

Effects of COVID-19 and PPE Availability on Nursing PTSD Screenings

Submitted by

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Abstract

Post-traumatic stress disorder (PTSD) is a mental health condition that is an adverse outcome of a person being exposed to a traumatic event (American Psychiatric Association [APA], 2020). During COVID-19, nurses reported experiencing multiple traumatic events that could potentially lead to PTSD. One of the main issues nurses faced during COVID-19 was access to appropriate personal protective equipment (PPE). Four types of PPE used to prevent COVID-19 transmission include face shields, gowns, N-95 masks, and surgical masks. This research aims to identify correlations between nurses' responses to TSQ questions and PPE availability questions for nurses working during COVID-19. This research is based on a secondary analysis of an original data set. The original research data was collected through a cross-sectional survey in the Hernandez et al. (2021) survey study over social media with Institutional Review Board (IRB) exempt status approval. The Trauma Screening Questionnaire (TSQ) is considered a reliable screening tool to identify precursor symptoms of PTSD. A positive screening of the TSQ is identified by the participant answering positively to six out of the ten categories or more. The TSQ categories represent symptoms related to PTSD following a traumatic event. The TSQ response data for all 10 categories of the TSQ was compared with responses to accessibility for face shields, gowns, N-95 masks, and surgical masks. The collected data was analyzed with descriptive statistics by separating the populations with access to PPE and without access to PPE. These populations were compared with their answers to each category of the TSQ to determine if the variable of access to PPE affected probability of answering positively to TSQ categories. This analysis was conducted on data for each type of PPE. Resulting data was examined for any trends or correlations. Overall, nurses without access to the four types of PPE had an average of a 5.9% greater probability of answering positively to TSQ categories than nurses with access to

the PPE. Face shields, gowns, and surgical masks followed this trend. N-95 masks were an exception with the access group having a mean 3% greater than the no access group. This research identifies PPE as a credible factor in changing health outcomes for traumatic experiences and possibly limiting traumatic exposures. This is represented by the higher probability of the no access nursing population of answering positively to categories of the TSQ.

Introduction

Since the beginning of the COVID-19 pandemic, there was little to no research on understanding the virus. There needs to be research on the effects of the virus in the absence of the knowledge research will eventually provide. This research study is examining the effects of COVID-19 on nursing mental health. The focus of this research is to identify if PPE is a factor that helps prevent negative mental health outcomes for nurses experiencing traumatic events during COVID-19. This research took place during the researching phase for COVID-19. During this time, nurses were using previous evidence-based research on respiratory viruses as a guide to prevent COVID-19 exposure in the workplace, including wearing surgical masks everywhere and donning N-95 masks, gowns, and face shields for COVID-19 patient care. The healthcare guidelines for new diseases evolves from previous evidence-based practice. Nurses were practicing without enough evidence to guide their practice for the disease they were treating. These unique conditions of lack of research with COVID-19 included a potential high risk for negative health outcomes for nurses following traumatic experiences related to COVID-19. Since one of the main tools available to nurses to help protect their health was PPE, this research focused on identifying if PPE is an effective tool in protecting mental health outcomes for nurses following traumatic exposures.

Current Research

The current research on COVID-19, related to nursing, focuses on the effects of COVID-19 on nurses and the healthcare system. Researchers are interested in how nurses are handling the stressful and traumatic experiences associated with COVID-19. Nurses have been labeled as high risk for disorders related to stress during COVID-19 due to their position on the frontline facing potential exposures to the unpredictable virus and their underprepared work conditions. (Centers for Disease Control and Prevention [CDC], 2021b). The risk for disorders related to

stress is emphasized more in the Chen et al. (2020) study where the researchers conducted a cross-sectional questionnaire survey in China and Taiwan to investigate sources of trauma during COVID-19 for 12,596 nurses. Through logistical regression analysis, Chen et al. (2020) discovered nurses working in China and Taiwan, at COVID-19 designated hospitals, were at significant risk of experiencing traumatic events ($p < 0.001$).

Traumatic exposures can lead to worsening health outcomes for the individuals experiencing them. Events in an individual's life that can cause stress and be a risk for PTSD include natural disasters, life threatening illness or injury, and severe human suffering (Weathers et al., 2013). All these events are part of a nurse's work experience during COVID-19. The human mind overcomes challenges like stress or trauma through coping skills and adaptation in a response called psychological resilience (Fletcher et al., 2013). However, traumatic experiences can overcome psychological resilience and lead to mental health disorders such as PTSD. PTSD is a psychiatric disorder developed by individuals that experience or observe trauma and presents as disturbed thoughts, nightmares, and flashbacks (APA, 2020).

The potential for PTSD disorders developing in nurses as a result of traumatic exposures brings into question what factors influence the environment that creates these traumatic experiences. The Mo et al. (2020) study focused on discovering factors that affect nursing stress by using cross sectional online surveys. These surveys were offered to nurses from Guangxi, China that transferred to Wuhan, China to meet patient care needs for the COVID-19 outbreak. In China, Mo et al. (2020) analyzed sources of stress for 180 participating nurses during COVID-19 and identified contributing factors of being an only child and sleep were significant in nurses having stress overload. The study did not focus on PPE shortages as a source of trauma or stress. Additional research on PPE and trauma in nursing during COVID-19 is not available. This lack

of research on the role of PPE in preventing traumatic exposure supports new research on PPE as an individual factor that modifies the occurrences or severity of the experiences that include or lead to trauma for nurses.

The value of PPE in the healthcare workplace has been recognized for a long time. In 2005, the U.S Department of Health and Human Services acknowledged the need for advanced preparations for public health emergencies and the adjustments healthcare would be expected to make in response to such emergencies (Agency for Healthcare Research and Quality, 2005). This allowed around 15 years of preparation and planning for an emergency like COVID-19 in policies and PPE availability. PPE consists of protection gear for nurses to protect themselves against pathogens of which N95 masks are the most protective PPE besides respirators in protecting nurses from droplet/airborne pathogens (Macintyre et al., 2017). N95 masks and respirators are required for COVID-19 patient care as COVID-19 is a droplet/airborne transmission-based pathogen (CDC, 2021a). However, these types of PPE were not fully available to nurses during the initial outbreak of COVID-19. Shahrour et al. (2020) identified that among 448 Jordanian nurses, 64% of the nurses screened positive for Acute Stress Disorder (ASD) during COVID-19. Sharour et al. (2020) also suggested lack of PPE had a role in elevating the positive screening numbers and linked ASD as a risk for PTSD. This indicates that PPE availability may influence the outcomes for traumatic exposures that can cause PTSD.

The lack of research on types of PPE available to nurses during COVID-19 and its possible impacts on traumatic exposures for nurses provides support for this research. The existing research suggests COVID-19 increased the number of traumatic exposures for nurses and that PPE may be a modifying factor in the number and severity of traumatic exposures that occur. This supports using PTSD screening questions in this survey to test for negative health

outcomes associated with traumatic exposures among nurses during COVID-19. These questions are available through the validated Trauma Screening Questionnaire (TSQ). Any correlations found between PPE availability and TSQ results will be identified through the secondary data analysis.

Methodology

Research Question

This research was conducted to determine if there were any correlations between types of PPE available to nurses during the COVID-19 pandemic and nurses' responses to PTSD screening questions.

Design

The researcher determined the TSQ would be able to generate the necessary descriptive statistics to identify correlations between types of PPE available and responses to PTSD screening questions from the TSQ. The TSQ is available to the public and is designed to identify precursors to PTSD diagnosis by measuring traumatic stress. The TSQ was accessed without cost and assessed for validity. The TSQ was noted to be an effective research tool from its validity and reliability through previous use in other studies (de Bont et al., 2015). The TSQ is considered effective within 3-4 weeks of an experience that creates traumatic stress and uses answers to 10 questions to screen for PTSD. The survey with all TSQ questions was distributed within this time frame following the March COVID-19 surge in 2020. The TSQ was included in the survey with questions about access to PPE availability including surgical gowns, N-95s, face shields, and surgical masks. The survey was designed as a cross-sectional survey through Qualtrics (<https://www.qualtrics.com>) and was administered via snowball sampling and through distribution over social media sites. The snowball sampling method is a non-probability method

of accessing populations that are difficult to contact (Grove & Gray, 2019). Snowball distribution uses survey participants to refer other potential survey candidates to the survey. Data was collected by the Hernandez et al. (2021) research study and was used for secondary analysis in this research. Data from complete TSQ survey responses was compared with each type of PPE availability responses for correlations. The researcher was unable to use this secondary analysis to screen participants for positive PTSD screenings based on the availability of specific PPE. This limitation originated from the select all formatting of the PPE questions asked in the survey and the inability of the researcher to determine which participants answered yes or no in each category of the PTSD screening questions. Following this complication, the researcher analyzed the probability of participants answering yes to PTSD screening questions based on the participants' access to each type of PPE.

Inclusion and Exclusion Criteria

To be included in the study originally conducted by Hernandez et al. (2021), participants were required to be currently practicing registered nurses in an acute care setting older than 18 years. Participants were required to speak English and be working in an acute care environment at the time of survey participation. Participants were excluded on self-determination of not being a licensed registered nurse and working in nonacute care settings. This was also labeled as non-hospital sites. Other exclusions included being unable to read or understand English.

Sample

The sample was recruited in the Hernandez et al. (2021) study through the Facebook (<https://www.facebook.com>) social media platform. Groups relevant to the study on the Facebook platform were found through the group search function. Permission from administrators for identified relevant groups was obtained before the survey link was posted in

each groups' page. The post allowed participants and viewers to take the survey and share it without the research team prompting them. Results of survey distribution were reviewed and described as having heavy distribution in the Upper Midwest region. The survey was available from April 27th until May 4th in 2020.

Institutional Review Board

The researcher was added via amendment to the existing Institutional Review Board (IRB) application for the Hernandez et al. (2021) study. The Oakland University IRB approved the amendment and the original application with exempt status. Informed consent was provided to participants attempting to access the survey in the start of the survey through an information page. The participants were required to confirm their consent to be in the research study to access the survey. This was done through a manual click by the media user. Failure to provide consent prevented participants from accessing the survey.

Results

Sample Characteristics

Results were obtained through a secondary analysis of survey data using descriptive statistics to identify potential correlations. Correlations between types of PPE availability and positive answers to questions on the TSQ survey were investigated. The secondary analysis focused on data originally retrieved during the Hernandez et al. (2021) study. The survey study was opened by 400 participants with only 298 participants fully answering the TSQ portion of the survey. This analysis did not focus on gender, but the Hernandez et al. (2021) study recorded the data which included 237 female participants, seven male participants, and 54 participants that did not self-identify gender. The study also reflected that the majority of survey participants were White with the exception of four Black participants, one American Indian participant, four Asian

participants, and nine participants that did not self-identify ethnicity. Survey participation for PPE availability for different types of PPE varied. This data presentation was caused by incomplete survey participation for the PPE availability part of the survey. Survey participants did not answer all of the PPE questions, and some did not answer any of them. Full completion of the TSQ survey questions with full completion of the PPE questions was needed to analyze data for each type of PPE. The variation in survey response resulted in varying survey participation for each type of PPE. Sample sizes were very unequal when the access populations were compared to the no access populations. The mode sample size for nurses with access to face shields was 181 while the mode sample size for nurses without access to face shields was 21. The mode sample size for nurses with access to gowns was 159 while the mode sample size for nurses without access to gowns was six. The mode sample size for nurses with access to N-95 masks was 211 while the mode sample size for nurses without access to N-95 masks was 10. The mode sample size for nurses with access to surgical masks was 208 while the mode sample size for nurses without access to surgical masks was seven. These sample sizes were participants that answered all 10 of the TSQ questions with each type of PPE question on availability. The researcher was unable to run PTSD screenings on the results due to the select all formatting of the PPE questions asked in the original Hernandez et al. (2021) study. Consequentially, the results of the findings were analyzed using descriptive statistics to measure probability and look for correlations in the findings.

Results

The results of this secondary data analysis represent the probability of answering yes to a category of the TSQ. The TSQ is used to screen for PTSD and is considered positive when a participant answers six categories or more as positive. The responses to the TSQ were compared

with the access to each type of PPE. The study variables included either having access or not having access to face shields, gowns, N-95 masks, and surgical masks PPE. The probability of answering positively to a TSQ category was calculated for every category of the TSQ from the percent of participants in each access category answering positively. Differences were calculated by subtracting the access percentage from the no access percentage for each category of the TSQ. Mean percentages were calculated for each access variable and the difference column. This process was repeated for all four types of PPE in separate tables.

Face Shields

Face shields were identified as a PPE factor that decreases positive responses to the TSQ for nurses. Nurses without access to face shields were on average 9.7% more likely to answer positively for TSQ categories than nurses with access to face shields. It was also noted that nurses without access to face shields had a 68.1% probability of answering yes to TSQ categories and had a higher probability of answering positively in every category of the TSQ in comparison with the no access to face shields population. See Table 1 for the complete results.

Table 1*Percentage of Nurses With and Without Face Shield Access Answering yes to TSQ Categories*

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to face shields) – (with access to face shields)
	With access to face shields	Without access to face shields	
Upsetting thoughts or memory about the event that have come into your mind against your will	76.8% (181)	85.7% (21)	8.9%
Upsetting dreams about the event	42.5% (181)	52.4% (21)	9.9%
Acting or feeling the event were happening again	42% (181)	47.6% (21)	5.6%
Feeling upset by reminders of the event	71.8% (181)	76.2% (21)	4.4%
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	57.2% (180) ^a	66.7% (21)	9.5%
Difficulty falling or staying asleep	70.2% (181)	71.4% (21)	1.2%
Irritability or outbursts of anger	54.7% (181)	66.7% (21)	12%
Difficulty concentrating	61.9% (181)	81% (21)	19.1%

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to face shields) – (with access to face shields)
	With access to face shields	Without access to face shields	
Heightened awareness of potential dangers to yourself/others	77.3% (181)	81% (21)	3.7%
Being jumpy or being startled at something unexpected	29.8% (181)	52.4% (21)	22.6%
Mean	58.4%	68.1%	9.7%

Note. Rows in the body of the table are question categories for the TSQ. Numbers in parentheses in the “With access to face shields” and “Without access to face shields” columns display total number of responses for each category of the TSQ for their column. The “difference of percentages” column displays the mathematical difference between the percentages of the two columns representing types of access per category of the TSQ.

^a Reflects a deviation from the mode survey participation for all categories of the TSQ for a column.

Gowns

Gowns were another PPE factor that was identified as an effective variable for decreasing positive TSQ category responses from nurses. Table 2 displays nurses without access to gowns were, on average, 8.2% more likely to answer positively to TSQ categories when the access mean was compared to the no access mean. Table 2 displays more variation than Table 1 with the access to gowns column having higher probability of answering positively to four out of 10 TSQ categories.

Table 2*Percentage of Nurses With and Without Gown PPE Access Answering yes to TSQ Categories*

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to gowns) – (with access to gowns)
	With access to gowns	Without access to gowns	
Upsetting thoughts or memory about the event that have come into your mind against your will	73.6% (159)	66.7% (6)	-6.9%
Upsetting dreams about the event	41.5% (159)	66.7% (6)	25.2%
Acting or feeling the event were happening again	39% (159)	66.7% (6)	27.7%
Feeling upset by reminders of the event	68.6% (159)	66.7% (6)	-1.9%
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	57% (158) ^a	50% (6)	-7%
Difficulty falling or staying asleep	72.3% (159)	83.3% (6)	11%
Irritability or outbursts of anger	56.6% (159)	33.3% (6)	-23.3%
Difficulty concentrating	59.1% (159)	83.3% (6)	24.2%

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to gowns) – (with access to gowns)
	With access to gowns	Without access to gowns	
Heightened awareness of potential dangers to yourself/others	72.3% (159)	66.7% (6)	-5.6%
Being jumpy or being startled at something unexpected	28.3% (159)	66.7% (6)	38.4%
Mean	56.8%	65%	8.2%

Note. Rows in the body of the table are question categories for the TSQ. Numbers in parentheses in the “With access to gowns” and “Without access to gowns” columns display total number of responses for each category of the TSQ for their column. The “difference of percentages” column displays the mathematical difference between the percentages of the two columns representing types of access per category of the TSQ.

^a Reflects a deviation from the mode survey participation for all categories of the TSQ for a column.

N-95 Masks

N-95 mask data presented as a PPE factor that increased the probability of nurses answering yes to TSQ categories. Table 3 displays this probability as 3% higher for the access category when the access column’s mean is compared to the no access column’s mean. Table 3 noted that nurses with access to N-95 masks were more likely to answer positively to five out of 10 TSQ categories while nurses without access were more likely to answer positively to the other five TSQ categories.

Table 3*Percentage of Nurses With and Without N-95 PPE Access Answering yes to TSQ Categories*

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to N-95 masks) – (with access to N-95 masks)
	With access to N-95 masks	Without access to N-95 masks	
Upsetting thoughts or memory about the event that have come into your mind against your will	72% (211)	70% (10)	-2%
Upsetting dreams about the event	42.2% (211)	40% (10)	-2.2%
Acting or feeling the event were happening again	41.7% (211)	30% (10)	-11.7%
Feeling upset by reminders of the event	69.7% (211)	80% (10)	10.3%
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	56.2% (210) ^a	70% (10)	13.8%
Difficulty falling or staying asleep	72% (211)	70% (10)	-2%
Irritability or outbursts of anger	54% (211)	60% (10)	6%
Difficulty concentrating	62.6% (211)	70% (10)	7.4%

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to N-95 masks) – (with access to N-95 masks)
	With access to N-95 masks	Without access to N-95 masks	
Heightened awareness of potential dangers to yourself/others	72.9% (211)	70% (10)	-2.9%
Being jumpy or being startled at something unexpected	29.4% (211)	50% (10)	20.6%
Mean	57%	54%	3.7%

Note. Rows in the body of the table are question categories for the TSQ. Numbers in parentheses in the “With access to N-95 masks” and “Without access to N-95 masks” columns display total number of responses for each category of the TSQ for their column. The “difference of percentages” column displays the mathematical difference between the percentages of the two columns representing types of access per category of the TSQ.

^a Reflects a deviation from the mode survey participation for all categories of the TSQ for a column.

Surgical Masks

Surgical masks were identified as a PPE variable that decreased positive responses to TSQ categories for nurses. Table 4 identified nurses without access to surgical masks were 8.8% more likely to answer positively to TSQ categories when the no access mean was compared to the access mean. Nurses without access to surgical masks in Table 4 were noted to be more likely to answer positively in seven out of ten TSQ categories.

Table 4*Percentage of Nurses With and Without Access to Surgical Masks Answering yes to TSQ Categories*

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to surgical masks- with access to surgical masks)
	With access to surgical masks	Without access to surgical masks	
Upsetting thoughts or memory about the event that have come into your mind against your will	76.4% (208)	71.4% (7)	-5%
Upsetting dreams about the event	41.8% (208)	57.1% (7)	15.3%
Acting or feeling the event were happening again	44.2% (208)	57.1% (7)	12.9%
Feeling upset by reminders of the event	71.6% (208)	57.1% (7)	-14.5%
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	59.6% (208)	100% (6) ^a	40.4%
Difficulty falling or staying asleep	73.1% (208)	85.7% (7)	12.6%
Irritability or outbursts of anger	58.2% (208)	71.4% (7)	13.2%
Difficulty concentrating	65.4% (208)	85.7% (7)	20.3%

TSQ categories	Percent of participants reporting a TSQ category		Difference of percentages (without access to surgical masks- with access to surgical masks)
	With access to surgical masks	Without access to surgical masks	
Heightened awareness of potential dangers to yourself/others	75% (208)	57.1% (7)	-17.9%
Being jumpy or being startled at something unexpected	32.7% (208)	42.9% (7)	10.2%
Mean	59.8%	68.6%	7.5%

Note. Rows in the body of the table are question categories for the TSQ. Numbers in parentheses in the “With access to surgical masks” and “Without access to surgical masks” columns display total number of responses for each category of the TSQ for their column. The “difference of percentages” column displays the mathematical difference between the percentages of the two columns representing types of access per category of the TSQ.

^a Reflects a deviation from the mode survey participation for all categories of the TSQ for a column.

Further comparison was done by taking the mean of all four individual table means for access and no access columns. No access columns for PPE had a higher mean by 5.9%. TSQ categories were reviewed to identify the categories that no access columns had a higher probability of answering positively for all four types of PPE. The TSQ categories of “Difficulty concentrating” and “Being jumpy or being easily startled at something unexpected” had a higher probability of being answered positively by nurses without access to PPE in all four tables. The categories in the TSQ of “Upsetting dreams about the event”, “Acting or feeling the event were happening again”, “Body reactions (such as fast heartbeat, stomach churning, sweatiness,

dizziness) when reminded of the event”, “Difficulty falling or staying asleep”, and “Irritability or outbursts of anger” were noted to have a higher probability of being answered positively by nurses without access to PPE in three out of four tables. Seven out of ten TSQ categories were identified as having a higher probability of being answered positively by nurses without access to PPE in at least three of the four tables.

Discussion

This study was focused on finding correlations between PPE availability for nurses during COVID-19 and the responses from the same nurses on the TSQ. Four types of PPE availability were investigated. These types of PPE included face shields, gowns, N-95 masks, and surgical masks. The overall results of the secondary analysis indicate that types of PPE do decrease positive TSQ responses in nurses working during COVID-19 when made available to nurses. Three of these PPE types had higher overall mean probabilities of answering positively to TSQ categories in the absence of PPE access. N-95 masks contradicted the overall theme of the results by presenting with higher probability for nurses to answer TSQ categories when provided access to the N-95 masks. The overall probability for all types of PPE was found to be a difference of 5.9% between having access to PPE and not having access to PPE. Not having access to PPE had the higher probability in the total.

Situational Context

The N-95 mask data was further analyzed for potential reasoning behind the deviation from the study’s general findings. The researcher noted that this research took place during the initial COVID-19 pandemic. During this time, multiple variations of N-95 masks were being issued to healthcare workers and different policies on reusage were being instituted. This could have created a general mistrust of N-95 masks by nursing staff that led to the feeling of not

having access to adequate PPE. Further consideration was given to the guidelines for COVID-19 patient care. Wearing a N-95 mask has been a requirement for safely providing care to COVID-19 patients. The researcher noted that having access to N-95 masks could increase the number of traumatic experiences for nurses. These reasons, and the unequal sample size could be attributable to the higher probability for nurses with access to N-95 masks answering positively to TSQ categories. The other categories of PPE were less complex than N-95 masks and did not present immediate concerns for external factors influencing outcomes of the study.

Implications for Practice

The results identify that PPE is an effective variable in altering responses to TSQ categories for nurses during COVID-19. The TSQ was designed to screen for PTSD following traumatic events. The results indicate PPE affects health outcomes for traumatic exposures or decreases those exposures. Respectively, the results indicated that for at least three of the four types of PPE, nurses without access to PPE had a higher probability to answer positively to seven out of the 10 TSQ categories. The TSQ screens positively for PTSD with a minimum of six categories being answered positively. This insight can be viewed as a correlation between no access to PPE and increased probability of screening positive for PTSD through the TSQ. The findings for this study support further research on the role of PPE in traumatic exposures and dangers to nursing health in the workplace. Providing PPE to healthcare workers is a responsibility of healthcare systems. Finding evidence that PPE contributes to the overall health of nurses and other healthcare workers could provide support for legislation on hospital requirements to supply certain PPE during pandemics. The results from this study provide support for healthcare workers wearing the required PPE for their patient care. Additional

research with adequate sample sizes and increased participation may produce more conclusive results.

Limitations

Limitations include unequal sample sizes and incomplete survey participation. The formatting of survey questions also limited the ability of the researcher to conduct a more in-depth analysis of the existing data. The social media sampling method may have led to disparities in race and gender. The social media sampling method did not fully validate the identity of survey participants, allowed participation from different geographical location, and allowed participation from different hospitals. Additionally, the environment surrounding nursing care for COVID-19 patients was not a fixed variable and allowed different care provider experiences to occur. These limitations may have contributed to the unequal sample sizes in this study which decreases the usage and generalizability of this analysis's findings. The external threat of valid identification of survey participants also threatens the validity of the data.

Conclusion

Nurses and healthcare workers are exposed to many traumatic situations in their job. COVID-19 is suspected to have increased the exposure to traumatic experiences for nurses in the workplace. Research is focusing on how the workplace environment impacts the overall health of nurses. This definition of health includes mental health. This research focused on trying to find correlations that suggest PPE is a credible factor in protecting nurses from traumatic exposures. The influence of PPE was measured through comparing PPE availability with nursing responses to TSQ categories. The overall analysis was conducted with many limitations that weaken the validity of the research results. These limitations include sample sizes, homogeneity of samples, participant validity, and methods of data collection. The results do provide support for PPE being

an effective variable in decreasing negative traumatic health outcomes for nurses with access to the PPE. This was identified by the overall probability of nurses without access to PPE having a higher probability of answering yes to TSQ categories. Further research should be conducted to investigate the significance of PPE in providing better mental health outcomes for nurses in the workplace.

This research does provide correlational outcomes that should be recognized. Health care systems should focus on reinforcing their supply of PPE for emergency situations like COVID-19. These systems should also focus on encouraging the proper use of PPE in the workplace. Maintaining mental health for employees may lead to better retention in the workplace. The results of this study indicate that nurses should be evaluated for mental health alterations during their careers. The importance of this has been highlighted by the COVID-19 pandemic. Further research on PPE and mental health outcomes in nursing should focus on maintaining adequate sample sizes with more diversification and participant validation.

Biographical Note

I am a nursing major at Oakland University in my Senior year. I plan on graduating and obtaining my BSN in 2022. After working in the clinical environment, I plan on going to graduate school to obtain a doctorate in nursing practice. This research directly addresses nursing ethics and nursing health in the workplace environment. Nursing ethics and health in the workplace environment is a topic all nurses need to be familiar with. Nurses will only perform their services successfully if they are healthy and protected while working. This research intended to help identify risks that exist in the nursing workplace. Nurse anesthetists and hospital floor nurses are among the nursing population that were potentially exposed to traumatic incidents because of COVID-19 and lack of PPE. This research will be applicable to the

bachelor's in nursing research level as well as the graduate level. This research strengthened my research skills and ability to investigate problems facing the health of the nursing profession.

This research can justify further research on traumatic experiences and threats to nursing health after I graduate or enter my graduate program.

Notes of Gratitude

Dr. Carrie Buch,

This thesis has been a challenge for me since day one! However, with the right mentor and guidance, this thesis has evolved into some of my best work. Your outgoing personality and drive to help students will continue to have a strong impact on me. I am extremely grateful for your mentorship and encouragement since you took over as my mentor. My personal experience in research has grown from basically nothing, to being able to assemble a thesis under your guidance. Your meticulous editing skills with your knowledge on APA research has helped guide me throughout the formation of this thesis. Thank you for bearing with me. This work was accomplished among a multitude of stressors for both of us including a world-wide pandemic! Your professionalism and desire to help your students has been very apparent to me. Your complete honesty with constructive criticism has helped me perform and write to the best of my ability. I know this is a small area of research that we have concentrated on, but I feel empowered by the newfound knowledge about research I now have. I am positive that I will be participating in more research very soon with high hopes to discover new knowledge that can be applied to the nursing field.

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