Content and criterion-related validity of the scales was examined using factor analysis, which identified factors related to behaviours of the six behavioural subscales (Schwirian, 1978). Reliability of the 6-DSNP nurses self-rating also ranged from 0.90 to 0.97 and supervisors’ appraisals ranged from 0.84 to 0.90 using Cronbach’s alpha scores (Schwirian, 1978). Because of the different length of each sub-scale (5 to 12 items), their scores are calculated based on the average of ratings on behaviours/items per sub-scale. Higher scores are assumed to indicate better work performance (Schwirian, 1978).

Pilot-Testing of Instruments

Since the data collection instruments used in this study were based on tools developed primarily in American and European cultures, the face validity of study instruments was pilot-tested with six experts in the KSA in oncology nursing, nursing, and nursing education to assess their clarity and appropriateness to the Saudi context a month before the actual data collection began. Based on experts' feedback, the study questionnaire was neither modified and nor were changes made to any of the items in the original version of the study questionnaire.

Data Analysis

A combination of the Statistical Package for Social Sciences (SPSS 22) (IBM Corp, 2013) and AMOS 21.0 statistical software package (Arbuckle, 2012) were used for all statistical analyses. Descriptive statistical analyses were conducted to describe the sample demographics, means, and standard deviations of the major study variables within the study model. Measures of skewness and kurtosis were used to examine the normal data distribution to provide an indication of the reliability of predictions based on standard deviations. Cronbach's alpha reliability testing was completed for all instruments to determine the internal consistency of these measures. Appropriate measures of correlation and tests for differences between means were conducted to examine relationships between selected demographic variables and major study variables. Cohen's (1988) guidelines were used to assess the strength of correlations ($0.1 < (r) < 0.3$ small/weak correlation, $0.3 < (r) < 0.5$ medium /moderate correlation, $0.5 < (r)$ large/strong correlation). Four hypothesized relationships were analyzed: (a) the direct relationship between job strain and coping strategies, (b) the direct relationship between job strain and work performance, (c) the direct relationship between coping strategies and work performance, and (d) the indirect effect of job strain on work performance as

mediated by coping strategies.

Structural equation modeling (SEM) in AMOS was used to test the hypothesized study model (Bollen, 1989; Joreskog & Sorbom, 1989). SEM is a set of statistical techniques for simultaneously estimating the relationships between indicators and latent variables (the measurement model) and among latent variables themselves (the construct model). This technique offers a more reliable and more flexible estimation approach than the traditionally used methods such as multiple regression or ANOVA (Kline, 2005). SEM permits modeling of complex relations among multiple exogenous and endogenous latent variables, each measured by multiple indicators, and provides estimates of the goodness of fit between the model and the data (Hoyle, 1995; Hoyle & Smith, 1994), allowing simultaneous estimation of the direct and indirect effects.

SEM provides a choice for methods of estimation. Researcher used the maximum likelihood estimation (MLE), which assumes multivariate normal data and a sample size of 241 cases. MLE arrives at parameter estimates by maximizing the probability that the observed covariances are drawn from a population assumed to be the same as that reflected in the coefficient estimates. Several criteria were used to evaluate fit of the study model including: (1) the Chi-square (χ^2) is interpreted as the test of the difference between the hypothesized model and the just identified version of the model, low non-significant values are desired (Kline, 1998); (2) the comparative fit index (CFI) considers that all latent variables are not correlated (null model) and matches covariance matrix of the sample with this null model, recommended to be at least 0.90 (Hu & Bentler, 1999); (3) the root mean square error of approximation (RMSEA) is the standardized summary of the average covariance residuals and is thus a measure of the lack of fit between the data and the model (Kline, 1998), low values (between 0 and 0.06) indicate a good fitting model (Hu & Bentler, 1999); and (4) goodness of fit index (GFI) computes the

percentage of variance that is considered by the estimated population covariance, recommended to be at least 0.90 (Tabachnick & Fidell, 2007).

Missing data from participants' questionnaires was below 5% for all items considered as small and missing at random, allowed for the use of the SPSS nearest neighbour approach to impute missing data values (Kaiser, 2014).

Results

Descriptive Statistics

Cronbach's alpha internal consistency was assessed for each of the three main study instruments including their sub-scales. All values of Cronbach's alpha were equal to or greater than 0.65, suggesting acceptable study instrument reliability (see Table 4.2).

The observed means for the JCQ sub-scales were 25.99 ($SD = 4.10$) for the Psychological Job Demands scale and 70.15 ($SD = 8.63$) for the Decision latitude sub-scale. Job strain as computed by the subtraction approach (Courvoisier & Perneger, 2010) resulting in a mean of -0.70 and a standard deviation of 0.55.

The observed means for the coping sub-scales were 43.89 ($SD = 11.22$) for the PFCSS sub-scales and 42.46 ($SD = 10.88$) for the EFCSs sub-scales, suggesting slightly higher utilization of PFCSS by oncology nurses in this study. Based on the obtained results, positive reappraisal ($M = 13.24$, $SD = 4.12$), self-control ($M = 12.20$, $SD = 3.29$), and escape-avoidance ($M = 12.01$, $SD = 4.44$) are the most utilized coping strategies by the study participants. The observed means for the work performance sub-scales ranged from 16.82 to 42.41 for the Leadership ($M = 16.82$), Critical Care ($M = 24.65$), Planning/Evaluation ($M = 24.83$), Teaching/Collaboration ($M = 36.43$), and Interpersonal relations/Communication ($M = 42.41$).

Table 4.2

Range of Possible Scores, Mean Scores, Standard Deviations (SD) and Cronbach's Alpha Coefficients for Study Scales and Subscales

Scale	Sub-scale	# of Items	Range of Possible Scores	Range of Actual Scores	Mean	SD	Cronbach Alpha
JCQ	Psychological job demands	5	12-48	12-42	25.99	4.10	.65
	Decision latitude	9	24-96	44-96	70.15	8.63	.66
JS	Mean psychological job demands- Mean decision latitude	-----	0-3	-4.1-0.2.5	-0.70	0.55	-----
RWCQ	Overall Scale	50	0-150	16-150	86.35	20.26	.91
	Problem-focused coping strategies (PFCSSs)	24	0-72	11-72	43.89	11.22	.88
	Emotion-focused coping strategies(EFCSs)	26	0-78	5-78	42.46	10.88	.83
6-DSNP	Overall Scale	42	42-168	84-168	145.4	20.31	.97
	Interpersonal relations/Communication	12	12-48	24-48	42.41	5.56	.90
	Teaching/Collaboration	11	11-44	14-44	36.43	6.77	.92
	Planning/Evaluation	7	7-28	7-28	24.83	3.76	.89
	Critical care	7	7-28	14-28	24.65	3.31	.82
	Leadership	5	5-20	5-20	16.82	3.19	.86

Note: Job Content Questionnaire (JCQ), Job Strain (JS), Revised Ways of Coping Questionnaire (RWCQ), Six- Dimension Scale of Nursing Performance (6-DSNP)

Job Strain, Coping Strategies, Work Performance, and Work Characteristics

The main study variables were examined by their work characteristics as presented in Table 4.3. The participants with advanced preparation/education in oncology nursing reported lower levels of job strain than those without any oncology preparation (mean difference score of $-0.15(t(227.9) = 2.092, p < 0.05)$). There was a significant difference in job strain mean scores between respondents working in public and private funded hospitals with a mean difference score of $-0.14(t(96) = 2.086, p < 0.05)$. Moreover, a significant difference in coping strategies of respondents working in these hospitals with a mean difference score of $-10.19(t(90.4) = -3.85, p < 0.001)$. The publicly funded hospitals had the highest job strain mean scores ($M = -0.58, SD = 0.39$), and the lowest coping strategies mean scores ($M = 78.07, SD = 14.64$).

These results indicated that there was a significant difference in work performance mean scores between participants who had and had not advanced preparation in oncology nursing with a mean difference score of $-0.175(t(208.3) = -2.79, p < 0.01)$. Significant differences in work performance means were also found among nurses working in different oncology unit settings ($F(4) = 3.78, p < 0.01$) (Table 4.3). Participants working in surgical and pediatric oncology units reported lower levels of work performance ($M = 3.29, SD = .597$) and ($M = 3.49, SD = .496$) respectively. Those working in haematology and bone marrow transplantation units reported higher levels of work performance ($M = 3.63, SD = .291$). Also, there was a significant difference in work performance means for those working in privately and publicly funded hospitals ($M = -0.619, t(52.6) = -6.82, p < 0.001$). The privately funded hospital had the highest work performance mean score ($M = 3.57, SD = .37$).

Table 4.3

Mean Scores for Study Variables by Work Characteristics

Variable	Work Characteristic	M	SD	T/F-Value/p value
Job Strain	Advanced Preparation			t (227.9) = 2.092, p = .038
	No (n=105)	-0.62	0.54	
	Yes (n=136)	-0.77	0.56	
	Type of Oncology Units			F (4) = .537, p = .709
	Medical (n=55)	-0.64	0.59	
	Surgical (n=43)	-0.68	0.72	
	Pediatric (n=48)	-0.77	0.48	
	Hematology & BMT (n=38)	-0.77	0.51	
	Other (n=57)	-0.69	0.46	
	Type of Hospital			t (96) = 2.086, p = .040
CSs (RWCQ)	Advanced Preparation			t (239) = -1.21, p = .229
	No (n=105)	84.56	18.99	
	Yes (n=136)	87.74	21.15	
	Type of Oncology Units			F (4) = .691, p = .599
	Medical (n=55)	86.13	19.25	
	Surgical (n=43)	83.44	20.78	
	Pediatric (n=48)	90.13	21.93	
	Hematology & BMT (n=38)	84.84	19.46	
	Other (n=57)	88.59	20.10	
	Type of Hospital			t (90.4) = -.3.85, p = .002
WP (6-DSNP)	Advanced Preparation			t (208) = -2.79, p = .006
	No (n=105)	3.36	0.51	
	Yes (n=136)	3.53	0.45	
	Type of Oncology Units			F (4) = 3.78, p = .005
	Medical (n=55)	3.54	0.43	
	Surgical (n=43)	3.29	0.59	
	Pediatric (n=48)	3.49	0.49	
	Hematology & BMT (n=38)	3.63	0.29	
	Other (n=57)	3.35	0.48	
	Type of Hospital			t (52.5) = -.6.82, p = .000
	Public (n=196)	2.95	0.58	
	Private (n=45)	3.57	0.37	

Notes: Bone Marrow Transportation (BMT), Work Performance (WP), Coping Strategies (CSs)
 Other (Palliative & Radiation, Chemotherapy Area, Oncology Clinics)

Correlations among Job Strain, Coping Strategies, and Work Performance

The relationships between the main study variables were initially assessed using bivariate correlational analyses and the results are shown in Table 4.4. Results for hypothesis 1-3 are reported here and hypothesis 4 testing will be discussed later.

Hypothesis 1: A significant moderate negative relationship was found between job strain and work performance ($r = -.29, p < 0.01$). This suggested that higher levels of job strain could lead to lower levels of work performance among oncology nurses. Therefore, hypothesis 1 in this study was supported.

Hypothesis 2: A significant moderate negative relationship was also found between job strain and coping strategies ($r = -.27, p < 0.01$). This suggested that higher levels of job strain were associated with lower utilization of coping strategies among oncology nurses. Based on this finding, hypothesis 2 was supported.

Hypothesis 3: A significant weak positive relationship was found between coping strategies and work performance ($r = .19, p < 0.01$). This suggested that higher utilization of coping strategies was associated with higher levels of work performance; hypothesis 3 was supported.

Table 4.4

Correlations among Main Study Variables

Variable	1	2	3	4	5
1 Job strain	----	----	----	----	----
2 Coping strategies	-.27**	----	----	----	----
3 PFCSSs	-.28**	.92**	----	----	----
4 EFCSs	.21**	.91**	.68**	----	----
5 Work performance	-.29**	.19**	.36**	-.02	----

Note: problem-focused coping strategies (PFCSSs), emotion-focused coping strategies (EFCSs)

** $p < .01$.

Testing the Hypothesized Study Model

The overall fit of the hypothesized model was tested using SEM, with the basic causal model, including the hypothesized relationships, presented in Figure 4.1. After initial testing indicted problems with fitting the data, job strain was treated as a manifest variable in the proposed model using AMOS. Researchers have indicated elsewhere that using a single-indicator or a two indicator latent variable often makes it more difficult to build an identified model, eliminating the latent variable and combining the two indicators into one manifest variable has been suggested as a resolution to this problem (Bollen, 1989; Kenny, 2011). Also, measurement problems of job strain instrument could lead to poor fitting of the SEM model with data. A *Heywood case* was found during the analysis in that one of the error variances was negative ($e1 = -2.126$). To address this, the error variance was fixed to zero for further analysis (Chen et al., 2001, p 504), and no further modification of the proposed model was necessary. The model Chi-square divided by degrees of freedom is 3.37 (Byrne, 2010). In addition, the RMSEA of 0.1 was greater than 0.08, suggesting a poor fit in the structural model (Hu & Bentler, 1999). However, as shown in Table 4.5, all of the other fit indices used suggested a good fit for the data with the study model.

The standardized path estimates as presented in Figure 4.2, indicated the model effects, showing all the model values as significant (see Table 4.6). All Critical Ratio (CR) values were greater than 0.5, indicating high reliability. Therefore, the analysis provided qualified support of the proposed model of job strain, coping strategies, and KSA oncology nurses' work performance.

Table 4.5

Model Fit Summary

Fit Indices	Values	Interpretation
Chi-square/Degrees of Freedom (χ^2/df)	3.37	reasonable fit
Goodness of fit index (GFI)	0.95	good fit
Adjusted goodness of fit index (AGFI)	0.88	acceptable fit
Comparative fix index (CFI)	0.97	good fit
Incremental fit index (IFI)	0.97	good fit
Root mean square error of approximation (RMSEA)	0.10	poor fit

Note: Model variables are job strain, coping strategies, and work performance

Table 4.6

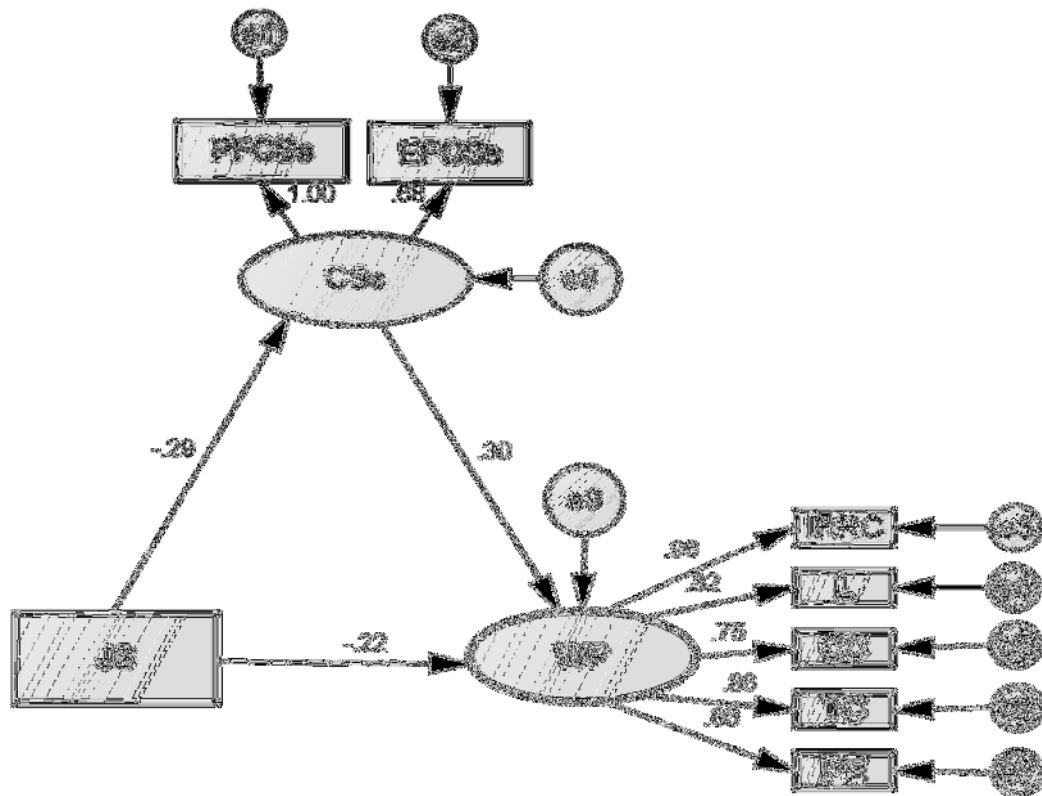
Construct Model

Structural Paths		Standardized Coefficient	SE	CR	P		
Job Strain	→ Coping Strategies	-0.287	1.251	-4.641	0.000		
Job Strain	→ Work Performance	-0.220	0.001	-3.837	0.000		
Coping Strategies	→ Work performance	0.305	0.002	4.861	0.000		
Variables		Indirect Effect			Total Effect		
		b	SE	P	b	SE	P
Job Strain →Coping Strategies →Work Performance		-0.09	0.24	0.001	-0.31	0.041	0.001

Note: Standard Error (SE), Critical Ratio (CR), Standardized Coefficient (b)

The standardized estimate for the direct effect between job strain and coping strategies was -0.29, while the direct effect between job strain and oncology nurses' work performance was -0.22, and between coping strategies and work performance was 0.31 (all $p < 0.05$). The coefficient for the (mediated) indirect effect between job strain and work performance by way of coping strategies was -0.09. Thus the total estimated effect

between job strain and work performance was -0.31. Based on these results, the latent variable “coping strategies” was found to be a mediator between job strain and work performance, thereby providing support for Hypothesis 4. The mediating effect of coping strategies using Sobel test (1982) and Baron and Kenny (1986) steps for mediation was also tested and the results agreed with the SEM model results.



Note: Job strain (JS), coping strategies (CSs), Problem-focused (PFCSSs), Emotion-focused (EFCSSs), Work performance (WP), Interpersonal relations/Communication (IRRC), Leadership (L), Critical care (CC), Teaching/Collaboration (TC), Planning/Evaluation (PE)

Figure 4.2. Results of Job Strain, Coping Strategies, and Work Performance Model

An additional SEM model included the control variables (type of hospital and oncology nursing education/preparation) was examined, however, no substantive

differences were found between the control model and the primary model presented below, and thus only the primary model is presented.

Discussion

The purpose of this study was to examine the effects of job strain and coping strategies on oncology nurses' work performance. The results of this study yielded some important findings that are discussed below. The results of this study indicated that job strain significantly impacted on nurses' coping strategies, and that both job strain and coping strategies made significant contributions to the work performance of KSA oncology nurses. The study results show that job strain had a negative impact on work performance, and findings supported a partial mediation effect of coping strategies on job strain. It was found that oncology nurses who adopted effective coping strategies (PFCSs) in dealing with job strain tended to report higher levels of work performance, thus it is possible that PFCSs mediated the negative consequences of job strain on oncology nurses' work performance. Consistent with the Lazarus' Transactional Model of Stress and Coping (Lazarus & Folkman, 1984), workers' reactions to their stressful experience in the workplace possibly impacted on their mental status, which consequently may decrease the level of their work performance. The study findings emphasize the importance of coping strategies in improving KSA oncology nurses' work performance and reducing the effects of job strain. There is a need for further research to identify factors that would reduce job strain negative effects, and enhance coping strategies, and coping resources among oncology nurses in the different KSA oncology care settings. Future studies should also explore the influence of psychological job demands and job control on oncology nurses' health and well-being, quality of nursing care, and patient safety outcomes.

The participants in this study reported levels of job strain that were consistent with previous research, which indicated that job strain occurs at low to high levels beyond just Swedish, Brazilian, and Portuguese oncology nurses. The main sources of stress identified were: high job demands, dealing with situations of death, poor working conditions, role responsibilities, and lack of recognition (Gomes, Santos, & Carolino, 2013; Isikhan, Comez, & Danis, 2004; Umann, Silva, Benetti, & Guido, 2013). Escot et al. (2001) also stated that oncology nurses experience higher levels of strain when they face difficult situations such as providing care for patients who are about to die or suffering from pain.

The findings of this current study indicated that there was a significant negative relationship between job strain and work performance ($r = -0.22, p < 0.05$). These findings concur with previous a study by Nabirye et al. (2011) who reported that job strain led to poor work performance and was a risk factor for patient safety. However, in another study conducted by AbuAlRub (2004), a U-shaped relationship between work setting stress and work performance was found. Nurses with low or high levels of job strain performed better on their jobs than nurses with moderate levels of strain (AbuAlRub, 2004). This contrary view might be argued that some employees are motivated to perform when there is a lot of pressure. However, stress in the best work environment may need to be controlled since excessive pressure is known to result in negative effects for patients, nurses, and organizations. Therefore, there is a need to further investigate and quantify factors that lead to job strain for the KSA oncology nurses and address them, so that work performance can be improved.

Our research suggests that coping strategies adopted by KSA oncology nurses have a partial mediating effect on job strain's negative influence on their work

performance. Oncology nurses who reported adoption of more effective coping strategies are more likely to report a higher level of work performance. However, in this study, oncology nurses reported using both PFCSs and EFCSs when dealing with job strain. The types of coping strategies most frequently used by the oncology nurse participants were positive reappraisal, self-controlling, and escape-avoidance, while accepting responsibility was the least used. This finding is consistent with Rodrigues and Chaves' (2008) study that investigated the relationship between job-related stressors and coping strategies, among Brazilian oncology nurses. The mediation model developed in this study opens up a new direction for research into developing holistic perspectives on questions about recruitment, retention, and wellbeing at work within oncology care settings that should be of interest to academic researchers and practitioners.

The results of this study also suggest that increased job strain levels among oncology nurses were significantly associated with increased utilization of EFCSs ($r = 0.21, p < 0.01$). Most studies provided evidence that EFCSs are frequently related to increased stress, burnout, mental and physical health problems, and job dissatisfaction among nurses (Beh & Loo, 2012; Chang et al., 2006; Lambert et al., 2004; Lim et al., 2010). Lambert et al., (2004) found that job strain and coping strategies (accounting for 16% of the variance; $p = 0.0001$) were the best predictors of mental health among nurses working in private and public hospitals. In addition, the current study results reveal some interesting differential effects of coping strategies on work performance. The use of PFCS such as positive reappraisal and self-controlling were positively related to oncology nurses' performance ($r = 0.36, p < 0.01$). In this respect, oncology nurses' coping strategies can also promote nurses' work performance.

The current study found that KSA nurses in oncology care settings demonstrated moderate levels of self-reported work performance ($M = 3.46$ out of 5), which is somewhat similar to that reported in previous research in the Saudi hospital nursing sector of work performance at 3.52/5.00 (Al-Ahmadi, 2009). Additionally, Al-Homayan et al. (2013) found that the level of nurses' work performance among the KSA MOH public hospitals was also moderate at 3.62, (range from 1.80 to 5.00), when focusing on job demands and resources, and social exchange.

In the current study, the majority of the participants were considerably young ($M = 32.46$, $SD = 7.77$), female (88%), worked full-time, and 67.6% held a bachelor degree in nursing as compared to RNs employment in nursing in Canada in 2014, 90% were female, 58.5% worked full-time, 87% held a bachelor degree in nursing, and the average age was 45.2 years (Canadian Institute for Health Information (CIHI), 2015). While different from Canada, the demographic results in this study are consistent with other profiles of registered nurses who have participated in research in the KSA. In a study examining job-related stressors and turnover intention, conducted with 508 primary healthcare (PHC) nurses from 143 PHC centres reported a similar profile: 67.3% were female, worked full-time, and the average age was 32.9 years ($SD = 8.45$) with 11.3 years ($SD = 8.75$) in nursing, and 6.6 years ($SD = 7.18$) on their current unit (Almalki et al., 2012). However, data from the current study revealed that 88% of the participants were female nurses (see Table 4.1), which was higher than expected in the KSA context, since female nurses form approximately 73% of nursing population in the Saudi healthcare system (Almalki, FitzGerald, & Clark, 2012; Ministry of Health (MOH), 2007).

Finally, results of the present study indicated a significant difference in job strain and work performance means by type of hospital. Publicly funded hospitals had the

highest means score for job strain and the lowest mean score for work performance, which is consistent with previous studies among Ugandan and Thai nurses (Nabirye et al., 2011; Tyson & Pongruengphant, 2004). Most services in the publicly funded hospitals are free of charge while high fees are paid for services in the privately funded hospitals in KSA (Aldossary, While, & Barriball, 2008; Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013). This alternate payment structure (private versus publicly funded) could contribute to overcrowding and high job demands for nurses in KSA publicly funded hospitals. Furthermore, the private sector covers only 20% of KSA health care services (Almalki, FitzGerald, & Clark, 2011; MOH, 2010). This means that nurses working in KSA publicly funded hospitals are possibly working under higher levels of stress and job demands, especially in high populated areas, such as Jeddah and Makkah cities.

Limitations of the Study

A number of factors could impact the interpretation of the study results. The study used a cross-sectional design, and accordingly cannot establish temporal or causal relationships between job strain, coping strategies, and work performance. The use of non-probability sampling in two geographical sites (Makkah and Jeddah, KSA) potentially limits generalizability of this study to all oncology nurses in the KSA. Self-selection bias could be a further study limitation, although random subject selection was not possible due to lack of access to an existing computerized roster of oncology nurses in the KSA. Using measurement instruments that are not specifically designed or tested for the Saudi context might have risks related to their validity and reliability, due to both cultural variations and word meanings. However, despite these limitations, this study adds to our understanding of the utility of these measurement instruments within the

context of the KSA. Another limitation could be related to non-response bias and the length of the survey (118 items), although there was very little missing data identified and it appeared to be missing at random. Common method variance (CMV) could be another limitation as study data were collected through self-report instruments at a single point in time using instruments with some elements of overlapping constructs across them. Given the demonstrated validity and reliability of the instruments utilized in this study, issues with CMV should be decreased to some extent. Based on these stated limitations, the study findings should be interpreted cautiously.

Nursing Implications

A number of significant implications for oncology nursing, healthcare organizations, nurse managers/administrators, and researchers can be deduced from the study findings. Hospital nurse administrators/managers have pivotal roles in creating healthy work environments or supporting strategies aimed at improving KSA oncology nurses' work environments. These results provide encouraging support for continued efforts to create and maintain healthy work conditions in today's dramatically restructured nursing work environments. By understanding the effect of both job strain and coping strategies on oncology nurses' work performance, nurse administrators/managers can better design stress management approaches that teach the use of positive coping resources. As a result, oncology nurses' work performance might be improved when job strain is reduced and enhanced coping strategies are employed. Replication of the study using a different sample and a different design is warranted for validating these results.

Conclusions

This study provides evidence of a relationship between job strain, coping strategies, and work performance in the KSA oncology nurses. The study sample was comprised of internationally educated and Saudi nurses working in KSA oncology care settings within both publicly and privately funded hospitals. Based on the findings of this study, there is further support for the use of Karasek's Demand-Control Model (Karasek, 1979), and Lazarus and Folkman's Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) to study the impact of job strain and coping strategies on work performance. The study was able to demonstrate that the workplace environment of oncology nurses creates different levels of job strain and adoption of coping strategies. Thus, job strain and coping strategies were found to influence oncology nurses' work performance. The study results can help nursing administrators/managers to have a better understanding of oncology nurses work environment and its relationship on job strain and work performance. Based on the model fit for this study, job strain and coping strategies have a direct effect on the performance of oncology nurses. Therefore, the model can be beneficial in understanding how coping strategies influence levels of job strain in the work environment and work performance of oncology nurses. Improving work environments of oncology nurses through development programs and policies to support positive coping with job strain can assist nurse management in retention of nurses, and in improved quality of care delivered to their patients in the KSA.

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CHAPTER FIVE

CONCLUSIONS AND NURSING IMPLICATIONS

Conclusion

The purpose of this predictive, correlational cross-sectional study was to investigate the relationship between job strain, coping strategies, and work performance in a sample of 241 oncology nurses working in five oncology care settings in the Kingdom of Saudi Arabia (KSA). Two theories were utilized to build the model tested in the study these being Karasek's Demand-Control Model (Karasek, 1979) and Lazarus and Folkman's Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). A questionnaire, based on pre-existing standardized tools, including demographic and work items was used in this study. The data were analyzed using Statistical Package for the Social Sciences (SPSS 22) (IBM Corp, 2013) and AMOS 21.0 software package (Arbuckle, 2012), to carry out structural equation modeling (SEM) to test the study model. Furthermore, the potential mediating effect of coping strategies between job strain and work performance was examined. This final chapter presents an overview of the study findings, study limitations, implications of results for oncology nursing practice and administration, nursing research, and nursing education. Conclusions arising from the study are also stated.

Unique Contribution

Studies on job strain, coping strategies, and work performance among oncology nurses are rare, especially in countries such as the KSA. The research presented in this study is noted as the first of its kind that examined the relationship between job strain, coping strategies, and work performance among KSA oncology nurses. It identified significant relationships between the above variables. The present study also developed,

introduced, and tested a new model of nurse job strain based on the Demand–Control Model (Karasek, 1979) and Lazarus and Folkman’s (1984) Transactional Model of Stress and Coping. This model may assist other researchers in furthering their understanding of the effect of job strain and coping on the KSA oncology nurses’ work performance, as well as, in developing policies to assist KSA nursing management.

This study has created new knowledge on the impact of job strain and coping strategies on work performance of oncology nurses from both different cultures and different healthcare systems to that found in existing literature. The findings will contribute to a growing body of research on the impact of job strain on work performance, which to date has been mainly based on research from developed countries. These findings may be especially important at a time of high nurse turnover rates and global nursing shortages. Additionally, this study provides a comprehensive review and description of the KSA healthcare system and its nursing practice. This contribution addresses the current void in scholarly literature and provides useful information for researchers, managers, and policy makers. Finally, this study adds new knowledge around levels of job strain and its effects on internationally educated nurses (IENs) in KSA oncology care settings.

Overview of Findings

The current study used a convenience sample of 241 oncology nurses working in five hospitals in the KSA. Two hundred seventeen participants were from Philippines, India, Lebanon, and other countries, with only 24 Saudi oncology nurse participants. Descriptive statistics showed that the average age of study participants was 32.5 years. The majority were females, currently working full time, had at least 10 years of hospital nursing experience, and more than 5 years’ experience in oncology nursing. More than

half of the participants held a bachelor degree in nursing, and worked in medical, pediatric, and surgical oncology units. More than half of the participants also had advanced preparation/specialized education in oncology nursing. The following conclusions about relationships between job strain, coping strategies, and work performance among KSA oncology nurses were drawn:

1. KSA Oncology nurses experienced low to high levels of job strain.
2. KSA Oncology nurses demonstrated moderate levels of self-reported work performance.
3. There was a negative relationship between job strain and work performance among oncology nurses in KSA.
4. There was a negative relationship between job strain and coping strategies among oncology nurses in KSA.
5. There was a positive relationship between coping strategies and KSA oncology nurses' work performance.
6. There was a positive relationship between problem-focused coping strategies (PFCSSs) and KSA oncology nurses' work performance.
7. Coping strategies had a partial mediating effect on the relationship between job strain and work performance among oncology nurses in KSA.
8. KSA oncology nurses in publicly funded hospitals experienced more job strain, less coping strategies, and had lower work performance than oncology nurses in privately funded hospital.

Therefore, the data confirmed the fit of the model that oncology nurses who experience high levels of job strain in combination with lower coping levels tend to have lower work performance.

Limitations

As with any investigation, limitations that could impact interpretation of the results are likely present. Future studies are needed to overcome these limitations and validate the conclusions reached in this study. Therefore, this study must be interpreted within the context of its limitations, as described below.

1. **Design:** The study used a cross-sectional design, and accordingly cannot establish temporal or causal relationships between job strain, coping strategies, and work performance. Evidence of causality requires establishing time sequence, strength of the association, specificity of association, coherence, and consistency with other knowledge (Armenian, 1998). Therefore, directions observed for relationships examined in this study were based on inferences drawn from the literature, in combination with evidence from data.
2. **Sampling:** The use of non-probability sampling in two geographic sites (Makkah and Jeddah, KSA) potentially limits generalizability of this study to all oncology nurses in the KSA. This may have led to possible sampling bias resulting in a sample that is not representative of the entire population of KSA oncology nurses. Also, a related limitation to generalization is that data for this study were collected from only one private and four public hospitals in Makkah and Jeddah (urban cities), KSA, because of financial constraints and logistical limitations due to the Coronavirus outbreak in the KSA. The study participants also were almost all female (n=212, 88%) and non-Saudi (n=217, 90%), limiting generalization of the sample. The non-Saudi respondents may be explained by the low representation of Saudis in the KSA nurse population. However, the sample of this study is similar to the percentage of Saudi nurses within MOH healthcare

facilities, and specifically in the Makkah and Jeddah regions. In these regions 31.8% of the nurses are Saudi (Al-Homayan, Shamsudin, Subramaniam, & Islam, 2013). Therefore, this study is limited to oncology nurses working in Saudi oncology settings and in particular for oncology nurses in Makkah and Jeddah cities.

3. **Response:** The response rate for the study was 56%. This raises concerns about the sample's representativeness and how the other 44% would have responded. Non-response bias (the length of the survey; 118 items) may be a factor arising from respondents who received but failed to fully complete and/or return the questionnaires (Polit & Beck, 2012). The researcher tried to be flexible with questionnaire completion time frames for respondents, therefore attempts to mitigate against non-response bias problems were considered. Of the completed questionnaires received less than 5% had any missing data for items. Therefore this volume of missing data was not considered significant and likely did not influence survey results.
4. **Self-selection:** Self-selection bias may be a study limitation. Random subject selection was not possible due to lack of access to an existing computerized roster of oncology nurses in the KSA. However, all eligible oncology nurses in each participating hospital oncology unit were approached to complete the questionnaire, therefore the self-selection bias problem may have been somewhat minimized.
5. **Measurement:** Using measurement instruments that are not specifically designed or tested for the KSA context might have risks related to their validity and reliability. These risks may have arisen from both cultural implications and

language problems. To address these risks face validity of study instruments was established by pilot-testing the questionnaire one month before the start of data collection, with six KSA experts in oncology nursing, nursing, and nursing education to assess instructions, and items clearness and appropriateness to the Saudi context. Based on their feedback, the study questionnaire was neither modified and nor were other changes made to any of the items in the original study questionnaire version. However, in spite of this approach to ensure cultural and language issues were considered, given the wide number of countries the nurses are from it is still likely that semantic misinterpretation of items may have occurred. Despite this limitation, this study adds to our understanding of the psychometric properties of the measurement instruments used within the context of the KSA oncology nurses.

6. **Self-Reporting:** Data were gathered through a self-reporting survey leaving interpretation of the meaning of each item to the participants. Use of a self-reported instrument may have decrease the reliability of responses due to perceptual misinterpretation of some items (Cabigao, 2009).
7. **Common method variance:** Common method variance (CMV) may be a further limitation since study data were collected through self-reported instruments at a single point in time using instruments with some elements of overlapping constructs across them. However, Spector (2006) argues that the negative effects of CMV have been overstated and self-report instruments are, in some cases, more precise descriptions than more objective instruments. Given the demonstrated validity and reliability of the instruments utilized in this study, issues with CMV should be decreased to some extent.

8. **Finding Comparability:** No such studies in the field of oncology nursing in the KSA were found to allow for direct comparability of the present study's results. Therefore, studies carried out in internationally located hospitals were used which may be different in some ways from the KSA hospitals or its work environment, thus direct comparison of results with existing studies was limited.

Despite these limitations, this study has provided valuable findings and contributed significantly to the body of research knowledge regarding the relationship between job strain, coping strategies, and work performance among oncology nurses working in the KSA. The findings may also be of value to nurse managers/administrators, healthcare leaders and policy makers who are interested in enhancing work environments, reducing job strain, improving the quality of KSA nursing care. These leaders may also find value in the results and their application to the importance of developing retention process for their oncology nurses.

Implications

A number of significant implications for oncology nursing, healthcare organizations, nurse managers/administrators, and research can be deduced from the study findings.

Implications for Oncology Nursing Practice and Administration

Existing theory proposes that job strain results in poorer work performance and negative job outcomes (Karasek, 1979, 1997; Karasek & Theorell, 1990; Theorell & Karasek, 1996). Therefore, a better understanding of the contributors to job strain among oncology nurses is important, due to the negative impact of job strain on nurses' health and the safety and quality of care for patients they serve. Job strain may present a threat to the quality of care that oncology nurses provide to their patients. The findings from the

current study found that psychological job demands and job control were potential predictors for oncology nurses' work performance in KSA oncology care settings. Thus, the greater the psychological demands and perceived limitations over their job control that are present results in poorer work performance. This study also found that coping strategies were significantly inversely related to job strain and were significantly and positively related to oncology nurses' work performance. Thus, when nurses felt less psychological job demands or were able to cope better (i.e., used PFCSSs) with these they performed more positively. Hence, study findings indicate that initiatives to reduce psychological demand, enhance job control, and improve coping strategies (PFCSSs) among KSA oncology nurses are likely to result in higher levels of work performance.

These study findings further suggest that job strain among KSA oncology nurses can be reduced, if administrative efforts are directed at two levels: provision of the organizational resources such as training programs related to utilization of functional coping strategies (PFCSSs) in the workplace; and to individual workplace counselling when job strain is present. As a first step, healthcare and nurse leaders should become aware of levels of stress that occur when workloads in the workplace cause high job demands on nurses. One are cited in the literature leading to high stress was staff shortages. Hence, any attempts to mitigate against non-filling of vacant positions and turnover among nurses are likely to reduce these stressors. KSA nurse administrators/managers should consider where organizational changes might help in reducing levels of oncology nurses' job strain, as a primary intervention to deal with the root causes of stress in the workplace (Bickford, 2005; US Department of Health and Human Services, 1999). Some of the organizational changes that can be considered are: communication improvements, career advancement opportunities, recognition of good work, providing

training programs associated with enhanced coping, increased staffing, and workload reduction (AbuAlRub & Al-Zaru, 2008). Hence, involving oncology nurses in their patient care decision making and providing adequate numbers of nurses and nursing assistants to reduce any experienced high workload (high job demands) and addressing inadequacies in oncology nursing services for KSA cancer patients and their families are positive means to reduce job-related stress. Thus, any organizational actions to reduce or eliminate job-related stressors by changing the workplace environment are likely to achieve positive outcomes to KSA oncology nurses' work performance (Sauter, Hurrell Jr., Murphy & Levi, 2015).

Furthermore, it is imperative that nursing leaders know and understand how theories of job strain, coping, and work performance impact on their staff's performance. These leaders need to be actively involved in creating positive strategies and influencing practice conditions that support healthy work environments, enhance oncology nurses' coping and improve their work performance. At administrative policy levels, recommendations need to center on building frontline nursing managers skills and capacity in providing supports to enhance nurses' job control over their work. This skill and capacity development can be achieved through mandatory supervisory skills orientation and advanced leadership training.

As part of new nurse orientation programs stress management strategies for oncology nurses and management should be initiated. These programs should specifically raise their awareness about job strain (high job demands and low job control), the nature and impact of job-related stressors, and how to deal with stress in the workplace (coping and stress reduction skills). Ongoing training programs specifically target those most vulnerable to workplace stressors, such as new IENs and help these nurses to distinguish

between functional and dysfunction coping strategies to further enhanced their own personal coping. Similar workplace interventions and stress reduction strategies may also assist oncology nurses. Peer support groups should be encouraged within oncology units, to assist these nurses to externalize their emotions. Support groups provide a discussion forum for sharing their experiences and a means for passing on how to assess and deal with difficult situations in practice. These nurses learn from one another in how to use functional coping strategies in order to improve their performance. Workplace support groups have been shown to help alleviate job strain and can impact positively on oncology nurses' work performance.

The findings of this study demonstrated key relationships between work characteristics variables, job strain, and work performance variables. For example, oncology nurses who had advanced perpetration in oncology nursing reported lower levels of job strain and higher levels of work performance compared to those without any oncology preparation. Working in surgical and pediatric oncology units was also significantly associated with positive oncology nurses' work performance. Further studies are needed to determine what factors cause these findings. There also seemed to be a positive relationship between coping and work performance for those nurses who identified specialty education in oncology. Thus, lack of oncology training programs for nurses will impact on their competence and performance (Alhusainin, 2006). Nurse managers should assume the responsibility to work with relevant department and educational institutions to run free-of-charge continuing oncology nursing programs and workshops within oncology care settings to enable oncology nurses to develop their oncology nursing knowledge and skills. It is the responsibility of nurse managers to ensure the highest level of work performance from their nurses. Ensuring the above

issues are addressed within the work environment has a greater likelihood that oncology nurse managers achieve this goal.

Implications for Future Research

There are numerous opportunities for nursing research stemming from this initial study. A replication of this study with a sample of oncology nurses from KSA oncology care settings in remote provinces as well as within public and private sectors is needed to compare and contrast findings. Such a study may assist in identifying the overall levels of job strain, coping, and work performance in each sector that may differ from this study's findings and address knowledge gaps. This study could also be replicated with a larger sample of oncology nurses from other Middle-East and Western countries to gain a broader understanding of the extent to which job strain and coping strategies are being perceived in general. In addition, the study could be replicated with a sample of nurse managers/supervisors in KSA oncology care settings. Furthermore, the effects of job strain and coping strategies on managers' work performance in KSA hospitals has not and needs to be studied. The results might provide an indication of the unique challenges in being a nurse manager within KSA Oncology care settings.

A qualitative study could precede the above replication studies to assess more clearly why KSA oncology nurses reported their workplace experiences are stressful, to gain a deeper understanding of job strain development and its effects from an experiential perspective. A study of KSA oncology nurses' perceptions on their job strain and coping strategies associated with both their work and personal lives may also provide additional information. Saudization of the nursing profession will continue to play a major role for the nursing directorate of the Saudi Ministry of Health (MOH). As more nurses who are Saudi enter the workplace, their perspectives on the work environment will be crucial. In

addition, this study recommends a further study of Saudi vs. non-Saudi oncology nurses that may explain some of the differences in job strain, coping, and work performance levels according to demographic characteristics and work environment. Moreover, the tested model should be used in further studies to assess its ability to explain the impact of job strain and its impact on oncology nurses' work performance in other countries.

An intervention study could be conducted to assess how stress reduction and use of functional coping strategies programs/sessions for oncology nurses influence their levels of job strain in comparison to a control group of oncology nurses who did not receive supplemental education sessions. Furthermore, a qualitative study could be conducted with nursing students who received educational sessions about stress management and functional coping strategies prior to or during to their clinical practicum to gain an appreciation of how that information influenced their nursing practice performance. Future research should also consider alternative methods, such as longitudinal observational studies among oncology nurses working in the KSA. Such an approach could then allow temporality to be determined, providing stronger evidence of causal relationships between study variables in organizations (Kessler, 1987; Spector, 1994).

High psychological job demand and low job control are theoretically and empirically associated with health problems, poorer nurses' work performance, and limitations in job outcomes (Bourbonnais & Mondor, 2001; Karasek, 1979; Karasek & Theorell, 1990; Nabirye, Brown, Pryor, & Maples, 2011). Therefore, future studies should explore the influence of psychological job demand and job control of KSA oncology nurses on their physical and mental health and patient safety outcomes in Saudi oncology care settings. Attention is also needed to assess the 9-items JCQ Job Control

Scale that demonstrated a low coefficient alpha in this study. The psychometric properties of the instrument need to be improved if used in future research in the KSA. It would be valuable to conduct a qualitative study to identify themes associated with KSA oncology nurses' job control so that additional or revised scale items can be developed.

Another important finding was the positive impact of PFCs on enhancing work performance. Since this was the first study to explore the relationship between coping strategies and work performance among KSA oncology nurses, more studies are needed in this area. Coping strategies were found to be a partial mediator of job strain among KSA oncology nurses' work performance in this study. Future research needs to focus on other possible mediators or moderators of the relationship between job strain and work performance among oncology nurses. For example, organizational support, job satisfaction, and recognition were found to have close connection between job strain and nurses' work performance relationship (AbuAlRub & Al-Zaru, 2008; Al-Homayan et al., 2013; Nabirye et al., 2011).

Finally, Interpersonal relations/Communication and Planning/ Evaluation were the most frequently cited components of work performance affected by job strain. More research is needed to further test these relationships in order to improve nurses' work performance, especially since such relationships were never reported in nursing literature.

Implications for Nursing Education

In the process of socializing students into the nursing profession, a curriculum that addresses the dynamics of the oncology work environment could improve student's ability to recognize healthy oncology workplaces for their future career choices. Such learning may also instill a sense of accountability for enhancing workplace conditions that would improve nurses' work performance and ultimately benefit their patients. The

findings of this study indicate that nursing students need to understand that job strain is a common occurrence within nurses working in oncology and likely in other practice areas. Students' ability to practice effectively is associated with how well they can use functional coping strategies to mitigate against negative impacts to their work performance. Techniques and tools related to different forms of coping strategies need to be included in nursing education to encourage nursing students to develop effective coping strategies that may be utilized when they are feeling overwhelmed by job-related stress. Awareness about the negative impacts of job strain on nurses' mental and physical health can also be integrated in the theoretical content of the curriculum. Therefore, KSA nursing school curricula at undergraduate, graduate, and continuing education programs should include content related to job strain identification, prevention and management.

In addition, KSA nursing students should gain oncology clinical experiences in both publicly and privately funded hospitals to expose them to differences in the oncology work culture and environment. In this way, students will be educated to be aware of stress in the oncology workplaces and take action to achieve healthy work environments.

Nursing education level did not show any difference in regard to the reported levels of work performance. In an overview of the literature, McCloskey (1981) concluded that the impact of nurses' educational level on work performance is not consistent or clear. Further research could consider nursing education as a main variable and investigate its ability to predict work performance while controlling not only for individual differences, but also for job variables that may affect work performance.

Conclusions

This was the first study of its kind that examined the relationship between job strain, coping strategies, and work performance among KSA oncology nurses. Findings from this study indicated that job strain and coping strategies were associated with KSA oncology nurses' work performance. Among the variables tested, psychological job demand and job control were the predictors of job strain in oncology nurses working in KSA hospitals. Thus, the results add further support to the applicability of both Karasek's Demand-Control Model (Karasek, 1979), and Lazarus and Folkman's Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) in nursing practice. This study was able to demonstrate that the workplace acts as an environment in which oncology nurses' experience significant job strain, leading to their need to apply coping strategies, and the effectiveness of these coping strategies has an impact on their work performance.

The study's results indicate that when oncology nurses have positive reappraisal, self-control, and are able to use escape-avoidance coping strategies in KSA oncology hospital settings oncology nurses were able to deal with their job strain. In addition, job strain and coping strategies were found to influence oncology nurses' work performance. Overall coping strategies had a partial mediating effect on KSA oncology nurses' job strain and their work performance. The findings of this study provide suggestions for nurse managers and administrators to support oncology nurses' effective coping strategies by looking into ways to enhance coping resources and to improve the environments in which oncology nurses work.

Results of this study have relevant implication for nursing management, oncology nursing practice, and nursing education at the undergraduate, graduate, and continuing levels. Hospital nurse administrators/managers have pivotal roles in creating healthy

work environments through supporting strategies aimed at improving work environments where KSA oncology nurses practice. These results also provide encouraging support for continued efforts to create and maintain healthy work conditions in today's dramatically restructured oncology nursing work environments. By understanding the effect of job strain on oncology nurses' work performance and the effect of coping strategies on both their job strain and work performance, nurse administrators/managers can better design stress management approaches that provide resources to support positive coping. As a result, oncology nurses' work performance might be improved with reduced levels of job strain and enhanced functional coping strategies. Enhanced functional coping strategies may reduce job turnover and increase retention of oncology nurses in the workplace. Replication of the study using a different sample and a different design is warranted for validating the results.

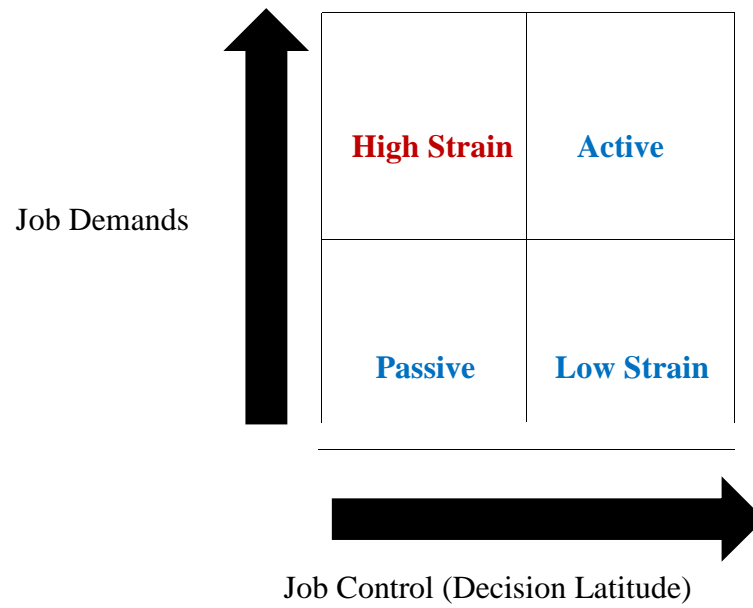
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Appendix A
Karasek's Demand-Control Model



Appendix B

Western's Research Ethics Boards (REB) Approval



**Western
Research**

Research Ethics

Use of Human Participants - Initial Ethics Approval Notice

Principal Investigator: Dr. Michael S. Kerr
 File Number: 104417
 Review Level: Delegated
 Protocol Title: JOB STRAIN, STRESS COPING STRATEGIES AND WORK PERFORMANCE AMONG ONCOLOGY NURSES WORKING IN SAUDI CANCER CARE SETTINGS
 Department & Institution: Health Sciences/Nursing, Western University
 Sponsor:
 Ethics Approval Date: January 29, 2014 Expiry Date: May 01, 2014
 Documents Reviewed & Approved & Documents Received for Information:

Document Name	Comments	Version Date
Other Regulatory Correspondence	IRB Opinion Letter - KAMC	
Other	Sampling Frame Table	
Instruments	Survey	
Advertisement		
Other	References	
Other Regulatory Correspondence	IMC IRB Approval Letter	
Other Regulatory Correspondence	IRB Letter KFSHRC	
Western University Protocol		2013/09/24
Response to Board Recommendations		
Revised Letter of Information & Consent	Tracked	
Revised Letter of Information & Consent	Clean	

This is to notify you that The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (HSREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the Health Canada/ICH Good Clinical Practice Practices: Consolidated Guidelines; and the applicable laws and regulations of Ontario has reviewed and granted approval to the above referenced revision(s) or amendment(s) on the approval date noted above. The membership of this REB also complies with the membership requirements for REB's as defined in Division 5 of the Food and Drug Regulations.

The ethics approval for this study shall remain valid until the expiry date noted above assuming timely and acceptable responses to the HSREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the University of Western Ontario Updated Approval Request Form.

Members of the HSREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the HSREB.

The Chair of the HSREB is Dr. Joseph Gilbert. The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Appendix C

Participating Hospitals' Research Ethics Boards (REB) Approvals



المملكة العربية السعودية Kingdom of Saudi Arabia
وزارة الصحة Ministry of Health
مدينة الملك عبد الله الطبية بالعاصمة المقدسة King Abdulla Medical City in Holy capital
اللجنة المحلية لأخلاقيات البحث Institutional Review Board

Institutional Review Board Opinion Letter

Protocol Title	Job Strain, Stress Coping Strategies And Work Performance Among Oncology Nurses Working In Saudi Cancer Care Settings
Version	Version 1.0
Principal investigator	Ms. Dhuha Y. Wazqar
IRB number	IRB 13-051
Sponsor	NA
Date of initial submission	30/May/2013
Date of document completion	30/May/2013

Dear Ms. Dhuha Y. Wazqar,

This is to inform you that the above mentioned proposal has been exempted from IRB review. Exemption has been provided by KAMC IRB registered at the National BioMedical Ethics Committee, King Abdulaziz City for Science and Technology on 14-07-1433 (Registration no. H-02-K-001).

Exemption applied to the following documents:

1. The proposal (Version 1.0)
2. The questionnaire

Exemptions conditions:

- To conduct research as per the approved documents
- Amendments: any amendments should be approved by IRB before implementation.
- Research participant confidentiality should be protected and will be subject to audit by the IRB.



مستشفى الملك فيصل التخصصي ومركز الأبحاث
King Faisal Specialist Hospital & Research Centre
Gen. Org. مؤسسة عامة
Jeddah Branch - فرع جدة

DHUHA YOUSSEF WAZQAR
PhD Student in Nursing Leadership
Health Services Delivery Program
College of Nursing
University of Western Ontario, Canada

19 Rabi Al Thani 1435
19 February 2014

REF#: RC-J 099-35

RE: RESEARCH PROTOCOL APPROVAL
IRB 2014-07: Job strain, stress coping strategies and work performance among
Oncology nurses working in Saudi cancer care settings

Dear Ms. Wazqar,

Thank you for submitting the above-mnetioned research protocol to the Institutional Review Board (IRB) at King Faisal specialist Hospital & Research Centre (Gen.Org.)-Jeddah Branch. It was reviewed at the Board meeting last Monday, 17 February 2014. I am pleased to inform you that the Board is satisfied with the protocol as presented. We are hopeful that the knowledge that would gained from this study would be useful in improving the work environment of Oncology nurses as well as in developing policies to assist nursing management in the Kingdom of Saudi Arabia.

Scientific and ethical approvals have been granted. On behalf of the Board, I wish you all the best in the conduct of this protocol. Please submit to the IRB the 6-month progress report for this research project on or before **19 August 2014**.

Kindly submit to the Board also a copy of the IRB approval from the University of Ontario as we need it in our file for this research project at the Research Centre.

Sincerely, 

Subject: Approval for Research Study

Dear Ms. Wazqar,

Your proposal *Job strain, stress coping strategies and work performance among oncology nurses working in Saudi Cancer Care Settings* has been reviewed by Nurse Research Council and recommended from a Nursing Affairs Perspective provided:

We do believe the study can add valuable insights into the stress coping mechanisms of oncology nurses working in the Saudi Cancer settings.

Please note the final ethical and scientific approval is granted by the Institutional Review Board (IRB). I did forward the application to the IRB and for further follow up, you can contact ESan-Diego@kfshrc.edu.sa.

If the study is granted scientific and ethical approval by IRB, please contact Dr. Estelle Bester at MBester@kfshrc.edu.sa to facilitate discussions with the Head Nurses on potential recruitment of participants.

As participation will be voluntarily, we cannot guarantee whether and how many nurses will participate. We do appreciate and acknowledge the importance of the study and look forward to receive a report on your findings.

We wish you well with your studies.

Appendix D

Letter of Information for Participants

Study Title: Job Strain, Coping Strategies, and Work Performance among Oncology Nurses Working in Saudi Oncology Care Settings

Principal Investigator:

Dhuha Wazqar, PhD student, School of Nursing, University of Western Ontario

Dr. Mickey Kerr, associate professor, School of Nursing, University of Western Ontario

Letter of Information

1. Invitation to Participate

You are being invited to participate in this research study about the effects of job strain and coping strategies on oncology nurses' work performance in order to gain a richer understanding of the current oncology nursing work environment in Saudi oncology care settings.

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

3. Purpose of this Study

The purpose of this study is to investigate the relationship between job strain, coping strategies, and work performance among oncology nurses working in Saudi oncology care settings. The study will also explore the possible mediating effects of coping strategies on job strain and work performance relationship.

4. Inclusion Criteria

Individuals who are (a) qualified registered nurses, (b) full-time employees of the hospital included in the study for at least six months by the time of the study, (c) employed in the position of oncology staff nurse an outpatient or inpatient oncology unit, (d) working in any of following oncology units: medical oncology, paediatric oncology, surgical oncology, hematological oncology, palliative care and radiation, and chemotherapy treatment area/ daycare, (e) read, understand, and speak English fluently, and (f) willing to participate in the study are eligible to participate in this study.

5. Exclusion Criteria

Individuals who are (a) part-time employees, (b) employees on leave (sick, injury and maternity leave), (c) not working in oncology areas (d) working in management positions are not eligible to participate in this study.

6. Study Procedures

If you agree to participate, you will be asked to complete a survey asking about your current work environment, and your reaction to your working environment. Once you have completed your survey, please place it in the box provided on your ward/unit or handle it to the Principal Investigator when she visits each oncology unit on a weekly basis to collect the completed surveys from boxes. It is anticipated that the entire task will take 30 minutes of your time. You may decide whether to complete the survey on your own time or at work. **Please do not write your name or anything which may identify you on this survey.** All eligible oncology nurses in their facility (as well as others) are being invited to participate.

7. Possible Risks and Harms

There are no anticipated burdens, risks or potential harms for participation in this study.

8. Possible Benefits

You are not guaranteed any direct benefits as a result of your participation in this study. However, this study will provide data to document the extent of job strain and its effect on work performance in current oncology nursing workplaces that could inform policy development and workplace interventions to prevent or reduced job strain. The results will be potentially useful for nursing administrators in creating a positive work environment that support oncology nurses in the KSA.

9. Compensation

You will not be compensated for your participation in this research.

10. Voluntary Participation

Participation in this study is voluntary (your choice). You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future employment status with the hospital in any manner.

11. Confidentiality

All data collected will remain confidential and accessible only to the research team of this study and only group data will be reported during the dissemination of the study findings.

All questionnaire data will be stored in a locked cabinet in a secure room. Care will be taken to ensure confidentiality of survey data and the research team will take several steps to ensure your privacy.

12. Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact the Principal Investigator, Dhuha Wazqar, e-mail: or the researcher supervisor Dr. Mickey Kerr, e-mail:

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics at the University of Western Ontario at local contact # (519) 661-3036, email: ethics@uwo.ca.

13. Publication

If you would like to receive a copy of any potential study results, please provide your name and contact number or e-mail address on a piece of paper separate from the survey form or send a request to the principal investigator.

14. Consent

You indicate your voluntary agreement to participate by completing questionnaire and submitting this questionnaire.

I would very much appreciate your participation in this study and thank you very much for considering my request.

Sincerely,

Dhuha Wazqar, PhD Student
School of Nursing
The University of Western Ontario

This letter is yours to keep for future reference.

Appendix E

Study Survey

Appendix E.01

Demographic Questionnaire

Please tell us about yourself and your workplace

Question Number	Instruction: Circle one answer	
1.	What is your age?	_____ Year
2.	What is your gender? (Please circle one answer)	1) Male 2) Female
3.	What is your country of origin? (Please circle one answer)	1) Saudi Arabia 2) United State of America 3) Canada 4) South Africa 5) Australia 6) Lebanon 7) India 8) Philippines 9) Other* *Please specify
4.	What is the highest level of nursing education you have completed? (Please circle one answer only)	1) Nursing Diploma 2) Bachelors of Nursing 3) Master Degree in Nursing 4) PhD Degree in Nursing
5.	Do you have advanced preparation or specialized education in oncology nursing? (Please circle one answer)	1) No 2) Yes* If YES , please specify the type of preparation, 1) In-service Training in Hospital

		2) Certificate Courses in Oncology Nursing 3) Oncology Nursing Diploma 4) Graduate Degree with a focus in Oncology Nursing 5) Other*..... *Please specify
6.	How long have you been working as a registered nurse?	_____ Years
7.	How long have you been working as an oncology registered nurse?	_____ Years
8.	How long have you been working as an oncology registered nurse in KSA?	_____ Years
9.	How long have you been working in your current unit?	_____ Years
10.	How long have you been living in the KSA?	_____ Years
11.	What area of oncology do you work in now? (Please circle one answer only)	1) Medical Oncology 2) Surgical Oncology 3) Pediatric Oncology 4) Hematology Oncology and BMT 5) Palliative and Radiation Oncology 6) Emergency Oncology 7) Chemotherapy Treatment Area 8) Other*..... *Please specify
12.	What type of KSA hospital or cancer care setting do you work in now?	1) Private Hospital 2) Public Hospital

Appendix E.02

Job Content Questionnaire (JCQ)

C-In this section I want to ask you about your job. For each statement, please check the box with the answer that comes closest.

1. My job requires that I learn new things.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

2. My job involves a lot of repetitive work.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

3. My job requires me to be creative.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

4. My job allows me to make a lot of decisions on my own.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

5. My job requires a high level of skill.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

6. On my job, I have very little freedom to decide how I do my work.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

7. I get to do a variety of different things on my job.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

8. I have a lot to say about what happens on my job.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

9. I have an opportunity to develop my own special abilities.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

10. My job requires working very fast.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

11. My job requires working very hard.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

12. I am not asked to do an excessive amount of work.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

13. I have enough time to get the job done.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

14. I am free from conflicting demands that others make.

☐ Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly agree

Appendix E.03

Revised Ways of Coping Questionnaire (RWCQ)

D- As you respond to each of the statements, please keep a stressful situation that you faced in your job in mind. Read each statement carefully and indicate, by circling 0, 1, 2 or 3, to what extent you used it in the stressful situation.

Please try to respond to every question.

0 = Does not apply or not used

1 = Used somewhat

2 = Used quite a bit

3 = Used a great deal

1. I just concentrated on what I had to do next – the next step. 0 1 2 3
2. I did something that I didn't think would work, but at least I was doing something.
..... 0 1 2 3
3. I tried to get the person responsible to change his or her mind. 0 1 2 3
4. I talked to someone to find out more about the situation..... 0 1 2 3
5. I criticized or lectured myself..... 0 1 2 3
6. I tried not to burn my bridges, but leave things open somewhat..... 0 1 2 3
7. I hoped for a miracle.....0 1 2 3
8. I went along with fate; sometimes I just have bad luck..... 0 1 2 3
9. I went on as if nothing had happened. 0 1 2 3
10. I tried to keep my feelings to myself. 0 1 2 3
11. I looked for the silver lining, so to speak; I tried to look on the bright side of things.
..... 0 1 2 3
12. I slept more than usual. 0 1 2 3
13. I expressed anger to the person(s) who caused the problem. 0 1 2 3
14. I accepted sympathy and understanding from someone. 0 1 2 3
15. I was inspired to do something creative about the problem. 0 1 2 3
16. I tried to forget the whole thing..... 0 1 2 3

0 = Does not apply or not used
2 = Used quite a bit

1 = Used somewhat
3 = Used a great deal

17. I got professional help. 0 1 2 3
18. I changed or grew as a person..... 0 1 2 3
19. I apologized or did something to make up..... 0 1 2 3
20. I made a plan of action and followed it. 0 1 2 3
21. I let my feelings out somehow. 0 1 2 3
22. I realized that I had brought the problem on myself. 0 1 2 3
23. I came out of the experience better than when I went in. 0 1 2 3
24. I talked to someone who could do something concrete about the problem.
..... 0 1 2 3
25. I tried to make myself feel better by eating, drinking, smoking, using drugs, or
medications, etc. 0 1 2 3
26. I took a big chance or did something very risky to solve the problem.....0 1 2 3
27. I tried not to act too hastily or follow my first hunch..... 0 1 2 3
28. I found new faith. 0 1 2 3
29. I rediscovered what is important in life. 0 1 2 3
30. I changed something so things would turn out all right. 0 1 2 3
31. I generally avoided being with people. 0 1 2 3
32. I didn't let it get to me; I refused to think too much about it. 0 1 2 3
33. I asked advice from a relative or friend I respected..... 0 1 2 3
34. I kept others from knowing how bad things were..... 0 1 2 3
35. I made light of the situation; I refused to get too serious about it..... 0 1 2 3
36. I talked to someone about how I was feeling..... 0 1 2 3
37. I stood my ground and fought for what I wanted..... 0 1 2 3

0 = Does not apply or not used
2 = Used quite a bit

1 = Used somewhat
3 = Used a great deal

38. I took it out on other people..... 0 1 2 3
39. I drew on my past experiences; I was in a similar situation before..... 0 1 2 3
40. I knew what had to be done, so I doubled my efforts to make things work
..... 0 1 2 3
41. I refused to believe that it had happened 0 1 2 3
42. I promised myself that things would be different next time..... 0 1 2 3
43. I came up with a couple of different solutions to the problem. 0 1 2 3
44. I tried to keep my feeling about the problem from interfering with other things.
..... 0 1 2 3
45. I changed something about myself..... 0 1 2 3
46. I wished that the situation would go away or somehow be over with. 0 1 2 3
47. I had fantasies or wishes about how things might turn out..... 0 1 2 3
48. I prayed. 0 1 2 3
49. I went over in my mind what I would say or do. 0 1 2 3
50. I thought about how a person I admire would handle this situation and used that as a
model. 0 1 2 3

Appendix E.04

Six Dimension Scale of Nursing Performance (6-DSNP)

E-Instructions: The following is a list of activities in which nurses engage with varying degrees of frequency and skill.

Please enter the number that best describes how often the nurse performs the activities in the performance of his/her current job.

- 1- Not expected in this job
- 2- Never or seldom
- 3- Occasionally
- 4- Frequently

Activities in the Performance of your Current Job	Number
1. Teach a patient's family members about the patient's needs.	
2. Coordinate the plan of nursing care with the medical plan of care.	
3. Give praise and recognition for achievement to those under his/her direction.	
4. Teach preventive health measure to patients and their families.	
5. Identify and use community resources in developing a plan of care for a patient and his/her family.	
6. Identify and include in nursing care plans anticipated changes in patient's conditions.	
7. Evaluate results of nursing care.	
8. Promote the inclusion of patient's decision and desires concerning his/her care.	
9. Develop a plan of nursing care for a patient.	
10. Initiate planning and evaluation of nursing care with others.	
11. Perform technical procedures: e.g. oral suctioning, tracheostomy care, IV therapy, catheter care, dressing changes.	

12. Adapt teaching methods and materials to the understanding of the particular audience: e.g., age of patient, educational background and sensory deprivation.	
13. Identify and include immediate patient needs in the plan of nursing care.	
14. Develop innovative methods and materials for teaching patients.	
15. Communicate a feeling of acceptance of each patient and a concern for the patient's welfare.	
16. Seek assistance when necessary.	
17. Help a patient communicate with others.	
18. Use mechanical devices: e.g., suction machine, Gomco, cardiac monitor, respirator.	
19. Give emotional support to family of dying patient.	
20. Verbally communicate facts, ideas, and feelings to other health care team members.	
21. Promote the patients' rights to privacy.	
22. Contribute to an atmosphere of mutual trust, acceptance, and respect among other health team members.	
23. Delegate responsibility for care based on assessment of priorities of nursing care needs <u>and</u> the abilities and limitations of available health care personnel.	
24. Explain nursing procedures to a patient prior to performing them.	
25. Guide other health team members in planning for nursing care.	
26. Accept responsibility for the level of care under his/her direction.	
27. Perform appropriate measures in emergency situations.	
28. Promote the use of interdisciplinary resource persons.	
29. Use teaching aids and resource materials in teaching patients and their families.	

30. Perform nursing care required by critically ill patients.	
31. Encourage the family to participant in the care of the patient.	
32. Identify and use resources within the health care agency in developing a plan of care for a patient and his/her family.	
33. Use nursing procedures as opportunities for interaction with patients.	
34. Contribute to productive working relationships with other health team members.	
35. Help a patient meet his/her emotional needs.	
36. Contribute to the plan of nursing care for a patient.	
37. Recognize and meet the emotional needs of a dying patient.	
38. Communicate facts, ideas, and professional opinions in writing to patients and their families.	
39. Plan for the integration of patient needs with family needs.	
40. Function calmly and competently in emergency situations.	
41. Remain open to the suggestions of those under his/her direction and use them when appropriate.	
42. Use opportunities for patient teaching when they arise.	

Please feel free to add any additional comments about your experience in your current position as an oncology nurse and living experience in the Kingdom of Saudi Arabia?

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If there any ethical issues or situations that you have experienced while working as an oncology nurses in the Saudi cancer care setting that you would like to let us know about please feel free to write them here.

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If there any cultural issues or situations that you have experienced while working as an oncology nurses in the Saudi cancer care setting that you would like to let us know about please feel free to write them here.

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Thank you for taking the time to finish this survey.

Appendix F
Permission to Use Research Instruments

RE: Permission to Use the Job Content Questionnaire (JCQ)

Dear Dhuha,

Thank you for your forms. The Permission Contract must be SIGNED, however. Please sign and return to me by e-mail, scan or fax. As soon as I receive the Contract, I will mail out the JCQ.

Thank you,

Sandra Gibson
JCQ Center

From: Dhuha Wazqar
Sent: Tuesday, February 12, 2013 12:32 AM
To: jcqcenter
Subject: Permission To Use JCQ

Hi,

I am a Saudi PhD student at the School of Nursing, University of Western Ontario at London, Ontario, Canada. Currently, I am in the process of developing my PhD proposal. My area of interest is job strain among oncology nurses and my topic is "Job Strain, Stress Coping Strategies and Work Performance among Oncology Nurses Working in Saudi Cancer Care Settings". I have decided to use the JCQ (job demands and job control) as one of my tools for the study.

I am therefore writing to ask for permission to use your instrument for my study.

Thank you very much in advance.

Yours Sincerely,
Dhuha Wazqar
School of Nursing
The University of Western Ontario

Permission to Use the Revised Way of Coping Questionnaire (R-WCQ)

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO •
SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

Dear Colleague:

The Ways of Coping that was revised in 1985 is in the public domain and you do not need special permission to use it. In 1988 the Consulting Psychologists Press made minor modifications to a few items. Their version is copyrighted, and has since been purchased by Mind Garden. If you wish to use their version and/or their scoring service, you'll need permission from Mind Garden. You can reach them at <http://www.mindgarden.com/> or Mind Garden, Inc., 1690 Woodside Road, Suite 202, Redwood City, CA 94061, USA, (650-261-3500).

You might also want the manual for the Ways of Coping. It is available through the same publisher.

Sincerely,

RE: Permission to use the Six Dimension scale of Nursing Performance (6-DSNP)

I am pleased that you will be using the 6-D Scale in your doctoral dissertation. Many students and other nursing researchers have used it over the years. It seems to have served them well. You certainly have my permission to use the 6-D for your own work. In the event that you do not have them-- I have attached the Scale and the Nursing Research article in which it was originally described. You will need the article for scoring and analysis of your data.

My best wishes to you in this research project and in your future professional endeavors.

pms

-----Original Message-----

From: Dhuha Wazqar

Sent: Tuesday, February 05, 2013 12:27 AM

To: Schwirian, Patricia M. (Pat)

Subject: Permission to use the Six Dimension scale of Nursing Performance

Dear Prof Schwirian,

I am a Saudi PhD student at the School of Nursing, University of Western Ontario at London, Ontario, Canada. Currently, I am in the process of developing my PhD proposal. My area of interest is job strain among oncology nurses and my topic is "Job Strain, Stress Coping Strategies and Work Performance among Oncology Nurses Working in Saudi Cancer Care Settings". I have decided to use the Schwirian Six Dimension Scale of Nursing Performance (Schwirian, 1978) as one of my tools for the study.

I am therefore writing to ask for permission to use your instrument for my study.

Thank you very much in advance.

Yours Sincerely,

Dhuha Wazqar

School of Nursing

The University of Western Ontario

Appendix G:

Poster

The School of Graduate and Postdoctoral Studies

The University of Western Ontario

London, Ontario, Canada

JOB STRAIN, STRESS COPING STRATEGIES AND WORK PERFORMANCE AMONG ONCOLOGY NURSES WORKING IN SAUDI CANCER CARE SETTINGS

Are you an oncology nurse?

You may be eligible to participant in a study investigating the relationship between job strain, stress coping strategies and work performance if you are:

- A qualified or registered nurse
- A full-time employee of the hospital
- Working in any oncology unit or clinic (e.g. medical, surgical, pediatric, palliative, radiation, hematology, emergency oncology, and chemotherapy treatment area)
- Read, understand and Speak English fluently
- NOT management personnel

For more information and to participate in the study please join me in

Room _____ On _____ from
_____.

Dhuha Y. Wazqar, Co-investigator

E-Mail:

Cell Phone:

Appendix H: Study Instruments Scoring

The Job Content Questionnaire (JCQ):

14-item and has 2 sub-scales:

1= Psychological job Demands (Psy. D) (5-item): **Q 10, 11, 12, 13, 14**

2= Decision latitude (DL) (9-item):

a)- Skill Discretion (SD): **Q 1, 2, 3, 5, 7, 9**

b)- Decision Authority (DA): **Q 4, 6, 8**

REVERSE Q 2, 6, 12, 13, 14.

Formulas for JCQ Scale Scoring:

$$SD = [Q1 + Q2 + Q3 + Q5 + Q7 + Q9] * 2$$

$$DA = [Q4 + Q6 + Q8] * 4$$

$$DL = SD + DA$$

$$Psy.D = [(Q10 + Q11) * 3 + (Q12 + Q13 + Q14) * 2]$$

$$Job\ strain\ (JS) = Mean\ Psy.D - Mean\ DL$$

The Revised Ways of Coping Questionnaire (RWCQ)

50-item and has two sub-scales

1= Problem-Focused Coping Strategies (PFCSS) subscales (24-item):

Sum (**Q1, 5, 6, 10, 15, 18, 19, 20, 22, 23, 29, 27, 28, 30, 34, 39, 40, 42, 43, 44, 45, 48, 49, 50**)

a)- self-controlling (7-item): Sum (Q 6, 10, 27, 34, 44, 49, 50)

b)- accepting responsibility (4-item) : Sum (Q 5, 19, 22, 42)

c)- planful problem-solving (6-item) : Sum (Q 1, 20, 30, 39, 40, 43)

d)- positive reappraisal (7-item) : Sum (Q 15, 18, 23, 29, 28, 45, 48)

2= Emotion-focused coping strategies (EFCSS) sub-scales (26-item):

Sum (Q 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, 16, 17, 21, 24, 25, 26, 31, 32, 33, 35, 36, 37, 38, 41, 46, 47)

a)- confrontive coping (6-item): Sum (Q 2, 3, 13, 21, 26, 37)

b) – distancing (6-item): Sum (Q 8, 9, 11, 16, 32, 35)

c) - seeking social support (6-item): Sum (Q 4, 14, 17, 24, 33, 36)

d) - escape-avoidance (8-item): Sum (Q 7, 12, 25, 31, 38, 41, 46, 47)

The Six Dimension Scale of Nursing Performance (6-DSNP)

42-item and has 5 sub-scales

1= Interpersonal relations/Communication (IRR/C) (12-item): Q 8, 15, 16, 17, 20, 21, 22, 24, 33, 34, 35, 42

2= Leadership (5-item): Q 3, 23, 25, 26, 41

3= Critical care (CC) (7-item): Q 11, 18, 19, 27, 30, 37, 40

4= Teaching/Collaboration (T/C) (11-item): Q 1, 4, 5, 12, 14,, 28, 29, 31, 32, 38, 39

5= Planning/Evaluation (7-item): Q 2, 6, 7, 9, 10, 13, 36

Scores are calculated based on the average of ratings on behaviours/items per sub-scale. Higher scores are assumed to indicate better work performance.

Appendix I:
Critical Appraisal Checklists (Joanna Briggs Institute)

Appendix I.01

Qualitative Assessment and Review Instrument

Criteria	Yes	No	Unclear	Not Applicable	Comment
1) There is congruity between the stated philosophical perspective and the research methodology.					
2) There is congruity between the research methodology and the research question or objectives.					
3) There is congruity between the research methodology and the methods used to collect data.					
4) There is congruity between the research methodology and representation and data analysis.					
5) There is congruity between the research methodology and the interpretation of results.					
6) There is a statement locating the researcher culturally or theoretically.					
7) The influence of the researcher on the research, and vice versa, is addressed.					
8) Participants, and their voice, are adequately represented.					
9) The research is ethical according to the current criteria or there is evidence of ethical approval by an appropriate body.					
10) Conclusions drawn in the research report do appear to flow from the analysis, or interpretation, of the data.					

Total_____

Appendix I.02

Checklist for Assessing the Validity of Descriptive/Correlational/Case Series Studies

Criteria	Yes	No	Unclear	Not Applicable	Comment
1) Was study based on a random or convenience sample?					
2) Were the criteria for inclusion in the sample clearly defined?					
3) Were confounding factors identified and strategies to deal with them stated?					
4) Were outcomes assessed using objective criteria?					
5) If comparisons are being made, was there sufficient description of the groups?					
6) Was follow up carried out over a sufficient time period?					
7) Were the outcomes of people who withdrew described and included in the analysis?					
8) Were outcomes measured in a reliable way?					
9) Was appropriate statistical analysis used?					
10) Conclusions drawn in the research report do appear to flow from the analysis, or interpretation, of the data.					

Total_____

Curriculum Vitae

E-mail:

Phone:

Dhuha Y. Wazqar

Education	PhD – Nursing leadership in Health Services and Delivery	2015
	University of Western Ontario (UWO), London, ON, Canada	
	Diploma - Business with Honor Degree	2011
	London Language Institute (LLI), London, ON, Canada	
	MScN – Nursing Leadership in Healing and Health Promotion	2010
	University of Western Ontario (UWO), London, ON, Canada	
	Diploma - Oncology Nursing and Administration of Chemotherapy	2002
	King Faisal Specialist Hospital and Research Center, Saudi Arabia, Jeddah	
	BScN – Baccalaureate of Nursing	2001
	The School of Nursing at the Faculty of Medicine and Allied Sciences at King Abdul Aziz University (KAAU), Saudi Arabia, Jeddah	
Honours And Awards	Certificate of Distinction	2015
	Ministry of Education and Saudi Cultural Bureau, Ottawa, Canada	
	Rewards of excellence	2010-2012
	Saudi Cultural Bureau, Ottawa, Canada	
	PhD and Master Scholarships	2007
	School of Nursing, King Abdul Aziz University (KAAU), Saudi Arabia, Jeddah	
	Recognition of Excellence in Teaching	2004
	School of Nursing at the Faculty of Medicine and Allied Sciences at King Abdul Aziz University (KAAU), Saudi Arabia, Jeddah	
	Outstanding Achievement Certificate	2002
	King Faisal Specialist Hospital and Research Center, Saudi Arabia, Jeddah	
	Queen Al-Gohara Prize for Scientific Excellence	2001
	King Abdul Aziz University (KAAU), Saudi Arabia, Jeddah	
Professional Experience	Teacher Assistant	08-2014
	Arthur Labatt Family School of Nursing at University	

of Western Ontario (UWO), London, ON, Canada

Clinical Instructor and Lecturer

02-2006

School of Nursing, King Abdul Aziz University (KAAU),
Saudi Arabia, Jeddah

*Clinical teaching/training and supervision of nursing students in
medical and surgical departments

Publications

Peer-reviewed Papers:

- 1- **Wazqar, Y.D.**, & Evans, M. (2012). Socio-cultural aspects of self-management in gestational diabetes. *Journal of Diabetes Nursing*, 16(2), 62-67.
- 2- **Wazqar, Y.D.** (2011). Interdisciplinary research and nursing knowledge development. *Policy, Politics, and Nursing Practice*, 12(4), 197-198.

**Professional
Membership**

- 2001-Present Member, A nursing specialist in the Saudi Council for
Health Specialties
- 2010-Present Member, Sigma Theta Tau International, Iota
Omicron Chapter

**Conferences
and Workshops
Completed**

- The 28th Annual Research and Leadership Conference:
Building Leadership in Nurses Everywhere from the Bedside
to the Boardroom. Iota Omicron Chapter, London, Ontario
Canada, **2015**
- International Nurses Day: A Force for Change. Security
Forces Hospital, Makkah, Saudi Arabia, May 12, 2014,
as presenter
- 25th Annual Research Conference; Nursing Research:
The Path to Excellence. Arthur Labatt Family School of
Nursing, London, Ontario, Canada, May 2, 2012, **as
presenter**
- 24th Annual Research Conference, Nursing Research: The
Path to Excellence. Arthur Labatt Family School of
Nursing, London, Ontario, Canada , May 2011
- Research Ethics Workshop, University of Western
Ontario, London, Ontario, Canada, 2010
- APA Workshop, University of Western Ontario, London,
Ontario, Canada , 2009
- SPSS Workshop, University of Western Ontario, London,
Ontario, Canada , 2009
- Cancer Pain and Palliative Care Workshop, King Faisal
Specialist Hospital and Research Center, Jeddah, Saudi
Arabia, 2004

- Hematologic Cancer and Chemotherapy Workshop, King Abdul-Aziz Hospital and Oncology Center, Jeddah, Saudi Arabia 2002, **as presenter**
- The International Integrated Medicine Symposium, King Faisal Specialist Hospital and Research Center , Jeddah, Saudi Arabia, 2002
- Colo-Rectal Cancer Symposium, King Abdul Aziz Hospital and Oncology, Jeddah, Saudi Arabia, 2002
- Pan-Arab Cancer Conference, Doha, Qatar, 2002
- Wound Management Symposium, King Faisal Specialist Hospital and Research Center, Jeddah, Saudi Arabia, 2001
- AIDS International Day, King Fahd General Hospital, Jeddah, Saudi Arabia, 2000
- 3rd International Nursing Symposium (Nursing 2000), Saudi German Hospital Group, Jeddah, Saudi Arabia, 2000
- Rift Valley fever Symposium, King Abdul Aziz University Hospital, Jeddah, Saudi Arabia, 2002