Social science

THE RELATIONSHIP BETWEEN EXTENDED WORK HOURS AND STRESS AMONG NURSES IN SAUDI MILITARY HOSPITALS

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Abstract

Background: Nursing professionals generally experience high levels of stress due to the nature of roles and responsibilities, however, it is likely also due to extended work hours. While there is existing information on long work hours and stress among nurses working in general healthcare facilities, there is a severe lack of information on the subject matter regarding nurses working in Saudi Arabian military hospitals.

Purpose: The purpose of this quantitative study was to investigate the relationship between extended working hours and levels of stress among nurses working in Saudi Arabian military hospitals.

Theoretical Framework: Conservation of resources (COR) theory provided theoretical guidance for this study.

Methods: A correlational design was used to examine the relationship between extended working hours and levels of stress amongst nurses in Saudi Arabian military hospitals.

The participants completed a short demographic survey and ENSS questionnaire. Correlational followed by a regression analysis was used to establish what relationship exists between stress and experience.

Results: Statistical analysis showed that hypotheses one through three were not supported. Hypothesis one, a Pearson correlation analysis, discovered that there is no statistically significant relationship between stress levels and shift length (r = 0.015, p = 0.408). Hypothesis two, a Pearson correlation analysis, discovered that there is no statistically significant relationship between stress levels and years of work experience (r = -0.005, p = 0.47). Hypothesis three, a standard multiple regression analysis, revealed that neither of the two predictors—shift length or years of work experience—were

significant predictors of stress levels F (2,230) = 0.03, p = 0.97, with a multiple correlation coefficient R2 value of 0.

Conclusions: The results of this study contribute to an understanding of the relationship between extended work hours and stress among nurses in Saudi military hospitals. This area had not yet been addressed in previous studies. The main findings of this study highlighted that the positive social perspectives and strong work ethic of Filipino nurses can prevent these negative circumstances from occurring since these perspectives and ethics reduce the chances that nurses will experience higher levels of stress when working long/extended nursing shifts.

يعاني المتخصصون في التمريض عمومًا من مستويات عالية من التوتر بسبب طبيعة الأدوار والمسؤوليات، ومع ذلك، فمن المحتمل أيضًا أن يكون ذلك بسبب ساعات العمل الطويلة. وفي حين توجد معلومات موجودة عن ساعات العمل الطويلة والتوتر بين الممرضات العاملات في مرافق الرعاية الصحية العامة، إلا أن هناك نقصًا حادًا في المعلومات حول الموضوع المتعلق بالممرضات العاملات في المستشفيات العسكرية في المملكة العربية السعودية.

الغرض: كان الغرض من هذه الدراسة الكمية هو التحقيق في العلاقة بين ساعات العمل الطويلة ومستويات التوتر بين الممرضات العاملات في المستشفيات العسكرية في المملكة العربية السعودية.

إرشادات نظرية لهذه الدراسة (COR) الإطار النظري: قدمت نظرية الحفاظ على الموارد.

الطرق: تم استخدام تصميم ارتباطي لفحص العلاقة بين ساعات العمل الطويلة ومستويات التوتر بين الممرضات في المستشفيات العسكرية في المملكة العربية السعودية.

تم استخدام الارتباط متبوعًا بتحليل الانحدار لتحديد العلاقة الموجودة بين التوتر والخبرة. ENSS. أكمل المشاركون مسحًا ديموغرافيًا قصيرًا واستبيان

النتائج: أظهر التحليل الإحصائي أن الفرضيات من واحد إلى ثلاثة لم تكن مدعومة. الفرضية الأولى، تحليل ارتباط بيرسون، اكتشفت أنه لا توجد علاقة ذات دلالة الفرضية الثانية، تحليل ارتباط بيرسون، اكتشفت أنه لا توجد علاقة ذات دلالة إحصائية. (0.408 = p ،0.015 = r) إحصائية بين مستويات التوتر وطول النوبة r) بين مستويات التوتر وسنوات الخبرة في العمل

متنبئًا الفرضية الثالثة، تحليل الانحدار المتعدد القياسي، كشفت أن أيًا من المتنبئين - طول النوبة أو سنوات الخبرة في العمل - لم يكن. (0.47 = p ،0.005- = R2 0. ، مع قيمة معامل الارتباط المتعدد 0.97 = p ،0.03 = (2,230) F مهمًا لمستويات التوتر

الاستنتاجات: تساهم نتائج هذه الدراسة في فهم العلاقة بين ساعات العمل الممتدة والتوتر بين الممرضات في المستشفيات العسكرية السعودية. لم يتم تناول هذا المجال بعد في الدراسات السابقة. أبرزت النتائج الرئيسية لهذه الدراسة أن وجهات النظر الاجتماعية الإيجابية وأخلاقيات العمل القوية للممرضات الفلبينيات يمكن أن تمنع حدوث هذه الظروف السلبية لأن هذه وجهات النظر والأخلاقيات تقلل من فرص تعرض الممرضات لمستويات أعلى من التوتر عند العمل في نوبات تمريض طويلة / ممتدة.

Introduction

The goal of the Saudi Arabian Armed Forces Medical Services General Directorate (AFMSGD), through its military hospitals, is to provide high-quality healthcare to members of the military and their dependents effectively and efficiently. The Saudi Arabian Armed Forces Medical Services General Directorate (AFMSGD) controls 24 military hospitals operating throughout Saudi Arabia, comprising a bed count of 5,215, and these hospitals maintain state-of-the-art medical equipment as well as the ability to provide a variety of specialized services (Worldwide Military Medicine, 2019). Military hospitals in Saudi Arabia are classified in A, B, C, or D categories depending on the ability to provide specific needs and services to patients (Military-Medicine.com, 2019). The military hospitals also supervise numerous pharmacies and smaller healthcare facilities directly related to military bases in the country. Category ratings indicate the level of medical special services available, and the number of beds and medical services will transfer patients to other hospitals depending on need, such as critical cases (Worldwide Military Medicine, 2019). The primary "Ministry of Defense and Aviation (MoDA) facility is the Prince Sultan Military Medical City, which is locatedin Riyadh" (ASH International, 2019, para. 2). Worldwide Military Medicine (2019) reported that the AFMSGD is continually seeking to fill its hospitals with the most highly qualified staff and encourages medical education and training for individuals seeking such careers. The Saudi Commission of Health Specialists (SCFHS) is responsible for the training and education of nurses through its nursing board and the initial establishment of criteria for nurse registration and accreditation was introduced in 2003, according to Al-Dossary and colleagues (2021). The nursing profession in Saudi Arabia is not as developed as in many other nations, but the government and other agencies desire to improve the training and promotion of nurses (Al-Dossary et al., 2012). Continuing education programs were introduced to provide those interested in a nursing career with a stronger foundation. Nonetheless, much work remains to bring nurses in Saudi Arabia up to similar standards as nurses in Western countries (Al-Dossary et al., 2012). Although the Saudi government initiated efforts to fill more jobs within the country with Saudi citizens, a majority of nurses working at hospitals in the country are migrants, with less than one-third of nurses being Saudi citizens (Al-Dossary et al., 2012). The SCFHS requires all nurses working in hospitals in Saudi Arabia to speak English and register with the agency prior to employment. At the same time, there is no requirement to speak Arabic, although it is the primary language of most patients. Due to the nature of the nursing workforce, a wide variety of cultural, ethnic, and professional experiences are commonplace (Al-Dossary et al., 2012).

Research Problem

Nursing staff working in a variety of settings should expect to practice in a care delivery environment that promotes safety, is stress free, and enables them to provide quality care to patients. Long work shifts and extended hours are a consequence of nurse shortages, which continues to be a primary nursing and broader healthcare issue (Halcomb et al., 2018). According to Khamisa et al. (2015) and Hayes et al. (2015), such shortages in the nursing workforce oblige existing nurse professionals to assume extra roles and responsibilities, which often leads to increased burnout and attrition rates. This is specifically a prominent issue in Saudi Arabia's military hospitals. Furthermore, a lack of research exists examining the relationship between long shift hours and stress among nurses in Saudi military hospitals.

Research Importance

The purpose of this quantitative study was to investigate the relationship between extended working hours and levels of stress among nurses in Saudi Arabian military hospitals.

Research Questions

- Is there a statistically significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals?
- Is there a statistically significant relationship between years of work experience as a nurse in Saudi military hospitals and stress?
- Does extended working hours and years of work experience predict stress among nurses in Saudi

military hospitals?

Research Objectives

- To assess the relationship between extended working hours and stress levels among nurses in Saudi military hospitals.
- To assess the relationship between years of work experience as a nurse in Saudi military hospitals and stress?
- To evaluate the effect of working hours and years of work experience predict stress among nurses in Saudi military hospitals.

Research Hypothesis

- There is no statistically significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals.
- There is a statistically significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals
- There is no statistically significant relationship between years of work experience as a nurse in Saudi military hospitals and stress.
- There is a statistically significant relationship between years of work experience as a nurse in Saudi military hospitals and stress.
- Extended working hours and years of work experience will not predict stress among nurses in Saudi military hospital.
- Extended working hours and years of work experience will predict stress among nurses in Saudi military hospital.

Scientific Contribution

The significance of the study is both practical and academic in nature. The practical significance of the study lies in the ability of the findings to inform Saudi military hospitals about the relationship between stress and working hours among their nursing staff. As a result of the documented links between long working hours, stress, burnout, and job abandonment (Adriaenssens et al., 2015; Boamah et al., 2017; Canadas- De la Fuente et al., 2015; Cao et al., 2016; Chin et al., 2015), decision-makers in Saudi military hospitals are likely to be intrinsically interested in whether—and to what extent—long hours are associated with nursing stress.

Research Limitations

- This study had several limitations that may affect the generalizability of its key findings:
- The convenience sampling method was used.
- The study relied on self-reporting. Participants' answers may have been influenced by recent positive or negative life events.
- The majority of the study's sample consisted of participants that were originally from the Philippines; therefore, with the Philippines being their native country, the ethnic backgrounds, and social perspectives specific to Filipino nurses influenced the findings.
- The generalizability of the findings was affected by the limited inclusion of Saudi Arabia military hospital facilities

The study definition

Extended Working Hours
Theoretical Definition
Extended working hours are defined as the number of 12-hour shifts worked by the nurses (Stimpfel et al., 2012).
Operational Definition
The operational definition for extended working hours were responses to the question "How many hours do you work on your shift?" on the demographic questionnaire.
Stress
Theoretical Definition
Stress is defined conceptually as a state in which the sum of the emotional, physical, cognitive, behavioral, and spiritual coping resources of the nurse is below the various adaptive demands imposed by the job of nursing, including demands related to stamina, decision-making, toleration of a difficult work environment, and any other factors that call upon coping resources (Najimi et al., 2012).

Operational Definition
Stress is defined operationally as a score on the Expanded Nursing Stress Scale (ENSS) (French et al., 2000).
Saudi Military Hospitals
Theoretical Definition
Saudi military hospitals provide health services to members of the military, members of the military personnel's family, and some civilians considered eligible for services. These hospitals are conveniently located across Saudi Arabia. Military hospitals provide a minimum of 200 beds at the smallest facilities, with other hospitals able to care for many more patients.
Operational Definition
This term cannot be operationally defined.

Previous studies

This section consists of literature that addresses both long work hours and stress. It is assumed that long work hours increase levels of stress, which in turn facilitate poor outcomes; these outcomes pertain to health, work performance and achievement, and valuable resources.
The key purpose of the Hsu et al. (2019) study was to examine the relationships between work hours, levels of job satisfaction, and employee work-life balance and to note if these factors are influenced by occupational stress. Three hundred and sixty-nine employees associated with the high-tech and banking industries made up the sample of this study, which used the cross-sectional design. The data were collected through the use of four separate questionnaires that addressed demographic factors, job satisfaction, work-life balance, perceived control over work hours, and levels of occupational stress (Hsu et al., 2019). Descriptive analysis was utilized; bivariate Pearson's correlations were used to specifically note the correlations between the scales, and path analyses were used to specifically note cause-and-effect correlations (Hsu et al., 2019). This study's findings showed four significant correlations: (a) a link between long work hours and occupational stress, (b) a link between long work hours and work-life balance, (c) a link between occupational stress and work-life balance, and (d) a link between occupational stress and job satisfaction. It was recommended that workers be given the opportunity to have more control over their work hours to facilitate higher levels of job satisfaction and prevent stress that occurs from long work hours. Bhui et al. (2016) identified the causes of occupational stress and aimed to identify some personal, individual, and organizational interventions that are commonly utilized for stress management. Fifty-one participants (employees who worked at various types of public and private organizations) made up the sample for this study. Designed as a qualitative study, Bhui et al. (2016) incorporated the phenomenological method and conducted individual face-to-face, semi-structured interviews that lasted about 45 minutes; factors related to stress, personal experiences related to stressful situations, personal experiences related to individual and organizational stress management interventions, and recommendations on stress management interventions were the topics of discussion. Verbatim transcription was used to analyze collected data and identify themes (Bhui et al., 2016).
Findings showed that unfavorable working conditions were primarily associated with occupational stress, which in turn leads to a reduction in physical, mental, and emotional well-being; long working hours in addition to heavy workloads, under-staffing, and features of the physical environment (loud noises, small rooms, etc.) were found to be the main contributors of stress (Bhui et al., 2016). Cognitive interventions, social support, structure and organization, stress management training, health promotion activities, and job/career development opportunities were reported to be the most effective interventions for managing occupational stress (Bhui et al., 2016). Bhui et al. (2016) recommended encouraging workers to engage in personal interventions outside of the work environment; personal interventions utilized as primary interventions have the means to be more effective in managing occupational stress than individual or organizational interventions.
Comparing two groups of hospital nurses, Rajan (2017) aimed to examine the negative effects that long work hours have on nurses and how stress related to long work hours poorly affects physical and mental health in addition to family and social relations. The sample included a total of 120 nurses (60 single specialty hospital nurses and 60 multi-specialtyhospital nurses), and data collected from these participants served as primary data for this comparative study. Secondary data was collected via journal articles, books, and online sources. To interpret the quantitative data collected from the questionnaire that addressed demographic factors, work hours, and stress-related factors as well as the data from secondary sources,

descriptive analysis was used. Findings reflected that there were no differences between the two nurse groups and, thus, implied that both groups experienced negative effects such as stress from working long hours. It was also found that stress can lead to low energy, fatigue, and dissatisfaction, which in turn can lead to more stress, accidents, a lack of commitment, and low job performance.

The purpose of the Ogawa et al. (2018) study was to examine the correlation between long work hours and depression. Twelve hundred and forty-one first-year residents from 250 different training hospitals in Japan made up the sample; data was retrieved in 2011 via questionnaire. As a cross-sectional study, multivariate logistic regression analysis was used to show the relationship between working weeks and depression. Findings suggested that there is a significant link between long work hours and depression due to excessive levels of stress, which worsen when workloads are high (Ogawa et al., 2018). It was also observed that the first 1 to 3 months of residency are the most stressful since residents are in the midst of transitioning, attempting to meet high demands while lacking experience and certain skills (Ogawa et al., 2018). As it specifically pertains to managers and other administrative personnel, it was recommended that high levels of social support are provided to residents to weaken acute reactions that are related to job stress (Ogawa et al., 2018).

Literature Review

The purpose of this quantitative, correlational, study was to determine the relationship between stress and extended work hours amongst nurses in Saudi Arabian military hospitals. The research question for hypothesis one focused on the relationship between extended working hours and stress levels among nurses in Saudi military hospitals. This hypothesis posited that there is statistically significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals. To test hypothesis one, a Pearson's correlation analysis was conducted to evaluate the relationship between extended working hours (independent variable) and stress levels (dependent variable). A one-tailed test showed a negligible Pearson correlation between ENSS score and shift length ($r = 0.015$, $p = 0.408$). The correlation between these two variables is not statistically significant.

Stress

Stress, whether work-related or in general, is understood as feeling of being overwhelmed and/or unable to cope with the mental/emotional pressures of everyday living that impact how a person copes with daily living including work (Wong et al., 2019). Najimi et al. (2012) defined stress as a negative state of mind that can poorly affect a nursing professional's stamina and performance, ability to problem solve, make important decisions, tolerate challenging work environments, etc., and other job factors that are significantly associated with coping resources on a physical, cognitive, emotional, behavioral, and/or spiritual level. Some nurses may not experience stress, but research has shown that the majority of nurses do experience job stress; such stress is experienced on a normal, medium, or intense level, with most nurses experiencing stress on a medium level (Najimi et al., 2012).

For the purpose of this study, the relationship between extended working hours and levels of stress among nurses in Saudi Arabian military hospitals was investigated.

The Extended Nursing Stress Scale (ENSS) was used to measure stress levels among nurses in Saudi military hospitals. The sum of the scores of the responses to the 57 items determined the overall ENSS score. Lower ENSS scores denoted lower stress levels while higher scores denoted higher stress levels. Scores ranged from 1.00 to 3.91. The overall mean of the ENSS for nurses in this study was $M = 2.3$ ($SD = 0.6$). The hypothesis states that there is significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals.

The World Health Organization (WHO) and the International Labour Organization (ILO) scrutinized the impact of long working hours, work-related stress, and stress- related deaths across the globe. These international organizations found that workers died to the extent of 745,000 individuals between 2000-2016 due to long working hours and stress-related ischemic heart disease (Kelly, 2021; Pega et al., 2021). Studies included workers from virtually every sector, healthcare workers (nurses) professionals, laborers, business people, educators, and others whose mental health was negatively impacted by long-working hours, the desire to achieve professional status, or earn sufficient living wages (Baye et al., 2020; Keydaleh, et al., 2018; Persaud & Williams, 2017). In healthcare, evidence indicates that patient well-being, as well as nurses' mental health, suffered due to working extended shifts (Baye et al., 2020; Wong et al., 2019). Similar results from professionals other than nurses showed high levels of stress impacting mental, physical, and emotional

health leading to severe illness and even death (Pega et al., 2021).

Based on a search of literature regarding work-related stress illness, injury, or death, no study was found that supports the hypothesis that there is no statistical relationship between long working hours and stress. According to the WHO and the ILO longitudinal study, it is apparent that serious heart diseases and death result from exposure to stress-related long working hours. Only one quantitative, cross-sectional study indicated nurses' stress levels impacted patient safety moderately (Keykaleh et al., 2018). However, these researchers recommended that further studies are necessary since minimal levels of patient safety are unacceptable due to stress-related nurse workloads. Researchers suggested providing optimal levels of patient safety is only obtained through reducing nurse working hours to lower stress of nurses to minimal levels (Keykaleh et al., 2018).

Extended Work Hours

Long working hours in any industry include working more than the prescribed 40- hour work week and more than 8 hours per day. In any profession, this is almost a requisite for advancement regardless of the personal health hazards and potentially higher levels of stress associated with exceeding the standardized work hours (Persaud & Williams, 2017). Recent studies have shown that working long hours is related to various types of adverse health conditions, such as hypertension, diabetes, cardiovascular diseases, musculoskeletal disorders, fatigue, and substance abuse (Pega et al., 2021; Persaud & Williams, 2017).

Stimpfel et al. (2012) conducted a comparative study in which they defined long work hours as nursing shifts that are at least 12 hours. In nursing practice, Stimpfel et al. (2012) pointed out how it is quite common for nurses to work shifts that are twelve hours (or even longer). Furthermore, in examining hospital characteristics, these researchers found that nurses working in teaching and high-technology hospital facilities are much more likely to work shifts that are 12 hours or longer (Stimpfel et al., 2012). Research findings also showed nurses working in intensive care units are more likely to work shifts that are 12 hours or longer than nurses in medical or surgical units (Stimpfel et al., 2012). Keykaleh et al. (2018) conducted a quantitative, correlational study investigating the relationship between long working hours of nurses and job-related stress. These authors established that long working hours and job-related stress were significantly associated with lower patient safety and well-being. These researchers discovered that while hospitals continue to allocate long rotational hours for nurses, the level of patient care falls to less than moderate success (Keykaleh et al., 2018).

These findings support results of other researchers, who have found that nurses who work overly long hours experience impaired nursing capabilities and negative outcomes outside of work (Baye et al., 2020). Areas that are impacted outside of work include how they care for their children, marital relationships, and medical illnesses (Baye et al., 2020). The World Health Organization (WHO) in juxtaposition with the International Labor Organization (ILO) conducted a longitudinal study supporting the findings of Kelly (2021) and Pega et al. (2021). Kelly (2021) and Pega et al. (2021) calculated population-attributable fractions associated with long work hours and disease exposure. Based on a sample of 488 million cases from 2016, the authors found that approximately 9% were exposed to long working hours. Among these, 745,194 died during this time, and there was 23.3 million disability-adjusted life years associated with heart disease and stroke. The authors concluded that working long hours (i.e., 55 hours or more per week) is a risk factor for disease and death.

Attempts to justify that longer working hours do not lead to increases in mental, physical, and emotional problems are not supported by the literature or any evidence- based studies. While some survey respondents may believe that that excessive work does not impact performance, studies illustrate evidence to the contrary. For instance, excessive work hours have been significantly associated with increases in hospital errors, extended inpatient stays, and even death to patients (Bernstrom et al., 2019; Persaud & Williams, 2017). In a systematic review of over 6,000 scholarly papers, Bernstrom et al. (2019) found no data to support the idea that long working hours do not negatively impact both patient health and well-being as well as the health of medical workers.

The relationship between stress and number of hours worked has been well- established. Working more hours tends to increase stress and burnout (Oh et al., 2017). However, this present study hypothesized that there would be no statistically significant relationship between stress and extended work hours. The findings of this study refute previous literature showing that stress and work hours are correlated.

Research Question 2, Hypothesis 2

This research question focused on the relationship between years of work experience and stress among nurses in Saudi military hospitals. Hypothesis two posited that there is a statistically significant relationship between years of work experience as a nurse in Saudi military hospitals and stress. To test hypothesis two, a Pearson correlation analysis was conducted to evaluate the relationship between years of work experience and ENSS score. A one-tailed test showed a negligible Pearson correlation between ENSS score and years of work experience ($r = -0.005$, $p = 0.47$). The correlation between these two variables is not statistically significant. Thus, hypothesis two was not statistically supported and the null hypothesis was retained.

Years of work experience in scholarly research equates to the number of years working in a profession to feelings of emotional exhaustion, depersonalization, leading to a buildup of negative emotions and a lack of mechanisms for coping with stress (Duli, 2019, sec 4, para 2; Salvagioni et al., 2017). Regardless of a professional career trajectory, years of work experience means the length of time an individual spends in a specific career path. Duli (2019) conducted a quantitative, predictive study exploring work experience and stress relationships in education, while Ezenwaji et al. (2019) examined a similar phenomenon among nurses through a conceptual and narrative review. Duli (2019) established that there was a significant correlation between work experience, burnout, and exhaustion. Ezenwai et al. (2019) offered policy implications based on the mounting evidence showing the significant relationship between these variables, such as reducing work hours amongst nurses and increasing flexibility regarding scheduling. The combination of these findings suggests that more needs to be done to protect the mental and physical health of nurses, and particularly those with more experienced in the field.

Other studies indicated that work-related stress has detrimental effects on workers at various types of employment (Ornek & Esin, 2020). Defining years of work experience in relation to stress refers specifically to working in one field of employment, not always but generally working for the same institution (Bhui et al., 2016). Regardless of the institution, various situations arise to create stress among workers. These include but are not limited to working conditions, management practices, policy changes, salary, lack of appreciation for one's efforts, and lack of communication (Bhui et al., 2016; Fortes et al., 2020; Salvagioni et al., 2017).

Regardless of any efforts to displace the idea that years of work experience and stress are not juxtaposed is not supported by evidence-based research. According to Salvagioni et al. (2017) in a systematic review, burnout evaluates the evidence correlating physical, psychological, and occupational stressors to years of work experience. Their study illustrated that through longitudinal evidence, coronary diseases, diabetes, headaches, fatigue, and gastrointestinal issues are related to years of work experience stress. Other side effects include absenteeism, job dissatisfaction, emotional and physical exhaustion, and feelings of depersonalization within the job sector (Duli, 2019; Ezenwaji et al., 2019; Moreno Fortes et al., 2020; Salvagioni et al., 2017). Moreno Fortes et al. (2020) conducted a quantitative cross-sectional study based on employees in Cabo Verde and China, showing that job burnout was significantly associated with psychopathology.

Working conditions and management combined create stressful working conditions (Bhui et al., 2016). According to Bhui et al. (2016), no matter how long an employee works in a profession, whether it is nursing or other professions such as management, a lack of communication, the inability to take breaks, and the lack of inclusion in policy-related decisions each combine to create work-related stress. In a quantitative, randomized control group study by Ornek and Esin (2020), data showed that there are interventions that can help change or alleviate some stressors among employees. Work-ProMentH is an innovative tool to help reduce job stress, regardless of the years of work experience by employees. Using this tool, a 3-month intervention showed a slight decrease in job-related stress with a very minimal increase in job performance (Ornek & Esin, 2020). However, the effectiveness of this tool requires the interest and effort of management to help employees cope with stress. Despite best efforts to determine whether years of work experience are not related to job dissatisfaction and emotional exhaustion, analysis of research indicated the contrary (Duli, 2019). Years of work experience is an important signifier determining the level of stress and emotional exhaustion and depersonalization felt by employees (Moreno Fortes et al., 2020).

The hypothesis in this study posited that there is a statistically significant relationship between extended working hours and stress levels of nurses working in Saudi military hospitals. The question is why these nurses who made up this study sample, mostly Filipino, rejected the idea in their surveys that their years of work experience and stress/burnout/emotional exhaustion were insignificant. The majority of the study's sample consisted of participants that were originally from the Philippines; therefore, with the Philippines being their native country, the ethnic backgrounds and social perspectives specific to Filipino nurses

influenced the findings (Nazareno et al., 2021). Even though stress may impact their everyday lives and work environment, they diligently apply their skills to retain their positions rather than admit exhaustion and/or stress (Nazareno et al., 2021).

Research Question 3 Hypothesis 3

The research question for this hypothesis aimed to measure if extended working hours and years of work experience predict stress among nurses in Saudi military hospitals. This hypothesis confirmed that extended working hours and years of work experience does not predict stress among nurses in Saudi military hospitals. A multiple linear regression analysis was conducted to evaluate the relationship between ENSS score and two independent variables, extended working hours and years of work experience.

Hypothesis three was not supported since the linear combination of independent variables was not significantly related to the ENSS score, $F_{(2,230)} = 0.03$, $p = 0.97$. The value of the multiple correlation coefficient R^2 for the sample was 0, indicating that approximately 0% of the variance of ENSS score in the sample can be accounted for by the linear combination of independent variables. This finding failed to support previous literature that showed that extended work hours and years of work experience are related to stress in nurses. In a quantitative descriptive study involving 183 nurses based in Nigeria, Faremi et al. (2019) found that years of work experience were significantly correlated with stress and burnout. Faremi et al. (2019) assessed stress longitudinally, while the current study did not.

Methodology

The purpose of this quantitative study was to investigate the relationship between extended working hours and levels of stress amongst nurses in Saudi Arabian military hospitals. It is hoped that the findings may inform hospital decision-makers in the domain of nurse scheduling as to whether they should explore ways of reducing nurses' total hours worked or shift lengths in order to avoid the adverse outcomes of high stress among nurses. This chapter presented the following areas: overview of the design, setting and sample, inclusion and exclusion criteria, ethical considerations, recruitment and data collection procedures, instruments, and data analysis plan.

Overview of the Design

Quantitative research approach employs the utilization of statistical data and information (Apuke, 2017; Boeren, 2017). Daniel (2016) stated that quantitative research "places emphasis on numbers and figures in the collection and analysis of data" (p. 94). Such data includes measurable figures inclusive of numbers and percentages that calculated and analyzed using a statistical package for social science (Apuke, 2017; Boeren, 2017; Daniel, 2016). In quantitative research, data may be collected from structured instruments and tools such as questionnaires (Apuke, 2017; Boeren, 2017).

Quantitative design allowed this study to measure the inherent relationship between extended work hours and stress among nurses in Saudi Arabian military hospitals. Numeric data were collected and measured to reveal the number of hours nurses work during a shift and the level of work-related stress that were gathered from questionnaires. These findings used to determine the relationship between number of hours worked and levels of stress in nurses.

The positivist paradigm focuses on observations of empirical events, which can be confirmed and used to generate knowledge (Corry et al., 2018). According to Aliyu et al. (2014), a positivist investigator is characterized as: an idea or notion that the universe or world conforms to permanent and unchanging laws and rules of causation and happenings; that there exist an intricacy and complexity that could be overcome by reductionism, and with the intention of asserting an importance and emphasis on impartiality, measurement, objectivity, and repeatability (p. 81-82) Positivist researchers and investigators frequently utilize methodologies such as confirmatory analysis, deduction, laboratory experiments, quantitative analysis, and nomothetic experiments (Aliyu et al., 2014). Since all quantitative research is rooted in positivism, the positivist paradigm is applicable to this quantitative research study (Corry et al., 2018).

Correlational Design

This quantitative study was based on a correlational design. Correlational research serves as a form of nonexperimental research design that measures two variables while assessing the correlation or statistical relationship between the two given variables (Curtis et al., 2016). The correlation coefficient aims to

measure the strength of the relationship or correlation between the two variables. If the correlation coefficient is closer to +1, then there exists a positive relationship between the given variables (Curtis et al., 2016). However, when the correlation coefficient is closer to -1, there is a negative correlation between the study variables (Curtis et al., 2016). Curtis et al. (2016) further posited that there is no correlation between variables when the correlation coefficient is close to zero. Since the purpose of this study was to examine and assess the relationship that exists between extended working hours and levels of stress among nurses in Saudi Arabian military hospitals, a correlational research design was most suitable. A correlational design was key to determining what relationship exists between stress and work experience among nurses in Saudi Arabian military hospitals.

Sample and Setting

A sample is defined as the pool of respondents, cases, or data points to which the research has access (Creswell, 2015). Samples are taken from populations, which represent all of the respondents, cases, or data points of interest in a research context (McBurney & White, 2017). Samples are drawn because of the inconvenience or impossibility of accessing an entire population for purposes of data collection and analysis (Creswell, 2015; McBurney & White, 2017).

Projected Sample Size

The a priori sample size for this study was calculated as being 158 individuals.
This sample size was calculated in G*Power software (Faul et al., 2009) based following inputs as recommended by Cohen (2016): (a) statistical significance: .05; (b) statistical power: .80; and (c) effect size: .25. Once a sample is collected, the possibility of attrition—that was, dropping out from a study—exists. A buffer of 10% was often applied to protect against attrition. Therefore, the total sample sought for this study is (158) (0.10) + 158, or rounding up, 174 individuals. Drawing a sample of 174 nurses from Saudi Arabian military hospitals means that if even 10% of the sampled nurses left the study, the remaining sample achieved the desired alpha, effect size detectability, and statistical power.

Inclusion Criteria

The inclusion criteria for the study were as follows: (a) registered nurse working in a Saudi military hospital who had worked at least 6 months, (b) aged 18 years or older,
(c) ability to read and understand English, and (d) access to the Internet and computer.

Exclusion Criteria

Exclusion criteria of this study eliminated the nurses who were not working in a Saudi military hospital and those under 18 years old. The study also excluded the participants who could not read and understand English and did not have access to the internet and computer.

Ethical Considerations

To obtain and create undisputable scientific facts and findings, the researcher must follow the strict ethical codes associated with studying humans. Protecting the rights of those involved in this research is pivotal and priority. The study participants had rights to anonymity, autonomy, beneficence, non-maleficence, veracity, and justice. The only way to ensure necessary peace of mind and be adequately prepared for such an undertaking was for the researcher to fully complete the Research Ethics and Compliance Training (CITI) (see Appendix G) prior to beginning the study. Furthermore, the researcher sought approval and consent from Institutional Review Board (IRB) of Barry University and from The Saudi Arabian Armed Forces Medical Services General Directorate (AFMSGD) (see Appendix A). The researcher ensured that every participant was given clear explanation of the study and informed of their right to withdraw without penalty at any time.

The cover letter (see Appendix B) listed all the details of the study, including the purpose, possible risks, and benefits, and emphasized that this study was voluntary and stated its inclusion criteria. The cover letter was phrased in a way that was easy for respondents to understand and know what they signed. Names were not provided to ensure absolute anonymity and IP addresses also were hidden and unobtainable by SurveyMonkey™. The Institutional Review Board (IRB) provides students and research professionals with the opportunity to utilize SurveyMonkey (a survey platform) to administer surveys and collect data that is valuable to their research studies. So long as users abide by the IRB's Terms of Use, Survey Monkey is a highly credible survey platform that offers great benefits, such as secure transmission that disables IP address tracking to ensure that survey takers remain anonymous, informed consent forms, respondent time stamps, database and server security, and compliance with the Health Insurance Portability andAccountability Act (HIPAA) as of means of protecting health

Data Collection Procedures

Data collection commenced upon approval from Barry University's Institutional Review Board and from Saudi Armed Forces Medical Services General Directorate (AFMSGD) Institutional Review Board (see Appendix A). Actual data collection started once participants opened the online surveys. When participants clicked on the direct link provided in the flyer, a cover letter displayed. The cover letter included all the details of the study, including the purpose, possible risks and benefits, and emphasized that this study was voluntary and provided the inclusion criteria. The cover letter was phrased in a way that was easy for respondents to understand what they were signing. Names were not provided to ensure anonymity, and IP addresses also were hidden and unobtainable by SurveyMonkey™. By reading the cover letter before proceeding the survey, the participants were acknowledging the following: that they were registered nurses working in Saudi military hospitals for at least 6 months, they were 18 years or older, and they could read and understand English. This also certified that they consented knowingly, willingly, and voluntarily to participating in this survey. Participants that willingly agree were instructed to press the "next" option at the bottom of the cover letter and proceed to follow the instructions on subsequent pages. Participants were asked to complete a 10- item, researcher-developed demographic questionnaires as well as an electronic survey the Expanded Nursing Stress Scale (ENSS) that had 57 items. The two surveys took a maximum of 15 minutes to complete.

Data Management and Cleansing

Data cleansing is critical because it guarantees precise data. According to Kim and Mallory (2014) and Polit (2010), data cleansing ensures that the study findings are able to be applied to a wider range of applications, a concept known as generalizability. The researcher identified any data that was missing orunacceptable by examining distributions on each variable. According to Stavseth et al. (2019), using surveys with missing data generally has a significantimpact on clinical interpretations. While imputation methods can be used to deal with missing data, these methods are only effective when sample sizes are large (1,000, for example) (Stavseth et al., 2019). When sample sizes are smaller (200, for example), regression estimates are highly dependent on the level of missing data, and when the percentage of missing data is less than or equal to 20%, there is a very high chance of generating biased estimates (Stavseth et al., 2019).

Validity

The ENSS consists of nine subscales; in addition to the seven subscales associated
 with the NSS, discrimination and interactions with patients and families are the two extra subscales of the ENSS (French et al., 2000). In examining the psychometricproperties of the ENSS, Alkrisat and Alatrash (2017) administered the tool to 199 licensed nurses working in acute care settings and found that occupational stress had factorial structures that were quite similar to the factorial structures found in previous studies that utilized the ENSS on different nurse population samples. Showing "a stable structure with reasonable internal consistency and construct validity," the reliability of the ENSS ranged anywhere from .64 to .95 and the indices of goodness of fit were able to meet the usual criteria, with satisfactory α coefficients ranging anywhere from .58 to .89 for the ENSS subscales (Alkrisat & Alatrash, 2017, p. 31).

Riklikienė et al. (2015) and French et al. (2000) also claimed their studies confirm that the ENSS is highly reliable and that validity assessments provide strong support for the ENSS; Riklikienė et al. (2015) claimed α coefficients for the nine subscales of the ENSS were .90 or higher, and French et al. (2000) declared α coefficientsfor eight of the nine ENSS subscales were .70 or higher.

Data Analysis Plan

In this quantitative study, the data analysis involved statistical evaluation.

Descriptive statistics obtained from both the demographic questionnaire and the survey questionnaire provided information useful to support the assumptions of the inferential statistics that followed. Inferential statistics were used to predict and make inferences based on the data collected from the research participants and to make generalizations regarding the population (Guetterman, 2019). In this study, two forms of inferential statistic measures were used: Pearson's Product Moment Correlation, and regression analysis.

Findings of the Study

The purpose of this quantitative study was to investigate the relationship between extended working hours and levels of stress amongst nurses in Saudi Arabian military hospitals. Furthermore, the study explored the relationships between work experience and levels of stress among nurses in Saudi military hospitals. This chapter provides demographic characteristics of the research sample, psychometric characteristics of the instruments applied, exploratory data analysis for measurements, and the descriptive and inferential statistics used to analyze the data with comprehensive hypotheses testing explanation.

Data were collected from a convenience sample of nurses working in Saudi military hospitals. The nonprobability convenience sampling method enabled this researcher to collect sufficient data for this study. Recruitment took place by using an access letter sent via emails containing a flyer inviting nurses in Saudi military hospitals to voluntary complete a questionnaire on Survey Monkey™ and a total of 301 survey responses were collected. Data were collected during a period of 20 days via Survey Monkey™ using a 67-item questionnaire. This questionnaire used the standardized measure of stress level called Expanded Nurses Stress Scale (ENSS) and a demographic questionnaire developed by the researcher. A total of 301 surveys were collected, only 233 or 77% met the criteria for usability for hypothesis testing. The participation rate of completed surveys was 77%. Data from the completed surveys were analyzed using the Statistical Program for the Social Sciences (SPSS) version 25.0 software. Descriptive and correlational statistics were computed. Correlational analysis and multiple regression analysis were proposed as the statistical analytic approaches to test the hypotheses.

Description of the Sample

Upon approval from Barry University's Institutional Review Board and from Saudi Armed Forces Medical Services General Directorate (AFMSGD) Institutional Review Board (see Appendix A), a convenient sample of 301 nurses working in Saudi military hospitals were recruited. The participants were 18 years of age or older, worked at least 6 months in Saudi military hospitals, read and understood English, and had accessto internet and computer. As reported in Table 1, participants' ages ranged from 23 to 53 years ($M = 35.1$, $SD = 5.7$). Females ($n = 206$, 88.4%) were more represented than males ($n = 27$, 11.6%). Most of the sample consisted of participants who have a bachelor's degree ($n = 214$, 91.8%). Approximately half ($n = 118$, 50.6%) of the participants workedin the inpatient department. Another quarter ($n = 62$, 26.6%) of the participants worked inthe outpatient department and the last quarter ($n = 53$, 22.7%) worked in the critical care units. Tenure for the nurses in this sample ranged from 0.75 to 15 years ($M = 6.1$, $SD = 4.5$). Number of working days per week ranged from 4 to 5 ($M = 4.1$, $SD = 0.35$). Shift length ranged from 9 to 12 hours ($M = 11.6$, $SD = 1.0$). Approximately 53.2% ($n = 124$) of the participants were married, 45.5% ($n = 106$) were single, and 0.9% ($n = 2$) were widowed. The remaining 0.4% ($n = 1$) were divorced. Number of children ranged from 0 to 6 ($M = 0.81$, $SD = 0.97$). The majority of the sample consisted of participants whose native country was the Philippines ($n = 208$, 89.3%).

Table 1

Demographic Characteristics of Sample (N = 233)

Characteristic	M	SD	Range
Age in Years	35.08	5.72	23 - 53
		n	*%*
Gender			
Female		206	88.4
Male		27	11.6
Education			
Associate Degree		6	2.6
Bachelor's Degree		214	91.8
Master's Degree		1	0.4
Other		12	5.2
Nursing Department			
Inpatient		118	50.6
Outpatient		62	26.6
Critical Care Units		53	22.7
Work Experience			
Between 6 months and 1 year		26	11.2
More than 1 year but less than 2 years		13	5.6
Between 2 and 3 years		38	16.3
More than 3 years but less than 5 years		40	17.2
Between 5 and 10 years		81	34.8
More than 10 years		35	15.0

(Table 1 continues)

(Table 1 continued)

	M	SD	Range
Number of Working days/ week	4.14	.345	4 - 5
Shift Length	11.59	1.04	9 - 12
	n	%
Marital Status		
Married	124	53.2
Single	106	45.5
Widowed	2	0.9
Divorced	1	0.4

	M	SD	Range
Number of Children	.81	.974	0 - 6

	n	%
Native Country		
Philippines	208	89.3
India	10	4.3
Malaysia	9	3.9
Saudi Arabia	5	2.1
South Africa	1	0.4

Results of Psychometric Estimations

Coding and Scoring

The 233 completed surveys were filled out with no missing data, so no measureswere required to deal with this issue. The Expanded Nursing Stress Scale (ENSS) reflected responses such that the higher the score, the greater the level of stress. The 57-item ENSS scale was normally coded to reflect a score of 0 = *never encountered the situation*, 1 = *never stressful*, 2 = *occasionally stressful*, 3 = *frequently stressful*, 4 =

always stressful, and 5 = *does not apply*. A large number of respondents reported *does not apply* (5) or *not applicable* (0). The items were grouped according to the following headings: death and dying (1, 9, 17, 27, 37, 47, and 53), conflict with physicians (2, 10,28, 38, 48), inadequate preparation (3, 11, and 19), problems with peers (4, 12, 20, 21, 22, and 50), problems with supervisors (5, 30, 31, 40, 46, 49 and 54), workload (13, 23, 32, 41, 42, 45, 51, 55, and 57), uncertainty concerning treatment (6, 14, 18, 24, 29, 33, 36,39, and 43), patients and their families (7, 15, 25, 34, 35, 44, 52, and 56), and discrimination (8, 16, and 26).

Distribution of Scores

Frequency distribution and histogram with superimposed normal curves were calculated for all scale items to determine outliers, skewness, and kurtosis. Field (2013) explained that Z-scores could be used to find hidden outliers within a data set. Within SPSS, Z-scores were computed where data scores were converted to express a mean of zero and standard deviation of one. Within a normal distribution, it is expected that about5% of data will be greater than the standard deviation of 1.96, 1% greater than the standard deviation of 2.58, and none should be greater than the standard deviation of 3.29(Field, 2013). As shown in Table 2, no outlier was identified in the dataset. Absolute Z- score values were lower than 3.29. Skewness involves the symmetry of the distribution, where kurtosis has to do with the peakedness of a distribution (Tabachnick & Fidell, 2013). A positively skewed value indicates that the tail on the right side of the distribution is longer. A negatively skewed value indicates that the tail on the left side of the distribution is longer. A distribution with a positive excess kurtosis is called leptokurtic (high peak), and a distribution with a negative excess kurtosis is called platykurtic (flat-topped curve).

Table 2

Descriptive Statistics for Z-Scores, Skewness, and Kurtosis

	N	Minimum	Maximum	Mean	*SD*
Z-score (Tenure)	233	-1.20361	1.98946	.0000000	1.00000000
Z-score (Shift length)	233	-2.50086	.39815	.0000000	1.00000000
Z-score (ENSS mean)	233	-2.14795	2.72874	.0000000	1.00000000
Valid N (Listwise)	233				

|		Tenure	Shift length	ENSS mean
N	Valid	233	233	233
	Missing	0	0	0
Skewness		.841	-2.121	.318
Std. Error of Skewness		.159	.159	.159
Kurtosis		-.221	2.520	-.073
Std. Error of Kurtosis		.318	.318	.318

In Figure 3, results showed that the values for the variable tenure were slightly positively skewed (0.84) with values piling up slightly on the left of the distribution. Thenegative value of kurtosis (-0.22) indicated a slightly flat distribution. The tenure variable is sufficiently normal and shows no serious deviation from normal distribution.

Figure 3

Histogram of the Distribution of Tenure
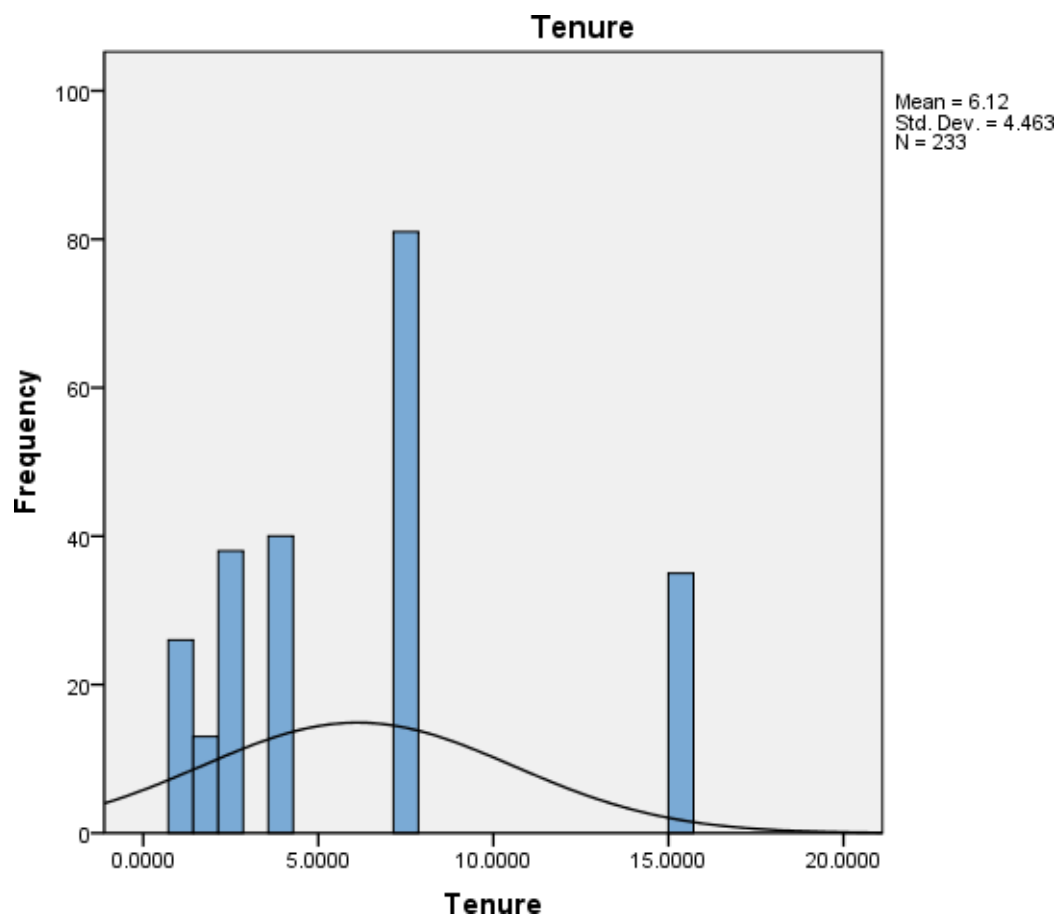
In Figure 4, results showed that the values for the variable shift length were negatively skewed (-2.12) with values piling up on the right of the distribution. The positive value of kurtosis (2.52) indicated a pointy distribution. The shift length variableis not sufficiently normal and shows serious deviation from normal distribution.

Figure 4

Histogram of the Distribution of Shift Length
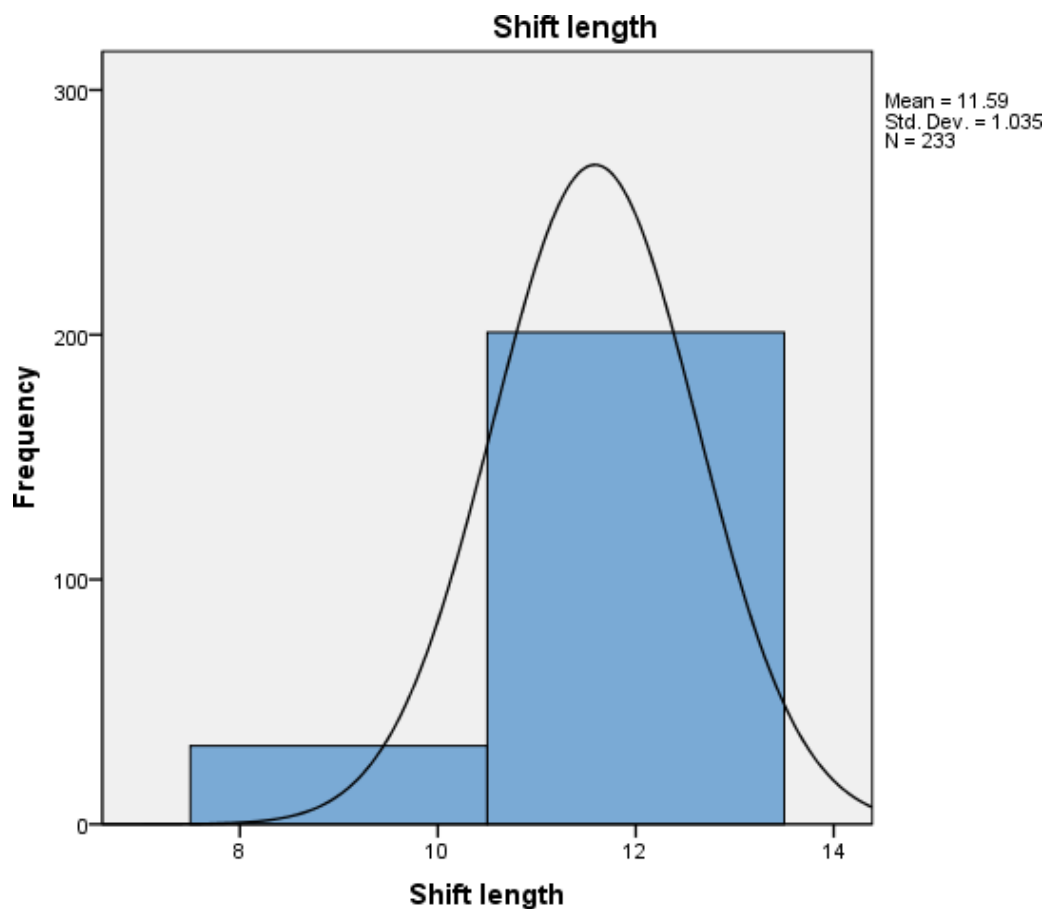
In Figure 5, results showed that the mean scores for the variable ENSS were slightly positively skewed (0.32) with scores piling up slightly on the left of the distribution. The negative value of kurtosis (-0.07) indicated a slightly flat distribution.The ENSS variable is sufficiently normal and shows no serious deviation from normal distribution.

Figure 5

Histogram of the Distribution of ENSS Mean

ENSS_mean

Mean = 2.28
Std. Dev. = 0.597
N = 233
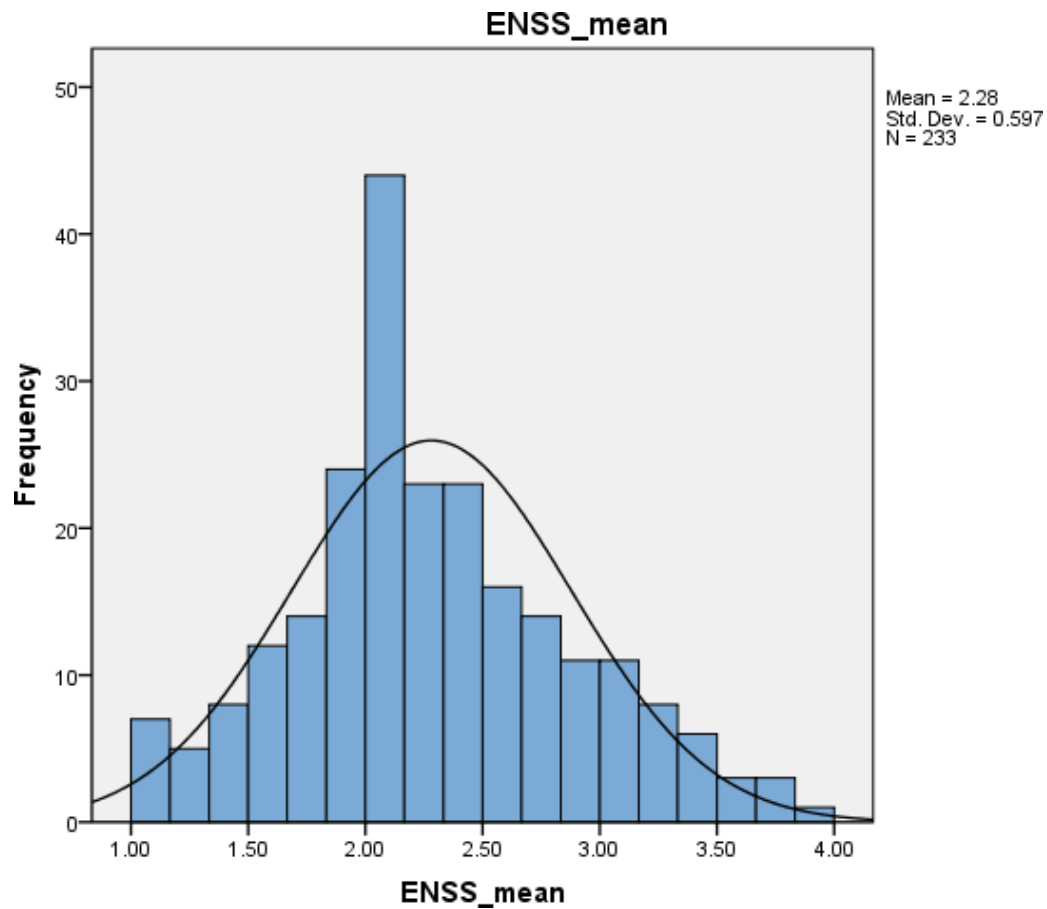
Another assumption that must be investigated is the relationship between the dependent variable and the independent variables. Multiple regression analysis involvesthe linear relationship between one dependent variable and multiple independent variables (Field, 2013). Scatterplots were used to show the relationship between the dependent variable and the independent variables shift length (Figure 6) and tenure (Figure 7). Both relationships are linear; the problem is that these relationships are approximately constant.

Figure 6

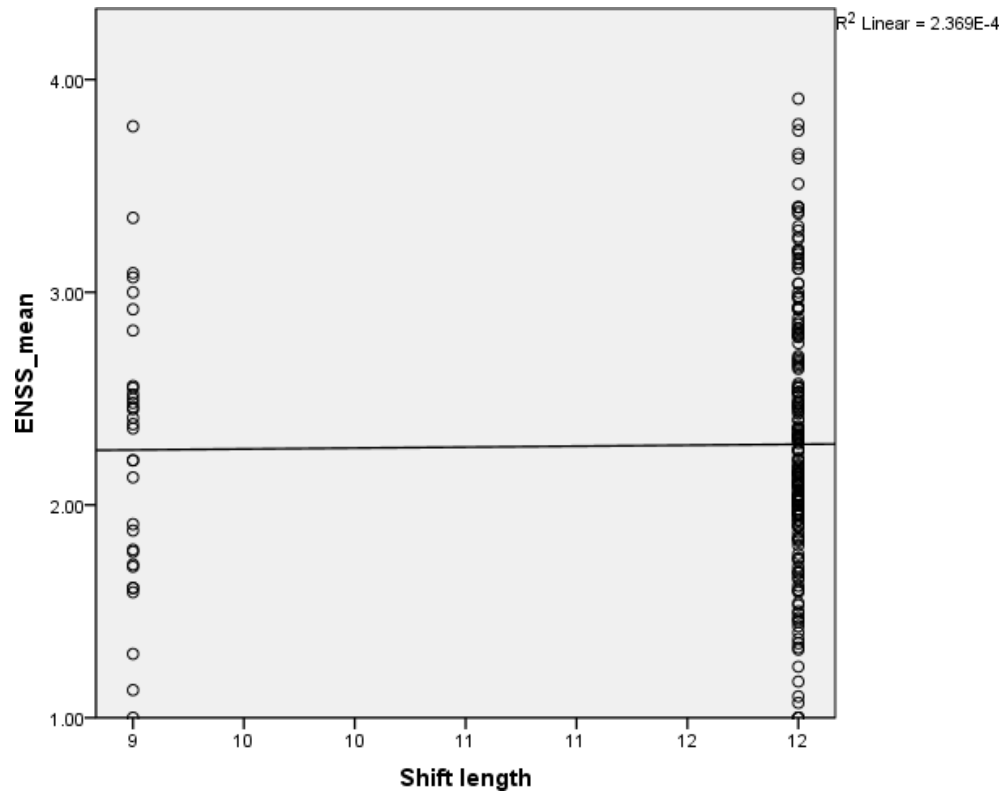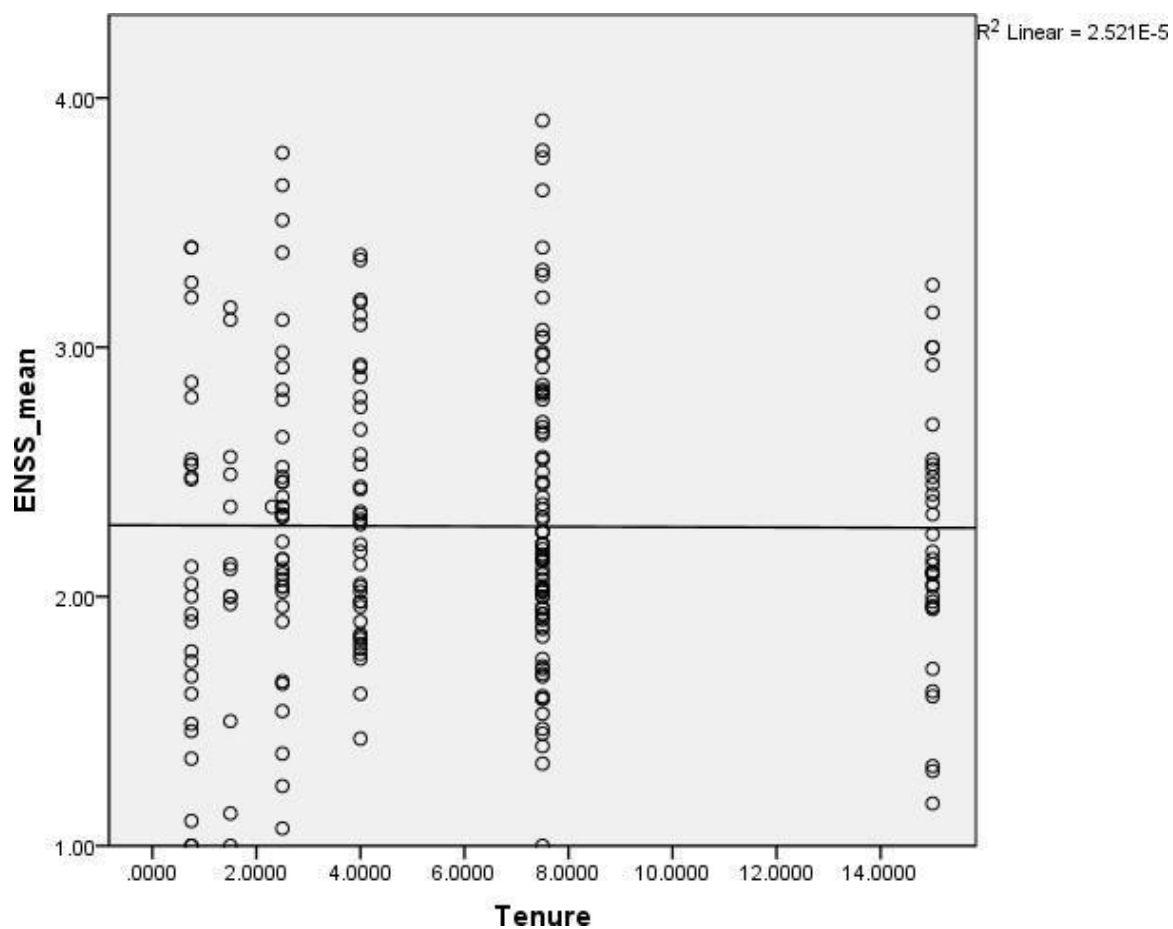*Scatterplot of the Relationship Between Shift Length and ENSS*

Figure 7

Scatterplot of the Relationship Between Tenure and ENSS

Measures Assessment

Expanded Nursing Stress Scale

French et al.'s (1995) Expanded Nursing Stress Scale was used to assess overallself-reported level of work-related stress and across several nursing-related domains. Asshown in Table 3, the internal consistency was strong across the entire scale (*a* = 0.97). The Cronbach's alpha was consistent with findings reported by Gray-Toft and Anderson(1981), which was 0.96. Reliability estimate for this study was found to be extremely similar to the findings reported by the developer of the instrument but higher than Ana María Porcel-Gálvez et al. (2020) who reported a Cronbach's alpha coefficient of 0.91 using the ENSS in a multicenter, cross-sectional study in Spain.

Table 3

Reliability Estimates: Internal Consistency (Cronbach's Alpha) for Study Measures

	Number of Items	Cronbach's Alpha
Expanded Nursing Stress Score (ENSS)	57	0.97

Scores on Expanded Nursing Stress Scale Instrument

As previously described, the French et al. (2000) Expanded Nursing Stress Scale (ENSS) is a 57-item instrument measuring levels of stress along with stress sources and stress frequency in nurses who work in a variety of settings. Each question is scored via a5-point Likert scale, in which nurses select either 1 (*never stressful*), 2 (*occasionally stressful*), 3 (*frequently stressful*), 4 (*always stressful*), or 5 (*does not apply*) as the answer to a question. Lower ENSS scores denote lower stress levels while higher scoresdenote higher stress levels. Of those who participated in the study, scores ranged from 0.1 to 3.91. The overall mean of the ENSS for nurses in the study was *M* = 2.3 (*SD* =0.6), as reported in Table 4.

Table 4

Descriptive Statistics for Expanded Nursing Stress Scale (N = 233)

	N	Minimum	Maximum	Mean	*SD*
ENSS mean	233	1.00	3.91	2.2817	.59672
Valid *N* (listwise)	233				

Restatement of Research Questions and HypothesesResearch Question One, Hypothesis One

Hypothesis one posited that there is a statistically significant relationship between extended working hours and stress levels among nurses in Saudi military hospitals. A Pearson's correlation analysis was conducted to evaluate the relationship between extended working hours (independent variable) and stress levels (dependent variable). A one-tailed test showed a negligible Pearson correlation between ENSS scoreand shift length ($r = 0.015$, $p = 0.408$). The correlation between these two variables is notstatistically significant. Figure 6 provides little support for a linear relationship existing between extended working hours and stress levels. Thus, hypothesis one was not statistically supported as shown in Table 5, and the null hypothesis was retained.

Table 5

A Pearson's Correlation Analysis for Relationship Between Long Working Hours andStress Levels

		Shift length	ENSS mean		
Shift length	Pearson Correlation	1	.015		
	Sig. (1-tailed)		.408		
	N	233	233		
ENSS mean	Pearson Correlation	.015	1		
	Sig. (1-tailed)	.408			
	N	233	233		
	Shift Length	*N*	Mean	*SD*	*SD* Error
ENSS mean	9	32	2.2588	.64820	.11459
	12	201	2.2854	.58976	.04160

Research Question Two, Hypothesis Two

RQ2: Is there a statistically significant relationship between years of workexperience as a nurse in Saudi military hospitals and stress?

Hypothesis two posited that there is a statistically significant correlation betweenyears of work experience and stress levels. A Pearson correlation analysis was conducted to evaluate the relationship between years of work experience and ENSS. A one-tailed test showed a negligible Pearson correlation between ENSS score and years of work experience ($r = -0.005$, $p = 0.47$). The correlation between these two variables is not statistically significant. In research question two, the null hypothesis was not rejected; there is no statistically significant relationship between years of work experience and stress levels among nurses in Saudi military hospitals. Figure 7 provides some support for a linear relationship existing between years of work experience and stress levels. Thus, hypothesis two was not statistically supported as shown in Table 6, and the null hypothesis was retained.

Table 6

A Pearson's Correlation Analysis for Relationship Between Years of Work Experienceand Stress Levels

		Tenure	ENSS mean
Tenure	Pearson Correlation	1	-.005
	Sig. (1-tailed)		.470
	N	233	233
ENSS mean	Pearson Correlation	-.005	1
	Sig. (1-tailed)	.470	
	N	233	233

Research Question Three, Hypothesis Three

A multiple linear regression analysis was conducted to evaluate the relationshipbetween ENSS score and two independent variables, extended working hours and years of work experience. As reported in Table 7 and Table 8, hypothesis three was not supported since the linear combination of independent variables was not significantly related to the ENSS score, (F (2,230) = 0.03, p = 0.97). The value of the multiple correlation coefficient R^2 for the sample was 0, indicating that approximately 0% of the variance of ENSS score in the sample can be accounted for by the linear combination of independent variables.

Table 7

Model Summary

Model	R	R^2	Adjusted R^2	Std Error of the Estimate
1	.016[a]	.000	-.008	.59923

a. Predictors: (Constant), Tenure, Shift length

Table 8

Analysis of Variance (ANOVA)

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	.022	2	.011	.030	.970[a]
1	Residual	82.587	230	.359		
	Total	82.608	232			

a. Predictors: (Constant), Tenure, Shift length

b. Dependent Variable: ENSS mean

As reported in Table 9, neither of the two predictors—long working hours and yearsof work experience—were significant predictors of ENSS score. Shift length in hours was measured using the demographic questionnaire. The findings suggested that there is no dependence between long working hours and ENSS score, ($\beta = 0.009, p = 0.816$).

Years of work experience (tenure) was measured using the demographic questionnaire. The findings suggested that there is no dependence between years of work experience and ENSS score, ($\beta = -0.001, p = 0.941$). In research question three, extended working hours and years of work experience did not predict stress among nurses in Saudi military hospitals and the null hypothesis was retained.

Table 9

Multiple Regression Analysis Coefficients Summary

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	SE	β		
1	(Constant)	2.183	.446		4.896	.000
	Shift length	.009	.038	.015	.233	.816
	Tenure	-.001	.009	-.005	-.075	.941

a. Dependent Variable: ENSS mean

Conclusion

The purpose of this quantitative study was to investigate the relationship between extended working hours and level of stress amongst nurses in Saudi Arabian military hospitals. The study also investigated the relationship between stress and years of work experience among nurses in Saudi military hospitals. The guiding framework for the study was conservation of resources (COR) theory, which explores how humans cope with stress. In applying COR theory, the researcher can compare/contrast resources that nurses of various cultures find valuable for obtaining, retaining, and protecting core values. Recruitment took place by using an access letter sent via emails containing a flyer inviting nurses in Saudi military hospitals to voluntarily complete a survey on Survey Monkey™. Data were collected from a convenience sample of 233 nurses who work in Saudi military hospitals over a 20-day period. The 67-item survey included a researcher-developed demographic questionnaire and one instrument. The researcher-developed demographic questionnaire was used to obtain characteristics of the sample. The Expanded Nursing Stress Scale (ENSS) was used to measure the stress level among nurses in Saudi military hospitals.

The participants of this study included the nurses who work in Saudi military hospitals and had a minimum of 6 months of work experience. This research recruited a sample of 301 participants, out of which only 233 participants were eligible to be included in the final data analysis. The mean age of the participants was 35.1 (SD = 5.7) years old with a range of 23-53 years old. The majority of the participants were females (n = 206, 88.4%), had a bachelor's degree (n = 214, 91.8%), and worked in the inpatient department (n = 118, 50.6%). Their job tenure ranged from 0.75 to 15 years (M = 6.1, SD= 4.5), number of working days per week ranged from 4 to 5 (M = 4.1, SD = 0.35), and shift length ranged from 9 to 12 hours (M = 11.6, SD = 1.0). Approximately 53.2% (n = 124) of the participants were married, and the participant's number of children ranged from 0 to 6 (M = 0.81, SD = 0.97). The majority of the sample consisted of participants whose native country was the Philippines (n = 208, 89.3%).

Three research questions and three hypotheses were formulated and tested. Hypothesis one was not supported. To test hypothesis one, a Pearson's correlation analysis was conducted to evaluate the relationship between extended working hours (independent variable) and stress levels (dependent variable). A one-tailed test showed a negligible Pearson correlation between ENSS score and shift length ($r = 0.015$, $p = 0.408$). The correlation between these two variables was not statistically significant. Hypothesis two was not supported. To test hypothesis two, a Pearson correlation analysis was conducted to evaluate the relationship between years of work experience and ENSS. A one-tailed test showed a negligible Pearson correlation between ENSS score and years of work experience ($r = -0.005$, $p = 0.47$). Hypothesis three was tested using multiple linear regression analysis. Hypothesis three was not supported. A multiple linear regression analysis was conducted to evaluate the relationship between ENSS score and two independent variables, extended working hours, and years of work experience.

Hypothesis three was not supported since the linear combination of independent variables was not significantly related to the ENSS score, $F_{(2,230)} = 0.03$, $p = 0.97$. The value of the multiple correlation coefficient R^2 for the sample was 0, indicating that approximately 0% of the variance of ENSS score in the sample can be accounted for by the linear combination of independent variables.

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