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Psychological Reactions, Resilience, and Work Engagement among Critical Care Nurses in West Bank / Palestine

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Thesis Approval

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This thesis was defended successfully on 02/09/2023 and approved by:

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Declaration

I declare that this thesis was composed by myself and that the work contained herein is my own, except where it states otherwise by references or acknowledgment, the work presented is entirely my own.

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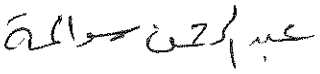
Signature: 

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Dedication

I dedicated this thesis to my homeland Palestine, to the great martyrs and prisoners of the beloved homeland.

A special feeling of gratitude to my loving parents, Nedal and Suha whose words of encouragement and push for tenacity ring in my ears.

I also dedicate this work to my lovely wife Haneen, who has encouraged me all the way and whose encouragement has made sure that I give it all it takes to finish that which I have started.

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Abstract

Background: Work engagement is associated with psychological reactions and resilience, particularly among critical care nurses. There is a lack of studies about work engagement and these factors in Palestine. Thus, this study aimed to assess psychological reactions (e.g., stress, anxiety, and depression), resilience, and work engagement among Palestinian critical care nurses in the West Bank.

Methods: A cross-sectional, descriptive correlational design was adopted. A convenience sample of 273 critical care nurses from private and governmental hospitals was recruited to participate. Depression, Anxiety, Stress Scale-21 (DASS-21), Conor-Davidson Resilience Scale-25 (CDRS-25), Utrecht Work Engagement Scale-9 (UWES-9), and demographic data were used to collect data during the period from the 20th of March to the 20th of May 2023.

Results: Findings demonstrated that 53.9% of the nurses reported mild to moderate levels of depression, 49.8% reported moderate to severe levels of anxiety, and 49.1% reported moderate to severe levels of stress. Additionally, 57.5% of them had low resilience and 52.7% had low work engagement. Moreover, depression ($r=-0.796$, $p<0.01$), anxiety ($r=-0.654$, $p<0.01$), and stress ($r=-0.796$, $p<0.01$) correlated negatively with work engagement, while resilience ($r=0.42$, $p<0.01$) and gender ($r=0.121$, $p<0.05$) correlated positively with work engagement. Depression, anxiety, stress, resilience, and gender were the main predictors of work engagement.

Conclusions: Policymakers and hospital administrators should develop interventions to improve critical care nurses' resilience and minimize psychological reactions, which had a significant influence on work engagement. Future studies should be carried out on these interventions to examine their effectiveness.

Keywords: Critical care nurses, stress, anxiety, depression, resilience, work engagement

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Chapter 1

Introduction

Background

Nursing is one of the serious professions in healthcare institutions. This profession has many tasks and responsibilities that require great effort from nurses to provide the highest patient care and caring behaviors (Babapour et al., 2022). The workplace environment exposes nurses to unfavorable psychological situations, which can cause psychological problems involving depression, anxiety, and stress (Cranage & Foster, 2022; Havaei et al., 2021). Globally, previous studies proposed that many nurses suffered from psychological problems, which have negative influences on their health status and quality of nursing care (Al-amer et al., 2022; Maharaj et al., 2018; Tran et al., 2019).

Critical care nurses deal with stressors in their workplace. They might encounter catastrophic events like patient deaths, which could cause psychological trauma and emotional suffering (Alharbi et al., 2020). Furthermore, the critical care units require high nursing professional demands and regular long working hours, which can lead to symptoms of burnout and emotional tiredness among nurses (Guttormson et al., 2022). Nevertheless, working in these units can also result in high levels of stress and anxiety among nurses, which can influence nurses' health status and productivity (Ardıç et al., 2022). According to previous studies, nurses who work in critical care environments experienced psychological problems, such as anxiety, sadness, and post-traumatic stress disorder (PTSD) (Bulbuloglu et al., 2022; Mealer et al., 2017).

As a result of these serious conditions, critical care nurses need to have resilience and effective coping mechanisms (Vincent et al., 2019). Resilience is the ability to overcome difficulties and continue to function well under pressure (Wu et al., 2020). Resilience is a key

element in promoting the well-being and retention of nurses in high-stress environments (Cooper et al., 2022; Foster et al., 2020; Gao et al., 2017).

Recent studies suggested that nurses with lower levels of resilience were more prone to anxiety and depression symptoms (Mihic-Gongora et al., 2022; Qi et al., 2022) and more intention to leave the job (Lee & De Gagne, 2022). On the other hand, the nurses who had high resilience levels at their work endorsed better working performance (Hoşgör & Yaman, 2022; Walpita & Arambepola, 2019).

Work engagement is negatively affected by psychological problems (Fia et al., 2022). Work engagement is due to a state of positive and affective motivation of high energy joined with high educational levels and a strong concentration on work (Bakker & Albrecht, 2018). Concerning nursing, work engagement is a term that describes nurses' commitment and satisfaction with their work (Sayed et al., 2019). It consists of three elements including vigor, dedication, and absorption (Alkorashy & Alanazi, 2023). Vigor due to a significant amount of mental resilience and energy during work, eagerness to exert effort in work, and ability to provide constant effort even in the face of obstacles (Szilvassy & Širok, 2022). Also, dedication represents a sense of importance, passion, inspiration, challenge, and pride (Alharbi & Alrwaitey, 2023). Furthermore, absorption represents a state of full concentration and deep engrossment in work, and feeling difficulty to release from work, whereby time passes quickly (Alkorashy & Alanazi, 2023).

Previous studies have proposed an association between nurses' psychological reactions, resilience, and work engagement. Psychological reactions were negatively associated with work engagement (Diab & Nagar, 2019; Keyko et al., 2016; Mukaihata et al., 2020; Pericak et al., 2020; van Mol et al., 2018). Additionally, it has been suggested that resilience was positively

correlated with work engagement (Abdollahi et al., 2021; Afshari et al., 2021; Alharbi & Alrwaitey, 2023; Cao & Chen, 2020; Clark et al., 2020; Çuhadar et al., 2023; Karadag et al., 2019; Li et al., 2021; Marzo et al., 2022; Mealer et al., 2017; Mohamed et al., 2022; Qi et al., 2022; Roberts et al., 2021; Uyargil & Oztemel, 2020; Yldrm et al., 2020; Zhou et al., 2021).

Moreover, an association existed between work engagement and age (Aboshaiqah et al., 2016; Alharbi & Alrwaitey, 2023; Alkorashy & Alanazi, 2023; Douglas & Roberts, 2020), experience (Aboshaiqah et al., 2016; Alharbi & Alrwaitey, 2023; Alkorashy & Alanazi, 2023), marital status (Zhang et al., 2021), educational level (Alharbi & Alrwaitey, 2023), gender (García-Iglesias et al., 2021), income (Kim & Seo, 2021), and the health sector (Ngobeni & Dhanpat, 2022).

Problem Statement

Critical care nurses play a vital role in any complex healthcare system, as they provide critical and complex care to patients with life-threatening conditions and a stressful environment (Jaradat et al., 2021). This high-stress environment can lead to decreased work engagement and resilience, and in the long run, impacts the quality of patient care (Ghazawy et al., 2019).

Many studies suggested that nurses experienced psychological reactions, for example, a Turkish study reported that 48%, 68%, and 51.2% of registered nurses suffered from anxiety, depression, and post-traumatic stress disorder, respectively (Zehra et al., 2023). A Jordanian study found that 50.1%, 42.4%, and 57.8% of nurses suffered from stress, anxiety, and depression, respectively (Al-Amer et al., 2020). Moreover, a meta-analysis study reported that the prevalence of depression, anxiety, and stress in nurses was 35%, 37%, and 43%, respectively (Al Maqbali et al., 2021). However, a Chinese study suggested that the prevalence of anxiety, stress, and depression in nurses was 15.4%, 32%, and 18.0%, respectively (Zheng et al., 2021).

Literature also reported that nurses endorsed low to very low levels of resilience (Alameddine et al., 2021; Alharbi et al., 2020; Nejad et al., 2019). Alameddine et al. (2021) revealed that Lebanese nurses reported a low level of resilience. While Alharbi et al. (2020) and Nejad et al. (2019) found that Saudi and Iranian nurses suffered from a very low resilience level. Furthermore, previous studies reported various levels of work engagement among nurses, for example, earlier studies reported that the majority of nurses had low levels of work engagement (Diab & Nagar, 2019; Mukaihata et al., 2020a). However, other studies proposed that nurses had high work engagement in their duties (Chikobvu & Harunavamwe, 2022; Holmberg et al., 2020; De Simone et al., 2018).

Furthermore, several studies delineated that decreased work engagement can justify the decreased motivation, performance, job satisfaction, and retention among nurses (Lee & De Gagne, 2022; Wee & Lai, 2022; Walpita & Arambepola, 2019). Also, Ghazawy et al. (2019) argued that the level of work engagement impacted on both job performance and intention to turnover.

In Palestine, critical care nurses face particular difficulties in their workplace. Palestine's healthcare system is insufficiently supported and overburdened due to a lack of resources and a high demand for services (World Health Organization [WHO], 2020). Additionally, due to ongoing conflicts in the area, critical care nurses are regularly exposed to severely traumatic cases, which expose them to high levels of psychological reactions. In particular, a study conducted in Gaza revealed that healthcare providers experienced high levels of stress, anxiety, and depression as a result of being exposed to trauma and violence (Abu-El-Noor et al., 2018).

Similar findings were found in the West Bank, where healthcare professionals, particularly nurses, expressed high levels of burnout and emotional exhaustion (Ghrayeb, 2017;

Shehadeh et al., 2021). Moreover, a study by Maraqa et al. (2020) found that 75.3% of Palestinian nurses reported symptoms of anxiety and depression (Maraqa et al., 2020).

Despite the challenges nurses face in Palestine, they may exhibit resilience in response to adversity and trauma (Alkaissi et al., 2019). However, studies continue to demonstrate that many nurses are resilient and capable of handling the demands of their job despite the difficulties faced by critical care nurses(Alkaissi et al., 2019; Marie et al., 2017).

Regardless of the significance of recognizing psychological health and work engagement in critical care nurses, there are insufficient studies about this issue in Palestine. There have been few studies assessed the psychological reactions of critical care nurses in Palestine (Jabari& Salah, 2020; Mehdawi et al., 2021; Zakarneh, 2021), however, there is a lack of studies on resilience among critical care nurses (Alkaissi et al., 2021; Furman et al., 2021; Marie et al., 2017). However, no studies were found concerning work engagement for nurses in Palestine.

Due to variations in cultural, social, and political circumstances, the majority of the existing research on critical care nursing has been conducted in industrialized nations and may not be directly applicable to Palestine (Kakemam et al., 2019). Thus, investigating the psychological reactions, resilience, and work engagement of critical care nurses is necessary.

Significance of the Study

Regarding healthcare, Palestine suffers particular difficulties due to a lack of resources, extreme levels of poverty and unemployment, and persistent political instability (WHO, 2020). These difficulties can make critical care nurses feel more stressed out and impact their mental health. Therefore, it's critical to realize the psychological reactions, resilience, and work engagement of Palestinian critical care nurses due to their work demands and the challenges they face. The results of this study can guide hospital administrators and healthcare professionals in

developing interventions aimed at enhancing critical care nurses' psychological well-being and work engagement by identifying the factors that foster work engagement.

The results of this study can be used to guide the development of strategies that promote psychological health and work engagement of critical care nurses in Palestine. These strategies involve building social support networks that assist nurses in coping with work pressures, developing resilience-building training programs, and promoting organizational policies to maintain nurses' psychological well-being. Also, enhancing the psychological health of critical care nurses can foster work engagement, which reflects on patient outcomes in critical care units in Palestine.

Purpose of the Study

The purpose of the current study was to assess psychological reactions (e.g., stress, anxiety, and depression), resilience, and work engagement among Palestinian critical care nurses in the West Bank.

Objectives of the Study

1- To assess the levels of psychological reactions (stress, anxiety, and depression), resilience, and work engagement among Palestinian critical care nurses in the West Bank.

2- To examine the relationship between psychological reactions (e.g., stress, anxiety, and depression), resilience, selected demographic characteristics (age, gender, experience, educational level, income/month, and health sector), and work engagement among Palestinian critical care nurses in the West Bank.

3- To identify the predictors of work engagement among Palestinian critical care nurses in the West Bank.

4- To explore the gender difference in psychological reactions, resilience, and working engagement among Palestinian critical care nurses in the West Bank.

Study Questions

The questions of this study included the following:

1- What are the levels of psychological reactions (e.g., stress, anxiety, and depression), resilience, and work engagement among Palestinian critical care nurses in the West Bank?

2- What is the relationship between psychological reactions (e.g., stress, anxiety, and depression), resilience, selected demographic characteristics (age, gender, experience, educational level, income/month, and health sector), and work engagement among Palestinian critical care nurses in the West Bank?

3- What are the predictors of work engagement among critical care nurses in Palestine?

4- Is there a gender difference in psychological reactions, resilience, and working engagement among Palestinian critical care nurses in the West Bank?

Definitions of the Study Variables

This study involved these main variables: psychological reactions (stress, anxiety, and depression) and resilience as independent variables, and work engagement as a dependent variable. These variables had conceptual and operational definitions.

Conceptual Definitions

The following conceptual definitions were used for the aim of the present study:

Stress. It is defined as the psychological or physiological response to stressors either internally or externally. Stress causes changes in almost each body system, and influences peoples' feelings and behaviors. It is associated with the following symptoms: palpitation, mouth

dryness, shortness of breath, sweating, worry, increasing negative emotions, speedy speech, and fatigue (American Psychiatric Association [APA], 2013).

Anxiety. It is defined as an emotion described by fear and bodily symptoms of tension where a person expects impending danger, distress, or catastrophe. It is characterized by muscle tensing, fast breathing, and fast heartbeats (APA, 2013).

Depression. It is defined as a state of negative affective that contradicts daily living, ranging from unhappiness and discontent to an extreme feeling of sadness, pessimism, and despondency. It is accompanied by changes in eating or sleeping habits, loss of energy or motivation, difficulty in concentration or decision-making, and lack of engagement in social activities (APA, 2013).

Resilience. It is defined as the process that results in successfully adjusting to difficult or demanding life experiences through behavioral, emotional, and mental flexibility in response to both internal and external demands (APA, 2013).

Work engagement. It refers to a state of positive and affective motivation from high energy integrated with high dedication levels and a strong concentration on work (Schaufeli & Bakker, 2010).

Operational Definitions

The following operational definitions were utilized for the aim of this study:

Depression, Anxiety, and Stress. Depression Anxiety Stress Scales-21 (DASS-21) created by Lovibond and Lovibond (1995) was utilized to assess psychological reactions (Lovibond & Lovibond, 1995). It contains three subscales referred to stress, anxiety, and depression. Each subscale includes seven items scored on a 4-point Likert scale extended from 0 (did not apply to

me at all) to 3 (applied to me very much). The entire score for each subscale was from 0 to 21, in which higher scores reflected higher stress, anxiety, and depression.

Resilience. Connor-Davidson Resilience Scale (CD-RISC) evolved by Connor and Davidson (2003) was utilized to assess resilience. It consists of 25 items, which scored on a five-point Likert scale extended from 0 (not true at all) to 4 (true nearly all of the time). The scale ranged from 0–100, where higher scores indicated higher resilience (Connor & Davidson, 2003).

Work Engagement. Utrecht Work Engagement Scale (UWES-9S) created by Schaufeli et al. (2006) was adopted to evaluate work engagement (Schaufeli et al., 2006). It consists of nine items rated on a 7-point Likert scale extended from 0 (never) to 6 (always/every day). The scoring system was based on the entire mean of the scale, where higher scores reflected higher work engagement.

Summary

Critical care nurses work in a very stressful working environment, and they encounter a variety of stressful events that provoke psychological reactions including stress, anxiety, and depression. Critical care nurses need a high level of resilience to overcome these reactions. On the other hand, these reactions can affect their work engagement and the quality of care provided to their patients. Unfortunately, there is a lack of previous studies considering the psychological reactions and resilience and their relation with job engagement among Palestinian critical care nurses. Therefore, this study aimed to identify the psychological reactions (e.g., stress, anxiety, and depression), resilience, and work engagement among Palestinian critical care nurses in the West Bank.

Chapter 2

Literature Review

In the healthcare field, critical care nurses have a vital role in the management and treatment of critically ill patients, often functioning under demanding and high-stress conditions. The psychological well-being and work engagement of these nurses are crucial factors that can significantly impact patient care outcomes and overall healthcare system effectiveness. Understanding the intricate relationship between psychological reactions, resilience, demographic characteristics, and work engagement among critical care nurses in Palestine is of utmost importance to promote their well-being and ensure the delivery of high-quality care.

Therefore, this literature review aims to critically analyze existing research on the psychological reactions, resilience, and work engagement among critical care nurses. By synthesizing and integrating the available evidence, this review aims to provide a comprehensive understanding of the factors that correlate with the work engagement of critical care nurses.

This chapter is separated into two parts; the search process and the previous literature.

Search Process

Many databases and engines were accessed during the search process, these databases were PubMed, Science Direct, Frontiers, CINAHL, Medline, Ebcso, and Google Scholar. The main used keywords were psychological reactions, stress, anxiety, depression, resilience, critical care unit, intensive care unit (ICU), nurses, critical care nurses, and work engagement. Studies from 2016 and later were included in the review, while older studies due to definitions of concepts and instruments were included. Only studies published in English and related to nurses were adopted. However, studies published in other languages and referred to other healthcare professionals were excluded. Therefore, the total number of included studies was 53.

Previous Literature

This section covers the literature for research questions and consists of two sections. The first section discussed the related previous studies regarding the levels of psychological reactions, resilience, and work engagement. The second one explored the literature regarding factors correlated with work engagement.

Levels of Psychological Reactions, Resilience, and Work Engagement

Levels of Psychological Reactions

Because of frequently interact with patients who are in distress and who are in circumstances that could lead to their death, critical care nurses work in a very challenging environment. The need for extensive, ongoing care to lessen suffering among distressed patients makes the problem worse. As a result of conflicts that arise between the demands of their jobs and their abilities, skills, and capabilities in the workplace, critical care nurses experience psychological reactions in different ways (Saravanan et al., 2023).

Tamrakar et al. (2023) performed a cross-sectional study among Nepali nurses caring for patients with COVID-19 in ICU and nurses caring for patients who were admitted for other reasons (non-COVID ICUs) to compare the prevalence of anxiety and depression, as well as the contributing factors. The Hospital Anxiety and Depression Scale (HADS) and the General Health Questionnaire-12 (GHQ-12) were utilized to collect data. The study found that both COVID and COVID nurses have high stress, however, there was no statistically significant difference in the prevalence of psychiatric caseness, anxiety, and depression. Only sleep problems, confidence in treating patients with COVID-19, and intentions to leave their current job were higher in respondents and considered factors that could potentially lead to psychiatric caseness, anxiety, and depression.

Another cross-sectional performed by Saher et al. (2022) to explore the prevalence of stress and the determinants of high levels of work-related stress that critical care nurses in tertiary care hospitals experience in Pakistan. The results found that the majority of respondents (55.4%) endorsed moderate stress levels, 41.7% reported mild stress, and only 2.9% reported severe levels of stress. Workload-related stress, which affects 50.4% of nurses, was the most common source of stress among ICU nurses.

The meta-analysis study executed by Huang et al. (2022) purposed to explore the prevalence of depression in critical care nurses. Selected databases were systematically searched. The data were obtained from 19 cross-sectional studies from 11 different countries with a sample of 7196 nurses and found that the prevalence of depression was 24.99%. This result suggested that depression was a common triad of ICU nurses.

Additionally, Nemir et al. (2022) used a cross-sectional study to explore the stress levels among critical care nurses (N=117) in Sudan. The findings revealed that 97.4 of respondents reported low levels of stress, while 2.6% endorsed moderate levels of stress. These findings clarified that all nurses experienced stress at different levels.

Moreover, Jindal (2021) conducted a study in India to explore the levels of anxiety, depression, and anxiety among nurses (N=90) from different hospital departments. A cross-sectional method was adopted and DASS-42 was utilized for collecting data. The results found that the levels of depression, anxiety, and stress were 53.3%, 73.3%, and 40.0% respectively among ICU nurses. ICU nurses demonstrated the highest scores on the DASS compared with other departments, and this could be the result of the high mental challenges in the working environment.

Additionally, Munyanziza et al. (2021) explored the workplace stress of ICU nurses in Rwanda using a cross-sectional design. Ninety-two participants were recruited for the study. Regarding the levels of workplace stress, 80.3% of ICU nurses experienced moderate to high levels of workplace stress, while only 19.6% had low levels of workplace stress. The main stressors reported were caring for dying patients or agitated patients and a heavy workload.

Moreover, a mixed-method study was carried out by Crowe et al., (2021) to investigate the mental well-being of critical care nurses who were directly caring for patients during the early COVID-19 pandemic in Canada. It was found that participants reported clinical concern of moderate depression (57%), anxiety (67%), and stress (54%), as well as probable (13%) and significant (38%) symptoms of post-traumatic stress disorder.

Another study performed by Melnyk et al. (2021) investigated the association between critical care nurses' physical and mental health and self-reported medical errors by surveying 2500 critical care nurses. This cross-sectional relational study based on the 771 responses found that 61% of the respondents endorsed minimal physical health and 51% endorsed minimal mental health. Nurses with poor physical and mental health were significantly more prone to commit medical errors compared with nurses with good physical and mental health (odds ratio [95% CI]: 1.31 [0.96-1.78] for physical health, 1.62 [1.17-2.29] for depressive symptoms).

Furthermore, Belayneh et al. (2021) performed a study aimed at assessing the burden of anxiety and contributing factors in emergency and ICU nurses (N=415) in Ethiopia. The Hamilton Anxiety Rating Scale was adopted to collect study data. The results found that 19.8% of nurses endorsed high anxiety levels. There was a significant correlation between marital status, smoking, work overload, night shift, and anxiety.

A study was carried out in India to analyze the correlation between stressors at work and nurses' levels of depression, anxiety, and stress (N=431). DASS-21 and a survey about stressors at work were adopted for collecting data. The results proposed that 50.8%, 74%, and 70.8% of the respondents endorsed experiencing stress, anxiety, and depression. Nurses with high levels of these reactions were more concerned about conflicts with supervisors and a lack of job satisfaction. Workplace stressors varied based on the type of workplace, in which the main conflicts were as follows: in private hospitals were low job satisfaction and conflicts with doctors and patients, in government hospitals involved the risk of contracting infectious diseases; in intensive care units were low salary, and in other types of workplaces included smells and noises, and patient conflicts (Kaushik et al., 2021).

Hamed et al. (2020) carried out a cross-sectional study to explore the psychological symptoms among Egyptian nurses (N=181) working in the ICU, non-ICU (obstetric, emergency department, and burn ward), inpatient (non-stressed wards), and outpatient clinics. Data were gathered using the Davidson Trauma Scale (DTS) and HADS. The results showed that among the participants, 79%, 64.6%, and 73.5% experienced depression, anxiety, and emotional exhaustion, respectively. The greatest emotional exhaustion was the highest in critical care nurses.

Chegini (2019) adopted a cross-sectional study to compare the occupational stress experienced by critical care nurses (N=203) in public vs. private hospitals in Iran using an occupational stress scale questionnaire. Results exhibited that stress experienced by respondents in public hospitals was greater than that experienced in the private sector ($p < 0.001$). However, the main reported stress factors were organizational policies and working environment-related stressors.

Another cross-sectional study was carried out by Vahedian-Azimi et al. (2019) to examine the personal, professional, and organizational factors associated with greater perceived stress among critical care nurses in Iran. The study included 21,767 nurses. The findings found that the incidence of stress among respondents was 71%. Being males was positively correlated with increased stress ($p < 0.001$) while increasing age and years of experience had a negative association with stress ($p < 0.001$).

Another study explored the prevalence of stress, anxiety, and depression in Iranian critical care nurses (N=78) using the standard DASS-21 questionnaire to collect nurses' responses. The results revealed that the mean ± standard deviation of depression, stress, and anxiety were 10.80 ± 9.60, 12.14 ±8.17, and 8.90 ±8.02, respectively, which reflected that the nurses endorsed mild, normal, and mild levels of these reactions. Depression was more prevalent in ICU nurses than in NICU and CCU nurses ($p < 0.05$) (Taleghani et al., 2018).

Also, Melnyk and colleagues (2018) explored the relationship between nurses' physical and mental health and reported medical errors among 1790 critical care nurses in the U.S. A descriptive cross-sectional design was employed and data were gathered using the PHQ, Generalized Anxiety Disorder Questionnaire, the Perceived Stress Scale, and the Professional Quality of Life Scale. The findings suggested that the percentages of depression, anxiety, and stress among nurses were 32.8%, 51.97%, and 38.7%, respectively. They also found a strong positive correlation between medical errors and nurses' health status, which reflected that the incidence of medical errors was higher in nurses who reported poor physical/mental health compared to those who reported good health categories. Depression was a predictor of medical errors.

Additionally, in a cross-sectional study involving critical care nurses (N=91) in Brazil, de Vasconcelos and colleagues (2018) examined whether there is an association between burnout and depressive symptoms among ICU nurses. The results proposed that 14.29% and 10.98% of the nurses reported burnout and depressive symptoms. The association between burnout and depressive symptoms was found to be significant ($p < 0.05$).

Kumar et al. (2016) conducted a cross-sectional study to assess the prevalence of stress in ICU staff (N=82). The DASS scale was adopted to evaluate stress. Findings reported that the prevalence of stress among ICU staff was high, where 48.78% of nurses experienced mild stress and 19.51% suffered from moderate stress.

Levels of Resilience

Nursing resilience refers to nurses' ability to adapt, cope, and maintain their well-being in the face of challenges, adversity, and stressors in their workplace (Bui et al., 2023). It is the ability to recover, bounce back, and continue to provide quality care in the face of the physical, emotional, and psychological demands of the nursing role (Bui et al., 2023). Gensimore et al. (2020) proposed that resilience plays an indirect role in improving perception toward hospital management, and organizational support, which in turn decreases perception of workload and burnout by decreasing emotional exhaustion and depersonalization (Gensimore et al., 2020).

Many studies were conducted to assess resilience levels, for example, a descriptive cross-sectional study conducted by Talebian and colleagues (2022) during COVID-19 aimed to evaluate the association of resilience with moral distress. This study investigated 144 Iranian critical care nurses using the CDRS. The resilience score was 90.66±10.92 and 73.6% had high resilience. Also, the mean of moral distress was 66.93 ± 2.47 (maximum and minimum scores were 76 and 63, respectively), indicating a low level of moral distress.

Cooper et al. (2022) explored the factors that influence nurses' resilience by conducting a mixed-method study. It was argued that nurses' resilience could be affected by internal and external factors. A range of factors emerged as a result of the study analysis, including the impact of workplace conditions, organizational philosophy, manager's performance, support groups, and supporting others. These factors influenced the range to which resilience can be continued, to allow nurses to adapt to work stressors, abstain from psychological harm, and offer safe and high-quality care. Sari et al. (2022) adopted a cross-sectional design to explore resilience and nurses' work engagement at Hasanuddin University Hospital in Indonesia. A total of 166 participants were involved in the study and data were gathered using CD-RISC and Employee Engagement Scale. The results reported that 90.4% of nurses had high resilience and 88% of them had high work engagement.

Alameddine et al. (2021) examined the resilience of Lebanese nurses at the epicenter of COVID-19 using a cross-sectional design. A total of 265 nurses participated and CDRS was adopted for collecting data. Findings revealed that the mean resilience score was 66.91(SD± 13.34). Also, nursing resilience was positively correlated with workplace satisfaction and male gender, while negatively correlated with intention to leave the job and violence exposure. It was also found that the level of resilience could have a significant effect on quality of care and it improves the nurses' retention in the workplace.

Jo et al. (2021) explored nurses' resilience during COVID-19 by conducting a cross-sectional survey on nurses from three different countries (N=904) (Korea, Turkey, and the U.S.) and using the CDRS to collect data. The analysis found that participants endorsed an intermediate level of resilience (mean (SD) = 26.5 (±7.0)). The resilience associated with fear of becoming infected by COVID-19. Also, nurses who had higher intentions to leave their jobs and

those who did not receive organizational support had lower resilience, while nurses who work in the U.S. and those who participated in policies and procedures to promote resilience had higher levels of resilience.

Moreover, Abdollahi et al. (2021) assessed the resilience among nurses in Iran using a descriptive cross-sectional method. A total of 375 nurses were recruited in the study and the Davidson-Connor Resilience Scale was used to gather data. The results clarified that the mean resilience score was 79.35 (SD±0.35) indicating moderate resilience.

Alharbi et al. (2020) investigated the relationship between nurse demographic characteristics and the development of compassion fatigue in Saudi critical care nurses and nurses' resilience. It was found that the CD-RISC mean was 60.08 (SD± 13.90), which indicated low resilience. Also, no significant difference existed in resilience between males and females ($t= 1.143$, $p =0.254$).

Also, a descriptive-correlational study performed by Nejad et al. (2019) aimed to establish a relationship between resilience and the professional quality of life of ICU nurses. Two hundred ICU nurses participated and the CDRS and Stamm professional quality of life scale were utilized to gather data. The results explained that the mean score of resilience was 60.31±20.39, reflecting a low level of resilience.

Babanataj et al. (2019) examined the impact of resilience training on occupational stress and resilience in ICU nurses. A quasi-experimental study was conducted by recruiting 30 nurses from the critical care units in Iran. Resilience was measured using the CDRS in the pre and post-group. The resilience mean score was 67.97 before the intervention and increased to 81.43 post-intervention ($p = 0.001$).

An exploratory study by Alkaissi et al. (2019) investigated the resilience of Palestinian nurses and identified the influence of personal characteristics on resilience. A total of 119 registered nurses participated, and a questionnaire consisting of two scales (the Trait Resilience Checklist (TRC) and the State Resilience Checklist (SRC)) to measure nurses' resilience was adopted. TRC and SRC analysis showed that 59.4% of the nurses demonstrated low levels of resilience. The consequential difference in extreme resilience was explained by personal factors. These traits included nurses who have siblings, whose spouse's educational level is university level, working day shifts, who had no problem with the work team, and who were residents of a far place away from the workplace. Thus, resilience was influenced by personal and environmental factors.

Another exploratory study was conducted by Ren et al. (2018) to explore resilience and its influencing factors in Chinese nurses. The study adopted a cross-sectional design, and 1356 nurses were recruited. Additionally, data were gathered using the CDRS, General Self-Efficacy Scale, Simplified Coping Style Questionnaire, Job Stress Scale, and demographic data of participants. The resilience mean score was 59.99 (SD$\pm$13.59) which is lower than the general population of China which was 65.4 (SD$\pm$13.9). Resilience was influenced by self-efficacy, work stress, coping method work stress, and educational level.

Mealer and colleagues (2017) carried out a cross-sectional study to explore factors that influence the resilience of critical care nurses. A total of 744 critical care nurses engaged in the study. The findings clarified that working in a medical ICU with a graduate degree is linked with increased stress disorder and decreased resilience.

Levels of Work Engagement

Kahn (1990) defined employee engagement as the ability of employees to be physically, cognitively, and emotionally involved in their work roles. After that, many researchers defined and interpreted the concept of engagement; all have emphasized the ways people fit into their responsibilities at work and are connected to it (Zhu & Chen, 2023). Work engagement depends on the employees' ability to convey their physical, emotional, and cognitive well-being during task performance in their work (Barta et al., 2018). Also, Schaufeli and colleagues (2010) proposed an inclusive work engagement definition which includes vigor (energy and mental resilience at work), dedication (high involvement and enthusiasm at work), and absorption (complete concentration at work).

Nurses are proposed to have high levels of work engagement, or absorption in their work and commitment to patient care (Alharbi & Alrwaitey, 2023). Work engagement has a direct impact on patient safety and the quality of nursing care (Wee & Lai, 2022). Therefore, it is necessary to promote work engagement to enhance nurses' performance (Alharbi & Alrwaitey, 2023). Many studies were performed to assess job engagement among nurses and proposed different levels.

A previous study was carried out by Alharbi and Alrwaitey (2023) to assess the nurses' job engagement and correlated factors. Saudi Pediatric nurses (N=230) participated and UWES-9 was adopted for gathering data. The findings reported that the job engagement mean score was 4.54 (SD$\pm$ 0.95), which reflected the average level.

Another descriptive, cross-sectional Saudi study was carried out by Alkorashy and Alanazi (2023) to assess the work engagement levels and influencing factors among nurses in critical care units and inpatient units in hospitals. A total of 460 nurses (426 registered nurses

and 34 nurse managers). The data were gathered using UWES. The results revealed the respondents endorsed high work engagement levels.

In a literature review study, Miawati et al. (2021) examined the work engagement of nurses during the COVID-19 pandemic. Two databases were included in the search strategy, Google Scholar and Mendly. The key findings explained that the work engagement of the respondents was higher and their anxiety and stress levels were low. Also, the influencing factors for work engagement were the social character of the nurses and the presence of support. Additionally, organizational support played a major role in impacting nurses' work engagement through psychological resilience.

Moreover, Allande-Cussó et al. (2021) carried out a cross-sectional study to determine the work engagement levels among nurses during the COVID-19 pandemic. A total of 510 Spanish nurses were recruited and UWES-9 was adopted to gather data. It found the mean score of work engagement was 4.6 (SD± 1.35), which indicated an average level. Gender, type of unit, and training were predictors of work engagement ($p < 0.05$).

Mukaihata et al. (2020) examined the factors that influence nurses' work engagement in Japan by conducting a cross-sectional design. A total of 425 nurses participated and data were gathered using UWES-9. Nurses were found to have a low mean score of work engagement (M=2.33, SD± 1.00). Nurse-physician collaboration, empathic ability, self-motivation, and supervisor support, were predictors of nurses' work engagement.

Another study used a descriptive, cross-sectional design to examine work engagement and its predictors in Chinese registered nurses (N=1040). The results proposed that Chinese nurses had an average work engagement (M=3.54, SD ±1.49) (M. Zhang et al., 2021).

Also, Iqbal et al. (2020) explored the impact of workplace spirituality on nurses' work engagement by adopting a cross-sectional study. A hundred thirty-eight staff nurses from two governmental hospitals in Indonesia were invited to participate and UWES was adopted to measure work engagement.

A cross-sectional study carried out by Pericak et al. (2020) explored the work engagement level and the relationship between nurse-related and work-related variables and work engagement. Two hundred and one Maltese critical care nurses participated in the study. The factors influencing work engagement were categorized into work-related (interpersonal conflict at the work scale, occupational constraints, nurses' stress, and workload) and nurse-related factors (age, burnout, physical symptoms, coping with change, and self-evaluation). The variables that had a statistically significant influence on work engagement were age ($\beta = 0.31$, $p < 0.01$), workload ($\beta = 0.30$, $p < 0.001$), self-evaluation ($\beta = 0.22$, $p < 0.01$), coping with change ($\beta = .20$, $p < 0.01$), and burnout ($\beta = -0.17$, $p < 0.05$). Thus, high work engagement was more predicted by nurse-related factors (16.7%) than work-related factors (9.2%).

Clark et al. (2020) evaluated the workplace engagement for nurses working in emergency departments (N= 175) in the U.S. Data were gathered using CDRS, the Moral Distress for Healthcare Professionals scale, and the UWES. The work engagement mean score was 3.8, indicating a low level. A significant positive relationship existed between resilience and work engagement ($r = 0.58$, $p < 0.001$), while a negative relationship existed between moral distress and engagement ($r = -0.26$, $p < 0.001$).

Cao and Chen (2019) investigated the work engagement level in Chinese nurses treated in hemodialysis units and explored the relationship between social support, empathy, and resilience with work engagement by studying 345 nurses from 17 different hospitals. Resilience

was measured by the RISC-10 scale, and work engagement was measured using the UWES scale. The mean score of work engagement was 3.11, reflecting low levels. Male nurses and married had higher work engagement levels. Additionally, nurses with higher educational levels (a bachelor's level or higher) had higher work engagement scores. Sex, occupational tenure, and resilience were significant predictors of work engagement.

Diab and Nagar (2019) assessed the work engagement and psychological stress levels among Egyptian nurses. A cross-sectional method was employed and 412 nurses from different units participated, and UWES and Psychological Work Stress Questionnaire were used to gather data. The study found that 60% of participants had low work engagement and 75% of the participants had moderate levels of stress. It was found a negative correlation existed between work engagement and psychological stress ($p < 0.001$).

A study carried out by De Simone et al. (2018) aimed to examine the work engagement on hospital turnover intention. A cross-sectional design was adopted and 181 Italian nurses participated in the study, additionally, UWES-9 was used to measure the work engagement. The findings suggested that the mean of work engagement was 4.85 (SD± 0.9), reflecting the average level. Also, work engagement negatively correlated with turnover intention ($r= -.25$, $p= 0.01$).

van Mol et al. (2018) explored the relationship between advantageous personal resources, job demands, and work engagement in ICU nurses. A cross-sectional design was adopted and 193 Australian nurses were engaged in this study. The data were gathered using the UWE scale. It was found that work engagement was negatively associated with cognitive and emotional demands. Also, no impact existed of age and work experience on work engagement

A meta-analysis study was executed by Keyko et al. (2016) to ascertain the antecedents and results of work engagement in nursing professional practice. The results of 18 studies found

that there were seventy-seven influencing factors, which were divided into six themes: organizational climate, job resources, professional resources, personal resources, job demands, and demographic factors. Among the personal resources, thirteen factors were divided into three sub-themes involving psychological, relational, and skills. Psychological factors included psychological capital, psychological empowerment, self-transcendence, and turnover cognitions. Psychological capital, psychological empowerment, and self-transcendence were identified as positive predictors of work engagement.

Correlating Factors and Predictors of Work Engagement

There are studies discussing the correlating factors and predictors of work engagement among nurses. A study was carried out by Okojie et al. (2023) among 260 Nigerian nurses. The study found that resilience correlated positively with work engagement ($r = 0.24$, p-value ≤ 0.01). Moreover, a study by Zhang et al. (2023) among 300 Chinese nurses found that work engagement negatively correlated with stress ($r = -0.40$, $p < 0.01$), anxiety ($r = -0.36$, $p < 0.01$), and depression ($r = -0.42$, $p < 0.01$).

Alharbi and Alrwaitey (2023) reported that the determinants and predictors of work engagement were age as being older ($H = 17.892$, $p < 0.01$), higher level of education ($Z = 3.178$, $p < 0.01$), and higher experience (>10 years) ($H = 18.435$, $p < 0.01$). However, no association existed between job engagement and marital status, working unit, or working hours ($p > 0.05$). Similarly, Alkorashy and Alanazi (2023) examined the predictors of work engagement and found that older age, more experience, and engagement in committees were the main predictors of work engagement.

Also, Chikobvu and Harunavamwe (2022) adopted a cross-sectional study to explore the correlation between work engagement and resilience in South African nurses (N=282). Findings

reported that work engagement had a significant association with resilience ($p < 0.001$). Additionally, Sari et al. (2022) explored a study to explore resilience's effect on nurses' work engagement among Indonesian nurses. It was found that resilience affects work engagement ($p < 0.001$) as the resilience level increased, the level of work engagement increased. Another study analyzed the effect of resilience on work engagement and found a strong positive correlation existed between resilience and work engagement ($r= 0.739$, p-value ≤ 0.001) (Mohamed et al., 2022).

Ozawa et al. (2022) performed a study to explore the factors influencing nurses' work engagement. A total of 317 nurses participated. Also, it was reported the main predictors for work engagement were job significance a ($\beta = 0.214$, $p < 0.001$), job aptitude ($\beta=.109$, p.05), resilience ($\beta = 0.298$, $p=0.001$), age ($\beta = 0.225$, $p < 0.001$), work-self balance ($\beta =.280$, $p < 0.001$), and job aptitude ($\beta = 0.109$, $p < 0.05$).

Another study performed by Zhang and colleagues (2021) revealed work engagement among Chinese nurses was significantly predicted by nurses' age, job characteristics, and the practice environment. Another study aimed to review the correlation between empathy, resilience, and work engagement in nurses in hemodialysis units (N=582) in China. The study found that resilience had a positive association with each subscale and total score of work engagement ($r= 0.532$, $p < .001$). Also, work engagement was directly predicted by resilience ($B= 0.556$, $p < 0.001$) (Cao & Chen, 2020).

Another study was carried out by Percunda and Putri (2020) to analyze the association between psychological capital and work engagement among Indonesian nurses (N=165) working at an urban general hospital. The results found that hope and resilience had no relationship with work engagement. Thus, it is possible to predict nurses' work engagement on three different

levels: organizational, task, and personal. The primary job characteristics of nurses, such as task variety, task significance, task identity, job feedback, and autonomy influenced their work.

Moreover, a study performed by Wang et al. (2020) investigated work engagement and correlating factors in Chinese dental nurses (N=215). The findings found that work engagement was negatively correlated with job stress ($r = -0.422$, $p < 0.001$) but positively correlated with subjective well-being ($r = 0.418$, $p < 0.001$), psychological flexibility ($r = 0.563$, $p < 0.001$), and perceived social support ($r = 0.427$, $p < 0.001$). Age, job stress, subjective well-being, and psychological flexibility correlated with work engagement.

In addition, Iqbal et al. (2020)) reported that no relationship existed between demographic variables (age, gender, job position, and employment status) and the nurses' work engagement. It was also found that workplace spirituality strongly predicted nurses' work engagement ($p < 0.001$).

Another study was carried out by Diab and Nagar (2019) to determine the relationship between hospital nurses' work engagement and psychological stress in Egypt. A total of 412 nurses were recruited. The results found that psychological work stress and total work engagement had a negative correlation ($r = -0.331$, $p < 0.01$). Also, there was an association relationship between work stress and the vigor dimension ($r = -0.253$, $p < 0.01$), the dedication dimension ($r = -.258$, $p < 0.01$), and the absorption dimension ($r = -0.326$, $p < 0.01$). Additionally, a significant relationship existed between work engagement and demographic traits ($p < 0.01$).

Another study executed by Ghazawy et al. (2019) aimed to explore work engagement and predictors of work engagement among Egyptian nurses (N= 535). The results suggested that 54% of nurses had high work engagement. There was no impact of age, sex, marital status, and

educational level on work engagement, while the health sector and nurses' autonomy were predictors of work engagement.

Moreover, a cross-sectional study conducted on 726 female nurses in Finland aimed to analyze the correlation between physical health, psychological risk factors (social isolation, stress, depressive symptoms, anxiety), and work engagement. The findings proposed that 31% of participants reported stress, 31.4% reported anxiety,18.9% reported depressive symptoms, and 17.5% reported social isolation. The prevalence of any psychological symptoms was associated with reduced work engagement. Moreover, age, financial situation, depressive symptoms, and stress were predictors of engagement among nurses (Veromaa et al., 2017).

Another study performed by Seada (2017) purposed to examine the association between nurses' management, nurses' work engagement, and organizational stress role in Egyptian nurses (N=230). The results demonstrated that no relationship existed between work engagement and organizational role stress. Also, gender, marital status, experience, and educational level did not have a significant association with work engagement. Only age was significantly associated with work engagement ($r= -0.292$, $p <0.001$).

A study performed by Aboshaiqah and colleagues (2016) purposed to identify the level of work engagement in Saudi nurses (N=960) in different hospital sectors. It was found that female nurses were more engaged in work (M=4.2, SD=0.9) compared to male nurses (M=4, SD=0.8) and married nurses were more engaged in work (M=4.3, SD=0.9, $p < 0.01$). Experience ($r=0.06$, $p < 0.05$) and qualification ($r=0.14$, $p < 0.05$) had a weak positive correlation with work engagement. However, no significant association existed between the hospital sector and work engagement.

Summary

Several studies were conducted to identify the levels of psychological reactions including stress, anxiety, and depression among critical care nurses. However, most of the studies were on international levels, some were performed in the Middle East, and few were carried out in Palestine. Unfortunately, few studies evaluated resilience and work engagement in critical care nurses and examined the relationship between psychological reactions, resilience, and work engagement.

Studies that assessed the levels of psychological reactions varied with methodologies and adopted different approaches such as cross-sectional, mixed studies, systematic reviews, and meta-analysis studies. Most of the studies reported high levels of psychological reactions among nurses. Furthermore, studies that examined resilience adopted cross-sectional, qualitative, and experimental designs, and the majority of them reported low levels of resilience. Regarding work engagement, most of the studies utilized cross-sectional designs and most of them reported average to high work engagement among nurses.

Additionally, some earlier studies examined the relationship between psychological reactions, resilience, and work engagement. Several studies reported a positive correlation between resilience and work engagement, while a negative association existed between work engagement and psychological reactions. Studies also highlighted the effect of the demographic characteristics of nurses on their work engagement and reported that age, gender, experience, and educational achievement had an association with work engagement.

Nevertheless, there is a lack of published studies in Palestine that explored the levels of psychological reactions, resilience, and work engagement and the correlation between these variables among critical care nurses.

Chapter 3

Methodology

This chapter illustrates the study methodology. The design of the study, setting, population, and sample were clarified. Additionally, instruments, data collection methods, and data analysis were explained.

Design of the Study

The study adopted a cross-sectional, descriptive correlational design. This design has many advantages; it allows for precise measurements and analysis of data and is well-suited for testing the relationship between variables, in addition to, it helps in generating a hypothesis (Polit & Beck, 2021). Also, it is relatively easy and inexpensive to carry out (Polit & Beck, 2021).

Study Population, Sampling Method, and Sample

The target population in this study involved all registered nurses (RNs) who are working in critical care units in two health sectors (private and public) in the West Bank. The accessible population involved all critical care nurses who met the inclusion criteria in the selected private and public hospitals. The number of critical care nurses in the West Bank is 600 nurses (Ministry of Health, 2021).

The method of sampling adopted to perform this study was a cluster, where the West Bank was divided into three geographical zones including north, central, and south. Then stratified sampling method was performed to categorize the hospitals into private and public. The hospitals included in the study were chosen based on the following criteria: to be a referral, high bed capacity, and high occupancy rate. Convenience sampling method was adopted to choose participants, thus all nurses in critical care units were invited to participate. As a result, seven

hospitals from the north (four private and three public), six hospitals from the center (five private and one public), and five hospitals from the south (three private and two public).

The sample size was counted utilizing the G*power (3.0.10) program, in which alpha was 0.05, power was 0.90, and the effect size was 0.08, with 11 predictors (age, gender, marital status, educational level, hospital sector, monthly income, years of experience, anxiety, depression, stress, resilience). Based on regression, the required sample to carry out this study was 266 nurses. An additional 10% of nurses were added to abstain from incomplete questionnaires.

The subjects were selected based on the following criteria: the RNs who have been working for at least one year to be oriented with policies and procedures of the critical care units, full-time nurses, and were willing to participate. While the nurses at managerial levels were excluded.

Study Setting

The study took place in the West Bank/Palestine. The West Bank is a part of the Palestinian territories, along with the Gaza Strip, however, it is currently under Israeli military occupation (Ministry of Foreign Affairs, 2023). It has a population of around 2.8 million Palestinians (Amnesty International, 2023). It has 53 hospitals distributed in private and public sectors, with 3950 beds, and 9750 registered nurses (Palestinian Central Bureau of Statistics, 2019). Additionally, the total number of critical care beds in West Bank was 291 beds (Ministry of Health, 2021).

The study was performed in the critical care units in private and public hospitals. Critical care units involved the emergency intensive care unit (ICU), surgical ICU, burn ICU, and medical ICU. Hospitals from the north zone included three public (Jenin Governmental Hospital,

Rafidia Surgical Hospital, and Al Watani Hospital) and four private (An-Najah National University Hospital, Arabi Specialized Hospital, Nablus Specialty Hospital, and Ibn Sina Specialized Hospital). Regarding the central West Bank hospitals, one public (Palestine Medical Complex) and five private (Al Makassed Hospital, Augusta Victoria Hospital, Istishari Arab Hospital, H-Clinic, and Palestine Red Crescent Hospital). In addition to two public hospitals (Beit Jala Hospital and Alia Hospital) and three private (Bethlehem Arab Society for Rehabilitation Hospital, Al Mizan Hospital, and Al-Ahli Hospital from the south zone.

Regarding public hospitals, Jenin Governmental Hospital (Martyr Dr. Khalil Suleiman Governmental Hospital) was established in 1969, shortly after the Israeli occupation of the West Bank in 1967, located in the city of Jenin in the northern West Bank. It provides healthcare services to the local population and is the largest hospital in the Jenin Governorate. The hospital has various departments including emergency, surgery, internal medicine, pediatrics, obstetrics and gynecology, as well as laboratory and radiology services. It also has several specialized clinics, such as a diabetes clinic, a mental health clinic, and a renal dialysis unit. It has a total of 250 beds and more than 168 registered nurses, including 30 critical care nurses (Government Service Quality Department, 2018).

Moreover, Rafidia Governmental Surgical Hospital is located in Nablus. It was settled in 1976 to provide medical services to patients from Nablus and the surrounding areas. The hospital performs advanced surgical procedures and has specialized departments in neurosurgery, orthopedics, plastic surgery, urology, and gynecology. It retains 482 staff, including nurses, doctors, and pharmacists. It has a total of 200 beds, and more than 200 nurses including 50 critical care nurses (Government Service Quality Department, 2018).

Additionally, the National Hospital in Nablus, also known as Al Mustashfa Al-Watani, is a major medical facility located in Nablus. It is one of the prominent hospitals serving the local community. The hospital was established during the Ottoman Empire in 1888 and serves about 500 thousand citizens from the Nablus governorate and the neighboring governorates. It consists of 106 beds and provides many services including; orthopedics, internal medicine, and emergency. The number of staff is 205 distributed as follows: 10 specialist doctors, five general practitioners, seven pharmacists, 92 nurses including 15 critical care nurses, 25 supportive medical professionals, and 66 departments and services (Government Service Quality Department, 2018).

Additionally, the Palestine Medical Complex is located in Ramallah. It was settled in 1963 and has since become one of the most distinguished healthcare facilities in the region. It is a multi-specialty hospital that provides a lot of medical services, involving cardiology, neurology, oncology, orthopedics, pediatrics, surgery, and others. Palestine Medical Complex has a capacity of over 300 beds and is equipped with modern medical equipment, including MRI and CT scanners, digital radiography, and ultrasound machines. The hospital is staffed by a team of highly qualified medical professionals, involving 200 doctors, about 300 nurses including 65 critical care nurses, and support staff, who work together to provide quality healthcare to patients. The hospital is committed to medical education and research and offers residency programs in several medical specialties (Government Service Quality Department, 2018).

Additionally, Al-Hussein Hospital also known as Beit Jala Hospital was established in 1955 and provides services to more than 230 thousand citizens of the residents of Bethlehem governorate and cases that are referred for treatment from other governorates. The hospital provides services in the following areas; pediatrics, emergency, ENT, operations, emergency,

tumors, kidneys, and intensive care unit, as these departments contain about 131 beds. The number of staff is 358 distributed as follows: 31 specialist doctors, 37 general practitioners, 6 pharmacists, 148 nurses including 15 critical care nurses, 13 midwives, 52 supportive medical professionals, and 71 administration and services (Government Service Quality Department, 2018).

Moreover, Princess Alia Governmental Hospital, or Hebron Governmental Hospital, is located in the center of Hebron and was established in 1957. It is one of the largest hospitals in the region and provides a wide range of medical services to the community. The hospital has a capacity of over 240 beds and is equipped with modern medical equipment, including MRI and CT scanners, digital radiography, and ultrasound machines. It has specialized departments in internal medicine, surgery, obstetrics and gynecology, pediatrics, and more. The hospital is staffed by over 700 team members, including 30 critical care nurses, of highly qualified medical professionals, including doctors, nurses, and support staff, who work together to provide quality healthcare to patients (Government Service Quality Department, 2018).

Regarding private hospitals, An-Najah National University Hospital is located in Nablus, Palestine. It is affiliated with An-Najah National University, which is the largest Palestinian university. The hospital was founded in 2013 and has multi-specialties. It provides a wide range of medical services, including cardiology, neurology, oncology, orthopedics, pediatrics, surgery, and many others. The hospital was granted accreditation by the Joint Commission International (JCI). It has a total of 130 beds with more than 90 critical care nurses (An-Najah National University, 2023).

Moreover, Arabi Specialized Hospital is a renowned medical facility located in Nablus. It is a private hospital that offers specialized healthcare services to patients. It was founded in

1998. It is one of the most important Palestinian private hospitals in the north of the West Bank, with a capacity of 94 beds and more than 30 critical care nurses. The hospital includes many departments, namely: emergency, radiology, maintenance department, laundry, reception, outpatient clinics, emergency, laboratory, pharmacy, cafeteria, Razan Center for Infertility and IVF, Al-Noor Center for Eye Treatment and Surgery, Operations, Intensive Care Unit, Intensive Care Department, Cardiology Department, and Maternity Department. The Arab Specialist Hospital aims to provide medical and treatment services at the highest levels for all members of society, as this medical edifice includes a selection of high-level doctors and consultants according to the scientific branches and their exact specializations. The Arab Hospital has obtained a quality management certificate (IAH, 2023).

Also, Nablus Specialty Hospital is a private hospital established in 2000. It is one of the most important private Palestinian hospitals in the north of the West Bank, with a clinical capacity of 60 beds. The hospital involves many wards, namely: emergency, obstetrics and gynecology, nursery, pediatrics, operations, daily cases, internal medicine, intermediate care, intensive care (ICU), intensive care (CCU), cardiac surgery and catheterization, outpatient clinics, nerves, nutrition, treatment Natural, radiology, laboratory, pharmacy. Nablus Specialized Hospital is considered one of the leading health institutions, whose staff provides distinguished medical services. More than 40 critical care nurses are working in critical care units (Nablus Specialty Hospital, 2023).

Moreover, Ibn Sina Specialized Hospital was founded in 2021 and is considered one of the largest referral hospitals in the North West Bank, located in Jenin City. It follows the Arab Hospitals Group's. The clinical capacity of the hospital is around 100 beds. The hospital offers specialized services such as spinal deformity surgery, neurosurgery, and interventional radiology

under the direction of highly qualified medical professionals. More than 30 critical care nurses are working in critical care units (IAH, 2023).

In addition, Al-Makassed Hospital is a Palestinian hospital located in the neighborhood of Al-Tur in East Jerusalem. It was founded in 1968 as a non-profit, charitable institution and became one of the largest hospitals in the region. The hospital has multi-specialties and offers a lot of medical services, including cardiology, neurology, oncology, orthopedics, pediatrics, and surgery. Al-Makassed Hospital has a capacity of over 300 beds and is equipped with modern medical equipment, including MRI and CT scanners, digital radiography, and ultrasound machines. The hospital is staffed by a team of qualified medical professionals, including doctors, nurses, and support staff, who work together to provide quality healthcare to patients. The hospital is committed to medical education and research and offers residency programs in several medical specialties. In addition to inpatient and outpatient services, Al-Makassed Hospital also has an emergency department that provides 24/7 care to patients with acute medical conditions. Also, the hospital offers other support services, involving laboratory and radiology services, pharmacy, and physiotherapy. Al-Makassed Hospital is known for its commitment to serving the local community, regardless of their ability to pay. The hospital provides free or heavily subsidized medical care to those in need and is a vital healthcare provider for many people in the region. The hospital has 50 critical care nurses. The hospital has accreditation by the Joint Commission International (JCI) (Al-Makassed Hospital, 2023).

Moreover, Augusta Victoria Hospital (AVH) is a renowned medical facility located in East Jerusalem, specifically on the Mount of Olives. It is a specialized hospital that provides comprehensive healthcare services to the local community. AVH is known for its dedication to serving the Palestinian population and providing specialized care in various medical disciplines.

The hospital was established in 1907 and is operated by the Lutheran World Federation. It offers a lot of medical services, involving cardiology, oncology, nephrology, orthopedics, general surgery, pediatrics, and obstetrics and gynecology. AVH has a total of 171 beds with 30 critical care nurses. It is the second-largest hospital in East Jerusalem. It is the referral hospital and the only oncology-specific hospital in the West Bank and Gaza and. In 2019, more than 450 workers labored around the clock to deliver unheard-of medical services that complied with the strictest international health standards (The Lutheran World Federation, 2019).

Furthermore, Istishari Arab Hospital (IAH) is located in Ramallah, Palestine. It was settled in 2016 and become one of the most distinguished healthcare facilities in the region. It is a multi-specialty hospital that provides a lot of medical services, involving cardiology, neurology, oncology, orthopedics, pediatrics, surgery, and others. Istishari Arab Hospital has a capacity of over 200 beds. It is equipped with modern medical equipment, including MRI and CT scanners, digital radiography, and ultrasound machines. The hospital is committed to medical education and research and offers residency programs in several medical specialties. In addition to inpatient and outpatient services, Istishari Arab Hospital also has an emergency department that provides 24/7 care to patients with acute medical conditions. This hospital provides a lot of support services, involving laboratory and radiology services, pharmacy, and physiotherapy. It has accreditation by the Joint Commission International (JCI) (IAH, 2023). The hospital is staffed by a team of qualified medical professionals, including doctors, nurses, and support staff, who work together to offer quality healthcare to patients. A total of 35 nurses are working in critical care units.

Regarding H Clinic Hospital, it is one of the Palestinian private hospitals operating in the West Bank. It was settled in 2019. It is one of the largest private hospitals in Palestine. The

hospital is located in Ramallah Governorate. The hospital includes 40 specialized clinics with international standards, and skilled doctors and Palestinian experts. The total hospital capacity is 100 beds. The hospital includes several departments: neonatal intensive care department, intensive care department, obstetrics and gynecology department, accident unit department, and emergency department, which includes a pediatric emergency room, surgery department, internal medicine department, surgeries, clinics, laboratory, radiology, and pharmacy. The critical care units have 40 nurses (H Clinic, 2020).

Additionally, the Palestine Red Crescent Hospital, branch was founded in 1965 as a non-profit charitable organization with the mission of providing health and social services to more than 300,000 or so residents of al-Bireh and Ramallah as well as those who live in outlying areas. Since its founding, the branch has established medical clinics and provided emergency services via ambulance services. The branch served as a role model for providing round-the-clock emergency services and was crucial in assisting those harmed by the war in 1967. The branch was therefore pressured to work hard and provide alternative social and health services to make up for the severe shortage in these fields. The branch provides its services to all facets of society, especially the poor and in need, for low costs and frequently even without charge, keeping in mind the challenging circumstances facing the Palestinian people. The hospital's capacity is 70 beds, with 20 critical care nurses (Palestine Red Crescent Society, 2023).

Also, The Bethlehem Arab Society for Rehabilitation Hospital (BASR Hospital) is a famous medical facility found in Bethlehem, Palestine. It is a specialized hospital that focuses on providing rehabilitation services to individuals with physical disabilities, injuries, or chronic conditions. BASR Hospital offers many rehabilitation services, including physiotherapy, occupational therapy, speech therapy, prosthetics and orthotics, and psychological support. The

hospital is equipped with modern facilities and specialized equipment to support the rehabilitation process and promote the recovery and independence of its patients.

In addition to its rehabilitation services, BASR Hospital offers outpatient clinics, specialized assessments, intensive care, and community outreach programs to promote awareness and improve the quality of life for individuals with disabilities. Also, there are 40 critical care nurses (Young Men's Christian Association, 2023).

Moreover, Al-Mizan Specialized Hospital was established in 1996 in the city of Hebron. It provides distinguished medical services and works to develop new departments that are not available in Palestine to reduce the burden of traveling abroad on the patient through cooperation with medical agencies from abroad. The hospital consists of seven floors on a surface area of 9198 square meters. It operates under a capacity of 100 beds. There are 30 nurses working in critical care units (Al Mezan Hospital, 2023).

Al Ahli Hospital is a well-known medical facility located in the city of Hebron. It is one of the leading hospitals in the region and provides comprehensive healthcare services to the local community. It provides a wide range of medical services and specialties, including emergency care, general medicine, surgery, pediatrics, obstetrics and gynecology, cardiology, orthopedics, and radiology. The hospital is equipped with modern medical technology and facilities to enhance diagnosis, treatment, and patient care. Additionally, Al Ahli Hospital is actively engaged in community health initiatives, health education programs, and outreach activities to promote public health and well-being in the region. The total capacity of the hospital is 250 beds and 50 critical care nurses (Ahli Hospital, 2023).

Study Instruments

A self-structured questionnaire was utilized for data collection and consisted of these parts:

Demographic data which includes (Appendix 1):

- ✓ Age: refers to age in years.
- ✓ Gender: refers to male or female.
- ✓ Marital status: refers to being single, married, divorced, and widow.
- ✓ Educational level: refers to a higher certificate obtained by participants, either bachelor (BSN), or higher studies (MSN, Ph.D.)
- ✓ Monthly income: refers to monthly salary expressed in New Israeli Shekel.
- ✓ Experience years: refers to the number of years spent in the current critical care unit.
- ✓ Health sector: refers to the hospital sector, either private or public.

Depression Anxiety Stress Scales-21 (DASS-21) was created by Lovibond and Lovibond (1995). DASS-21 involved three subscales referred to as depression, anxiety, and stress. Each subscale has seven items, which were answered on a 4-point Likert scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much) (Appendix A). The score for each subscale was from 0 to 21, where higher scores indicated that subjects suffered from more levels of stress, anxiety, or depression. The original scale had validity and reliability, where Cronbach's alpha was 0.89 (Moussa et al., 2001). Additionally, the Arabic version of DASS-21 was utilized and demonstrated good validity and reliability (Alharbi et al., 2023), where Cronbach's α was 0.94 (Alharbi et al., 2023) (Appendix B).

Connor-Davidson Resilience Scale (CD-RISC) was evolved by Connor and Davidson (2003) to assess resilience. CD-RISC consists of 25 items, which are scored on a five-point

Likert scale ranging from 0 to 4, where 0 indicated not true at all and 4 reflected true nearly all of the time (Appendix A). The scoring was between 0–100, where higher scores indicated higher resilience (Connor & Davidson, 2003). The CD-RISC demonstrated good validity and reliability with Cronbach's α =0.88-0.89 and test-retest reliability = 0.87 (Connor & Davidson, 2003; Gucciardi et al., 2011). The Arabic version, which is approved by the author was used (Appendix B). The psychometric properties of the Arabic version of the CD-RISC were investigated by Bizri et al. (2022) and exhibited validity and high internal consistency, where Cronbach's alpha was 0.89% (Bizri et al., 2022). Approval was obtained from the original author to utilize this tool (Appendix C).

Utrecht Work Engagement Scale (UWES) -9S was created by Schaufeli et al. (2006) to measure work engagement. It is composed of 9 items rated on a 7-point Likert scale ranging from 0 (never) to 6 (always/every day) (Appendix A). The total score of this scale was identified by calculating the mean of the nine items, in which higher scores indicated higher levels of work engagement. The scale consists of three subscales, vigor, dedication, and absorption, each subscale includes three items. The original version of UWES was valid and reliable, where Cronbach's alpha was 0.83 (Domínguez-Salas et al., 2022). A valid and reliable Arabic version of this scale was adopted in this study (Appendix B), where Cronbach's alpha was 0.85 (Aljaghthami, 2016).

Ethical Consideration

Approvals were obtained from the Institutional Review Board (IRB) of Arab American University and the ethical committees of the Ministry of Health to facilitate collecting data in governmental hospitals, in addition to approvals from the continued education committee or

research committee from private hospitals separately (Appendix D). Informed consent was attained from the subjects (Appendix E).

Confidentiality was assured during the study, where participants were required to abstain from indicating their names or any personal information referred related to their identity. Data were kept secured in a coded file. The participants were notified that they could take away during any time of the study without any harm and return incomplete questionnaires.

Data Collection Procedures

The data collection process was initiated after obtaining the necessary approvals. After that, planned meetings were conducted with the head nurses of the critical care units in these hospitals to facilitate the data collection. The study's purposes and inclusion criteria were clarified to them, and they asked to prepare a list of eligible nurses to join the study. A sealed envelope was delivered to each hospital enclosing the questionnaire and the consent forms to be distributed by head nurses to eligible nurses. After one week, these enclosed envelopes were collected from the head nurses. Data collection took place from the 20th of March to the 20th of May 2023.

Data Analysis

Preparations for data analysis included editing, coding, and transcribing data to check their totality, consistency, and clarity (Neuman, 2003). Each question was assigned a code; numbers were used to code all questions sequent.

After that, the SPSS 26.0 data file was utilized for entering data. Then, the data were checked for the existence of missing values, in addition to normality. The results clarified no detection of missing data for the items, also to ensure obligatory responses all respondent items were assessed. The normality was tested for the study constructs utilizing descriptive statistics

of skewness and kurtosis coefficients, which indicated normal distribution, where the skewness and kurtosis statistics scores were between -1.96 to 1.96 (Field, 2013).

Descriptive statistics (frequencies, percentages, mean, and standard deviation) were utilized to describe the variables of the study. Pearson's and point-biserial correlation tests were used to examine the relationship between variables. Multiple linear regression was adopted to assess the predictors of work engagement. Also, a t-test was utilized to explore the differences in study variables according to gender. The p-value was set at ≤ 0.05 to be significant.

Summary

This study was carried out by adopting a cross-sectional design. The target population was all registered nurses working in critical care units in public and private hospitals. All critical care nurses working in different critical care units in chosen hospitals who met the inclusion criteria were included in the study samples. A self-reported questionnaire was used for data collection and included the following instruments: DASS-21, CD-RISC-25, and UWES-9, in addition to demographic data. Descriptive and inferential statistics were used to analyze the data and examine the correlation between study variables. The relationships were significant at a p-value ≤ 0.05.

Chapter 4

Results

This chapter presents the results of the study variables, specifically psychological reactions, resilience, and work engagement among critical care nurses in Palestine. The data collected from the respondents were analyzed utilizing statistical methods to answer the study questions.

Participants' Demographic Characteristics

A total of 320 nurses working in critical care units in the selected hospitals in two different health sectors (private vs. governmental sectors) were invited to participate and obtained questionnaires in the current study. While, 273 of them filled out the questionnaire, with a response rate of 85.3%.

Regarding the demographic variables of respondents, the mean age was 29.01 years (SD= 6.06), with a range of 23-51 years. A total of 64.5% of critical care nurses were male and the majority of the participants were married (53.8%). Concerning the health sector, 62.2% of the nurses were working in private hospitals. In regards to educational level, the majority were registered nurses with bachelor's degree (82.4%). The mean years of experience in the critical care unit were 5.66 years (SD= 4.53) (Table 1).

Study Questions:

Study Question One:

What are the levels of psychological reactions (stress, anxiety, and depression), resilience, and work engagement among critical care nurses in Palestine?

Regarding psychological reactions, the results disclosed that about 39.6% of the respondents had severe to extremely severe stress levels with a mean of 19.72 (SD=7.81), which

Table 1. Characteristics of the sample (N= 273)

Character	Category	n(%)
Gender	Male	176 (64.5)
	Female	97 (35.5)
Marital status	Single	121 (44.3)
	Married	147 (53.8)
	Divorced	5 (1.8)
Educational level	Bachelor	225 (82.4)
	Higher Studies	48 (17.6)
Hospital sector	Private	171 (62.2)
	Governmental	102 (37.4)
Monthly income	2500 – 3400 NIS	53 (19.4)
	3500 – 4499	96 (35.2)
	More than 4500	124 (45.5)
Age/ years M= 29.01, SD= 6.06, Range= 23-51		
Years of experience in critical care unit /years M= 5.66, SD= 4.53, Range= 1-30		

n: number; %: percentage; M: mean, SD: Standard Deviation; NIS: New Israeli Shekel

reflected that respondents experienced moderate levels of stress. Also, 33.3% of the respondents had moderate levels of anxiety with a mean of 13.19 (SD= 6.31), which indicated that respondents suffered from moderate anxiety levels. Regarding depression, 29.7% of critical care nurses in Palestine had moderate levels of depression with a mean of 19.51 (SD= 7.59), which reflected that respondents experienced moderate depression levels. In regard to resilience, 57.5% of nurses reported low resilience levels with a mean of 68.8 (SD= 15.07). Concerning work engagement, 66.3% of the nurses endorsed very low and low work engagement levels with a mean of 3.71 (SD= 1.48). Regarding work engagement subscales, 34.0% had very low and low

levels of vigor with a mean of 3.63 (1.52), 34.0% had very low and low dedication levels with a mean of 3.07 (1.17), and 3.9% of them endorsed very low and low absorption levels with a mean of 3.64 (1.65), which reflected that the nurses had average levels of work engagement and subscales (Table 2).

Table 2. Levels of psychological reactions, resilience, and work engagement among critical care nurses (N= 273)

Variable	n	%	M (SD)
Depression			19.51 (7.59)
Normal (0-9)	59	21.6	
Mild (10-13)	66	24.2	
Moderate (14-20)	81	29.7	
Severe (21-27)	49	17.9	
Extremely Severe (28+)	18	6.6	
Anxiety			13.19 (6.31)
No anxiety (0-7)	27	9.9	
Mild anxiety (8-9)	85	31.3	
Moderate anxiety (10–14)	91	33.3	
Severe anxiety (15–19)	45	16.5	
Extremely severe anxiety (20+)	25	9.2	
Stress			19.72 (7.81)
Normal (0-14)	4	1.5	
Mild (15-18)	79	28.9	
Moderate (19-25)	82	30.0	
Severe (26-33)	52	19.1	
Extremely Severe (34+)	56	20.5	
Resilience			68.8 (15.07)
Low (0-73)	157	57.5	
Mild (74-82)	65	23.8	
Moderate (83-90)	35	12.8	
High (91-100)	16	5.9	
Work Engagement			3.71 (1.48)
Very Low (<1.93)	37	13.6	
Low (1.94-3.06)	144	52.7	
Average (3.07-4.66)	48	17.6	
High (4.67-5.53)	34	12.4	
Very High (>5.54)	10	3.7	

n: number; %: percentage; M: mean, SD: Standard Deviation

Cont. Table 2. Levels of psychological reactions, resilience, and work engagement among critical care nurses (N= 273)

Variable	n	%	M (SD)
Vigor subscale of work engagement			3.63 (1.52)
Very Low (<2)	49	17.9	
Low (2.01-3.20)	44	16.1	
Average (3.21-4.80)	75	27.5	
High (4.81-5.65)	60	22.0	
Very High (>5.66)	45	16.5	
Dedication subscale of work engagement			3.07 (1.17)
Very Low (<1.60)	26	9.5	
Low (1.61-3.00)	67	24.5	
Average (3.01-4.90)	75	27.5	
High (4.91-5.79)	71	26.0	
Very High (> 5.80)	34	12.5	
Absorption subscale of work engagement			3.64 (1.65)
Very Low (<1.60)	31	11.4	
Low (1.61-2.75)	56	20.5	
Average (2.76-4.40)	80	29.3	
High (4.41-5.40)	62	22.7	
Very High (>5.41)	44	16.1	

n: number; %: percentage; M: mean, SD: Standard Deviation

Study Question Two:

What is the relationship between psychological reactions (e.g., stress, anxiety, and depression), resilience, selected demographic characteristics (age, gender, marital status, experience, educational level, income/month, and health sector), and work engagement among critical care nurses in Palestine?

Two correlation tests (Pearson's correlation and point-biserial) were utilized to explore the relationship between psychological reactions, resilience, selected demographic characteristics, and work engagement. While, Pearson's correlation test was adopted to explore the relationships between continuous variables (age, experience, psychological reactions, resilience, and work engagement). While the point-biserial correlation test was adopted to test the association between categorical variables and continuous variables (gender, hospital sector, marital status, educational level, income, and work engagement).

The results found that gender was correlated with work engagement (p.b.r= 0.121, $p < 0.05$). Furthermore, a positive relationship existed between resilience and work engagement ($r = 0.42$, $p < 0.01$). While a negative association existed between stress, anxiety, depression, and work engagement ($r = -0.768$, $p < 0.01$; $r = -0.654$, $p < 0.01$; and -0.796, $p < 0.01$, respectively). However, there were no associations between other variables and work engagement (Table 3).

Table 3. Correlating factors of work engagement (N= 273)

Variable	Work engagement	
	*r	*p. value
Age	0.360	0.553
Years of experience	-0.005	0.931
Stress	-0.768	.000**
Anxiety	-0.654	.000**
Depression	-0.796	.000**
Resilience	0.419	.000**
	p.b.r	p. value
Gender	0.121	.046*
Hospital sector	0.014	.817
Marital status	-0.086	.158
Educational level	-0.091	.158
Monthly income	-0.029	.630

r = Pearson correlation; p.b.r =point biserial correlation
* Significant at $p \leq 0.05$.; ** Significant at $p \leq 0.01$

Study Question Three:

What are the predictors of work engagement among critical care nurses in Palestine?

A multivariable regression analysis was utilized to identify the work engagement predictors in nurses in critical care units. The regression assumptions were used, in which the variance inflation factor (VIF) and tolerance statistics were utilized to investigate the multi-collinearity. The collinearity is of concern if the VIF score is higher than 10 and the tolerance score is lower than 0.1. Also, the autocorrelation assumption was determined using the Durbin Watson (DW) coefficient, which in this study was 1.536. Regarding the regression model for independent variables (depression, anxiety, stress, resilience, and gender), the VIF and tolerance were in the normal range, which means a positive and acceptable autocorrelation.

As shown in Table 4, the variables that had a correlation with work engagement were entered into the model of predictors, including stress, anxiety, depression, resilience, and gender. The complete model, which took into account all work engagement predictors, was statistically significant ($p \leq 0.001$, $R = 0.834$, $R^2 = 0.696$, adjusted $R^2 = 0.690$). This stated that 69.6% of the variance in work engagement was clarified by the model as a whole.

The findings showed that resilience was a predictor of work engagement ($\beta = 0.091$, $p < 0.01$). Additionally, the beta coefficient for resilience was 0.091representing that a one-point increment in resilience was associated with a 0.091 increase in work engagement. Furthermore, depression was found to be a predictor of work engagement ($\beta = -.714$, $p < 0.01$), and the beta coefficient for depression was -0.714 illustrating that a one-point increase in depression was associated with a 0.714 decrease in work engagement. Furthermore, stress was a predictor of work engagement ($\beta = -0.512$, $p < 0.01$) signifying that a one-point increment in stress was associated with a 0.512 decrease in work engagement. Also, anxiety was another predictor of

work engagement (β= -0.366, p < 0.01) signifying a one-point increment in anxiety was correlated with a 0.366 decrease in work engagement. Furthermore, depression was the highest predictor of work engagement (part=-0.220, $part^2$= 0.048).

Table 4. Predictors of Work Engagement: Multiple Linear Regression

Predictor	b	B	t	p-value	95.0% CI		Correlations	
					Lower	Upper	Partial	Part
Depression	-.714	-.417	-6.534	**.000**	-.894	-.534	-.371	-.220
Stress	-.512	-.290	-4.740	**.000**	-.690	-.333	-.279	-.160
Anxiety	-.366	-.142	-2.985	**.003**	-.569	-.164	-.180	-.101
Resilience	.091	.102	2.763	**.006**	.037	.145	.167	.093
Gender	1.197	.043	1.258	.209	-.373	2.767	.077	.042

CI= Confidence Interval, b= Unstandardized beta, B= Standardized beta
* Significant at p ≤ 0.05.; ** Significant at p ≤ 0.01

Study Question Four:

Is there a gender difference in psychological reactions, resilience, and working engagement among critical care nurses in Palestine?

The results found that a difference existed in depression and work engagement due to gender (t-test=1.880, p <0.05 and t-test = -2.101, p < 0.05), respectively. The females endorsed higher work engagement than males (M=35.61, SD=11.0; M=32.24, SD=14, respectively). However, the males had depression more likely than females (M=20.38, SD=7.83; M=18.53, SD=7.68, respectively) (Table 5).

Table 5. Study variables according to gender: t-test

Variable	Gender		t-test	p-value
	Male M(SD)	Female M(SD)		
Work engagement	32.24 (14.00)	35.61 (11.0)	-2.101	0.018*
Stress	19.78 (7.61)	19.01 (7.56)	0.813	0.153
Anxiety	21.14 (5.30)	20.43 (4.98)	1.080	0.140

Depression	20.38 (7.83)	18.53 (7.68)	1.880	0.030*
Resilience	68.03 (15.45)	70.21 (14.33)	-1.142	0.122

M: mean, SD: Standard Deviation
* Significant at $p \leq 0.05$.; ** Significant at $p \leq 0.01$

Summary

A total of 273 registered nurses in critical care units completed questionnaires. The results found that the nurses had moderate levels of stress and depression, while they suffered from extremely severe anxiety levels. Also, they suffered from low resilience levels. They had average levels of work engagement and subscales (vigor, dedication, and absorption).

A significant association existed between resilience, depression, anxiety, stress, gender, and work engagement. However, resilience, depression, anxiety, and stress were the main predictors of work engagement.

Chapter 5

Discussion

The discussion of the study findings and the applications of the major findings in practice were the main topics of this chapter. Moreover, limitations, recommendations, and conclusions are discussed thoroughly in this chapter.

Discussion of Study Findings

This study was one of the unique attempts to assess the correlation between psychological reactions, resilience, and work engagement among Palestinian nurses working in critical care units.

The findings of the present study suggested that the majority of critical care nurses in Palestine experienced severe to extremely severe stress levels which is parallel to studies performed in Western countries (Huang et al., 2022), and Australia (Hammond et al., 2021) proposed high stress levels. However, this study result reported higher stress levels compared with previous studies conducted in India (Kumar et al., 2016), Italy (Lenzo et al., 2021), and Sudan (Nemir et al., 2022) who reported that nurses experienced low-stress levels. On the other hand, other studies in India (Jindal, 2021), Pakistan (Saher et al., 2022), Iran (Vahedian-Azimi et al., 2019), Rwanda (Munyanziza et al., 2021), Canada (Crowe et al., 2021), Rafsanjan (Taleghani et al., 2018), Jordan (Alhalaiqa et al., 2021; Mohammad et al., 2022), and Palestine (Jaradat et al., 2021). The differences in these results can be viewed in many different aspects, as critical care nurses in Palestine face particular difficulties in the field. Palestine's healthcare system is insufficiently supported and overburdened due to a lack of resources and a high demand for services (WHO, 2020). Additionally, because of the ongoing conflict in the area, critical care

nurses in Palestine are frequently exposed to violence and traumatic situations (Elqerenawi et al., 2017). Overall, it should be suggested that the varying levels and influencing factors of job stress among critical care nurses depend on the workplace environment and regional conditions (Babapour et al., 2022).

The current study documented that critical care nurses suffered from moderate anxiety levels. This finding is consistent with several studies conducted previously in Australia (Hammond et al., 2021), China (Hong et al., 2021), Egypt (Hamed et al., 2020), U.S. (Melnyk et al., 2018), Jordan (Alhalaiqa et al., 2021), Nepal (Tamrakar et al., 2023), India (Kaushik et al., 2021), and Canada (Crowe et al., 2021). On the other hand, this study's result is higher than other studies performed in Italy (Lenzo et al., 2021), Ethiopia (Belayneh et al., 2021), and Brazil (Mousavi et al., 2017), which reported low levels of anxiety among nurses. The current finding could be due to many reasons, ranging from conflict with supervisors, doctors, and lack of job satisfaction, working in a government hospital, inadequate salaries, noisy environment in critical care units, in addition to lack of sufficient sleep (Kaushik et al., 2021). Moreover, the high workload can be viewed as the main source of anxiety among critical care nurses (Belayneh et al., 2021), which is associated with increased responsibilities and result in significantly increased anxiety (Sarafis et al., 2016).

The results also disclosed that critical care nurses in Palestine had moderate depression levels, and these results are similar to other studies carried out in Jordan (Alhalaiqa et al., 2021), Egypt (Hamed et al., 2020; Nemir et al., 2022), India (Kaushik et al., 2021), Canada (Crowe et al., 2021), Iran (Mousavi et al., 2017). On the contrary, other studies in Italy (Lenzo et al., 2021), Western countries (Danet, 2021), Sudan (Nemir et al., 2022), U.S. (Melnyk et al., 2018), Nepal (Tamrakar et al., 2023) and Rafsanjan (Taleghani et al., 2018) reported low levels of depression.

These results can be explained in light of many factors, such as long working hours, excessive workload (Vasconcelos et al., 2018), changing policies, especially in private hospitals, unclear communication, and the need for maintaining patients' safety care and managing commitment to self and family (Crowe et al., 2021). Moreover, witnessing the suffering of critical patients, and the predicted nature of work can increase the level of depression (Abukhader et al., 2020).

Unfortunately, the study results revealed that critical care nurses in Palestine endorsed low resilience levels, which is consistent with other studies (Alameddine et al., 2021; Alharbi et al., 2020; Alkaissi et al., 2019, 2021; Jo et al., 2021; Marzo et al., 2022; Nejad et al., 2019; Ren et al., 2018; Talebian et al., 2022), which reported low levels of resilience in nurses. Additionally, other studies reported low resilience before performing a resilience intervention program and higher resilience scores after a program (Babanataj et al., 2019; Mealer et al., 2017). This finding can be explained by this study results which documented the majority of the nurses suffered from psychological reactions, it was proved that higher levels of stress, anxiety, and depression are associated with a lower level of resilience (Cooper et al., 2020; Gensimore et al., 2020; Jo et al., 2021; Talebian et al., 2022; Yılmaz, 2017). Other factors that contribute to low resilience levels included difficult workplace conditions, institutional philosophy, management performance, and coworkers of the nurses in their work (Cooper et al., 2022). Moreover, hope, control, coping and competence, balance in work life, professional identity, and clinical supervision contribute to nurses' resilience (Ren et al., 2018; Yılmaz, 2017).

Regarding work engagement, this study found an average work engagement level among critical care nurses in Palestine. This finding is consistent with the outcomes proposed by earlier evidence (Cao & Chen, 2020; Diab & Nagar, 2019; Gong et al., 2020; Mukaihata et al., 2020; Wang et al., 2021). However, the finding differed from other previous studies that reported

higher levels of work engagement (Chikobvu & Harunavamwe, 2022; De Simone et al., 2018; Holmberg et al., 2020) and lower work engagement levels (Allande- Cussó et al., 2021; Ghazawy et al., 2019; Mukaihata et al., 2020; Orgambídez et al., 2019; Pericak et al., 2020). The rationale for this finding can be clarified as critical care nurses in the present study suffer from low resilience, high stress, anxiety, and depression levels, which are associated with work engagement. Moreover, tasks responsibilities in work environment, insufficient nurses due to high workload, incentives and motivation, and critical care nurse autonomy in making clinical decisions can influence the level of engagement in critical care nurses (Okojie et al., 2023).

This study demonstrated that psychological reactions correlated with work engagement. Previous studies documented that psychological reactions like stress, anxiety, depression, and emotional stability are negatively linked with work engagement, and can have a determinant effect on the engagement of critical care nurses (Diab & Nagar, 2019; Keyko et al., 2016; Mukaihata et al., 2020b; Pericak et al., 2020; van Mol et al., 2018). Psychological reactions influence nurses' abilities to engage in their work and manage work conflicts.

Also, resilience was correlated with work engagement, indicating increasing resilience accompanied by increasing work engagement. Earlier studies supported this finding (Cao & Chen, 2020; Clark et al., 2020; Percunda & Putri, 2020; Pericak et al., 2020; Sari et al., 2022; Zulhakim et al., 2022). Therefore, resilience can be used as a strategy to foster work engagement and conflicts (Shen, 2022).

Concerning demographic factors, gender was correlated with work engagement and it is consistent also with Allande-Cussó et al. (2021), while it is varied from other studies (Alkorashy & Alanazi, 2023; Iqbal et al., 2020) found no gender association with work engagement. This result might be connected to differences in communication and leadership styles between the

sexes (Tench et al., 2017). Also, it can be explained as female nurses had more engagement in their work than male nurses. Female nurses tend to have positive responses to their interactions with their work environment and jobs, which enhance their enthusiasm levels, achievement, and focus in their work (Mehrad et al., 2022).

Concerning age and years of experience, no significant relationship existed with work engagement, which is consistent with van Mol et al. (2018). While, it contradicts earlier evidence reported that older age and increased years of experience had a significant correlation with work engagement (Alharbi & Alrwaitey, 2023; Alkorashy & Alanazi, 2023; Remegio et al., 2021; Saiga & Yoshioka, 2021; Sharma et al., 2017). This finding may be due to sample characteristics, where the mean age of the respondents was less than the thirties, the average work experience of more than 5 years, and the majority of them were married.

This study demonstrated no correlation existed between the hospital sector and work engagement, which is reported in Aboshaiqah and colleagues' (2016) study. On the contrary, Ghazawy et al. (2019) reported that different health sectors are associated with work engagement. This recent finding may be explained as all health sectors in Palestine are working under the same policies and strategies in employment and salaries, in addition, the nurses are working under the same work environment.

This study proposed that marital status was not associated with work engagement, and this agreed with Ghazawy et al. (2019) and Seada (2017) studies. while Aboshaiqah et al., (2016) argued a significant correlation between marital status and work engagement. The absence of association in the present study does not negate the relationship between work engagement and marital status, as nurses who have extended families and children have greater responsibilities, and possess more tasks than single nurses (Çemberci et al., 2022). Also, the opportunities for

work and non-work conflict may arise when there are more non-work tasks which in turn may reduce workplace flexibility and engagement (Yang et al., 2019).

Educational level was not associated with work engagement in this study, which is similar to earlier studies (Ghazawy et al., 2019; Seada, 2017). However, it contradicts other studies (Alharbi & Alrwaitey; 2023; Cao & Chen, 2019; Sharma et al., 2017) suggested that a higher level of education was strongly correlated with greater work engagement. The current finding did not support the assumption that educational level correlated with work engagement due to sample characteristics, where the majority of the respondents had bachelor's degree and no variation between them.

Additionally, income was not associated with work engagement, which is suggested in Li and colleagues' (2023) study, however, it contradicts Kim and Seo's (2021) findings argued that nurses who were more satisfied with their monthly income had higher work engagement levels. This finding can suggest that nurses' engagement is correlated with other motivations, which could influence nurses' performance and quality of care.

The current study found that resilience, depression, anxiety, and stress were predictors of work engagement, this result is in the same line with Ozawa et al. (2022) finding that found resilience was a predictor of work engagement, and in alignment with Wang et al. (2020); Zhang et al. (2021) results that suggested psychological reactions can make a variance in work engagement. These results can explain the role of resilience in work engagement and work-related stress (Cao & Chen, 2020; Okojie et al., 2023), as the presence of resilience can reduce psychological reactions and improve work engagement.

Moreover, the current study found that a significant difference existed in work engagement due to gender, where female nurses were more engaged in their jobs. This result is

aligned with earlier evidence (Aboshaiqah et al., 2016; Allande-Cussó et al., 2021), while it varied with Iqbal et al. (2020) that reported no gender difference existed between female and male nurses. However, Cao and Chen (2020) reported that male nurses were more engaged than female nurses. In addition to performing a variety of personal responsibilities, female nurses go through life situations like marriage, delivery, and child-nurturing. Dealing with such roles and responsibilities may increase work engagement as a result of the potential increase in different demands for female nurses, which encourages work tolerance (Li et al., 2023).

The current study suggested that no difference existed in stress, anxiety, and resilience due to gender, reflecting that female and male nurses experienced the same levels of stress, anxiety, and resilience. The same results were reported by Puspitasari et al (2020) that suggested male and female nurses had the same stress and anxiety levels and Alkaissi et al. (2019) that argued no difference was presented between female and male nurses' resilience levels. While Vahedian-Azimi et al. (2019) suggested that male nurses experienced more stress and anxiety and Alameddine et al. (2021) proposed that male nurses had more resilience than female nurses.

This study proposed that depression was significantly endorsed by male nurses rather than female nurses, which is similar to Zhang et al. (2022). While Kim & Yang (2021) proposed female nurses had more depressive symptoms than males. Nursing is a highly emotional job, and male nurses experience more difficulties and frustrating stressors, which led to increased levels of emotional exhaustion and depression (Zhang et al., 2022).

Relevant Implication

This study acquired basic knowledge regarding Palestinian critical care nurses about the levels of stress, anxiety, depression, resilience, and work engagement, in addition to exploring important factors correlating with work engagement among these nurses. Besides it's also one of

the first studies in Palestine and Arabian countries that dealt with all of these concepts. Its findings clarified the significant levels of nurses' engagement in work, resilience, and psychological reactions. Thus, there is a need for critical care nurses to be actively engaged in their work by enhancing work conditions and motivations, which require the participation of the hospital administration and policymakers in the healthcare system.

The findings can be used as a guide or reference for any resilience training programs and psychological therapeutic interventions to minimize the psychological reactions encountered by critical care nurses in order to improve their work engagement.

Healthcare institutions and their managers and policymakers should build a workplace environment that fosters work engagement of critical care nurses by taking into account the influencing factors. The nursing profession, economic problems, and patients' safety problems are the basic issues solved by the construction of work environments that enhance work engagement among nurses. The strategies and programs that foster nurses' engagement should be promoted, such as professional development training and practice (i.e., core self-evaluation and critical reflective practices). Creating support programs to expand the opportunities to receive support from coworkers and supervisors may be a way to encourage engagement. It is necessary that the therapeutic programs should take into consideration the complexity of the Palestinian situation in addition to the cultural variation of the Palestinian community in terms of building resilience and coping methods.

Therefore, it is important to consider the importance of a highly engaged nursing workforce, including its inherent advantages and benefits for the health system, its ability to discourage nurses from seeking employment abroad, and, most importantly, its significant effect on the provision of high-quality patient care.

Conclusion

This study concluded that the majority of Palestinian critical care nurses endorsed low levels of resilience, high-stress level, moderate anxiety and depression levels, and low work engagement. Resilience and work engagement was positively correlated, while psychological reactions were negatively correlated. Also, gender was a correlating factor, in which females were more engaged in work and males suffered from more depression. Thus, interventions must be encouraged to improve nurses' resilience and reduce psychological reactions, which had a significant influence on work engagement. Future studies should be carried out on these interventions to examine their effectiveness.

Recommendations

Upon study results, these recommendations are suggested:

- Develop policies and strategies to enhance critical care nurses' work engagement such as motivation, staff empowerment, and effective communication between managers and staff and nurses themselves.
- Develop therapeutic interventions that minimize critical care nurses' psychological reactions and improve coping methods and apply stress management techniques considering the gender.
- Enhance the work environment in critical care units to promote the psychological well-being and resilience of critical care nurses
- Continuous assessment and identification of the critical care nurses' psychological health, where the critical care nurses are frontiers in providing crucial care.

- Conduct the same study with different methodologies to confirm the results. For example, perform a qualitative study to explore resilience, psychological reactions, and work engagement from critical care nurses' experiences.

Limitations

The study encountered some limitations as follows:

- The results might be affected by recent events that recently occurred during the time of data collection, some respondents might encounter recent very positive or very negative experiences on their work.
- The cross-sectional design has limited ability to explore the cause and outcome of the variables of the study.
- The study adopted a self-reported questionnaire which depending on respondents' understanding and culture, can influence their answers.

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Appendices

Appendix 1

English Version of the Questionnaire

A questionnaire about: Psychological Reactions, Resilience, and Work Engagement among Critical Care Nurses in West Bank/ Palestine.

1-Demographic Data

- **Age in years** .....
- **Gender** ☐ Male ☐ Female
- **Marital Stautes:** ☐ Single ☐ Married ☐ Divorced ☐ Widow
- **Level of education:** ☐ Bachelor ☐ Higher Studies
- **Monthly Income/NIS:** .....
- **Years of experience in the current ward:** .....
- **Health Sector:** ☐ Private ☐ Governmental

2- Depression, Anxiety, Stress Scale

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree or a good part of time

3 Applied to me very much or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g. in the hands)	0	1	2	3

8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

3- Connor-Davidson Resilience Scale 25 (CD-RISC-25)

For each item, please mark an "x" in the box below that best indicates how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

	not true at all (0)	rarely true (1)	sometimes true (2)	often true (3)	true nearly all the time (4)
1. I am able to adapt when changes occur.	☐	☐	☐	☐	☐
2. I have at least one close and secure relationship that helps me when I am stressed.	☐	☐	☐	☐	☐
3. When there are no clear solutions to my problems, sometimes fate or God can help.	☐	☐	☐	☐	☐
4. I can deal with whatever comes my way.	☐	☐	☐	☐	☐
5. Past successes give me confidence in dealing with new challenges and difficulties.	☐	☐	☐	☐	☐
6. I try to see the humorous side of things when I am faced with problems.	☐	☐	☐	☐	☐
7. Having to cope with stress can make me stronger.	☐	☐	☐	☐	☐
8. I tend to bounce back after illness, injury, or other hardships.	☐	☐	☐	☐	☐
9. Good or bad, I believe that most things happen for a reason.	☐	☐	☐	☐	☐
10. I give my best effort no matter what the outcome may be.	☐	☐	☐	☐	☐
11. I believe I can achieve my goals, even if there are obstacles.	☐	☐	☐	☐	☐
12. Even when things look hopeless, I don't give up.	☐	☐	☐	☐	☐
13. During times of stress/crisis, I know where to turn for help.	☐	☐	☐	☐	☐
14. Under pressure, I stay focused and think clearly.	☐	☐	☐	☐	☐

15.	I prefer to take the lead in solving problems rather than letting others make all the decisions.	☐	☐	☐	☐	☐
16.	I am not easily discouraged by failure.	☐	☐	☐	☐	☐
17.	I think of myself as a strong person when dealing with life's challenges and difficulties.	☐	☐	☐	☐	☐
18.	I can make unpopular or difficult decisions that affect other people, if it is necessary.	☐	☐	☐	☐	☐
19.	I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	☐	☐	☐	☐	☐
20.	In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	☐	☐	☐	☐	☐
21.	I have a strong sense of purpose in life.	☐	☐	☐	☐	☐
22.	I feel in control of my life.	☐	☐	☐	☐	☐
23.	I like challenges.	☐	☐	☐	☐	☐
24.	I work to attain my goals no matter what roadblocks I encounter along the way.	☐	☐	☐	☐	☐
25.	I take pride in my achievements.	☐	☐	☐	☐	☐

4- Work & Well-being Survey (UWES-9S)

The following 9 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the "0" (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

	Almost never	Always	Sometimes	Often Very	often	Always
0	1	2	3	4	5	6
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few time a week	Every Day

1. _____ At my work, I feel bursting with energy
2. _____ At my job, I feel strong and vigorous
3. _____ I am enthusiastic about my job
4. _____ My job inspires me
5. _____ When I get up in the morning, I feel like going to work
6. _____ I feel happy when I am working intensely
7. _____ I am proud of the work that I do
8. _____ I am immersed in my work
9. _____ I get carried away when I'm working

Appendix 2

Arabic Version of the Questionnaire

استبانة حول ردود الفعل النفسية ، المرونة ، والإرتباط بالعمل بين ممرضي الرعاية الحرجة في الضفة الغربية / فلسطين .

1-المعلومات الديموغرافية

- **العمر:** ..... سنة
- **الجنس:** ذكر ☐ أنثى ☐
- **الحالة الاجتماعية:** أعزب / عزباء ☐ متزوج/ متزوجة ☐
- مطلق/ مطلقة ☐ أرمل/ أرملة ☐
- **التحصيل العلمي:** بكالوريوس ☐ دراسات عليا ☐
- **الدخل الشهري :** .....
- **عدد سنوات الخبرة في القسم الحالي؟**.....
- **نوع المؤسسة التي تعمل بها:** **مؤسسة خاصة.** ☐ **مؤسسة حكومية** ☐

2- مقياس الاكتئاب والقلق والضغوط النفسية

اقرأ/ي كل من النصوص التالية ثم ضع دائرة حول الرقم ٠،١،٢ أو ٣ الذي يبين درجة انطباق هذا الشعور عليك في الأسبوع الماضي. لا يوجد إجابات صحيحة أو خاطئة. لا تقضي وقتاً طويلاً في أي منها.

(٠) لا ينطبق علّي بتاتاً
(١) ينطبق علي بعض الشيء أو قليلاً من الأوقات
(٢) ينطبق علّي بدرجة ملحوظة أو بعض الأوقات
(٣) ينطبق علّي كثيراً جداً، أو معظم الأوقات

	العبارة	٠	١	٢	٣
١-	وجدت صعوبة في الاسترخاء والراحة	٠	١	٢	٣
٢-	شعرت بجفاف في حلقي	٠	١	٢	٣
٣-	لم يبدو لي ابن بإمكاني الإحساس بمشاعر إيجابية على الإطلاق	٠	١	٢	٣
٤-	شعرت بصعوبة في التنفس (شدة التنفس السريع، اللهثان بدون القيام بمجهود جسدي مثلاً)	٠	١	٢	٣
٥-	وجدت صعوبة في اخذ المبادرة بعمل الأشياء	٠	١	٢	٣
٦-	كنت أميل الى ردة فعل مفرطة للظروف والأحداث	٠	١	٢	٣
٧-	شعرت برجفة (باليدين مثلا)	٠	١	٢	٣
٨-	شعرت بأنني استهلك الكثير في الطاقة العصبية (شعرت بأنني استهلك الكثير من قدرتي على تحمل التوتر العصبي)	٠	١	٢	٣

٩-	كنت خائفا من مواقف قد افقد فيها السيطرة على أعصابي واسبب احراجا لنفسي	٠	١	٢	٣
١٠-	شعرت بأن ليس لدي أي شيء أتطلع اليه	٠	١	٢	٣
١١-	شعرت بأنني مضطرب ومنزعج	٠	١	٢	٣
١٢-	أجد صعوبة في الاسترخاء	٠	١	٢	٣
١٣-	شعرت بالحزن والغم	٠	١	٢	٣
١٤-	كنت لا استطع تحمل أي شيء يحول بيني وبين ما ارغب في القيام به	٠	١	٢	٣
١٥-	شعرت بانني على وشك الوقوع في حالة من الرعب المفاجئ بدون سبب	٠	١	٢	٣
١٦-	فقدت الشعور بالحماس لأي شيء	٠	١	٢	٣
١٧-	شعرت بأن قيمتي قليلة كشخص	٠	١	٢	٣
١٨-	شعرت بأنني أميل الى الغيظ بسرعة	٠	١	٢	٣
١٩-	شعرت بضربات قلبي بدون مجهود جسدي (زيادة في معدل الدقات، أو غياب دقة قلب مثلا)	٠	١	٢	٣
٢٠-	شعرت بالخوف بدون أي سبب وجيه	٠	١	٢	٣
٢١-	شعرت بأن الحياة ليس لها معنى	٠	١	٢	٣

3- مقياس المرونة النفسية - معيار كونور

الرجاء وضع علامة X في المربع اللذي يشير بصورة افضل الى أي مدى تنطبق العبارات التالية عليك خلال الثلاثين يوما الماضية. إذا لم يحدث موقف معين مؤخرا، اجب وفقا لاعتقاداتك كيف كنت ستشعر تجاه ذلك الموقف فيما لو حدث.

الرقم	العبارة	ليس صحيحا على الاطلاق	نادرا ما يكون صحيحا	أحيانا صحيح	غالبا صحيح	صحيح في كل الوقت تقريبا
١-	استطيع التأقلم عندما تحدث تغيرات					
٢-	لدي على الأقل علاقة أو قرابة واحدة وثيقة وآمنة تساعدني عندما أكون متوتراً.					
٣-	عندما لا تكون هنالك حلول واضحة لمشاكلي، أحياناً ايماني بالله او بالقدر يساعدني					
٤-	أستطيع التعامل مع أي شيء يطرا في حياتي					
٥-	نجاحي في تجارب سابقة تعطيني الثقة في التعامل مع التحديات والصعوبات الجديدة					
٦-	أحاول أن أرى الجانب الهزلي من المشاكل عندما اوجهها					
٧-	اضطراري للتعامل مع التوتر قد يجعلني شخص اقوى					
٨-	أميل الى استعادة توازني بعد مرض او إصابة او غيرها من الصعوبات					
٩-	أعتقد ان معظم الأمور تحدث لسبب ما سواء كانت سيئة او جيدة					
١٠-	أبذل اقصى جهدي بغض النظر عن ما قد تكون النتيجة					
١١-	أؤمن بأنني استطيع تحقيق اهدافي حتى مع وجود عقبات					
١٢-	حتى عندما تبدو الأمور ميؤوس منها، انا لا استسلم					

١٣-	أثناء أوقات الازمات والتوتر أعرف الى اين اتجه لطلب المساعدة					
١٤-	تحت الضغط، استطيع التركيز والتفكير بوضوح					
١٥-	أفضل الأخذ بزمام المبادرة في حل المشاكل بدلا من ترك الاخرين اتخاذ جميع القرارت					
١٦-	الفشل لا يسبب لي الإحباط بسهولة					
١٧-	اعتبر نفسي شخص قوي عند التعامل مع تحديات وصعوبات الحياة					
١٨-	عند الضرورة، استطيع اتخاذ قرارات صعبة أو غير محببة قد تؤثر على الاخرين					
١٩-	انا قادر على التعامل مع مشاعر غير سارة او مؤلمة مثل الحزن والخوف والغضب					
٢٠-	في التعامل مع مشاكل الحياة، أحيانا نتصرف بناء على الحس الباطني او الحدس دون معرفة السبب					
٢١-	لدي شعور قوي بان لي هدف في الحياة					
٢٢-	أشعر اني مسيطر على مجريات حياتي					
٢٣-	أنا احب التحديات					
٢٤-	اعمل على تحقيق اهدافي بغض النظر عن العقبات التي تعترض طريقي					
٢٥-	أنا فخور بإنجازاتي					

4- مقياس الاندماج في العمل

تتمحور الجمل التسعة التالية حول شعورك خلال العمل. يرجى قراءة هذه الجمل بعناية وتحديد ما إذا كنت تشعر أو شعرت بهذه الطريقة حيال عملك. إن لم يكن لديك هذا الشعور، اختر رقم (٠) صفر. إن كنت تشعر أو شعرت بهذا الإحساس من قبل، أشر إلى عدد المرات التي يراودك فيها هذا الشعور من خلال اختيار الرقم الذي يصف بشكل أفضل مدى شعورك بهذا (١-٦).

	قليلا جدا	نادرا	احيانا	غالبا	غالبا جدا	دائما
٠	١	٢	٣	٤	٥	٦
أبدا	بعض المرات سنويا او أقل	مرة شهريا او أقل	بعض المرات شهريا	مرة في الأسبوع	بعض المرات في الأسبوع	يوم يا

العبارة	0	1	2	3	4	5	6
أشعر انني مفعم بالطاقة في العمل							
اشعر بقوة ونشاط خلال قيامي بوظيفتي							
انا متحمس لوظيفتي							
وظيفتي تلهمني							
عندما استيقظ في الصباح ارغب في الذهاب الى العمل							
اشعر بالسعادة عندما اعمل بشكل مكثف							
انا فخور بعملي							
انا منغمس في عملي							
يتملكني الحماس عندما اعمل							

Appendix 3

Letters of Permission

Permission to Use Conor-Davidson Resilience Scale

Dear Abdelrahman:

Thank you for your interest in the Connor-Davidson Resilience Scale (CD-RISC). We are pleased to grant permission for use of the Arabic CD-RISC-25 in the project you have described under the following terms of agreement:

1. You agree (i) not to use the CD-RISC for any commercial purpose unless permission has been granted, or (ii) in research or other work performed for a third party, or (iii) provide the scale to a third party without permission. If other colleagues or off-site collaborators are involved with your project, their use of the scale is restricted to the project described, and the signatory of this agreement is responsible for ensuring that all other parties adhere to the terms of this agreement.

2 You may use the CD-RISC in written form, by telephone, or in **secure electronic format whereby the scale is protected from copying, downloading, alteration, repeated use, unauthorized distribution or search engine indexing. In all use of the CD-RISC, including electronic versions, the full copyright and terms of use statement must appear with the scale. The scale should neither be distributed as an email attachment, nor appear on social media, nor in any form where it is accessible to the public and should be removed from electronic and other sites once the activity or project has been completed. The RISC can only be made accessible in electronic form after subjects have logged in through a link, password or unique personal identifier.**

3 Further information on the CD-RISC can be found at the www.cd-risc.com website. The scale's content may not be modified, although in some circumstances the formatting may be adapted with permission of either Dr. Connor or Dr. Davidson. If you wish to create a non-English language translation or culturally modified version of the CD-RISC, please let us know and we will provide details of the standard procedures.

4 Three forms of the scale exist: the original 25 item version and two shorter versions of 10 and 2 items respectively. When using the CD-RISC 25, CD-RISC 10 or CD-RISC 2, whether in English or other language, please include the full copyright statement and use restrictions as it appears on the scale.

5. A **student-rate** fee of $ 16 US is payable to Jonathan Davidson at 2434 Racquet Club Drive, Seabrook Island, SC 29455, USA either by PayPal (www.paypal.com, account mail@cd-risc.com), cheque or bank wire transfer (in US $$). Money orders are not accepted.

6. Complete and return this form via email to mail@cd-risc.com.

7. In any publication or report resulting from use of the CD-RISC, you do not publish or partially reproduce items from the CD-RISC without first securing permission from the authors.

If you agree to the terms of this agreement, please email a signed copy to the above email address. Upon receipt of payment and the signed agreement, we will email a copy of the scale.

For questions regarding use of the CD-RISC, please contact Jonathan Davidson at mail@cd-risc.com. We wish you well in pursuing your goals.

Sincerely yours,

Jonathan R. T. Davidson, M.D.

Agreed to by: 

Signature (printed)

18th of Nov, 2022

Date

Mr. Abdelrahman Sawalmeh

Title

Arab American University

Organization

IRB Approval

Arab American University- Palestine
Deanship of Scientific Research
IRB committee
Tel: 04-241-8888, ext 1196
E-mail: irb.aaup@aaup.edu

الجامعة العربية الامريكية- فلسطين
عمادة البحث العلمي
لجنة اخلاقيات البحث العلمي
هاتف: 1196 ext 04-241-8888
البريد الالكتروني: irb.aaup@aaup.edu

IRB Approval Letter

Study Title: Psychological Reactions, Resilience, and Work Engagement among Critical Care Nurses in West Bank/ Palestine

Submitted by: Abdelrahman Nedal Jamel Sawalma

Date received: 10/12/2022

Date reviewed: 23/12/2022

Date approved: 29/12/2022

Your Study titled "Psychological Reactions, Resilience, and Work Engagement among Critical Care Nurses in West Bank/ Palestine" with archived number 2022/A/21/N was reviewed by the Arab American University IRB committee and was approved on 29th December 2022.

Reham Khalaf-Nazzal, MD, PhD
IRB committee chairman
Arab American University of Palestine

General Conditions:

1. Valid for 6 months from date of approval.
2. It is important to inform the committee with any modification of the approved study protocol
3. The committee appreciates a copy of the research when accomplished.

State of Palestine
Ministry of Health
Education in Health and Scientific
Research Unit

دولة فلسطين
وزارة الصحة
وحدة التعليم الصحي
والبحث العلمي

Ref.: ....
Date:.................

الرقـــم: عص/ ٩٦٧ / ٢٠٢٠
التـاريخ: ٤/ ٥/ ٢٠٢٠

عطوفة الوكيل المساعد لمجمع فلسطين الطبي المحترم،،،

ق. أ. الوكيل المساعد لشؤون المستشفيات والطوارئ المحترم،،،

تحية واحترام،،

الموضـــوع: تسهيل مهمة بحث

يرجى تسهيل مهمة الطالب: **عبد الرحمن نضال جميل سوالمه – ماجستير العناية المكثفة– الجامعة** العربية الامريكية، بعنوان:

"ردود الفعل النفسية، المرونة، والارتباط بالعمل بين ممرضي الرعاية الحرجة في الضفة الغربية/ فلسطين"

حيث سيقوم الطالب بجمع معلومات عن طريق تعبئة استبانة الدراسة من قبل ممرضى العناية المكثفة (بعد اخذ موافقتهم)، وذلك في:

- **مجمع فلسطين الطبي**
- **مستشفى رفيديا – مستشفى الوطني**

مع العلم ان مشرفة الدراسة: د. ملكة زهدي.
على ان يتم الالتزام بالمحافظة على اخلاقيات البحث العلمي وسرية المعلومات.
على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة وزارة الصحة.

مع الاحترام،،،

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

نسخة: عميد كلية الدراسات العليا المحترمة/ الجامعة العربية الامريكية

Appendix 4

Informed Consent

I, ... *(Name of Participant / optional)* hereby agree to take part in the clinical research questionnaire study specified below:

Title of Study: Psychological Reactions, Resilience, and Work Engagement among Critical Care Nurses in West Bank/ Palestine Fulfillment of Master degree, in Critical Care Nursing, in AAUP.

The nature and purpose of which has been explained to me by Abdelrahman Sawalmeh, and interpreted by him to the best of his/her ability in English.

I have been told about the nature of the research in terms of methodology, possible adverse effects and complications (as per Participant Information Sheet).
After knowing and understanding all the possible advantages and disadvantages of this research, I voluntarily consent of my own free will to participate in the clinical research specified above.
I understand that I can withdraw from this research at any time without assigning any reason whatsoever.

Date: ..... **Signature:** .....

(Participant)

IN THE PRESENCE OF:

Name: .....

Designation: ..... **Signature:** .....

(Witness for Signature of Participant)

I confirm that I have explained to the patient the nature and purpose of the above-mentioned research.

Date: ..... **Signature:**

.....

(Attending investigator)

الملخص

الخلفية: يرتبط الارتباط بالعمل بردود الفعل النفسية والمرونة خاصة بين ممرضي الرعاية الحرجة. هناك نقص في الدراسات حول الارتباط بالعمل والعوامل المرتبطة به في فلسطين. وبالتالي ، هدفت هذه الدراسة إلى تقييم ردود الفعل النفسية (على سبيل المثال ، التوتر ، والقلق ، والاكتئاب) ، والمرونة ، والارتباط بالعمل بين ممرضي الرعاية الحرجة الفلسطينيين في الضفة الغربية.

المنهجية: تم اعتماد تصميم ارتباطي وصفي مقطعي. تم مشاركة عينة متاحة مكونة من 273 ممرضاً يعملون في أقسام الرعاية الحرجة في المستشفيات الخاصة والحكومية. تم استخدام مقياس الاكتئاب والقلق والتوتر (21) (DASS-21) و مقياس كونر دافيدسون للمرونة-25 (CDRS-25) و مقياس أترشت للإرتباط بالعمل-9 (UWES-9) والبيانات الديموغرافية لجمع البيانات خلال الفترة من 20 آذار إلى 20 أيار 2023.

النتائج: أظهرت النتائج أن 53.9٪ من الممرضين أبلغوا عن مستويات خفيفة إلى متوسطة من الاكتئاب ، و 49.8٪ أبلغوا عن مستويات متوسطة إلى شديدة من القلق ، و 49.1٪ أبلغوا عن مستويات متوسطة إلى شديدة من التوتر. بالإضافة إلى ذلك ، كان 57.5٪ منهم يتمتعون بمرونة منخفضة و 52.7٪ لديهم ارتباط عمل منخفض. علاوة على ذلك ، يرتبط الاكتئاب(معامل الارتباط =-0.796 ، القيمة الإحتمالية < 0.01)، القلق (معامل الارتباط =-0.654 ، القيمة الإحتمالية < 0.01)، التوتر (معامل الارتباط =-0.796 ، القيمة الإحتمالية < 0.01) سلبا مع الارتباط بالعمل، بينما ترتبط المرونة (معامل الارتباط= 0.42 ، القيمة الإحتمالية < 0.01)، والجنس (معامل الارتباط =0.121 ، القيمة الإحتمالية < 0.05) ارتباطًا إيجابيًا بالارتباط بالعمل. الاكتئاب والقلق والتوتر والمرونة والجنس من العوامل الرئيسية التي تنبئ بالارتباط بالعمل.

الاستنتاجات: يجب على صانعي السياسات ومديري المستشفيات تطوير تداخلات لتحسين مرونة ممرضي الرعاية الحرجة وتقليل ردود الفعل النفسية ، والتي كان لها تأثير كبير على الارتباط بالعمل. يجب إجراء دراسات مستقبلية على هذه التداخلات لاختبار فعاليتها.

الكلمات المفتاحية: ممرضي الرعاية الحرجة ، الضغط النفسي ، القلق ، الاكتئاب ، المرونة ، المشاركة في العمل