University of Arkansas, Fayetteville

ScholarWorks@UARK

The Eleanor Mann School of Nursing Student Works

The Eleanor Mann School of Nursing

9-2020

Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

Bushra Salamah
University of Arkansas, Fayetteville

Follow this and additional works at: https://scholarworks.uark.edu/nursstudent

 Part of the Critical Care Nursing Commons, Psychiatric and Mental Health Commons, and the Psychiatric and Mental Health Nursing Commons

Citation

Salamah, B. (2020). Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19. *The Eleanor Mann School of Nursing Student Works.* Retrieved from https://scholarworks.uark.edu/nursstudent/13

This Project is brought to you for free and open access by the The Eleanor Mann School of Nursing at ScholarWorks@UARK. It has been accepted for inclusion in The Eleanor Mann School of Nursing Student Works by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu.

UNIVERSITY OF ARKANSAS
College of Education and Health Professions
Eleanor Mann School of Nursing

Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

Bushra Salamah

The University of Arkansas

Eleanor Mann School of Nursing

DNP Chair: Dr. Angela Stewart

DNP Team Member(s): Dr. Michelle Kilmer

Dr. Susan K. Patton

Date of Submission: September 22, 2020

Table of Contents

Abstract....3
Introduction....4
Background and Significance....4
Problem Statement....9
Purpose Statement....9
PICOT Question....10
Needs Assessment....10
Objectives and Aims....11
Review of Literature....12
Theoretical Framework....19
Methodology....22
Project Design....21
Project Description....21
Setting....22
Study Population....22
Study Interventions....23
Outcome Measures....24
Benefits/Risks....24
Subject Recruitment....25
Consent Procedure....25
Subject Costs and Compensation....25
Resources Needed/Economic Consideration....25
Project Timeline....25
Evaluation Plan....30
Data Maintenance/Security....30
Data Analysis....31
Findings....44
Recommendations and Discussion....45
Economic/Cost Benefit....45
Impact on Healthcare Quality and Safety....45
Policy Implications....46
Translation....46
Sustainability....46
Dissemination....46
Professional Reporting....46
Conclusion....47
References....49

Abstract

Coronavirus disease (COVID-19) has spread domestically and internationally, with approximately 134 billion confirmed cases worldwide and over 2 million deaths attributed to the virus. Frontline healthcare workers are at a substantially higher risk of infection and death due to excessive COVID-19 exposure while also facing mental health challenges. Epidemiological data on the mental health statuses of frontline nurses is still limited. The aim of this study was to examine mental health (burnout, stress, emotional exhaustion, disengagement) and associated factors among Intensive Care Unit (ICU) Nurses who are caring for COVID-19 patients to support and maintain their psychological well-being.

Keywords: COVID-19, SARS COV-2, intensive care unit nurses, critical care nurses, mental health, stress, burnout.

Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

The purpose of the proposal is was detail a DNP clinical inquiry project designed to explore the mental health needs of intensive care unit (ICU) nurses facing the pandemic of novel coronavirus 2019 (COVID-19) to further understand the circumstances. First, the proposal discussed the incidence of COVID-19, as well as detail the background and significance of COVID-19. Then the proposal presented a systematic review of the literature detailing current trends and gaps with the utilization of the Conservation of Resources Theory (COR). The COR theory contributes to the field of trauma psychology, by providing guidance for treatment programs and promoting the exploration of both protective factors and risk factors for the development of traumatic stress (Hobfoll, et al., 2018). By increasing our understanding of resources available and how resources assist in coping, we are better able to meet the needs of ICU nurses working during the pandemic. Finally, the proposal discussed the survey of ICU nurses, how to improve the psychological well-being and how to manage the mental health issues that arise in ICU nurses.

Background & Significance

In December 2019, Wuhan, China witnessed a mysterious cluster outbreak of pneumonia that was identified as a novel strain of coronavirus (COVID-19) after causing significant morbidity and mortality (Cascella, 2020). The infection continued its spread domestically and internationally, threatening human health. The virus was then declared as a Public Health Emergency of International concern on January 30th, 2020 and later as a pandemic by the World Health Organization (WHO) on March 11th 2020 (WHO, 2020). To date (April 9, 2021) there have been over 134 billion confirmed cases worldwide and over 2 million deaths attributed to

COVID-19. The United States surpassed all other nations in the number of positive cases reported (Worldmeters, 2020).

The novel pathogen that is widely known as COVID-19 belongs to a large family of viruses known as coronavirus (Cascella, 2020 & Martines, et al., 2020). Coronaviruses are positive-stranded RNA viruses that were first detected in the mid-1960's that can be isolated in different animal species (Cascella, et al., 2020). COVID-19 is a subcategory of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). SARS-CoV-2 belongs to the group of beta-coronaviruses that includes severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV), which can infect the lower respiratory tract and cause a severe and fatal respiratory syndrome in humans (Cascella, 2020 & Martines, et al., 2020). Initial cases reported to be associated with exposure to the seafood market in Wuhan, but current epidemiologic data indicate that person-to-person transmission of COVID-19 was occurring (Cascella, et al., 2020). The first case of COVID-19 infection confirmed in the United States led to the description, identification, diagnosis, clinical course, and management of this case (Holshue, et al., 2020).

The clinical presentation of COVID-19 symptoms vary widely (Cascella, 2020, Martines, et al., 2020, Rothan, & Byrareddy, 2020). Symptoms of COVID-19 infection have shown to develop after an incubation period of approximately 5.2 days and up to 2 weeks as the longest time from infection (Cascella, 2020 & Rothan, & Byrareddy, 2020). The most common symptoms of COVID-19 illness are fever, cough, and fatigue, while other symptoms may include sputum production, headache, hemoptysis, diarrhea, dyspnea, anosmia, and ageusia (Cascella, et al., 2020 & Rothan, & Byrareddy, 2020). Radiological imaging has a fundamental role in the diagnostic process, management, and follow-up since the virus manifests itself as pneumonia.

The initial stages of the disease the x-ray may be completely negative, however the chest x-ray examination generally shows bilateral multifocal alveolar opacities in the more advanced stages of infection (Cascella, et al., 2020). Given the high sensitivity of chest computed tomography (CT) scan CT is the method of choice in the study of COVID-19 (Cascella, et al., 2020 & Rothan, & Byrareddy, 2020). CT revealed that there were abnormal features such as RNAaemia, acute respiratory distress syndrome (ARDS), acute cardiac injury, and multifocal bilateral "ground glass" areas associated with consolidation, and patchy distribution (Cascella, et al., 2020). In some cases, the multiple peripheral ground glass opacities were observed in peripheral or subpleural regions of both lungs with greater involvement of the posterior regions and lower lobes that likely induced both systemic and localized immune response that led to increased inflammation (Rothan, & Byrareddy, 2020).

At present, there are no specific antiviral drugs or vaccine against COVID-19 infection for potential therapy of humans (Cascella, et al., 2020 & Rothan, & Byrareddy, 2020). The only option available is using broad-spectrum antiviral drug isolation, symptomatic support, and close monitoring of disease progression.

The aggressive nature of the virus is directly connected with the possibility of transmission before symptoms, therefore individuals who remain asymptomatic could transmit the virus (Cascella, 2020). Social distancing and quarantine was shown as the best way to contain the pandemic (Brooks, et al., 2020). Governments and communities have also implemented drastic social distancing measures ranging from orders to shelter in place, closing of local businesses, implementing curfews, cancelling major concerts and sporting events, and closure of schools and universities to limit the community spread of COVID-19 (Brooks, et al., 2020).

As outbreaks increased across the country infecting millions of people, hospitals and health care systems have been tested in their abilities to treat hundreds of thousands of Americans in an effort to save lives and minimize the virus' spread (AHA, 2020). This includes the establishment of testing tents, adding general and intensive care unit (ICU) beds, and developing COVID-19 units to isolate and treat patients with the disease while protecting the health of other patients and hospital staff. These challenges have created financial pressures for America's hospitals and health systems, generating a demand for certain medical equipment and supplies as the virus has disrupted supply chains.

Healthcare workers are known for their stamina and emotional resilience in the workplace, however, COVID-19 has created a new set of standards (Santarone, McKenney, & Elkbuli, 2020). The current situation has generated a range of stressors that could negatively healthcare workers, specifically critical care nurses. Nurses constitute the largest part of the healthcare workforce in a pandemic and they undertake most of the tasks related to infectious disease containment and are uniquely characterized and known for their empathy, endurance, and emotional resiliency during stress (Nayna Schwerdtle, et al., 2020). Research evidence shows that health professionals can experience various psychological problems when working in high-pressure and high-risk scenarios, such as in times of disaster and pandemic (Shen, et al., 2020). In addition to the contextual factors surrounding COVID-19; such as the ease of transmission, delayed testing, limited personal protective equipment, uncertainty of the pandemic trajectory and the general level of anxiety within the community increase pressure on healthcare systems (CDC, 2020).

A survey conducted in the UK revealed that 12% of ICU physicians reported clinically relevant depressive symptoms and 3% were bothered by suicidal thoughts pre-pandemic

(Schäfer, et al., 2018). As well as 18% of ICU nursing staff in a university hospital in the United States, meet criteria for burnout syndrome and surpassing the cut-off for post-traumatic stress disorder (PTSD) (Schäfer, et al., 2018). Overall, the high prevalence of stress-related symptoms seems to be the outcome of continuous exposure to unpredictable stressful events at work and difficulties in developing coping strategies (Nayna Schwerdtle, et al., 2020 & Santarone, McKenney, & Elkbuli, 2020).

The public health challenges that our communities face as a result of COVID-19 are unprecedented. While addressing the physical health and understanding the epidemiological aspects of COVID-19 is imperative, it is rather critical that we also consider looking into the impacts on mental health that have arisen during this pandemic (Choi, et al., 2020 & Schäfer, et al., 2018). Throughout the years, mental health awareness has been on the rise, however, there remains a critical shortage of mental health care providers and resources in the United States (MHA, 2020).

Mental illnesses are common in the United States. Prior to the COVID-19 pandemic, one in five adults in the U.S. have reported having a mental illness in the past year, and over 11 million had a serious mental illness, which frequently results in functional impairment and limits life activities (NIMH, 2020). A Kaiser Family Foundation (KFF) Tracking Poll was conducted in mid-July 2020, 53% of adults in the United States reported that their mental health has been negatively impacted due to worry and stress over the coronavirus (KFF, 2020). This is significantly higher than the 32% initially reported in March. Reports of negative impacts on mental health and wellbeing, difficulty sleeping or eating, increases in alcohol consumption or substance use, and worsening chronic conditions, due to worry and stress over the coronavirus have been reported by adults (KFF, 2020). Similarly, during the severe acute respiratory

syndrome (SARS) epidemic, 29%–35% of hospital workers suffered from a high degree of emotional distress (Que, et al., 2020). Even several years later, 10% of healthcare workers still reported symptoms of post-traumatic stress (Que, et al., 2020). During this time of uncertainty and fear, it is predicted that mental health issues and substance use disorders among people with these conditions will be exacerbated (KFF, 2020).

As we focus on containing the spread of the virus and preventing mortality, the pandemic has the potential to create a secondary crisis of psychological distress and mental health system spillover (Choi, et al., 2020). The threat of this mental health crisis must be addressed as part of a comprehensive public health response to COVID-19. With the number of confirmed cases increasing, overwhelming workload, shortage of personal protection equipment, and inadequate supported may all contribute to the mental burden of these front line health care workers who are directly involved in the care of patients with COVID-19 (Rothan, & Byrareddy, 2020 & Santarone, McKenney, & Elkbuli, 2020).

Problem Statement

The problem statement for this DNP clinical inquiry project is that the emergence of a novel form of Coronavirus (COVID- 19) has created a confusing and rapidly evolving patient care situation placing intensive care unit (ICU) nurses are at risk for disrupting their psychological well-being. ICU nurses who experience stress, anxiety, and psychological distress as they provide acute care for patients with COVID-19 may require additional mental health services as they seek to recover from these occupational hazards.

Purpose Statement

The purpose of this DNP clinical inquiry project is to investigate the psychological impact of the COVID-19 outbreak among ICU nurses to maintain their psychological well-being.

Health care organizations and researchers will need to monitor the mental health outcomes of ICU nurses over time and prioritize the mental health needs of individuals caring for patients with COVID-19.

PICOT Question

How do intensive care unit (ICU) nurses (P) on the frontline of the COVID 19 pandemic (I) perceive the impact of their mental health (O) in their current practice (T)?.

Needs Assessment

As confirmed cases of the Coronavirus disease (COVID- 19) have rapidly increased globally, the World Health Organization (WHO) declared a pandemic (WHO, 2020). COVID-19 quickly spread from a single city to the entire world in a matter of a couple of months. The sheer speed of both the geographical expansion and the sudden increase in numbers of cases of COVID-19 has led to one of the most alarming communicable disease in the world (Cascella, 2020).

Millions of people all countries, races, and socioeconomic groups have been affected by COVID-19, hundreds of thousands have experienced critical illness, and tens of thousands have died (WHO, 2020). The responses required, such as quarantining of entire communities, closing of schools, social isolation, and shelter-in-place orders, have abruptly changed daily life (Brooks, et al., 2020).

Health care professionals of all types are caring for patients with this disease. The rapid spread of COVID-19 and the severity of symptoms has acutely taxed the limits of health care systems (AHA, 2020). The surges in critically ill patients has lasted for several months, therefore it is essential that health care professionals be able to perform to their full potential over an extended time interval (Choi, et al., 2020). There are major concerns and uncertainty not only

regarding when a return to normalcy might occur, but also regarding what that change will be like, in terms of the implications related to the lingering risk of ongoing COVID-19 disease (Choi, et al., 2020 & Schäfer, et al., 2018).

As the pandemic begins to wane in the months ahead, the psychological symptoms may subside for some frontline workers but may persist for others. The wellbeing and emotional resilience of ICU nurses are key components of maintaining essential healthcare services during the COVID-19 virus outbreak (Shanafelt, et al., 2020). At present, studies on COVID-2019 mostly focus on epidemiological investigation, prevention and control, diagnosis and treatment. Fewer studies have investigated the mental health problems that arise amongst intensive care unit nurses during the pandemic of COVID-19. The purpose of the present study is to investigate the psychological burden among intensive care unit nurses to provide psychological support, improve mental health support services and strengthening mental healthcare worldwide.

Objectives and Aims

In light of the unprecedented public health crisis of the COVID-19 pandemic, it is highly important to acknowledge the psychological impact of this mounting threat on ICU nurses. The aim is to support ICU nurses to help protect their mental health. The objectives of this project are as follows:

1. To examine the prevalence of mental health and psychosocial problems amongst intensive care unit nurses.
2. To identify sociodemographic differences to mental health in response to the COVID-19 outbreak.
3. Evaluate the prevalence of burnout amongst intensive care unit nurses.
4. Evaluate perceived stress amongst intensive care unit nurses.

5. Psychological considerations during pandemic outbreak

Review of Literature

This is a review of the existing literature on mental health impact relevant to the COVID-19 pandemic. A search of CINAHL and MEDLINE electronic databases were used using the search terms “novel coronavirus”, “COVID-19”, “mental health”, “psychiatry”, “psychology”, “nurses”, “intensive care nurses”, “anxiety”, “depression” and “stress” in various arrangements and combinations. Due to the corona virus being a recent and evolving topic, research articles used were limited to the years 2020. A total of 65 citations were retrieved using this method. On reviewing the above citations, 25 articles were excluded: 5 because they were available only in Chinese, and 20 as they dealt with other aspects of the COVID-19 outbreak, such as drug therapy, public health and preventive measures, and organization of health care systems. The final search yielded 13 articles of value that were utilized.

Sociodemographic Variables

Among the studies included in the review, the majority highlighted that women are at an increased risk for having worse physical and mental health during the pandemic (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020). The cross-sectional survey done by Lai J., 2020 revealed a high prevalence of mental health symptoms among health care workers treating patients with COVID-19 in China (Lai et al., 2020). Of the 1257 responding participants, 764 (60.8%) were nurses. The study further indicated that being a woman and having an intermediate professional title were associated with experiencing severe depression, anxiety, and distress (Lai et al., 2020). Similarly a study done by Candady, suggested that female nurses at the front-lines working in Wuhan, China, reported more severe degrees of all measurements of mental health symptoms than other health care workers (Candady et al., 2020). Studies have

shown that gender differences exist regarding the ability to cope with stress (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020).

In regards to age, the mean age of the medical staff in the studies ranged between 26–40 years old (Lai et al., 2020). Younger healthcare workers were more afraid of infection while older healthcare workers were also worried about the risk of death (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020). Respectively, all age groups in the study done by Cai, expressed psychological stress when they saw their colleagues under stress (Cai et al., 2020). Medical staff ranging between the age of 31–40 years old had the greatest concern regarding viral transmission to their families, possibly because most of them had young children and living parents in their families (Cai et al., 2020).

Results suggested that some personality traits, feeling loneliness, having previous mental disorders or physical complaints, have been found to increase the likelihood of suffering from anxiety or depressive symptoms, while extraversion, self-efficacy or parental attachment style have been found to foster resilience (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020).

Environmental Factors

Kang (2020), reported that the degree of contact with confirmed or suspected cases and access to psychological materials and resources is related to the extent of mental health disturbances (Kang et al., 2020). During previous outbreaks of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), frontline medical staff had high levels of stress that resulted in posttraumatic stress disorder (PTSD) were reported (Cai et al., 2020). Four major risk factors were identified for stress in medical staff during the SARS outbreak, including the perception of the their risk of infection, the impact on work, feelings of depression,

and working in high-risk medical units (Brooks et al., 2020). The current literature has revealed that healthcare workers who work in emergency departments, intensive care units, and isolation wards have a greater risk of developing adverse psychiatric outcomes than those of other departments, possibly because they are directly exposed to the infected patients, and their work is highly demanding (Naushad et al., 2019). Including long working hours, risk of infection, shortages of protective equipment, physical fatigue, and increased workloads (Kang et al., 2020). In consistency with other studies, long working hours per week increases stress, which correlates with the fear of infection and high risk of occupational exposure (Cai et al., 2020 & Spoorthy et al., 2020). High levels of workplace stress have also been related to high staff absenteeism and low levels of productivity (Heckman, 2020). According to the American Institute of Stress, 94% of American workers in 2019 reported that they experienced stress at their workplace (Heckman, 2020).

Participants that were included in studies, comprised an array of hospital healthcare workers that included doctors, nurses, respiratory therapists, healthcare assistants, and administrative employees (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020, Kang et al., 2020, Xiao et al., 2020). Healthcare personnel psychological wellbeing differentiated across the board depending on their involvement and degree of direct patient contact (Liu et al., 2020). The review done by Xiao (2020), showed that nurses have higher anxiety and depressive symptoms compared to doctors. Nurses were more likely to report higher levels of distress than any other group of healthcare professionals due to their close, frequent contact with patients and long working hours (Lai et al., 2020 & Liu et al., 2020). Similarly, during the SARS outbreak, a study was conducted amongst healthcare workers in the emergency

departments that reported nurses were more likely to develop distress and use behavioral disengagement than physicians (McAlonan et al., 2007).

Nursing is perceived as a strenuous job with high and complicated demands at baseline (Heckman, 2020). The high job demands in combination with the high levels of responsibility, long working hours, the quality of the relationships between hospital workers, poor work environment, and increased workload have all identified as some of the primary sources of occupational stress amongst nursing staff (Heckman, 2020). In 2012, Mealer published results of a national survey that indicated that, among 744 ICU nurses, 18% of them had anxiety symptoms, and 11% had the symptoms of depression (Mealer et al., 2012). There was a high rate of burnout syndrome with 80% of nurses having positive symptoms in at least one of the three individual dimensions: 61% were positive for emotional exhaustion, 44% were positive for depersonalization, and 50% were positive for lack of personal accomplishment (Mealer et al., 2012). Work environments that promote autonomy, access to resources, and positive support systems have been associated with job satisfaction and positive organizational outcomes (Heckman, 2020).

Based on the review of the impact of the disaster on the mental health of healthcare workers, the identified common risk factors for developing psychological morbidities include a lack of social support and communication, maladaptive coping, and a lack of training (Lai et al., 2020). Shortage of personal protection equipment has also been associated with fear of contagion among healthcare workers, especially among those at the first line of care. Due to not fully understanding the pathogenesis of COVID-19 in the initial stages of the outbreak, it has subsequently led to the spread of inadequate information (Brooks et al., 2020 & Dubey et al., 2020). The awareness of personal protection was not strong enough, therefore, the front-line

healthcare workers did not implement the effective personal protective equipment (PPE) before conducting treatment for long hours and to large numbers of infected patients (Wang, et al., 2020). New findings suggested aggressive measures of PPE such as N95 masks, goggles, and protective gowns to ensure the safety of healthcare workers during the outbreak, as well as future outbreaks. This resulted in a rapid increase in the demand for PPE, which later caused a worldwide shortage of PPE (Dubey et al., 2020).

During the rapid spread of the COVID-19 global pandemic, healthcare workers did not initially receive adequate training of donning and doffing PPE in the order to practice infection prevention and control (Brooks et al., 2020 & Wang, et al., 2020). Professional supervision and guidance were lacking, which further increased the risk of infection for healthcare workers.

It has been found that support from colleagues and supervisors with clear communication of precautionary measures can help reduce psychological symptoms (Candady et al., 2020, Cai et al., 2020, Lai et al., 2020, Liang et al., 2020, Kang et al., 2020, Xiao et al., 2020). Whilst, appropriate infection-control measures may mitigate and facilitate an adaptive stress response (Cai et al., 2020). Therefore, it is imperative to have adequate training on infection control with clear protocols to follow and the hospital protocols for COVID-19 should be precise and accurate before dissemination to all staff.

Psychological symptoms reported among health care workers exposed to COVID-19

A cross-sectional survey was conducted amongst healthcare workers in Wuhan, China to evaluate mental health outcomes among health care workers treating patients with COVID-19. This survey sought to quantify the magnitude of symptoms of depression, anxiety, insomnia, and distress and by analyzing potential risk factors associated with these symptoms (Lai et al., 2020).

A significant proportion of participants experienced anxiety (45%), depression (50%), and insomnia (34%), and more than 70% reported psychological distress (Lai, et al., 2020).

In the early stage, nurses from other regions outside of Wuhan City did not communicate with each other and usually felt lonely (Shen, et al., 2020). As nurses worried about their families and vice versa. A compilation of these factors have led to high psychological pressure among ICU nurses in Wuhan. A survey completed by Shen (2020), found that 85 ICU nurses main manifestations were decreased appetite or indigestion (59%), fatigue (55%), difficulty sleeping (45%), nervousness (28%), frequent crying (26%), and even suicidal thoughts (2%). Especially, young nurses with no experience of caring for critically ill patients (Shen, et al., 2020).

In another study using observational cross-sectional clinical study that used Structural equation modeling (SEM) showed that medical staff had increased levels of anxiety, stress, and self-efficacy that were dependent on sleep quality and social support (Xiao et al., 2020). According to Li (2020), it was shown that nurses working with patients exposed to COVID-19 in China experienced higher vicarious traumatization scores than those working in other settings. Studies showed that those health care workers feared contaminating and infecting their family, friends, and colleagues, felt uncertainty and stigmatization, reported reluctance to work or contemplated resignation, and reported experiencing high levels of stress, anxiety, and depression symptoms, which may lead to long-term psychological implications (Canady 2020; Li et al, 2020; Shen et al., 2020; Xiao et al., 2020). Frontline healthcare workers facing the COVID-19 pandemic face increased psychological pressure and experience high rates of psychiatric morbidity similar to situations during SARS (Spoorthy et al., 2020). Studies during SARS and MERS outbreaks have shown that medical staff are not only under stress during

epidemics, but they may also suffer psychologically long after the initial outbreak is over (Cai et al., 2020).

Screening Recommendations

Various tools were in these studies, specifically self-report scales. Self-report scales are appropriate for screening disorders as they rely on individuals' perceived or subjective feelings regarding symptoms, and the results can be influenced by factors such as age, education level, character, and gender (Jeon et al., 2018). Tools that were suggested to use for this study include Maslach Burnout Inventory, Perceived Stress Scale, Generalized Anxiety Disorder, Self-Rating Anxiety Scale, and Stanford Acute Stress Reaction Questionnaire. For the purposes of this study, Perceived Stress Scale and Oldenburg Burnout Inventory were used.

Survey Outreach

Online surveys have advantages as well as disadvantages. Online surveys have become the predominant method of increasing participation in academic research for its ease, quick response, and low cost (Wright, 2017). Educational scholars have noticed a decline in the response rate of online surveys compared to postal surveys (Saleh, 2017). Online surveys also have distinctive features based on design, distribution, and evaluation of data. The relevance of the topic and length of survey to the responders is also a major factor in the response rate. A poor response rate may render any subsequent data relatively useless of how much time, effort, and expense was devoted, leading results to no longer be representative and generalizable to the larger population (Saleh, 2017 & Wright, 2017).

Results indicated, that survey response rate was highly influenced by participant interest, survey structure, communication methods, frequent reminders, and most importantly assurance of privacy and confidentiality (Saleh, 2017 & Wright, 2017).

Discussion

In addressing the COVID-19 pandemic, the protection and safety of healthcare workers is a crucial component of public health that is of utmost importance. This not only includes their physical well-being, but also their mental health well-being. Fortunately, since the onset of this pandemic, it has been clear that mental health has been a top priority and has been the topic of consideration. This is evident by a forceful response from psychiatrists and affiliated professionals, voicing their support through the literature with their publications. Although the available literature has a relatively low quality of evidence, it nevertheless contains many observations and valuable suggestions for all healthcare workers that are impacted by COVID-19. However, additional research and studies with higher quality of evidence are needed to effectively address the mental health impact of COVID-19.

As the days progress with COVID-19 still present and the number of patients affected continues to rise, it will inevitably present both a challenge and opportunity in addressing the mental well-being of healthcare workers. The long-term impact on the mental well-being of healthcare workers is still unknown, and it may take several months to years before it is broadly apparent. Despite this, managing the impact of COVID-19 will require concerted effort from all facets of the healthcare system. Therefore, it is increasingly imperative that studies utilizing strong systemic and sound methods, begin focusing on the psychological impact of COVID-19 on healthcare workers to produce quality evidence. Only from such reporting is it possible to identify the barriers and limitations at hand, which can be used to determine opportunities for achieving solutions.

Theoretical Framework

The Conservation of Resources Theory (COR), was first discovered by Hobfoll (1989) where it explained the nature of stress and the association between one's physical and social environmental demands in relation to the individual's perception to derive value and to meet the demands (Prapanjaroensin et al., 2017). COR main concept states that individuals strive to obtain, maintain and create resources that they value. It follows a basic model that correlates with the motivational theory, that explains much of human behavior based on the evolutionary need to acquire and conserve resources for survival, which is central to human behavioral genetics. Additionally, COR can be applied to describe the increased burnout and stress levels seen in healthcare workers, as burnout is explained as a physical exhaustion from an excessive workload that is correlated with staff feeling overwhelmed and unable to meet their work-related goals because a heavy work-load decreases time to consider how to mobilize resources and the complexity of problems can be beyond intellectual and organizational resources (Hobfoll, et al., 2018 & Prapanjaroensin et al., 2017).

According to COR theory, when individuals experience a loss of resources they respond by attempting to limit the loss and maximizing the gain of resources (Hobfoll, et al., 2018). When circumstances at work or elsewhere threaten an individual's ability to obtain or maintain resources, stress ensues. Following this basis, COR theory suggests that stress occurs (a) when central or key resources are threatened with loss, (b) when central or key resources are lost, or (c) when there is a failure to gain central or key resources following significant effort (Hobfoll, et al., 2018 & Prapanjaroensin et al., 2017). COR applies to this DNP inquiry project as it explains the etiology, progression, and consequences of nurse burnout and can guide interventions to decrease burnout and future research that studies the relationship between professional nurse burnout and patient safety.

Principles of Conservation of Resources Theory

The first principle of COR theory is that resource loss is disproportionately more salient than resource gain (Hobfoll et al., 2018, Prapanjaroensin et al. 2017). Resources include object resources, condition resources, personal resources, and energy resources. Specifically, COR theory suggests that resource loss not only is more powerful than resource gain in magnitude but also tends to affect people more rapidly and at increasing speed over time.

The second principle of COR theory is that people must invest resources in order to protect against resource loss, recover from losses, and gain resources (Hobfoll et al., 2018, Prapanjaroensin et al. 2017). This includes direct replacement of resources, such as using savings to pay for lost income.

The third principle of COR theory is paradoxical (Hobfoll et al., 2018, Prapanjaroensin et al. 2017). It states that resource gain increases in salience in the context of resource loss. That is, when resource loss circumstances are at high stakes, resource gains become more important.

The fourth principle of COR theory is that when their resources are outspread or utilized, individuals enter a defensive mode to preserve the self that is often aggressive and may become irrational (Hobfoll et al., 2018, Prapanjaroensin et al. 2017). Like other aspects of COR theory, this is likely to be a built-in evolutionary strategy that may be defensive or exploratory. In this way, a defensive withdrawal allows time to regroup or to wait for help, or it allows the stressor to pass. Aggressive responses may be beneficial as they can potentially change the array of stressors or allow for the emergence of a new coping strategy.

COR theory provides a theoretical model for preventing resource loss, maintaining existing resources, and gaining resources necessary for engaging in healthy behaviors. Utilizing the principles of COR theory, the phenomena of stress and burnout amongst ICU nurses during

the pandemic is further understood. Throughout this project we aim to explore the current psychological effects that have resulted from the pandemic as the Conservation of Resources theory can guide interventions to decrease burnout and future research that examines the relationship between professional nurse burnout and patient safety.

Methodology

Project Design

This clinical inquiry study was conducted to explore and evaluate the prevalence of burnout and stress among frontline critical care nurses who are caring for COVID-19 positive, or potentially positive patients. This project utilized an exploratory research design using valid and reliable survey tools with scoring systems. OLdenburg Burnout Inventory (OLBI) is to be used to determine the prevalence of burnout and Perceived Stress Scale (PSS) to measure the perception of stress.

Project Description

Clinical inquiry projects allow for investigation and further understanding the conditions from first-hand experience (Stillwell, 2010). The project follows the seven steps of evidence-based practice (EBP) methodology. Research studies show that evidence-based practice (EBP) leads to higher quality care, improved patient outcomes, reduced costs, and greater nurse satisfaction than traditional approaches to care (Stillwell, 2010).

Step 0 was initiated with inquiry about current mental health practices in intensive care units. Step 1 will be focused on the PICOT question: How do ICU nurses (P) with the frontline of the COVID 19 pandemic (I) perceive the impact of their mental health(O) in their current practice (T)? Step 2 involved a comprehensive literature review to identify the current psychological impact of COVID-19. Step 3 involved the critical appraisal of the evidence found

during Step 2 to include the creation of an evidence-based table. Step 4 involved the integration of the evidence into a thorough summary, the use of an appropriate survey for ICU nurses based on the evidence found, dissemination of the survey, following up on incomplete surveys as appropriate, and collection of the completed surveys. The surveys selected; OLdenburg Burnout Inventory (OLBI) and Perceived Stress Scale (PSS), with the additional demographic questions. The survey will be an online survey on the Qualtrics platform. Step 5 involved the evaluation of the survey findings about current practice and comparison of the findings against current literature. The final step, Step 6, involves dissemination of the findings.

Setting

The setting of the survey was conducted online through Qualtrics a web-based survey platform targeting intensive care unit nurses via American Nurses Association (ANA) and American Association of Critical-Care Nurses (AACN).

Population

The target audience for this study includes intensive care unit registered nurses working the frontlines of the pandemic and providing direct care to patients who have a COVID-19 diagnosis or symptoms suggesting the illness. The sample size was dependent on the number of eligible respondents to the distributed survey. Inclusion criteria consists of active RN license and actively providing care for COVID-19 patients in intensive care units. Exclusion criterion will include nurses who are not currently in direct care of COIVD-19 patients in the ICU.

Study interventions

The study administered the OLBI and PSS to critical care registered nurses in the ICU in order to gain insight into the current mental health and attitudes of those critically caring for ill COVID-19 positive patients during pandemic.

Pre-implementation

During the pre-implementation phase, step 0 through step 3 were completed in preparation for proposal development and Institutional Review Board (IRB) submission. Step 0 began with inquiry about current mental health practices in intensive care units. Step 1 focused on the PICOT question: How do critical care nurses (P) with the frontline of the COVID 19 pandemic (I) perceive the impact on their mental health(O) in their current practice in the ICU (T)? Step 2 included a comprehensive literature review to identify the current psychological impact of COVID-19. Step 3 involved the critical appraisal of the evidence found during Step 2 to include the creation of an evidence-based table.

The proposal for the development and evaluation of the project was approved by the University of Arkansas's Eleanor Mann School of Nursing Doctoral committee on September 23rd, 2020. The project proposal was then submitted to IRB on October 15, 2020 for protocol review.

Implementation

IRB approval was received on December 17, 2020. In preparation of implementation application of step 4 was completed. Step 4 involved the selection of an appropriate survey for critical care nurses based on the evidence found, dissemination of the survey, following up on incomplete surveys as appropriate, and collection of the completed surveys. Survey link was posted live on the AACN survey website January 15, 2021.

PDSA Cycles

As the project progressed, unforeseen issues arose in participant recruitment requiring modifications. These changes took place using Plan, Do, Study, Act (PDSA) cycles. The following are the PDSA cycles that occurred during the project implementation phase.

PDSA Cycle 1. After receiving IRB approval and having survey created with the platform Qualtrics it was crucial to have survey deployed. Contact with American Association of Critical- Care Nurses (AACN) was made to have survey posted to website. Survey was posted to website within a couple of days. A total of 50 surveys returned within the first week.

PDSA Cycle 2. Survey response decreased. Contact with AACN and American Nurses Association (ANA) to access email lists. Organizations were unable to provide email lists due to security reasons. Utilization of AACN and ANA Facebook social media pages were used.

PDSA Cycle 3. In effort to increase survey response, primary investigator also worked with surrounding hospital ICU and All Nurses website. Local ICU was able to share survey link with nursing staff. All Nurses website was unable to assist with survey outreach.

PDSA Cycle 4. After several weeks of survey outreach, a total of 130 surveys were returned with 108 deemed feasible for this study. The implementation phase ended on March 15, 2021.

Post-implementation

Evaluating data and plan for dissemination of results utilizing step 5 and 6. Step 5 involved evaluation of the survey findings about current practice and comparison of the findings against current and previous pandemic literature . The final step, Step 6, involves dissemination of the findings.

Study instruments

The survey tool comprised of three parts: The first part of the tool asked questions pertaining socio-demographic and work-related characteristics. Participants are requested to indicate their age, gender, marital status, job title, education level, place of work, and years of experience. This section also asks whether the respondent has been involved in the direct care of corona patients.

The second part of the study tool utilizes a The OLdenburg Burnout Inventory (OLBI). OLBI consists of 16 positively and negatively formulated items that are used to evaluate the two dimensions of burnout on a 4-point scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree) (Sinval et al., 2019). OLBI is a reliable and valid measurement instrument for the assessment of burnout, which can be used as an alternative to the widely used Maslach Burnout Inventory.

The third part of the study tool utilizes the Perceived Stress Scale (PSS). PSS is a widely used psychological instrument for measuring the perception of stress (Cohen et al., 1983). It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen et al., 1983). The 10-item PSS measures global perceived stress experienced across the past 30 days on a 5-point scale (0 – never, 1 = almost never, 2 = once in a while, 3 = often, 4 = very often) that has previously displayed validity and reliability.

The study uses a convenience sampling method for recruitment. Invitation to participate in the study is to be made through professional nursing organizations. The message included an invitation explaining the purpose of the study, the name and contact details of the principal investigator, and a live link to the host survey platform.

Study Measures

Conceptual Definitions:

OLBI has two subscales exhaustion and disengagement. OLBI defines exhaustion as a consequence of intense physical, affective, and cognitive strain, for example, a long-term consequence of prolonged exposure to specific job demands (Sinval et al., 2019). Disengagement, is related to distancing oneself from ones' work in general, work object, work

content. Additionally, the disengagement items concern the relationship between employees and their jobs, particularly concerning the identification with work and willingness to continue in the same occupation. Disengaged employees endorse negative attitudes toward their work objects, work content, or work in general.

The Perceived Stress Scale (PSS) developed by Cohen, Kamarck and Mermelstein, they defined perceived stress as an unidimensional construct (Cohen et al., 1983). PSS measures the degree to which life has been experienced as unpredictable, uncontrollable and overloaded in the past month.

Operational Definitions:

OLBI consists of 16 items, 8 items measure the exhaustion, and 8 items measure disengagement from work (Sinval et al., 2019). Both dimensions are evaluated by four positively worded items and four negatively worded items. Items are scored by using a scale ranging from 1 to 4 (Strongly agree – Strongly disagree). Threshold values for the classification of burnout into “high”, “moderate”, and “low” levels.

- ► Scores less than 44 would be considered low burnout levels.
- ► Scores ranging from 44-59 would be considered moderate burnout levels.
- ► Scores greater than 59 would be considered high burnout levels.

PSS is a 14-item scale, measuring of the degree to which situations in one’s life are appraised as stressful (Cohen, et al., 1983). Scores are obtained by summing across all items. The higher the score, the more perceived stress.

- ► Scores ranging from 0-13 would be considered low stress.
- ► Scores ranging from 14-26 would be considered moderate stress.
- ► Scores ranging from 27-40 would be considered high perceived stress.

Process Measures: The process measure for this project is defined as nurse completion of survey. The target response rate was a total of 250 percentage of surveys returned, completed, and feasible for study. To ensure that the online survey produces valid and meaningful results with an adequate number of responses, networking with various nursing organizations is essential to reach the targeted process measure. The goal of surveys fell short to a total of 108 surveys despite many efforts of outreaching to multiple nursing organizations as well as the utilization of social media.

Balance Measures: This study reports the prevalence of mental health and psychosocial problems among intensive care unit nurses with the use of the online survey. Findings from the study can aid health care professionals, public health officials, and public society by quantifying and identify factors that may accelerate or mitigate the negative impact of the COVID-19 to design strategies for coping with mental health.

Outcome Measures: The outcome measures are defined as the key concepts and factors assessed via the survey. The measures were obtained by conducting a survey and analyzing key concept response percentages. The outcome measures will include a percentage of the participants levels of burnout and stress using validated clinical questionnaires and scoring systems. *See figure 1-7 below.*

Risks and benefits

Benefits of the project include addressing the phenomena of stress and burnout of intensive care registered nurses facing the pandemic to recommend potential evidence based practice interventions.

The study will have very minimal risks. There will be a minimal risk of the potential loss of the subject's privacy and confidentiality of data collected or produced. The data collected will

be stored on a computer that is password protected, and only the principal investigator will have access to the information. However, an additional potential risk is heightened stress and anxiety resulting from answering questions and recalling past experiences related to stressful encounters.

Subject recruitment methods and materials

Participants were recruited through relevant professional nursing associations such as the American Nursing Association (ANA) and American Association of Critical-Care Nurses (AACN). The online survey is open, self-administered and will not identify any of the healthcare workers or their workplace.

Consent procedures

Consent to participate is indicated by clicking "yes" on consent box that implies their willingness to participate in the online survey. Voluntary participation and data confidentiality will be emphasized. Confidentiality of participants will be strictly maintained through security encryption. Questionnaires will not collect personal identifiers and response sets will not be associated with participant e-mail addresses. See *Appendix L* for *Informed Consent Form*.

Subject costs and compensation

There are no expected costs or compensations that will be provided to the participants at any point during this project. Indirect costs will include the amount of time that would be required to complete the survey.

Timeline

Gantt chart depicting the timeline. *See appendix F for timeline.*

Budget

The costs that will be incurred during the study will be minimal to none, as survey participants will not be compensated. Qualtrics, will be utilized throughout the pre-implementation, implementation, and post-implementation of the project.

Evaluation Plan

Data Maintenance and Security

This study was approved by the International Review Boards of University of Arkansas. After receiving approval, a survey was formulated using the OLBI and PSS self-administered questionnaires. The survey link was posted on the AACN survey website as well as the AACN and ANA Facebook pages. ICU registered nurses across the country were invited to participate. The survey explicitly stated the purposes of the study and notified the participants that they provided informed consent when they accepted filling out the anonymous survey. The data was stored within the survey platform, on a computer that was password protected and only accessed by principal investigator.

Data Analysis

The survey tool was comprised of three parts: The first part of the tool asked questions pertaining to socio-demographic and work-related characteristics. Participants were requested to indicate their age, gender, marital status, job title, education level, place of work, and years of experience. This section also asks whether the respondent has been involved in the direct care of COVID-19 patients.

The second part of the study tool utilizes the OLdenburg Burnout Inventory (OLBI). OLBI consists of 16 positively and negatively formulated items that are used to evaluate the two dimensions of burnout on a 4-point scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree) (Sinval et al., 2019). These positive and negatively framed items reflect the

theoretical assumption that the two main dimensions of burnout can be interpreted in terms of a continuum that ranges from disengagement to dedication and a continuum that ranges from exhaustion to vigor which includes positively and negatively framed items to assess the two core dimensions of burnout: exhaustion and disengagement from work (Sinval et al., 2019). OLBI identified low, medium, or high scores of burnout and or disengagement based on total scores.

The third part of the study tool utilizes the Perceived Stress Scale (PSS). It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to identify how unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen et al., 1983). The 10-item PSS measures global perceived stress experienced across the past 30 days on a 5-point scale (0 – never, 1 = almost never, 2 = once in a while, 3 = often, 4 = very often). The total scores range from 0 to 40. Depending on their perception, total score could place participants in the low, moderate, or high stress category.

Descriptive statistics was applied to the general characteristics and study variables. Groups were compared according to the characteristics of the variable being examined.

Participants and sampling

The study used a convenience sampling method for recruitment. The inclusion criteria was nationwide ICU nurses who are involved in fighting against COVID-19. The goal was to have 250 participants to complete the survey. As of March 15, 2021, a total of 130 surveys were completed. 108 surveys deemed feasible for the study due to incompletion and not directly caring for COVID-19 patients in the ICU setting.

Measures

Sociodemographic variables were collected. These included gender, age, education degree, work experience, and marital status. Of the 108 nurses who participated in the survey, 11

were male (10.2%) and 97 were female (89.8%). The age of these nurses ranged from 18 to 65 years, with years of working ranging from 0 to 10 years or greater. The education profile of the participants is as follows: 46 (42.6%) below baccalaureate degree, 62 (57.4%) baccalaureate degree. The marital status of the participants is as follows: 68 (62.9%) married, 33 (30.6%) unmarried, and 7 (6.5%) divorced. *Details of the respondents' demographic information are shown in Table 1.*

Characteristics	N= 108
Sex	
Female	97 (89.8%)
Male	11 (10.2%)
Age	
18-24	7 (6.4%)
25-34	46 (42.6%)
35-44	25 (23.1%)
45-54	17 (15.7%)
55-64	13 (12.0%)
Marital status	
Married	68 (62.9%)
Unmarried	33 (30.6%)
Divorced	7 (6.5%)
Educational Level	
Below Baccalaureate Degree	46 (42.6%)
Baccalaureate Degree	62 (57.4%)
Years of Working	
0-3 years	22 (20.4%)
4-6 years	26 (24.1%)
6-9 years	18 (16.7%)
10 + years	42 (38.9%)

Table 1. Participants' Characteristics and Survey Responses.

Perceived stress on ICU nurses

The 10-item PSS measures global perceived stress experienced across the past 30 days on a 5-point scale. Six of the 10 items were worded and scored in the non-reversed direction (i.e., "how often have you felt that you were unable to control the important things in your life"). Four of the 10 items were worded and scored in the reversed direction (i.e., "how often have you felt that things were going your way"). Total scores range from 0 to 40.

Among the 10- item PSS questionnaire, the question that scored the highest was question 5, which was "In the last month, how often have you felt that things were going your way?" at 53.7%. Other notable high scored questions included question 7, which asked "In the last month, how often have you been able to control irritations in your life?" at 50%, and question 8, which asked, "In the last month, how often have you felt that you were on top of things?" at 49.1%. *See Table 2 for PSS further questionnaire responses.*

Perceived Stress Scale Questions	0 = Never	1= Almost Never	2 = Sometimes	3 = Fairly Often	4 = Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	1 (0.9%)	13 (12.0%)	50 (42.3%)	36 (33.3%)	8 (7.4%)
In the last month, how often have you felt that you were unable to control the important things in your life?	1 (0.9%)	15 (13.9%)	49 (45.4%)	29 (26.9%)	14 (12.9%)
In the last month, how often have you felt nervous and "stressed"?	1 (0.9%)	2 (1.8%)	36 (33.3%)	33 (30.6%)	36 (33.3%)
In the last month, how often have you felt confident about your ability to handle your personal problems?	8 (7.4%)	36 (33.3%)	45 (41.7%)	14 (12.9%)	5 (4.6%)
In the last month, how often have you felt that things were going your way?	2 (1.8%)	26 (24.1%)	58 (53.7%)	20 (18.5%)	2 (1.8%)
In the last month, how often have you found that you could not cope	6 (5.6%)	22 (20.1%)	47 (43.5%)	26 (24.1%)	7 (6.5%)

with all the things that you had to do?					
In the last month, how often have you been able to control irritations in your life?	5 (4.6%)	34 (31.5%)	54 (50.0%)	14 (12.9%)	1 (0.9%)
In the last month, how often have you felt that you were on top of things?	1 (0.9%)	23 (21.3%)	53 (49.1%)	31 (28.7%)	0 (0.0%)
In the last month, how often have you been angered because of things that were outside of your control?	2 (1.8%)	14 (12.9%)	48 (44.4%)	33 (30.6%)	11 (10.2%)
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	10 (9.6%)	21 (19.4%)	40 (37.0%)	31 (28.7%)	6 (5.6%)

Table 2. PSS Questionnaire Responses

The study revealed that the majority of the respondents experienced a moderate level of stress during the past month. Moderate stress was identified as total scores ranging from 14-26, with 75% of nurses scoring within that group including both females and males. However, is it important to highlight in this study that the sample size of male nurses was significantly less than of their female counterparts thus giving a limited representation of the male subjects.

See figure 1-3

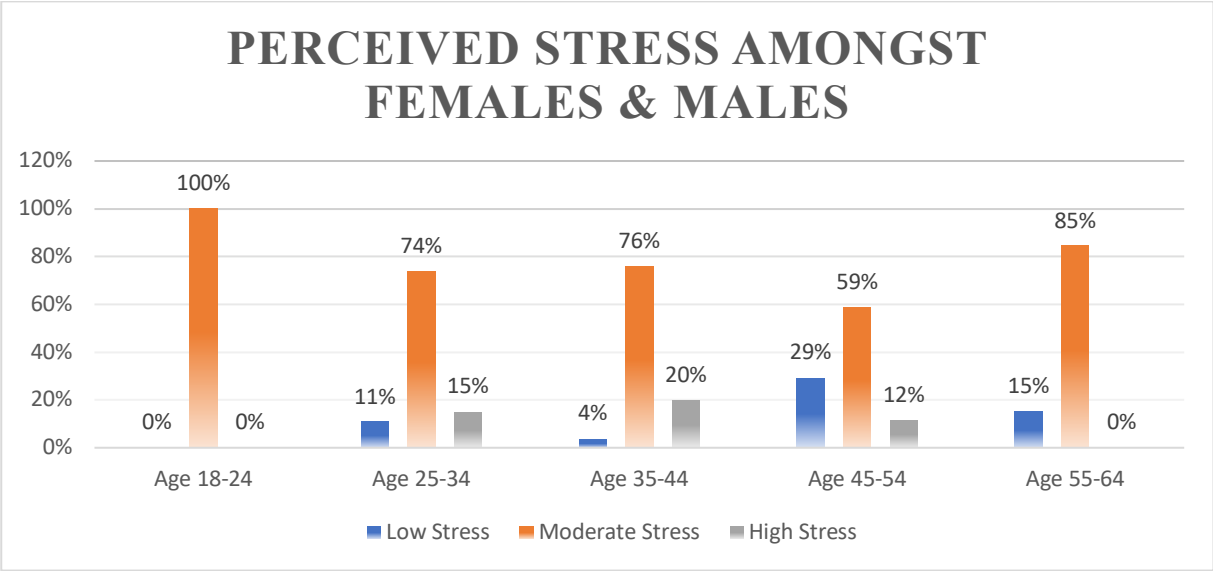


Figure 1. Perceived stress reported by both female and male ICU nurses of varying age groups

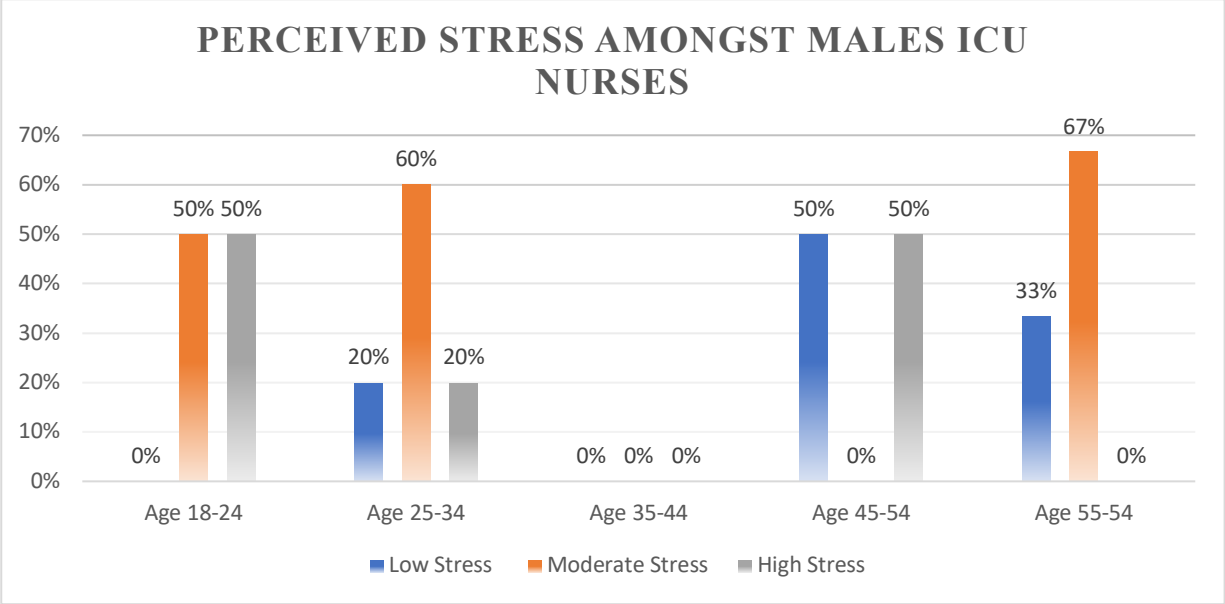


Figure 2. Perceived stress reported amongst male ICU nurses

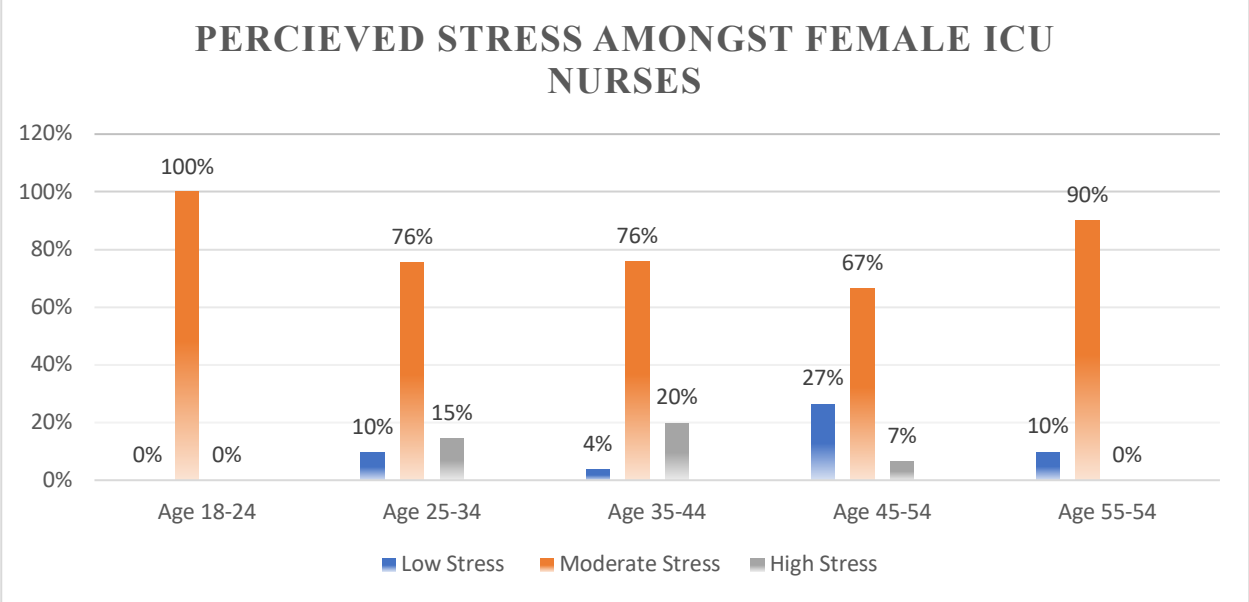


Figure 3. Perceived stress reported by female ICU nurses

Years of experience was also taken into consideration in correspondence with levels of stress. Higher moderate stress levels were found amongst the nurses with less years of experience especially in the category between 0-3 years of experience. Which could be due to multiple factors; role conflict, low autonomy, poor climate/ social support, high job demand,

limited flexibility, and poor leadership. *See figure 4.*

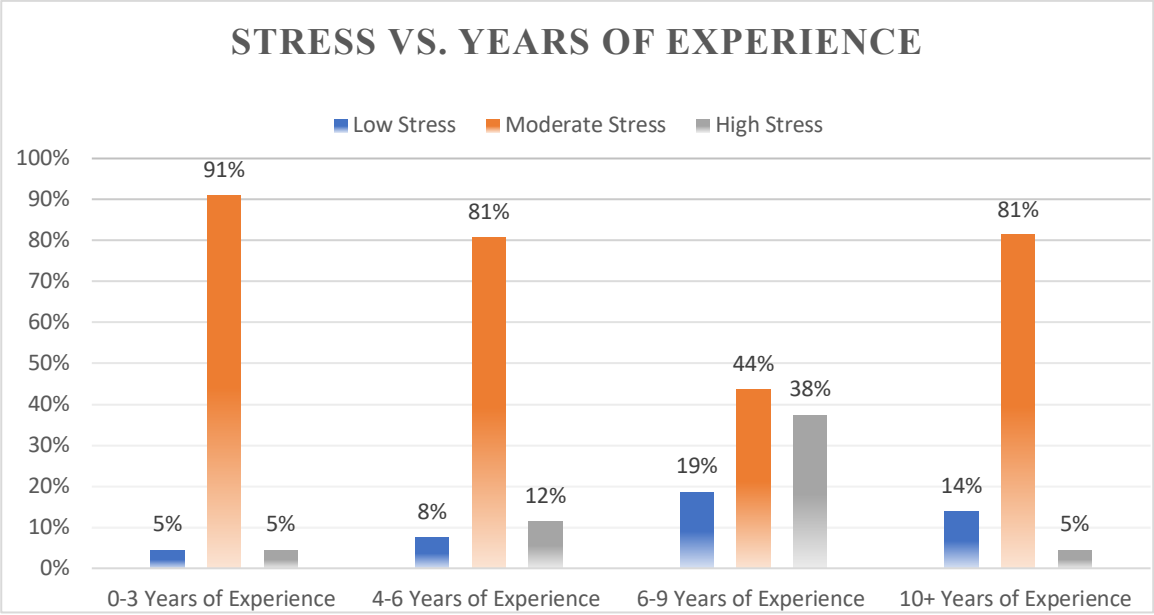


Figure 4. Perceived stress reported amongst all ICU nurses and their years of experience

Findings from this study indicated that educational level didn't have a significance on the perceived stress amongst these ICU nurses as moderate stress was the highest between these two categories. *See figure 5.*

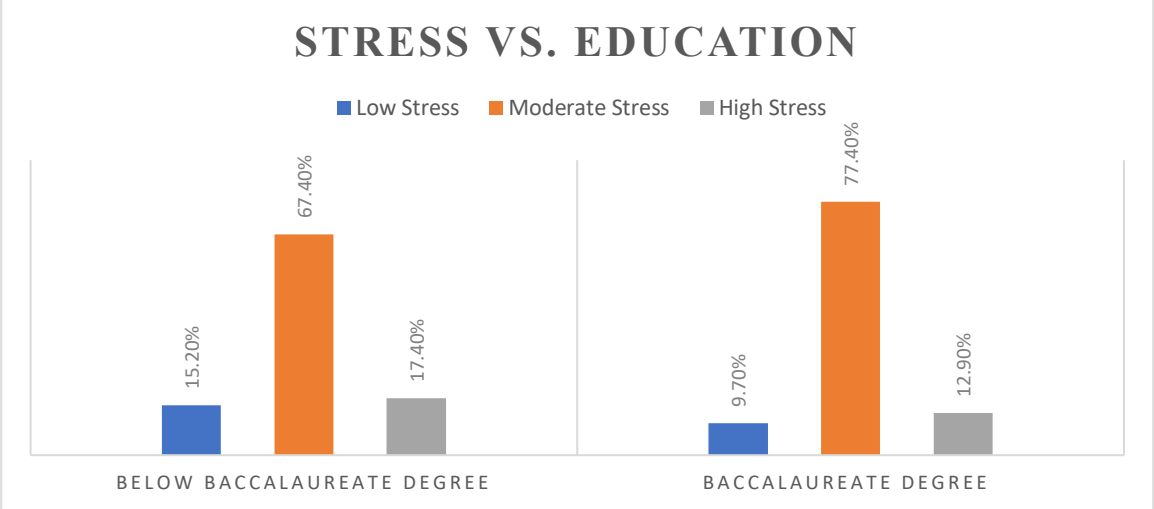


Figure 5. Perceived stress reported based on education level

Findings from this study indicated that moderate stress was perceived the highest amongst all groups with varying marital status. However, among the unmarried group of ICU nurses they were found to have 61% of high stress which further exceeds the married and divorced groups. *See figure 6.*

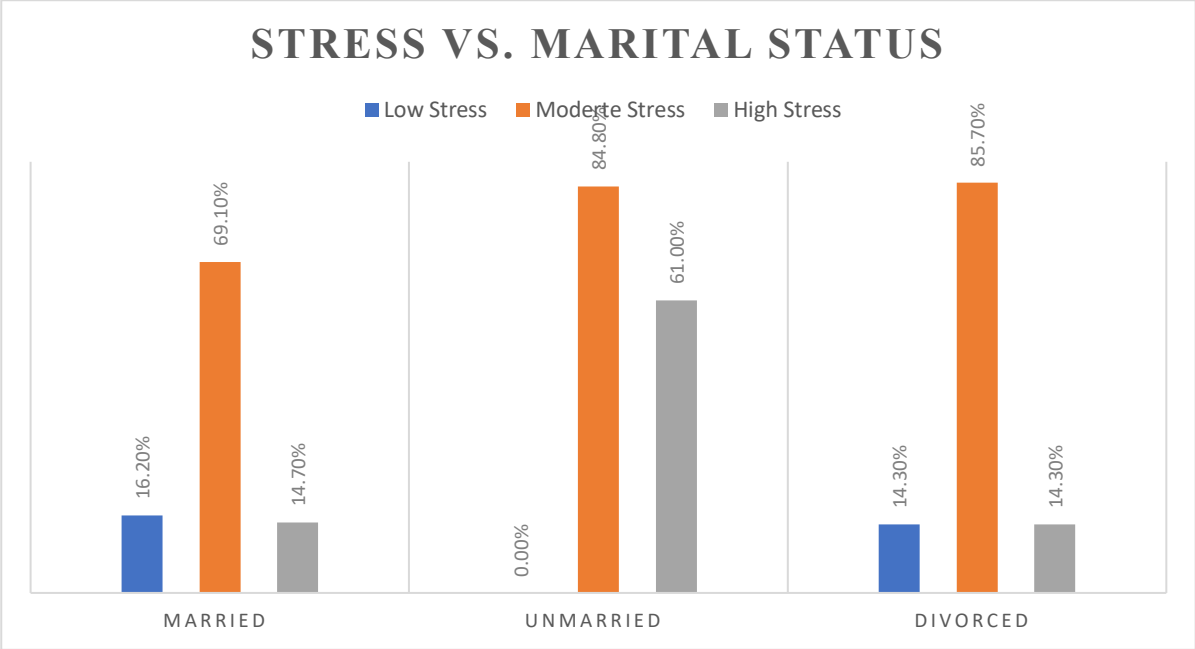


Figure 6. Perceived stress reported based on marital status

Burnout Inventory

We also investigated the burnout level of participants using the 16-item OLBI. The 16 items are divided between two subscales, disengagement and exhaustion. The disengagement items are; 1, 3, 6, 7, 9, 11, 13, and 15. The exhaustion items are; 2, 4, 5, 8, 10, 12, 14. In the OLBI survey, the choice that resulted with highest total selections was in question 5, in which participants where asked about their ability to tolerate pressure of their work. A total of 72 participants answered “agree”, resulting in a 66.7% response rate. Please see table 3 for further review of the cumulative results of the survey.

OLBI	1 = Strongly Agree	2 = Agree	3 = Disagree	4 = Strongly Disagree
I always find new and interesting aspects in my work.	20 (18.5%)	65 (60.2%)	19 (17.6%)	4 (3.7%)
There are days when I feel tired before I arrive at work.	59 (54.6%)	43 (39.8%)	3 (2.8%)	3 (2.8%)
It happens more and more often that I talk about my work in a negative way.	40 (37.0%)	30 (27.8%)	32 (29.6%)	6 (5.6%)
After work, I tend to need more time than in the past in order to relax and feel better.	52 (48.1%)	37 (34.3%)	16 (14.8%)	3 (2.8%)
I can tolerate the pressure of my work very well.	8 (7.4%)	72 (66.7%)	23 (21.3%)	5 (4.6%)
Lately, I tend to think less at work and do my job almost mechanically.	14 (13.0%)	46 (42.6%)	38 (31.2%)	10 (9.3%)
I find my work to be a positive challenge.	11 (10.2%)	54 (50.0%)	40 (37.0%)	3 (2.8%)
During my work, I often feel emotionally drained.	46 (42.6%)	40 (37.0%)	20 (18.5%)	2 (1.9%)
Over time, one can become dis-connected from this type of work.	43 (39.8%)	48 (44.4%)	14 (13.0%)	3 (2.8%)
After working, I have enough energy for my leisure activities.	4 (3.7%)	16 (14.8%)	62 (57.4%)	26 (24.1%)
Sometimes I feel sickened by my work tasks.	16 (14.8%)	46 (42.6%)	34 (31.5%)	12 (11.1%)
After my work, I usually feel worn out and weary.	50 (46.3%)	44 (40.7%)	12 (11.1%)	2 (1.9%)
This is the only type of work that I can imagine myself doing.	27 (25.0%)	36 (33.3%)	32 (29.6%)	13 (12.0%)
Usually, I can manage the amount of my work well.	26 (24.1%)	69 (63.9%)	9 (8.3%)	4 (3.7%)
I feel more and more engaged in my work.	6 (5.6%)	28 (25.9%)	60 (55.6%)	14 (13.0%)
When I work, I usually feel energized.	7 (6.5%)	33 (30.6%)	54 (50.0%)	14 (13.0%)

Table 3. OLBI questionnaire responses

Further analysis from the OLBI survey allowed to analyze burnout levels amongst ICU nurses. In this study, a low level of burnout was identified as a total survey score <44, whereas moderate burnout was defined as a total survey score of 44-59, and high burnout with scores >59. Survey responses from this study resulted in low burnout levels amongst the variable age groups as well as in females and males. The majority of the participants, irrespective of age or gender, all reported on relative low levels of burnout. There was a slight trends towards increasing level of burnout with increasing age. This peaked with the age group of 45-54, with 24% of participants among this group reporting on moderate levels of burnout. As for high levels of burnout, there was not a cumulative survey score from the study that resulted in a cumulative score of >59, and therefore was 0% across all age groups and genders. *See figure 7-9.*

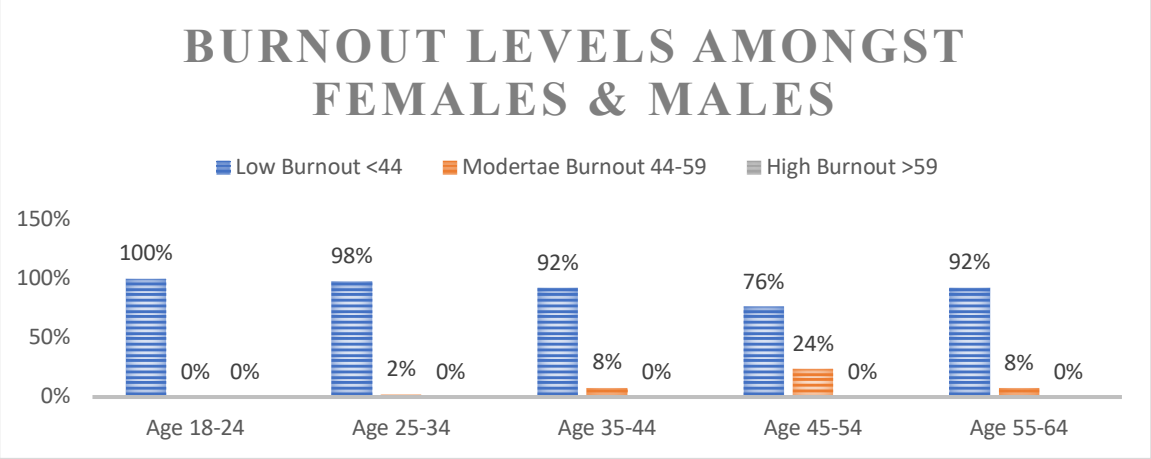


Figure 7. Burnout level report amongst female and male ICU nurses and varying age groups

In comparing differing gender male and female ICU nurses that participated in this survey, we see overlapping similarities amongst both groups. Amongst the male participants, all age groups were found to have a 100% reporting of low level of burnout based on their cumulative survey scores. The only exception, was amongst the 45-54 age group, that had the

highest percentage of moderate burnout reported than any other subgroups in this study with 33%. See *figure 8*.

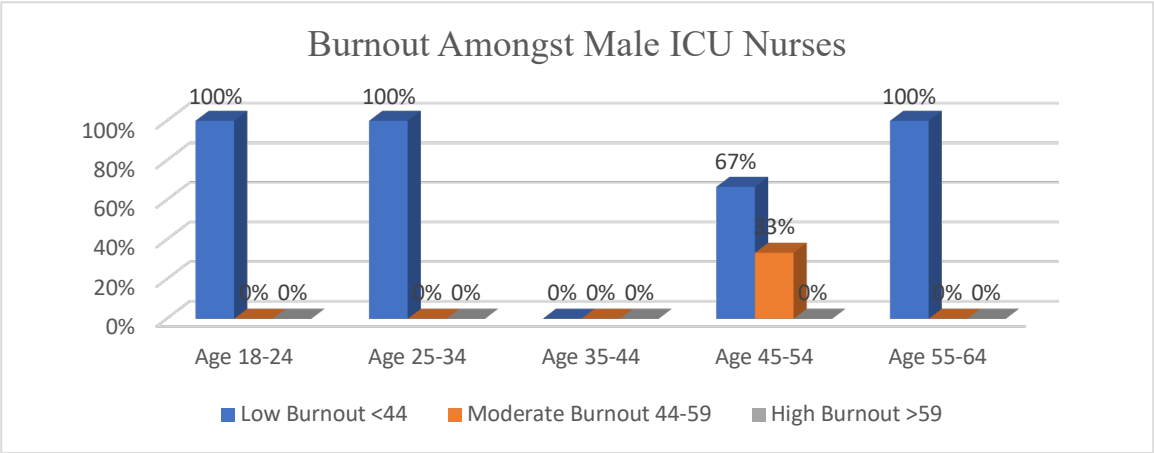


Figure 8. Burnout level report amongst male ICU nurses

Similarly for female ICU nurses, the overall majority of reported burnout levels were in the low range. With the highest percentage of low burnout reported was amongst the 18-24 age group at 100%. Moderate burnout was found the highest among the 45-54 age group at 21%, and was around 10% for the 35-44 and 55-64 age groups. See *figure 9.*

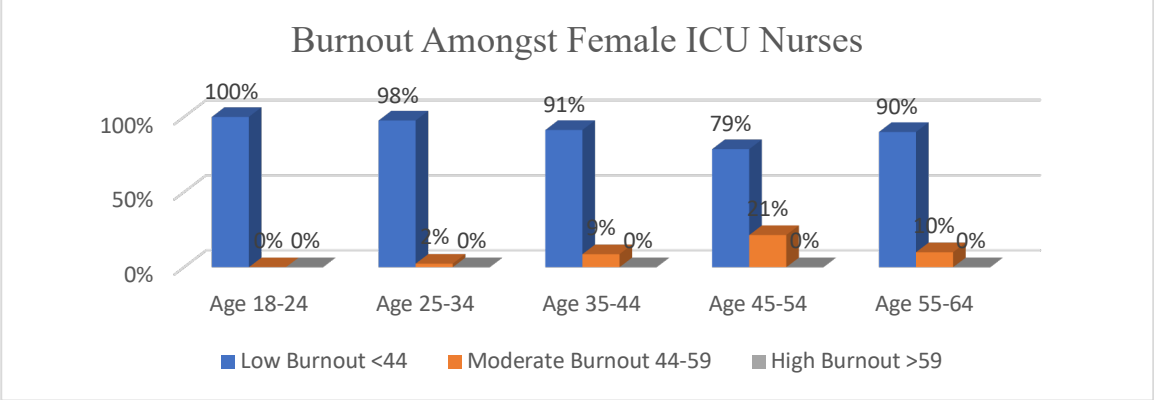


Figure 9. Burnout level reported amongst female ICU nurses

Further demographic analysis from the OLBI survey looked to correlate burnout level with marital status, education level and years of experience as an ICU nurse. In comparing

marital status, the highest reported level of burnout was in among divorced participants, where 14.3% of them were found to have moderate levels of burnout. Whereas the lowest reported burnout levels were found amongst the unmarried participants, reporting on 6.1%. See *figure 10*.

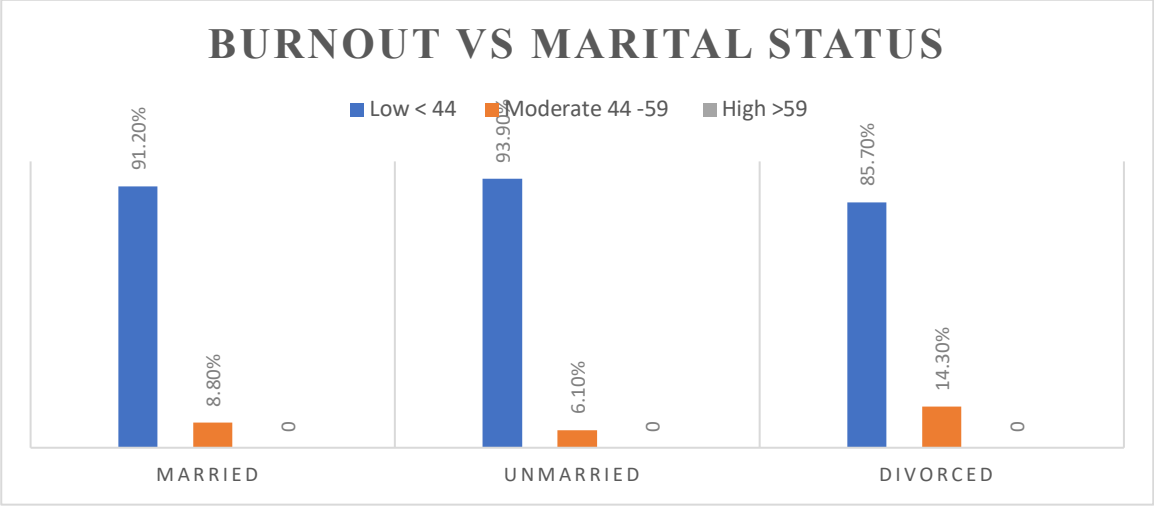


Figure 10. Burnout reported based on marital status

In comparing level of education with burnout reported burnout amongst the participants, there was a slight decrease (6.5% vs 9.7%) in the reported moderate burnout of participants with baccalaureate degrees than those with lower levels of education. See *figure 11*.

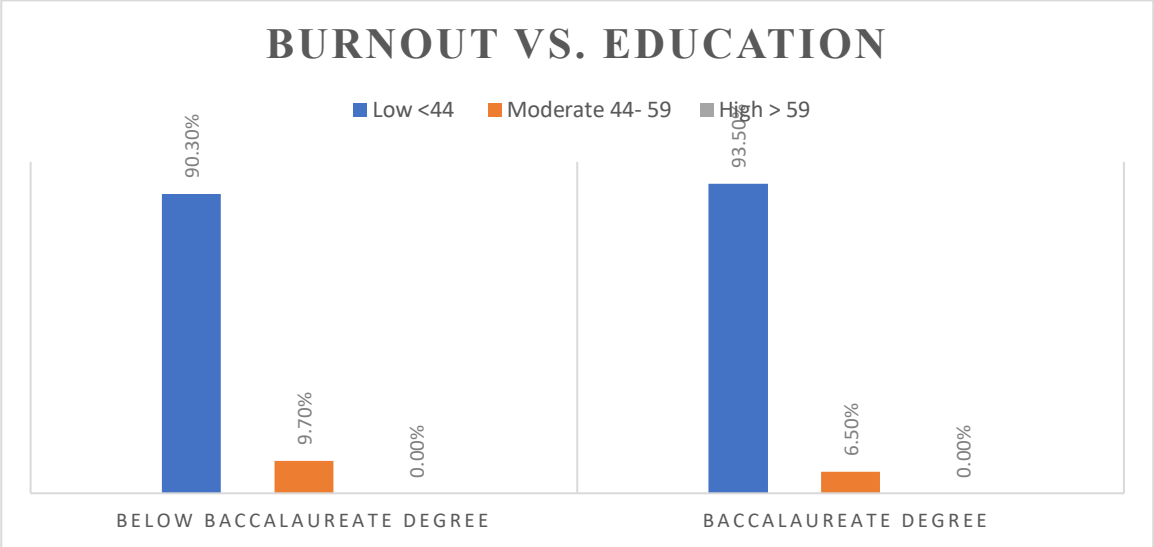


Figure 11. Burnout reported based on education level

Finally, the last demographic factor that was compared was the years of experience of the participants as ICU nurses. The survey had sought out questions with categorizing the years of experience into 4 groups as 0-3 years, 4-6 years, 6-9 years and 10+ years. None of the participants in this survey had less than 6 years of experience, and therefore resulted in only two experience groups of 6-9 years and 10+ years. Comparison of these two groups demonstrates a slightly decrease in reported level of moderate burnout with increasing experience. Participants with 10+ years of experience had a 13.6% reported moderate level of burnout, in comparison to 18.8% in the other group with 6-9 years of experience. See *figure 12.*

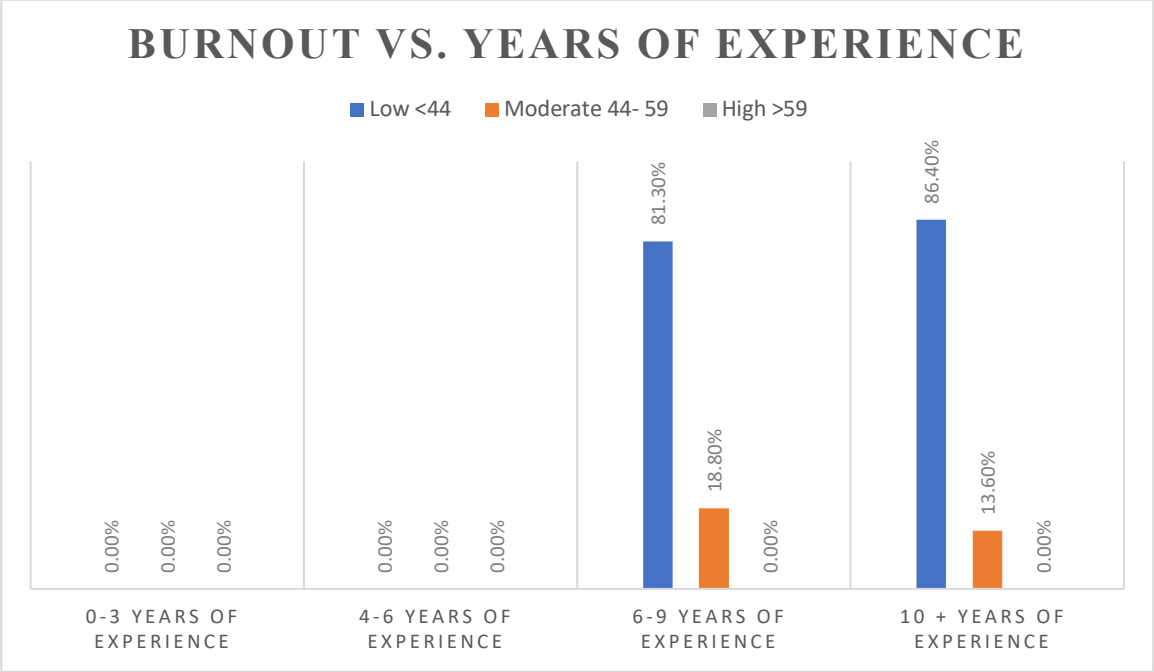


Figure 12.. Burnout reported based on years of experience as an ICU nurse

The survey questions were equally divided into two categories that sought to analyze exhaustion and disengagement. The responses for these questions were tallied for each participant and the sum values placed each participant into a certain category of low, moderate or high. For exhaustion, scores <21 were considered low, scores of 21-29 were placed in the moderate group and scores >29 were considered high levels of reported exhaustion. See *table 4*.

In analyzing for exhaustion, the overall majority, 89.8% of participants, were found to experience low levels of exhaustion. With the remainder of the participants, 10.2%, found to experience moderate levels of exhaustion. There were not any findings in the high exhaustion group. See *figure 13*.

Burnout Component	Low < 21	Moderate 21-29	High >29
Exhaustion	97	11	0

Table 4. Exhaustion reported on OLBI survey

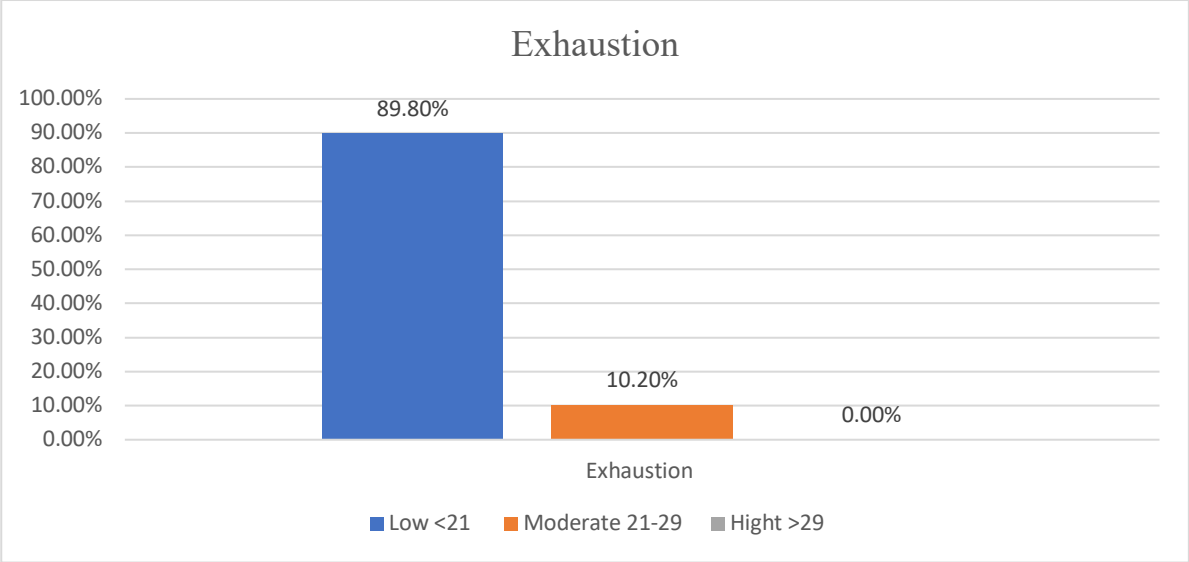


Figure 13. Percentage of exhaustion reported by all ICU nurses participants in OLBI survey

The categorical breakdown of low, moderate and high for the disengagement analysis differed from the exhaustion parameters. For low levels of disengagement, it included scores <24. Moderate levels of engagement were considered with resulting scores of 24-31, and high levels of disengagement were with resulting scores of >31. See *table 5*. All participants in this survey were classified as having low levels of disengagement, with 100% scoring <24. No participant was considered to be in the moderate or high groups. See *table 5* and *figure 14*.

Burnout Component	Low < 24	Moderate 24-31	High >31
Disengagement	108	0	0

Table 5. Disengagement reported on OLBI survey

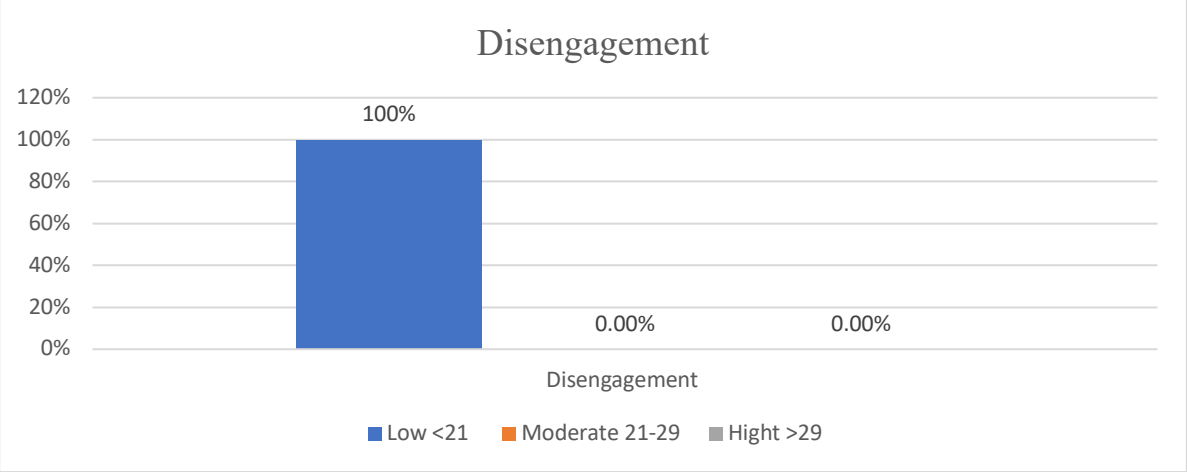


Figure 14. Percentage of disengagement reported by all ICU nurses participants in OLBI survey

Limitations

This study had several limitations. The present research was conducted towards the end of the crisis, the long-term psychological effects of COVID-19 could be either under-estimated or over-estimated. Longitudinal prospective studies are needed to examine the long-term effects of crisis on nurses' psychological health. The study only included nurses working in the intensive care unit, while nurses working in other areas are also at potential for of burnout and stress in varying degrees. Lastly, the credibility of an online survey needs to be considered while interpretating the findings.

Recommendations and Discussion

Economic and Cost Benefits

Hospitals are highly demanding and stressful workplaces, particularly in intensive care units (ICUs) due to the nature of the patient's acuity level. Poor and stressful working conditions are linked to relatively high rates of burnout and other symptoms of mental distress (Moss, et al., 2016). The presence of psychopathological problems further impedes the ability of the nurses to cope with their work-related stressors and might also have a negative impact on the management of stressors, impair the provided quality of care, and lastly decrease patient and family satisfaction scores. By exploring and understanding the mental health needs of ICU nurses and improving working conditions may increase both nurses' and patients' satisfaction as well as the quality of care. As financial reimbursements from Medicare and other insurance companies are increasingly tied to patient satisfaction surveys addressing factors that influence nurse's stress and care quality will be economically advantageous (Mehta, 2015).

Healthcare Quality Impact

The current recognition and awareness of psychological symptoms experienced by ICU nurses is crucial. Solutions must be multipronged and need to honor and respect the act of caring, recognizing, and supporting those that care for these high acuity patients and work to improve healthcare systems to allow nurses to provide high quality care (Costa, & Moss, 2018). If not addressed adequately, ICUs will run the risk of losing a substantial portion of the workforce and these critical care nurses are the most valuable resources during this pandemic.

Policy Implications

Currently, there are no agency policies or protocols regarding the mental health needs of intensive care nurses, especially during high stress environments such as pandemics. The

project is expected to increase awareness of the need to focus on mental health symptoms of nurses within the ICU, and potentially all areas of the in-patient hospital setting in order to identify more nurses in need of advocacy and support.

Translation

This study aims to bring awareness of mental health needs of intensive care unit nurses during a pandemic and future high stress situations, which allows it to be easily translated in any other hospital or inpatient setting.

Sustainability

The findings point to the importance of developing and implementing interventions that target to reduce burnout and stress to improve resilience among nurses especially in a crisis like a pandemic.

Recommendations

Making healthcare providers aware of potential burnout. Burnout can be prevented if the providers are made aware of the risks and prepared for potential occupational stress. Such awareness can reduce the stigma linked to mental health conditions like burnout and help in developing resilience.

Positive mental health can prevent work-related stress and burnout, which should be promoted among healthcare providers during the pandemic. Several strategies include decreasing the workload, improving work schedules, promoting self-management, initiating mindfulness-based stress reduction and mental health promotion activities for reducing the risks of burnout.

Ensuring the availability of mental health services. Potential strategies to improve access to mental health services may include involving mental health experts in

multidisciplinary COVID-19 teams, who may provide services or refer healthcare workers showing symptoms of burnout and stress to appropriate resources. In addition, group-based counseling or peer- support sessions may effectively address burnout and improve mental health during a pandemic.

Dissemination

Dissemination via professional reporting will be the highlight of the project. The outcomes of the data will be provided to the University of Arkansas Eleanor Mann School of Nursing. Dissemination of this project will undertake through summarizing the results and sharing them with appropriate nursing organizations, specifically American Association of Critical Care Nurses (AACN) and American Nurses Association (ANA). As these two organizations provided the majority of the participants. The results will also be shared via presentations within my current workplace amongst the various work environments such as the Emergency Department, Intensive Care Units, and Med Surge floors.

Professional Reporting

The DNP project results will also be shared with scholarly publications that include *American Journal of Nursing and Journal of Psychiatric and Mental Health Nursing*

Conclusion

The COVID-19 pandemic exposed several gaps in our health care system. This study showed that the overall mental health of frontline nurses was generally poor during COVID-19 outbreak, and several impact factors associated with nurses' psychological health were identified. In the face of such a sudden disaster as COVID-19, it is important to pay attention to nurses' mental health conditions while fulfilling their responsibilities. The proposed study provided insight to hospitals across the globe of the mental health needs amongst ICU nurses.

Through early assessment and active resolution of psychological stress this project can assist with preparedness in healthcare systems and communities to advocate for a coordinated response to promote mental wellness & resilience. Healthcare units should provide opportunities for nurses to discuss the stress they are experiencing, support one another, and make suggestions for workplace adaptations during this pandemic. Healthcare institutions and nurse managers need to recognize these sources of stress in order to identify potential organizational interventions to maintain nurses' health, safety, and well-being. Implementation of the following strategies may help reduce the negative impacts of mental health such as: adequate personal protective equipment, strict infection control practices, shorter shift length, and provision of mental health and support services.

References:

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet (London, England), 395(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., & Zhuang, Q. (2020). Psychological impacts and coping strategies of front-line medical staff during COVID-19 outbreak in Hunan, China. Medical Science Monitor, 26. https://doi.org/10.12659/msm.924171

Canady, V. (2020). Psychological distress found among exposed health care workers. Mental Health Weekly, 30(17), 3-4. https://doi.org/10.1002/mhw.32336

Cascella M, Rajnik M, Cuomo A, et al. (2020). Features, Evaluation and Treatment Coronavirus (COVID-19). Retrieved, from: https://www.ncbi.nlm.nih.gov/books/NBK554776/

Choi, K., Heilemann, M., Fauer, A., & Mead, M. (2020). A Second Pandemic: Mental Health Spillover From the Novel Coronavirus (COVID-19). Journal Of The American Psychiatric Nurses Association, 107839032091980. https://doi.org/10.1177/1078390320919803

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. Journal Of Health And Social Behavior, 24(4), 385. https://doi.org/10.2307/2136404

Coronavirus Update (Live): 16,289,724 Cases and 649,900 Deaths from COVID-19 Virus Pandemic - Worldometer. Worldometers.info. (2020). Retrieved, from https://www.worldometers.info/coronavirus/.

Costa, D., & Moss, M. (2018). The Cost of Caring: Emotion, Burnout, and Psychological Distress in Critical Care Clinicians. Annals Of The American Thoracic Society, 15(7), 787-790. https://doi.org/10.1513/annalsats.201804-269ps

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, D., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. Diabetes & metabolic syndrome, 14(5), 779–788. Advance online publication. https://doi.org/10.1016/j.dsx.2020.05.035

Heckman, W. (2020). 42 Worrying Workplace Stress Statistics - The American Institute of Stress. The American Institute of Stress. Retrieve, from https://www.stress.org/42-worrying-workplace-stress-statistics.

Hobfoll, S., Halbesleben, J., Neveu, J., & Westman, M. (2018). Conservation of Resources in the Organizational Context: The Reality of Resources and Their Consequences. Annual Review Of Organizational Psychology And Organizational Behavior, 5(1), 103-128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Holshue, M., DeBolt, C., Lindquist, S., Lofy, K., Wiesman, J., & Bruce, H. et al. (2020). First Case of 2019 Novel Coronavirus in the United States. New England Journal Of Medicine, 382(10), 929-936. https://doi.org/10.1056/nejmoa2001191

Hospitals and Health Systems Face Unprecedented Financial Pressures Due to COVID-19 |AHA. American Hospital Association. (2020). Retrieved 10 June 2020, from https://www.aha.org/guidesreports/2020-05-05-hospitals-and-health-systems-face unprecedented-financial-pressures-due.

Jeon, S. W., & Kim, Y. K. (2018). Application of Assessment Tools to Examine Mental Health in Workplaces: Job Stress and Depression. Psychiatry investigation, 15(6), 553–560. https://doi.org/10.30773/pi.2016.10.24

KFF Health Tracking Poll – July 2020. KFF. (2020). Retrieved, from https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-july-2020/.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., & Wei, N. et al. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. JAMA Network Open, 3(3), e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., Bi, J., Zhan, G., Xu, X., Wang, L., Zhou, Q., Zhou, C., Pan, Y., Liu, S., Zhang, H., Yang, J., Zhu, B., Hu, Y., Hashimoto, K., Jia, Y., … Yang, C. (2020). Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. *Brain, behavior, and immunity*, S0889-1591(20)30309-3. Advance online publication. https://doi.org/10.1016/j.bbi.2020.03.007

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., & Tong, Y. et al. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. New England Journal Of Medicine, 382(13), 1199-1207. https://doi.org/10.1056/nejmoa2001316

Liu, Q., Luo, D., Haase, J., Guo, Q., Wang, X., & Liu, S. et al. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. The Lancet Global Health, 8(6), e790-e798. https://doi.org/10.1016/s2214-109x(20)30204-7

Managing Healthcare Workers' Stress Associated with the COVID-19 Virus Outbreak | dmh.mo.gov. Dmh.mo.gov. (2020). Retrieved, from https://dmh.mo.gov/media/pdf/managing-healthcare-workers-stress-associated-covid-19 virus-outbreak.

Managing mental health during COVID-19. American Medical Association. (2020). Retrieved, from https://www.ama-assn.org/delivering-care/public-health/managing-mental-health during-covid-19.

Martines, R., Ritter, J., Matkovic, E., Gary, J., Bollweg, B., & Bullock, H. et al. (2020). Pathology and Pathogenesis of SARS-CoV-2 Associated with Fatal Coronavirus Disease, United States. Emerging Infectious Diseases, 26(9). https://doi.org/10.3201/eid2609.202095

McAlonan, G., Lee, A., Cheung, V., Cheung, C., Tsang, K., & Sham, P. et al. (2007). Immediate and Sustained Psychological Impact of an Emerging Infectious Disease Outbreak on Health Care Workers. The Canadian Journal Of Psychiatry, 52(4), 241-247. https://doi.org/10.1177/070674370705200406

Mealer, M., Jones, J., Newman, J., McFann, K., Rothbaum, B., & Moss, M. (2012). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. International Journal Of Nursing Studies, 49(3), 292-299. https://doi.org/10.1016/j.ijnurstu.2011.09.015

Mehta, S. (2015). Patient Satisfaction Reporting and Its Implications for Patient Care. Journal of Ethics | American Medical Association. Retrieved, from https://journalofethics.ama assn.org/article/patient-satisfaction-reporting-and-its-implications-patient-care/2015-07

Mental Health in America - Access to Care Data. Mental Health America. (2020). Retrieved, from https://www.mhanational.org/issues/mental-health-america-access-care-data.

Moss, M., Good, V., Gozal, D., Kleinpell, R., & Sessler, C. (2016). An Official Critical Care Societies Collaborative Statement—Burnout Syndrome in Critical Care Health-care Professionals. Chest, 150(1), 17-26. https://doi.org/10.1016/j.chest.2016.02.649

Nayna Schwerdtle, P., Connell, C. J., Lee, S., Plummer, V., Russo, P. L., Endacott, R., & Kuhn, L. (2020). Nurse Expertise: A Critical Resource in the COVID-19 Pandemic Response. Annals of global health, 86(1), 49. https://doi.org/10.5334/aogh.2898 NIMH » Mental Illness. Nimh.nih.gov. (2020). Retrieved, from https://www.nimh.nih.gov/health/statistics/mental-illness.shtml.

Patient Satisfaction Reporting and Its Implications for Patient Care. (2015), 17(7), 616-621. https://doi.org/10.1001/journalofethics.2015.17.7.ecas3-1507

Prapanjaroensin, A., Patrician, P., & Vance, D. (2017). Conservation of resources theory in nurse burnout and patient safety. Journal Of Advanced Nursing, 73(11), 2558-2565. https://doi.org/10.1111/jan.13348

Rothan, H., & Byrareddy, S. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. Journal Of Autoimmunity, 109, 102433. https://doi.org/10.1016/j.jaut.2020.102433

Saleh, A. (2017). Examining Factors Impacting Online Survey Response Rates in Educational Research: Perceptions of Graduate Students. Journal Of Multidisciplinary Evaluation, 13(29). Retrieved 27 July 2020, from https://files.eric.ed.gov/fulltext/ED596616.pdf.

Santarone, K., McKenney, M., & Elkbuli, A. (2020). Preserving mental health and resilience in frontline healthcare workers during COVID-19. *The American journal of emergency medicine*, S0735-6757(20)30258-8. Advance online publication. https://doi.org/10.1016/j.ajem.2020.04.030

Schäfer, S. K., Lass-Hennemann, J., Groesdonk, H., Volk, T., Bomberg, H., Staginnus, M., Brückner, A. H., Holz, E., & Michael, T. (2018). Mental Health in Anesthesiology and

ICU Staff: Sense of Coherence Matters. Frontiers in psychiatry, 9, 440. https://doi.org/10.3389/fpsyt.2018.00440

Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. JAMA, 323(21), 2133. https://doi.org/10.1001/jama.2020.5893

Shen, X., Zou, X., Zhong, X., Yan, J., & Li, L. (2020). Psychological stress of ICU nurses in the time of COVID-19. Critical Care, 24(1). https://doi.org/10.1186/s13054-020-029262

Sinval, J., Queirós, C., Pasian, S., & Marôco, J. (2019). Transcultural Adaptation of the Oldenburg Burnout Inventory (OLBI) for Brazil and Portugal. *Frontiers In Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.00338

Spoorthy, M., Pratapa, S., & Mahant, S. (2020). Mental health problems faced by healthcare workers due to the COVID-19 pandemic–A review. *Asian Journal Of Psychiatry*, *51*, 102119. https://doi.org/10.1016/j.ajp.2020.102119

Stern, A. (2014). The Hospital Anxiety and Depression Scale. Occupational Medicine, 64(5), 393-394. https://doi.org/10.1093/occmed/kqu024

Stress at Work | NIOSH | CDC. Cdc.gov. (2020). Retrieved, from https://www.cdc.gov/niosh/topics/stress/.

Stillwell, S., Fineout-Overholt, E., Melnyk, B., & Williamson, K. (2010). Evidence-Based Practice, Step by Step: Searching for the Evidence. AJN, American Journal Of Nursing, 110(5), 41-47. https://doi.org/10.1097/01.naj.0000372071.24134.7e

Tsamakis, K., Rizos, E., Manolis, A. J., Chaidou, S., Kympouropoulos, S., Spartalis, E., Spandidos, D. A., Tsiptsios, D., & Triantafyllis, A. S. (2020). COVID-19 pandemic

and its impact on mental health of healthcare professionals. Experimental and therapeutic medicine, 19(6), 3451–3453. https://doi.org/10.3892/etm.2020.8646

Valid and Reliable Survey Instruments to Measure Burnout, Well-Being, and Other Work Related Dimensions - National Academy of Medicine. National Academy of Medicine. (2020). Retrieved, from https://nam.edu/valid-reliable-survey-instruments-measure burnout-well-work-related-dimensions/.

Wang, J., Zhou, M., & Liu, F. (2020). Reasons for healthcare workers becoming infected with novel coronavirus disease 2019 (COVID-19) in China. The Journal of hospital infection, 105(1), 100–101. https://doi.org/10.1016/j.jhin.2020.03.002

World Health Organization, 2020. International Health Regulations Emergency Committee on Novel Coronavirus in China. https://www.who.int/newsroom/events/detail/2020/01/30/default-calendar/international health-regulations-emergency-committee-on-novel-coronavirus-in-china

WHO Timeline - COVID-19. Who.int. (2020). Retrieved, from https://www.who.int/news room/detail/27-04-2020-who-timeline---covid-19.

Wright, K. (2017). Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services. Journal Of Computer-Mediated Communication, 10(3), 00-00. https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020). The Effects of Social Support on Sleep Quality of Medical Staff Treating Patients with Coronavirus Disease 2019 (COVID-19) in January and February 2020 in China. Medical science monitor

international medical journal of experimental and clinical research, 26, e923549. https://doi.org/10.12659/MSM.923549

Appendices

A. Global Aims Assignment

B. Process Flowchart

C. Evidence Table

D. Theoretical Framework

E. Conceptual Model

F. Gantt Chart

G. Statement of Mutual Agreement for DNP Guidance

H. DNP Title Form

I. Professional Doctoral Committee

J. Copy of Surveys

K. Consent Form/ Recruitment Script

L. Copy of Approval Letters, if applicable

M. Copy of Site's IRB Approval, if applicable

Appendix A: Global Aims Assignment



College of Education and Health Professions
Eleanor Mann School of Nursing

Write a Theme for Improvement: Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

Global Aim Statement

Create an aim statement that will help keep your focus clear and your work productive:

We aim to support ICU nurses to help protect their mental health.

(Name the process)

During the Coronavirus (COVID-19) pandemic, frontline nurses are facing enormous mental health challenges. The aim of this clinical inquiry project is to examine mental health (burnout, anxiety, stress, and fear) and their associated factors among frontline ICU nurses who are caring for COVID-19 –positive, or potentially positive, patients. This project will utilize an exploratory research design with a descriptive survey.

(Clinical location in which process is embedded)

The setting of the survey is to be conducted through Qualtrics a web-based survey platform targeting intensive care unit nurses via American Nurses Association (ANA) and American Association of Critical-Care Nurses (AACN).

(Name where the process begins)

The process begins with inquiry about current mental health practices in intensive care units. Step 1 will be focused on the PICOT question: How do ICU nurses (P) with pediatric on the frontline of the COVID 19 pandemic (I) perceive the impact of their mental health(O) in their current practice (T)?. Step 2 will involve a comprehensive literature review to identify the current psychological impact of COVID-19. Step 3 will involve the critical appraisal of the evidence found during Step 2 to include the creation of an evidence-based table. Step 4 will involve the integration of the evidence into a thorough summary, the creation of an appropriate survey for ICU nurses based on the evidence found, dissemination of the survey, following up on incomplete surveys as appropriate, and collection of the completed surveys. The surveys selected; Maslach Burnout Inventory (MBI), Stanford Acute Stress Reaction Questionnaire (SASRQ), and Perceived Stress Scale (PSS), with the additional demographic questions.

(Name the ending point of the process)

The process ends with evaluation of the survey findings about current practice and comparison of the findings against current literature. The final step, will involve dissemination of the findings..

(List benefits/ imperatives)

The proposed clinical inquiry project can provide insight to hospitals across the globe of the mental health needs amongst ICU nurses. Through early assessment and active resolution of psychological stress this project can assist with preparedness in health systems and communities, and advocate for a coordinated response to promote mental wellness and resilience.

Specific Aim Statement

We will: ☐ improve ☐ increase ☐ decrease

The: ☐ quality of ☐ number/amount of ☐ percentage of _____
(process)

By: **N/A** _____
(percentage)

OR

From: **N/A** _____
(baseline state/number/amount/percentage)

By: examining mental health (burnout, anxiety, depression, stress, and fear) and their associated factors among frontline ICU nurses who are caring for COVID-19 –positive, or potentially positive, patients.

By: April, 2021

Appendix B: Process Flowchart

This page intentionally left blank as a process flowchart is not applicable to a clinical inquiry.

Appendix C: Evidence Table

Authors	Year	Country	Theory Guiding the Study and Identification of the Variable(s)	Indepen-dent or Treatment Variable(s	Dependent or Outcome Variable(s	Design Type	Sample (N =) Method	Data Collection Tools	Brief Summary of Results:	Strength of Evidence
Lai, et al	2020	Wuhan, China	N/A	To assess the magnitude of mental health outcomes and associated factors among health care workers treating patients exposed to COVID-19 in China.	Healthcare workers responding to the spread of COVID-19 reported symptoms of depression, anxiety, insomnia, and distress.	Cross Sectional study	1257 health care workers	Patient Health Questionnaire-9, Generalized Anxiety Disorder scale, Insomnia Severity Index, and the Impact of Event Scale-Revised	A high prevalence of mental health symptoms among health care workers treating patients with COVID-19 in China. Overall, 50.4%, 44.6%, 34.0%, and 71.5% of all participants reported symptoms of depression, anxiety, insomnia, and distress, respectively.	Level III
Shen, et al	2020	Wuhan, China	N/A	Early assessment and active resolution of psychological stress, to make improvement.	Main manifestations were decreased appetite or indigestion, fatigue, difficulty sleeping, nervousness, frequent crying, and even	Survey	85 ICU nurses	Does not specify survey used.	It recommended to address the psychological problems of ICU nurses who care for patients with COVID-19 and take action as soon as possible to relieve the psychological pressure on these nurses.	

					suicidal thoughts.					
Xiao, et al	2020	China	N/A	Levels of social support for medical staff were negatively associated with the degree of anxiety and stress.	Levels of social support for medical staff were significantly associated with self-efficacy and sleep quality.	Cross-sectional observational stud	180 medical staff	Self-Rating Anxiety Scale, the General Self-Efficacy Scale, the Stanford Acute Stress Reaction Questionnaire, the Pittsburgh Sleep Quality Index, and the Social Support Rate Scale	Structural equation modeling (SEM) showed that medical staff had increased levels of anxiety, stress, and self-efficacy that were dependent on sleep quality and social support.	Level III
Kang, et al	2020	Wuhan, China	N/A	Psychological intervention teams	Protection of the mental health of medical workers	Cross-sectional study	994 medical and nursing staff	Patient health questionnaire-9, Generalized Anxiety Disorder, Insomnia Severity Index and the Impact of Event Scale-Revised	36.9 % reported subthreshold mental health disturbances, 34.4 % reported mild disturbances, 22.4 % reported moderate disturbances, and 6.2 % reported severe disturbances	Level III

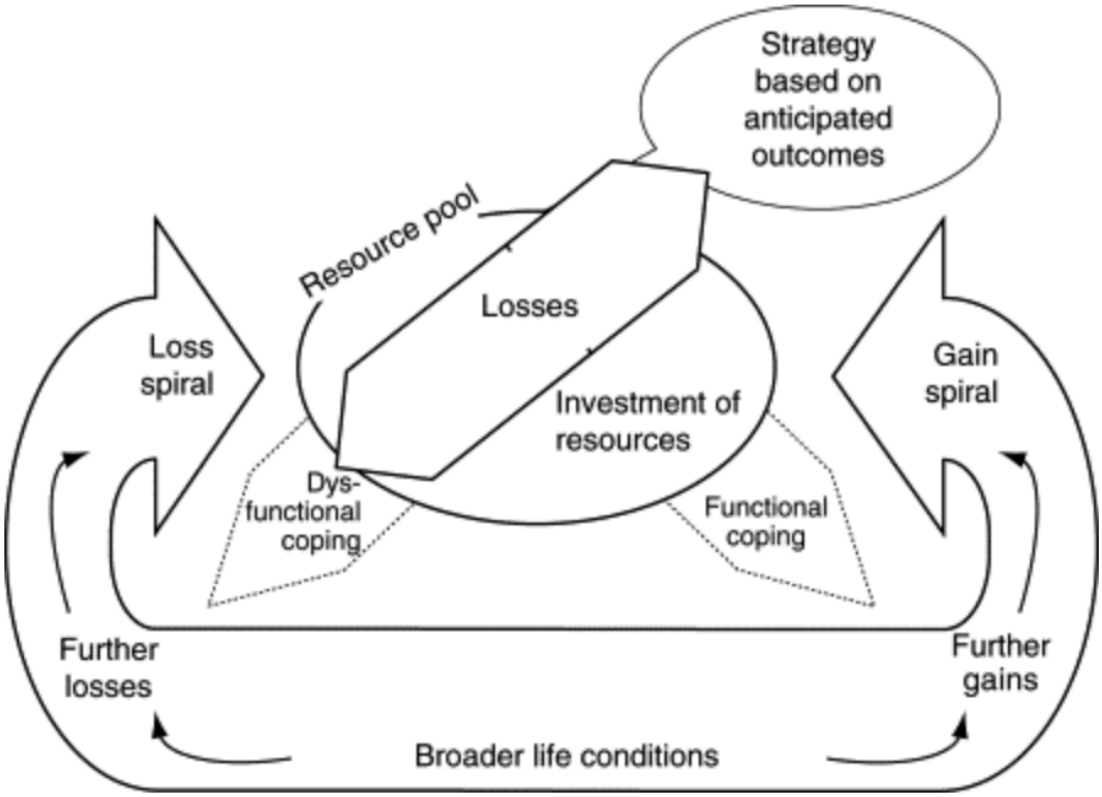
Cai, et al	2020	China	N/A	Investigate the psychological impact and coping strategies of frontline medical staff in Hunan province.	Factors associated with stress included the perceived risk of infection, patient mortality, infection control guidance, & PPE.	Cross-sectional study	534 (Doctors, nurses, hospital staff	Questionnaire complied of 67 questions, that examined feelings of medical staff, possible factors that could induce stress for the medical staff, identify factors that might reduce their stress, identify personal coping strategies in response to the stress of the outbreak, fifth section included questions on what would	The findings showed that the COVID-19 epidemic in Hubei resulted in increased workload and stress for medical staff in the adjacent province of Hunan.	Level III

								encourage medical staff to be more confident in future outbreaks.		
Liang, et al	2020	China	N/A	Interventions of daily living supplies, pre-job training, leisure activities and psychological counseling	Relieve stress	Cross-sectional study	59 doctors and nurses	Zung's self-rating depression scale (SDS), Zung's self-rating anxiety scale (SAS).	Several staff were experiencing clinically significant depressive symptoms	Level III
Li, Z., et al,	2020	China	N/A	Vicarious traumatization score.	Symptoms of loss of appetite, fatigue, physical decline, sleep disorder, irritability, inattention, numbness, fear, and despair are well recognized to be experienced by all individuals.	Observational	526 nurses and 214 general public	Vicarious traumatization questionnaire via mobile phone app-based questionnaire survey.	The results showed that the vicarious traumatization scores for front-line nurses including scores for physiological and psychological responses, were significantly lower than those of non-front-line nurses.	
Spoorthy, et al	2020	India	N/A	-	-	Systemic	6 article review	Literature Review	Regular screening of medical personnel	

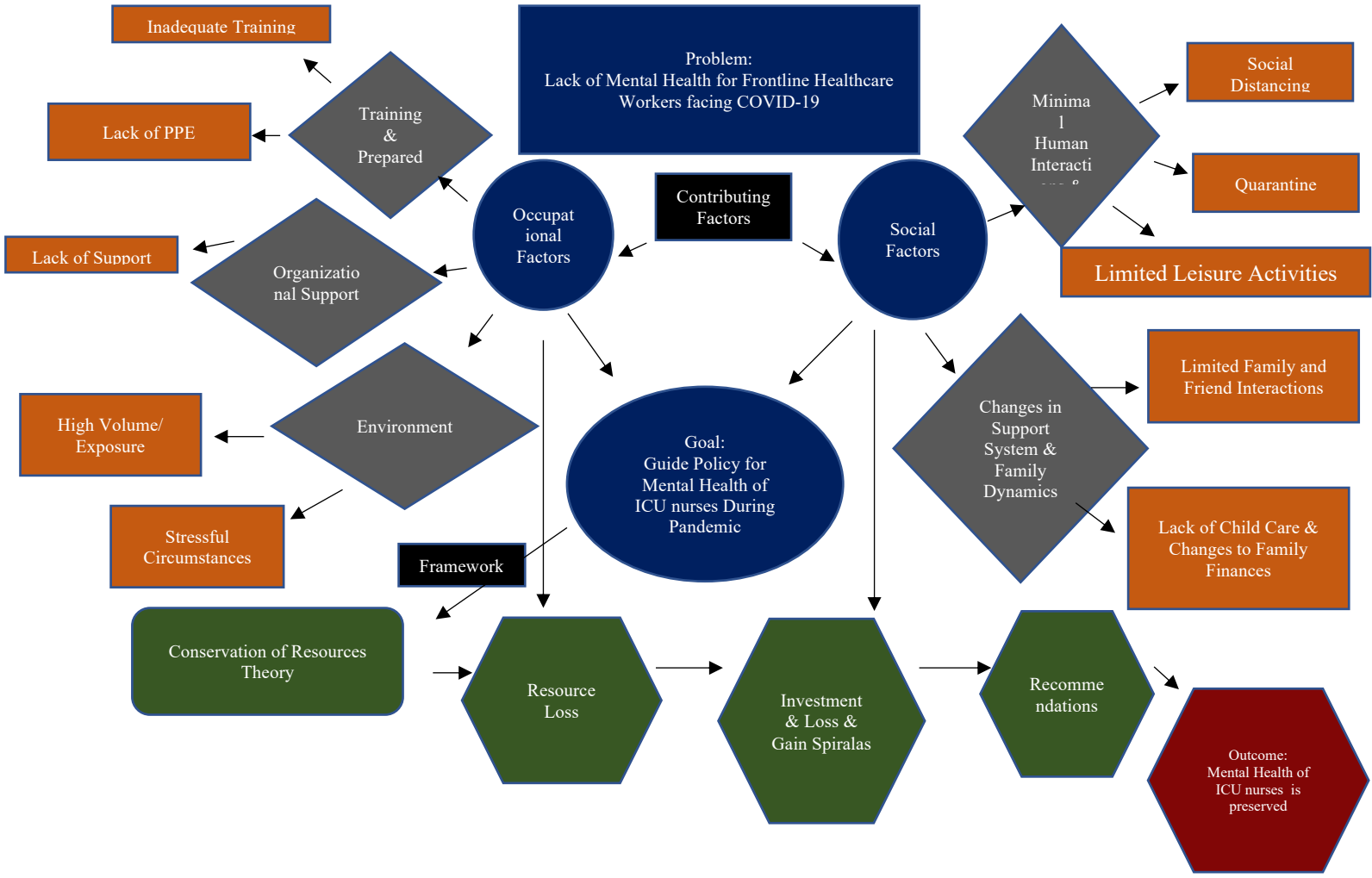
						apprais al			involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression and anxiety by using multidisciplinary Psychiatry teams.	
Liu, et al.,	2020	China	N/a	Describe the experiences of these health-care providers.	The intensive work drained health-care providers physically and emotionall y.	Qualitat ive study	Nine nurses and four physicia ns recruite d from five COVID -19-designat ed hospital s	Semi-structured, in-depth telephone interviews were done at a time convenien t for participant s	Comprehensive support should be provided to safeguard the wellbeing of health-care providers. Regular and intensive training for all health-care providers is necessary to promote preparedness and efficacy in crisis management.	
Wang, et al.	2020	China	N/a	To assist with medical treatment	Problems relating to COVID-19, pathogen, transmissio n, PPE, and training	-	2431 healthca re workers	Survey by the Health Commissi on of Guangdon g Province	The increase in awareness of personal protection, sufficient PPE, and proper preparedness and response would play an important role in lowering the risk of infection for healthcare workers.	

Brooks, et al.	2020	UK	N/A	Psychological impact of quarantine	Longer quarantine is associated with poorer psychological outcomes	Literature Review	24 papers	ROL using electronic database	This Review suggests that the psychological impact of quarantine is wide-ranging, substantial, and can be long lasting.	

Appendix D: Theoretical Framework



Appendix E: Conceptual Map



Appendix F: Gannt Chart



Appendix G: Statement of Mutual Agreement for DNP Guidance

UNIVERSITY OF ARKANSAS
College of Education and Health Professions
Eleanor Mann School of Nursing

Appendix G: Statement of Mutual Agreement for DNP Guidance

DNP Student Name: **Bushra Salamah**

Clinical Site or Agency: **EMSON**

DNP Committee Chair: **Dr. Stewart**

Site Champion Name & Title: **Dr. Patton, Dean**

DNP Project Title:

Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

Expected On-Site Activities: **N/A**

Agency Approval for Presentations and Publications:

- How agency will be referenced: N/a
- Approval granted to use agency name in presentations/ publications: N/a
- Approval granted to use agency name in the University of Arkansas

  DNP Project Scholar Works online repository: N/a
- Is IRB submission required at site? ____ Yes __x__ No

DNP Student Signature: Date: April 22, 2021

Committee Chair Signature: Date: 4/22/2021

Site Champion Signature: Date: 4/22/2021

Susan Patton

Preceptor Signature: Date: 4/22/2021

Appendix H: DNP Title Form

UNIVERSITY OF ARKANSAS
College of Education and Health Professions
Eleanor Mann School of Nursing

Appendix H: DNP Project Title Form

Name: **Bushra Salamah** Student ID #: 010611881

Title of DNP Project to be applied toward the requirements of the degree:

Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

Will Research Committee Review be required?

This section must be completed

Approval #		
Biosafety Committee	Yes*_____No____**x**____	_____
Animal Care and Use Committee	Yes*_____No____**x**____	_____
Institutional Review Board	Yes*_____No_____**x**___	_____

Please refer to the Office of Research Compliance website for information about specific research committees http://vpred.uark.edu/199.php

*NOTE TO STUDENT: If Yes is checked, approval must be on file with the Office of Research Compliance before the degree will be conferred. If No is checked, no data requiring committee approval may be used in the project.

Chair of the DNP Project Committee: Angel Stewart, DNP Date: 4/22/2021

Assistant Director Graduate Studies: _____ Date:

Susan Patton

Department Chair/Head: Date: 4/22/2021

This form is to be submitted to the School of Nursing as soon as the DNP Project topic has been established. Title changes may be submitted by memorandum to the School of Nursing until immediately before graduation

Appendix I: PROFESSIONAL DOCTORAL COMMITTEE

GRADUATE SCHOOL AND INTERNATIONAL EDUCATION
UNIVERSITY OF ARKANSAS
PROFESSIONAL DOCTORAL COMMITTEE

Student's Name: Bushra Salamah ID Number: 010611881
Degree Sought: AGACNP-DNP Degree Program: EMSON

Student's Signature: Date: April 22, 2021

NOTE: The committee chair must have group I graduate faculty status. At least one member of the committee must have group I or II graduate faculty status. Other committee members may be assigned without graduate faculty status.

Committee Members
(Please type or print FULL NAME. Example: Jane R. Doe)
(Please NOTE if ex-officio or off campus member)
(If adding or removing one or more members, only that signature needed along with the committee chair and department chair/head)

Dr. Stewart

Angel Stewart, DNP

_____ CHAIR ☐

☐
Please **PRINT** full name **signature required** add
remove

Susan Patton

Dr. Patton

_____ _____ ☐

☐
Please **PRINT** full name signature add
remove

_____ _____ ☐

☐
Please **PRINT** full name signature add
remove

_____ _____ ☐

☐
Please **PRINT** full name signature add
remove

_____ _____ ☐

☐

Please **PRINT** full name signature add remove

Susan Patton

Department Chair/Head Or Program Director: Date: 4/22/2021

Susan Patton

Approved: Date: : 4/22/2021

Office of the Graduate Dean

This form is to be submitted to the Graduate School as soon as the committee has been selected. Changes to the committee must be done in accordance with Graduate School rules and require the approval of the Graduate School.

Appendix J: Copy of Surveys

Perceived Stress Scale

A more precise measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. The first of these is called the **Perceived Stress Scale**.

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The tool, while originally developed in 1983, remains a popular choice for helping us understand how different situations affect our feelings and our perceived stress. The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:
0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

_____ l. In the last month, how often have you been upset because of something that happened unexpectedly?

_____ 2. In the last month, how often have you felt that you were unable to control the important things in your life?

_____ 3. In the last month, how often have you felt nervous and stressed?

_____ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?

_____ 5. In the last month, how often have you felt that things were going your way?

_____ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?

_____ 7. In the last month, how often have you been able to control irritations in your life?

_____ 8. In the last month, how often have you felt that you were on top of things?

_____ 9. In the last month, how often have you been angered because of things that happened that were outside of your control?

_____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

oldenburg burnout inventory

name: *date:*

Instructions: Below you find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with each statement.

		strongly agree	*agree*	*disagree*	*strongly disagree*
1.	I always find new and interesting aspects in my work *(D)*	*1*	*2*	*3*	*4*
2.	There are days when I feel tired before I arrive at work (*E.R.)*	*1*	*2*	*3*	*4*
3.	It happens more and more often that I talk about my work in a negative way *(D.R)*	*1*	*2*	*3*	*4*
4.	After work, I tend to need more time than in the past in order to relax and feel better *(E.R)*	*1*	*2*	*3*	*4*
5.	I can tolerate the pressure of my work very well *(E)*	*1*	*2*	*3*	*4*
6.	Lately, I tend to think less at work and do my job almost mechanically *(D.R)*	*1*	*2*	*3*	*4*
7.	I find my work to be a positive challenge *(D)*	*1*	*2*	*3*	*4*
8.	During my work, I often feel emotionally drained *(E.R.)*	*1*	*2*	*3*	*4*
9.	Over time, one can become disconnected from this type of work *(D.R)*	*1*	*2*	*3*	*4*
10.	After working, I have enough energy for my leisure activities *(E)*	*1*	*2*	*3*	*4*
11.	Sometimes I feel sickened by my work tasks *(D.R)*	*1*	*2*	*3*	*4*
12.	After my work, I usually feel worn out and weary *(E.R)*	*1*	*2*	*3*	*4*
13.	This is the only type of work that I can imagine myself doing *(D)*	*1*	*2*	*3*	*4*
14.	Usually, I can manage the amount of my work well *(E)*	*1*	*2*	*3*	*4*
15.	I feel more and more engaged in my work *(D)*	*1*	*2*	*3*	*4*
16.	When I work, I usually feel energized *(E)*	*1*	*2*	*3*	*4*

Note: Disengagement items are 1, 3(R), 6(R), 7, 9(R), 11(R), 13, 15. Exhaustion items are 2(R), 4(R), 5, 8(R), 10, 12(R), 14, 16. (R) means reversed item when the scores should be such that higher scores indicate more burnout.

disengagement sub-total: ***exhaustion sub-total:*** ***full scale total:***

Delgadillo et al (2018) reported "Therapists are identified as having low, medium or high OLBI-D scores, based on scores above or below 1 standard deviation of the mean (M = 2.15, SD = 0.52; ≤1.62 = low, 1.63 to 2.67 = medium, ≥2.68 = high)."

Appendix K: Consent Form/ Recruitment Script

Dear Clinical Nurse Colleague,

The COVID-19 pandemic has demonstrated far-reaching effects in both society and the American healthcare system. One consequence of this infectious disease with a particularly significant impact is the decline of mental health among healthcare workers. You are invited to take part in a research project conducted by the primary research investigator Bushra Salamah, BSN a DNP student at University of Arkansas at Fayetteville and her faculty chair, Angela Stewart, DNP, APRN, ACNP-BC, AOCNP, TTS. In this study, we hope to learn more to understand the impact of the COVID-19 pandemic on critical care nurses. You were selected to participate in this study because of your experience as an actively working critical care nurse. The results of this research study will help determine the psychological impact of the COVID-19 pandemic and guide future research. In addition to research, these results may also influence future policy, practice, and educational interventions that improve mental health among healthcare workers.

Participants are to complete the survey that is comprised of three parts. The first part of the tool asked questions pertaining socio-demographic and work-related characteristics. Participants are requested to indicate their age, gender, marital status, job title, education level, state of work, and years of experience. The second part of the study tool utilizes a The OLdenburg Burnout Inventory (OLBI). OLBI consists of 16 positively and negatively formulated items that are used to evaluate the two dimensions of burnout on a 4-point scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). The third part of the study tool utilizes the Perceived Stress Scale (PSS). The 10-item PSS measures global perceived stress experienced across the past 30 days on a 5-point scale (0 – never, 1 = almost never, 2 = once in a while, 3 = often, 4 = very often.

A potential risk of experiencing stress and anxiety may result from answering questions and recalling past experiences related to stressful encounters. If you are experiencing any distress related to the pandemic, contact the helpline:

- National Suicide Prevention Lifeline**:** 1-800-273-8255
- SAMHSA's National Helpline: 1-800-662-HELP (4357)
- Additional information and resources can also be found at: https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf

Consent to participate is indicated by clicking "yes" on consent box that implies willingness to participate in the online survey. Participation in this study is completely voluntary and declining to participate involves no penalty or loss of benefits. Participation in this study is not required and you can choose to withdraw at any time prior to completing the online survey. If you decide not to participate in the study or if you begin to answer the survey and then decide to not continue, you may stop completing the study questionnaires at any time and your decision to stop participation will remain anonymous. Participation will be anonymous, and the survey data will be anonymous to the researcher. At no time will the researcher be able to link the individual survey results to the individual completing the survey. This information is provided solely for

your convenience. The University of Arkansas provides no endorsement or guarantee of the services provided by these facilities.

CONSENT TO PARTICIPATE IN RESEARCH

By clicking the box below, I give my consent to participate in this research project.

☐ Check this box if you consent to this study, and the click "Continue."

If you do not wish to consent to this study, please close your browser at this time.

If you have any questions or concerns about this research at any time, please feel free to contact the primary research investigator Bushra Salamah at bbsalama@uark.edu or 626-262-2490. Thank you in advance for your willingness to participate in this study.

Bushra Salamah, BSN
DNP student at University of Arkansas at Fayetteville
Email: bbsalama@uark.edu
Phone: 626-262-2490

Angela Stewart, DNP, APRN, ACNP-BC, AOCNP, TTS
University of Arkansas | Eleanor Mann School of Nursing
606 N. Razorback Rd.
Phone: 479-575-3581
Fax: 479-575-3218
Email: afrankl@uark.edu

If you have questions or concerns about your rights as a research participant, please contact Ro Windwalker, the University's IRB Compliance Coordinator, at 479-575-2208 or irb@uark.edu

Appendix L: Copy of Approval Letters, if applicable

No approval letters needed, permission to use Perceived Stress Scale and the Oldenburg Burnout Inventory not necessary when used for academic research or educational purposes.

Appendix M: IRB Approval

UNIVERSITY OF ARKANSAS

To:	Bushra B. Salamah
From:	Douglas J Adams, Chair IRB Expedited Review
Date:	12/17/2020
Action:	**Exemption Granted**
Action Date:	12/17/2020
Protocol #:	2010292573
Study Title:	Exploring the Mental Health Needs of Intensive Care Unit Nurses Facing the Pandemic of COVID-19

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Angela R Stewart, Investigator