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Original Research Article

The Relationship between Knowledge and Anxiety Level of Frontline Nurses during COVID-19 Pandemic in Prince Sultan Military Medical City, Riyadh

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Abstract

This study determined the relationship between knowledge and anxiety levels of frontline nurses during the Covid-19 pandemic in Prince Sultan Military Medical City, Riyadh with the use of descriptive correlation cross-sectional research design, and the data were collected using a survey questionnaire and adopted the GAD-7 Anxiety tool. Respondents of the study were the 290 employees chosen purposively. The present study reveals that most of the respondents belonged within the age range of 31-36 (52.41%), female (90%) with O+ blood type (41.03%), bachelor's degree in nursing (82.41%), staff nurse 2 (49.31%), had 6 – 10 years work experience (40.69%), classified as a technician (50.69%) and currently working at the emergency unit (22.07%). Similarly, the mean knowledge about Covid-19 was 21.82 verbally described as "very good knowledge." Meanwhile, (59.66%) of the respondents had very good knowledge about Covid-19. The computed mean anxiety level of the respondents was 5.89 verbally described as "moderate anxiety," about (48.97%) had mild anxiety. Furthermore, the socio-demographic profile of the respondents does not significantly correlate to the knowledge about Covid-19 and anxiety level, which leads to the acceptance of the null hypothesis. Finally, there are no significant variations existed in the knowledge about Covid-19 and anxiety level when grouped according to socio-demographic variables which lead to the acceptance of the null hypothesis.

Keywords: Knowledge, Covid-19, anxiety level, frontline nurses, military hospital.

PROJECT SUMMARY

The rapid spread of the COVID-19 pandemic has become a major concern for the healthcare profession. The pandemic is ongoing and actively developing in countries around the world. They are taking drastic measures to reduce the spread of the disease such as; initiating social distancing, closing schools and nonessential businesses.

COVID-19 was first reported from China on 31st of December 2019 as a cause of pneumonia and since then has spread to many countries around the globe which led the World Health Organization (WHO) to announce it as a worldwide pandemic on 11th of March 2020 (World Health Organization, 2021).

The study aims to explore the frontline staff nurses' knowledge about the COVID-19 virus and the relationship to the anxiety Levels at tertiary Hospital, KSA. The study will describe the relationship between the level of knowledge and the staff nurses' outcomes related to their anxiety level that could affect mental health and work outcomes among nurses treating patients with COVID-19 by quantifying the magnitude of symptoms of anxiety, and by analyzing potential risk factors associated with these symptoms. The study will be a quantitative method, descriptive correlation cross-sectional design. A convenience sample method has

been chosen that fits with the study design and objectives

Moreover, previous studies showed a higher level of anxiety and depression among nurses due to the nature of their job and long interaction with the patients. As a result, the impact of deprived mental health among nurses may not only be harmful to them, it may also impede and affect their professional routine. Moreover, the authors will utilize the findings of these studies; will help to arrange counseling sessions or, physiatrist/psychological intervention to control the psychological and mental problems among staff nurses.

BACKGROUND

At present, studies on the Covid-19 pandemic mostly concentrated on epidemiological investigation, prevention and control, diagnosis and treatment. The significance of this study is to explore the frontline staff nurses' knowledge about the COVID-19 virus and the relationship to the anxiety Levels of Frontline Nurses at measure tertiary Hospital, KSA. The most significant reason that drive the author to conduct this study was that the author had been affected by Covid -19 outbreak.

COVID-19 is a new disease, distinct from other diseases caused by coronaviruses, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). The virus spreads rapidly, and outbreaks can grow at an exponential rate.

At present, there is no therapeutics or vaccines proven to treat or prevent COVID-19, although national governments, WHO and partners are working urgently to coordinate the rapid outbreak. (1) According to data from countries affected early in the pandemic, about 40% of cases will experience mild disease, 40% will experience moderate disease including pneumonia, 15% of cases will experience severe disease, and 5% of cases will have a critical disease (WHO).

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illnesses. WHO (2021). The best way to prevent and slow down the transmission is to be well informed about the COVID-19 virus, the causes of the disease and how it spreads (WHO, 2021).

In the present worldwide outbreak of the COVID-19 virus and the unavailability of information or inaccurate information regarding the COVID-19 that lead to an increase in the anxiety level of frontline Nurses dealing with suspected and confirmed cases of COVID-19, which will affect directly or indirectly in delivering care to the patient that will decrease quality of care and patient safety. (World Economic Forum, 2020).

Nurses are an important link in care and support in the medical system in all world because they are responsible for delivering comprehensive care from head to toe to all different kinds of a patient in all different units of the hospital. Contrary to this, many studies have reported that although the corona Covid-19 outbreak is a significant concern in all hospitals, Nurses are critical to ensuring quality care. They engage and empower patients to speak up on their behalf and enforce hand hygiene measures with colleagues from all levels of the hospital hierarchy. "Nurses are the key watchdogs of patients, so all of them must prioritize patient safety and take responsibility for hand hygiene compliance, (WHO, 2021).

The COVID-19 pandemic has become a major public health challenge globally with countries of the world adopting unprecedented infection prevention and control (IPC) measures to urgently curtail the spread of the COVID-19 virus. The knowledge, anxiety level and PPE awareness of the nurses toward COVID-19 are critical to understanding the epidemiological dynamics of the disease and the effectiveness, compliance and success of IPC measures adopted in a country (WHO, 2021).

Rare researches made in the Kingdom of Saudi Arabia to address this problem that we are facing every day while giving nursing care during the new spread of the global threat of poor management in this situation which directly affects the mortality rate in the medical field. As we know the patient has the right to receive, effective and safe care everywhere in the hospitals which it is needs a well-trained nurse who knows COVID-19 to improve and increase the quality of nurse's care. The most risk within our facing now is professionals working in the health and social care sectors. This is because they are responsible for providing essential treatment and care for those who are confirmed to have COVID-19, are symptomatic, or are highly vulnerable. They are often in prolonged close contact with individuals who are symptomatic or particularly vulnerable to infection (WHO, 2021).

Also, in WHO mention the importance of infection control measures and hand hygiene in fighting the disease, the Center has stockpiled the basic tools needed, including personal protective equipment, soap, and alcohol-based hand rub and solutions. They were thus ready to fight COVID-19 by making these tools widely available and accessible to all staff and patients (WHO, 2021).

Knowledge of Covid -19 is a very important update from the authorized published to update nurse’s information that helps to decrease the anxiety level and that prevent spread of the disease covid-19

(Hammerschmidt & Manser, 2019). Rapidly changing advice and knowledge about the contagion increased the stress levels among nursing staff. Many nurses wanted to ensure that they were equipped with the appropriate information to provide quality patient care. Yet nurses expressed inadequate training in caring for patients affected by an emerging infectious disease. Given that the infectious disease was so new, modifications of policies and guidelines were updated swiftly, which created confusion as to the most up-to-date versions. This confusion also exacerbated nurses' anxiety and perception of risk. The communication of information was often felt to be difficult and not succinct thus creating additional confusion and distress for the already busy nurses (MOH News, 2020; Hammerschmidt, *et al*. 2019).

Until now there is no treatment effectively applied as mentioned by The Ministry of Health (MOH) 08, august, 2020 on continues its efforts to combat the COVID-19 pandemic. Its ongoing endeavors aim to develop an effective vaccine for the disease. This is taking place with the tremendous support of the government of the Custodian of the Two Holy Mosques and HRH the Crown Prince, which has spared no effort to preserve the health and safety of citizens and residents in KSA. MOH will continue to conduct experiments and research in this area. Moreover, it has been announced that a clinical trial for a vaccine against the virus will be conducted in the Kingdom, within the framework of the cooperation agreement between KSA and China (MOH News, 2020).

Respiratory infectious pandemics and epidemics are particularly virulent given their spread via droplets and interpersonal contact. Nurses, as the largest group of health professionals, are at the frontline of the health care system response to both epidemics and pandemics. Nurses deliver care directly to patients in close physical proximity and as such, are often directly exposed to these viruses and are at high risk of developing the disease). In the SARS outbreak in Taiwan, some 4 of the 70 deaths were nurses. Early reports related to COVID-19 indicate that the rate of infection among health care professionals with this virus maybe even more extensive (Alwani, Majeed, Hirwani, Rauf, Saad, Hamirami, 2020). Complicating the situation for nurses during pandemics are the logistical issues related to the supply of personal protective equipment (PPE), and shortages of other necessary resources to support service delivery (Alwani, *et al*. 2020).

Occupational and organizational preparedness to deal with the pandemic affected considerably on frontline nursing staff. One of the major factors that influenced nurses' ability to cope with the demanding workload during the pandemic was staffing shortages. A lack of staff made ensuring adequate staff skill mix for managing high acuity patients challenging, not only creating pressure on more junior staff but also the senior staff who had to support them. Such pressure on the nursing workforce meant nurses had to adapt to changes quickly, often in suboptimal conditions, with high patient turnover and limited isolation rooms. Nurses believe that one of their greatest challenges working during the pandemic was a lack of preparedness planning at both a management and health department level (Alwani, *et al*. 2020).

Project Objectives

This study aims to explore the frontline staff nurses' knowledge about the COVID-19 virus and the relationship to the anxiety levels at tertiary Hospital, KSA. The study will describe the relationship between the level of knowledge and the staff nurses' outcomes related to their anxiety level.

LITERATURE REVIEW

Definition

The global pandemic of coronavirus disease of 2019 (COVID-19) has led to unprecedented psychological stress on health workers (HCWs). We aimed to assess the psychological impact of COVID-19 on nurses in comparison to the anxiety level and concerning their level of knowledge brought on by the Middle East respiratory syndrome coronavirus (MERS-COV) epidemic in Saudi Arabia in prince sultan military medical city (Schoeman & Fielding, 2019).

History of coronavirus

Coronaviruses are a large group of viruses that are rather common throughout the community. Historically, evidence has shown that the virus is transmitted through birds and mammals, with humans being particularly vulnerable to infection and transmission of the virus (Schoeman, *et al*., 2019).

The previous outbreaks of coronaviruses such as Severe Acute Respiratory Syndrome-Coronavirus (SARS-COV) and Middle East Respiratory Syndrome-Coronavirus (MERS-COV) in 2003 and 2015, show similarities to the novel coronavirus, which was first reported in December 2019, and is currently the disease in questions resulting in the worldwide Coronavirus disease-2019 outbreak, COVID-19(22). It was first reported by Chinese authorities in Wuhan city, the capital of Hubei province in China at the end of December 2019 (Carlos, Dela Cruz, Cao, Pasnick & Wuhan (2020). The infection began to spread rapidly throughout many countries including Vietnam, the World Health Organization (WHO) declared that the COVID-19 infection was a Public Health Emergency of International Concern.

Impact of the pandemic in nurses and the relationship between anxiety and education level in patient care. Stress and anxiety over COVID-19 can be overwhelming for patients as supported by the study in 03,20 study done by Jianbo Lai, MS to discover factors

associated with mental health outcomes among health care workers exposed to coronavirus, the study was a cross-sectional study of 1257 health care workers in 34 hospitals equipped with fever clinics or wards for patients with COVID-19 in multiple regions of China, a considerable proportion of health care workers reported experiencing symptoms of depression, anxiety, insomnia, and distress, especially women, nurses, those in Wuhan, and front-line health care workers directly engaged in diagnosing, treating, or providing nursing care to patients with suspected or confirmed COVID-19 (Lai, Wang, Cai, Hu, Wei, Wu, Du, Chen, Li, Tan, Kang, Yao, Huang, Wang, Wang, Liu & Hu, 2020).

As Sai Ravi Kamineni (2020) said the global threat of COVID-19 continues to emerge, it is a time to improve knowledge among health care professionals that need to assess the nurse's knowledge from reliable scientific resources or not. Irrespective of different age groups, gender, education and experienced health care professionals had good knowledge regarding COVID-19 pandemic disease. However further educational interventions are required to battle the present pandemic situation (Kaineni, Balu, Sivagananam, Chellapandian, Chelladurai, Jayasheelan, Bopaiah, Ravikumar, Myneni & Mohan, 2020).

Nowadays we are facing a lot of turnover of nursing among the pandemic, may cause a lot of factors that could be any psychological effect, as per a study done by Deying Hu & June (2020) find that, the participants had a moderate level of burnout and a high level of fear. About half of the nurses reported moderate and high work burnout, as shown in emotional exhaustion (n = 1,218, 60.5%), depersonalization (n = 853, 42.3%), and personal accomplishment (n = 1,219, 60.6%). The findings showed that 288 (14.3%), 217 (10.7%), and 1,837 (91.2%) nurses reported moderate and high levels of anxiety, depression, and fear, respectively. (Hu, Kong, Li, Han, Zhang, Zhu, Wan, Lui, Shen, Yang, He & Zhu, 2020).

The global pandemic of coronavirus disease of 2019 (COVID-19) has led to unprecedented psychological stress on health workers (HCWs). We aimed to assess the psychological impact of COVID-19 on nurses in comparison to the anxiety level and concerning their level of knowledge brought on by the Middle East respiratory syndrome coronavirus (MERS-COV) epidemic in Saudi Arabia. (Shoeman, *et al*. 2019).

The previous outbreaks of coronaviruses such as Severe Acute Respiratory Syndrome-Coronavirus (SARS-COV) and Middle East Respiratory Syndrome-Coronavirus (MERS-COV) in 2003 and 2015, show similarities to the novel coronavirus, which was first reported in December 2019, and is currently the disease in questions resulting in the worldwide Coronavirus disease-2019 outbreak, COVID-19 (WHO, 2019). It was first reported by Chinese authorities in Wuhan city (Carlos, *et al*., 2020) The infection began to spread rapidly throughout many countries including Vietnam, the World Health Organization (WHO) declared that COVID-19 infection was a Public Health Emergency of International Concern.

Also, a study was done in Pakistan by Muhammad Mansoor that study concludes that the Nurses working with COVID-19 patients have good knowledge regarding symptoms, route of infection, treatment options. The majority of the Nurses in Karachi, Pakistan showed typical signs of anxiety. Therefore, it is recommended that proper counseling sessions may help them cope with the pandemic. Proper training and mentorship along with fortnightly or monthly refresher courses may aid in tackling such situations (Thomas, *et al.*, 2019).

Florence Nightingale is one of the earliest nurses and the pioneers who dealt with epidemics through the principles of hygiene and sanitation. Nightingale showed the relation between infection control and hand washing (World Economic Forum, 2020). The lessons of Florence Nightingale's nursing practice during the Crimean War are Still being applied today during the COVID-19 pandemic essential handwashing, maintaining standards of cleanliness, learning from the data, and more. (WEF, 2020); Bonnie & Barnes, 2020).

Nurses today face the biggest challenges and concerns in their nursing profession towards the unprecedently outbreak of coronavirus worldwide. They have put their life in vain to combat the COVID-19. (WEF, 2020, Bonnie *et al*., 2020; Folkman, Lazarus, Pimley, 1987).

COVID-19 vaccine is a vaccine intended to provide acquired immunity against COVID-19. Before the COVID-19 pandemic, work to develop a vaccine against the coronavirus diseases SARS and MERS had established knowledge about the structure and function of coronaviruses, which accelerated development during early 2020 of varied technology platforms for a COVID-19 vaccine. By mid-December 2020, 57 vaccine candidates were in clinical research, including 40 in Phase I–II trials and 17 in Phase II–III trials. As of 21 December, 17 countries and the European Union (Euroepan Commision, 2020) had approved tozinameran, the Pfizer–BioNTech vaccine, for emergency use. Bahrain also gave emergency marketing authorization for the vaccine manufactured by Sinopharm (Bahrain News, 2020) followed by the United Arab Emirates (UAE Ministry of Health, 2020). In the United Kingdom, 138,000 people had received tozinameran by 16 December during the first week of the UK vaccination program. (18) On 11 December 2020, the United States Food and Drug Administration (FDA) granted an Emergency Use Authorization (EUA)

for tozinameran. (Thomas, LaFraniere, Weiland, Goodnough & Haberman, 2020). A week later, they granted a EUA for mRNA-1273, the Moderna vaccine, making the United States the first country to authorize two vaccines for public use. (Mullard, 2020) By December, more than 10 billion vaccine doses had been reordered by countries.

Research Design

This study employed a quantitative method, descriptive correlation cross-sectional design. A convenience sample method has been chosen that fits with the study design and objectives. A convenience sample allows for collecting a large amount of data in a short period and it is not expensive. This study will recruit a sample of 2000 frontline nurses and administer a closed-ended survey. The data collection process will start from 25/02/2021 to 28/04/2021.

Inclusion and exclusion criteria

The target population was Staff nurses, male and female, working in Prince Sultan Medical Military City. Participants included in this study were registered nurses, working in the clinical area, read and write in English, and willing to participate in this study. Participants excluded from this study were not registered nurses, on leave or mission, nurses who held a management position, or nurses not working in PSMMC

Procedure of Data Collection

The data collection procedures began by approaching the Director of nursing at the hospital. The researcher then explained the aim of the study. The hospital provided a list of their targeted nurses and their location. The researchers then met the eligible participants and provide an explanatory statement that explain the aim of the study. As the study employed a self-administered electronic survey, the explanatory statement was provided online.

Tools will be used in the study

Tool-I: knowledge tool, biographical data.

This study involved two validated tools. The researcher used an online survey and an anonymous survey. The questionnaire consisted of three sections. The first section included demographic data of the participants which include sex, age, education level, work experience, position, nature of the clinical area and working units). The second section of the survey evaluated the knowledge of participants about COVID-19 sources, transmission, symptoms, signs, prognosis, treatment, and mortality rate (four Yes/No or I don't know questions and eight multiple-choice questions). The questionnaire had two questions about the role of nurses in reducing the prevalence of COVID-19. The knowledge scores ranged from 9 to 28 and a score of 27 – 33 (excellent knowledge, 21 – 26 very good knowledge, 15 – 20 good knowledge, 9 to 14 average knowledge and 3 – 8 poor knowledge.

Tool II: GAD-7 Anxiety

The GAD-7 Anxiety tool was used to measure the anxiety level of the nurses. This tool consists of seven items requiring scores of 0, 1, 2, and 3, to the response categories of "not at all," "several days," "more than half the days," and "nearly every day," respectively. GAD-7 total score for the seven items ranges from 0 to 21. Scores represent 0-5 mild 6-10 moderate 11-15 moderately severe anxiety 15-21 severe anxiety.

Pilot testing

The questionnaire for nurses was piloted before the distribution of the final questionnaire. The questionnaire was piloted on 45 nurses who met the inclusion criteria, those nurses did not participate in the final distribution. The 45 nurses were asked to complete and give feedback on the questionnaire. The feedback is taken into consideration before the final distribution of the questionnaire.

Data analysis

The data were analyzed with the use of the Statistical Package for the Social Sciences (SPSS). The data analysis in this study used descriptive and inferential statistical tests. The descriptive statistics employed percentages, frequencies and mean that were used to describe the participants' characteristics and the scores to the survey items. The inferential statistics used to describe the correlation between variables were Pearson product-moment correlation and Spearman's rho. Analysis of variance and z-test was also used to determine the variations between variables.

Validity

This study implemented the process of content validity; the questionnaires were assessed by an expert panel for the clarity of each item, and whether the questionnaires were tackling the aim of the study.

RESULTS AND DISCUSSIONS

The data gathered on the socio-demographic profile of the respondents includes age, sex, blood group, educational level, position, work experience, classifications and hospital working unit.

1. Socio-demographic Profile of the Respondents

Out of 290 respondents, 152 or 52.41 percent were belonged within the age range of 31-36, followed by 50 or 17.24 percent 37-42 and 44 or 15.17 percent belonged within the age bracket of 25 – 30. Others recorded that they belonged within the age ranges of 43-48 (26 or 8.97%), 49 – 54 (14 or 4.83%) and 55-60 (4 or 1.38) years old. This result indicates that most of the respondents belonged within the age bracket of 31 – 36 years old.

In terms of sex, there were 261 or 90 percent were female and 29 or 10 percent males. This indicates that females outnumbered male counterparts as to the hospital nurse population.

About 119 or 41.03 percent had O+ blood type, followed by 69 or 23.79 percent had B+, and 60 or 20.69 percent had A+ blood type. Others recorded that they had blood types of AB+ (23 or 7.93%), O- (12 or 4.14%), A- (4 or 1.38%), B- (3 or 1.03%) and none of the respondents had a blood type of AB-. This result indicates that most of the respondents had O+ blood type.

Out of 290 respondents, 239 or 82.41 percent obtained a bachelor's degree in nursing, followed by 20 or 6.90 percent had a master's degree and more, and 17 or 5.86 percent obtained a diploma in nursing. Others recorded that they attained a Midwife in nursing with 17 or 5.86 percent.

As to position, about 143 or 49.31 percent had Staff Nurse 2 position, followed by 103 or 35.52 percent Staff Nurse 1 and 25 or 8.62 percent Charge Nurse. Others recorded that they had SN3 position (14 or 4.83%), Clinical Director (3 or 1.03%) and HN (2 or 0.69%). This result indicates that most of the respondents had apposition of Staff Nurse 2.

In terms of work experience, there were 118 or 40.69 percent were belonged within the bracket of 6 – 10 years of experience, followed by 87 or 30 percent had less than 5 years and 54 or 18.62 percent belonged within the bracket of 11 – 15 years. Others recorded that they had work experiences within the ranges of more than 21 years (17 or 5.86%) and 16 – 20 (14 or 4.83%). This shows that most of the respondents belonged within the ranges of 6 – 10 years of work experience.

Table-1: Socio-demographic profile of the Respondents

Age	**f**	**%**		***continuation . . .***	**f**	**%**
25 - 30	44	15.17		Staff Nurse 2	143	49.31
31 - 36	152	52.41		Staff Nurse 1	103	35.52
37 - 42	50	17.24		Charge Nurse	25	8.62
43 - 48	26	8.97		Head Nurse	2	0.69
49 - 54	14	4.83		Clinical Director	3	1.03
55 - 60	4	1.38		**Total**	**290**	**100**
Total	**290**	**100**		**Work Experience**	**f**	**%**
Sex	**f**	**%**		Less than 5 years	87	30
Male	29	10		6-10 years.	118	40.69
Female	261	90		11-15 years	54	18.62
Total	**290**	**100**		16-20 years	14	4.83
Blood group	f	%		More than 21 years	17	5.86
AB-	0	0		**Total**	**290**	**100**
AB+	23	7.93		**Classifications**	**f**	**%**
B-	3	1.03		Technician	147	50.69
B+	69	23.79		Specialist	138	47.59
A-	4	1.38		Senior specialist	4	1.38
A+	60	20.69		Consultant	1	0.34
O-	12	4.14		**Total**	**290**	**100**
O+	119	41.03		**Hospital working unit /Working setting**	**f**	**%**
Total	**290**	**100**		Emergency units	64	22.07
Educational level	f	%		Medical /surgical units.	32	11.03
Diploma in nursing	17	5.86		Critical care units	12	4.14
Midwife in nursing	14	4.83		Inpatient units	26	8.97
Bachelor Degree in Nursing	239	82.41		Nursing Cont. Training & Research	16	5.52
Master's degree & more	20	6.9		Oncology units	25	8.62
Total	290	100		Gynecology units	15	5.17
Position in PSMMC	f	%		Others	100	34.48
Staff Nurse 3	14	4.83		**Total**	**290**	**100**

Out of 290 respondents 147 or 50.69 percent were classified as technicians, followed by 138 or 47.59 percent specialists, and 4 or 1.38 percent were classified as senior specialists. Likewise, only 1 or 0.34 percent were classified as a consultant. This shows that most of the respondents were classified as technicians.

In terms of hospital working units, about 64 or 22.07 percent recorded that they were working in the emergency units, followed by 32 or 11.03 percent assigned as medical/surgical units, and 26 or 8.97 percent were assigned at the inpatient units. Similarly, other respondents recorded that they were working in the oncology units (25 or 8.26%), NCTR (16 or 5.52%) and gynecology units (15 or 5.17%). Furthermore, 100 or 34.48 percent were connected at other units in the hospital. This result indicates that most of the respondents were assigned to the emergency units.

2. Knowledge of the Respondents about Covid-19

Figure 1 presents the knowledge of respondents about Covid-19. The computed mean on the knowledge of the respondents about Covid-19 was 21.82 which was verbally described as "very good knowledge." Moreover, out of 290 respondents, 173 or 59.66 percent belonged within the bracket of 21 – 26 which was verbally described as "very good knowledge, followed by 95 or 32.76 percent 15 – 20 which was verbally described as "good knowledge," and 21 or 7.24 percent belonged within the range of 27 -33 which was verbally described as "excellent knowledge." Likewise, 1 or 0.34 percent got 1 – 14 which was verbally described as "average knowledge."

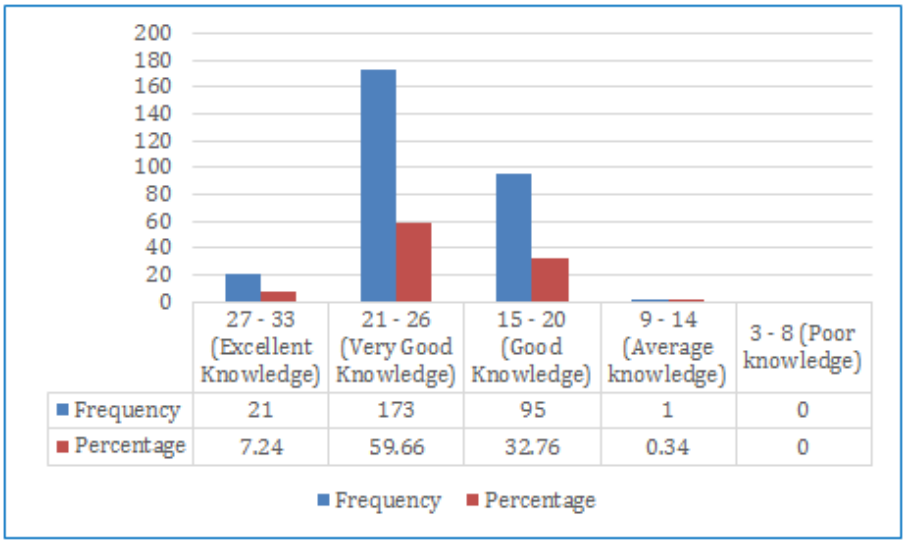

Fig-1: Knowledge of the Respondents about Covid-19
Mean Knowledge about Covid-19: 21.82 (Very Good Knowledge)

This result indicates that the respondent frontline nurses had adequate knowledge and good understating of Covid-19. With the presence of technology and social media, they can easily access information on an online platform and television. Moreover, this kind of communication tool able the frontline nurses to obtain information and transmit this knowledge to significant others by reposting professional information in social media groups and other virtual platforms. These findings conform to the result of the study of Hager, Odetokun, Bolorinwa, Zianab, Okechukwu and Al-mustapha, 2020; Reuben, Danladi & Ejambi, 2020). Similarly, these findings of the study were similar to the previous report in China (Zhong, Lou, Li, Zhang, Liu & Li, 2020); Italy (Dilucca & Souli, 2020); Egypt (Abdelhafiz, Zeinab, Ibrahim, Ziady, Alorabi & Ayyad (2020); and Pakistan (Saqlain, Munir, Rehman, Gulzar, Naz & Ahmed, (2020) in which social media and television served as the major sources of COVID-19 information. On the other hand, the frontline nurses also obtained information variety of sources includes a reliable website, the World Health organization and health-related agencies (Alsharif, 2021).

3. Anxiety Level of the Respondents

Figure 2 presents the anxiety level of the respondents. As can be gleaned in the Figure, the computed mean anxiety level of the respondents was 5.89 which was verbally described as "moderate anxiety." Likewise, 142 or 48.97 percent belonged within the 0 – 5 level of anxiety which was verbally described as "mild anxiety," followed by 110 or 37.93 percent within the range of 6 – 10 verbally described as "moderate anxiety," 26 or 8.97 percent belonged within the range of 11 – 15 verbally described as "moderately severe anxiety," and 12 or 4.14 percent belonged within the bracket of 15 – 21 which was verbally described as "severe anxiety." This result indicates that most of the respondents had a moderate level of anxiety.

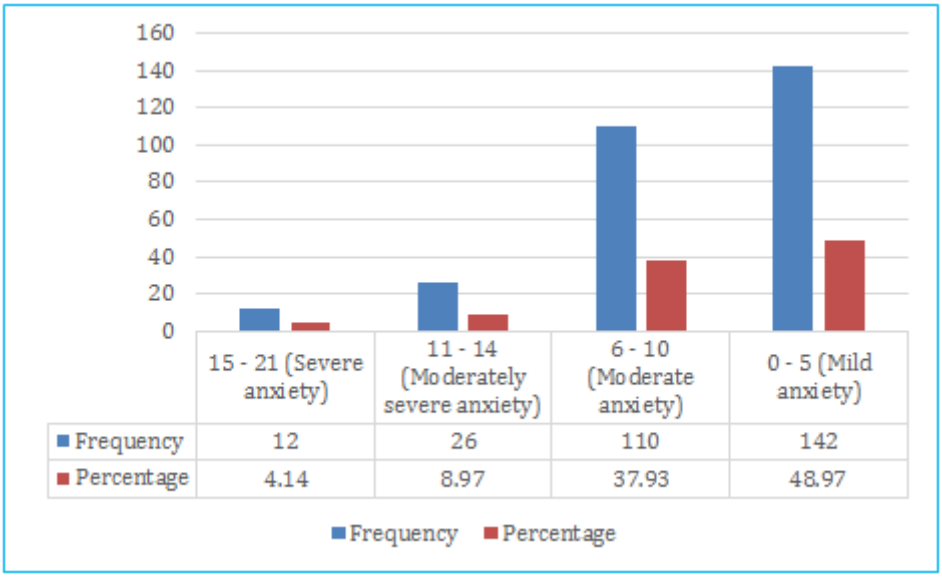

Fig-2: The anxiety level of the respondents
Mean Anxiety Level: 5.89 (Moderate Anxiety)

The present study shows that most of the frontline nurse respondents were found to have a lower anxiety level. This result shows that the respondents are physically and mentally prepared in executing their job roles amidst the pandemic. Mo, Deng, Zhang, Lang, Liao, Wang & Huang (2020) and Catton (2020) found out that to effectively address nurses' anxiety or fears of COVID-19, it is vitally important to support their mental, psychological and emotional health through evidence-based measures.

The change in their working hour's excessive workload and working conditions do not affect their job responsibilities in rendering the healthcare needs of the patients. Although they have close contact with the Covid-19 patients and have a higher risk of transmission of the disease, they were able to handle the situation by securing themselves with personal protective equipment and following health protocols as mandated in the hospital that they serve. Since nurses are directly involved in the care of COVID19 patients and the delivery of healthcare services, it is essential to implement measures to reduce anxiety levels among nurses, as dysfunctional anxiety levels have been identified as a strong precursor of psychological distress, depression and other psychological disorders (Teles, Barbosa, & Vargas, 2014; Mo *et al*., 2020).

Moreover, the anxiety level of the frontline nurses decreases because they were able to manage and secure themselves by living separately from their families to avoid transmission or infecting their families and relatives. On the other hand, the frontline nurses can keep decreasing their anxiety level because they need to protect their family and avoid thinking of self-isolation and separation anxiety from the family members. Lee, Mathis, Jobe & Pappalardo (2020) found out in their study that anxiety was lower than in the general population because nurses have a wider knowledge of the nature of COVID-19, its transmission and symptoms and measures to prevent the disease than the general population, which could contribute to the lower anxiety levels.

4. Correlational Analysis between socio-demographic profile, knowledge and anxiety level of the respondents

Table 2 presents the correlational Analysis between the socio-demographic profile, knowledge and anxiety level of the respondents.

Age were found no significant relationship to knowledge about Covid-19 ($r=0.021$; $p>0.05$) and anxiety level ($r=0.023$; $p>0.05$). This meant that the respondents' age do not significantly influence the knowledge of the respondents about Covid-19 and their anxiety level. The hypothesis of no significant relationship is accepted. This result indicates that all ages had sufficient knowledge about Covid-19, they had adequate information in handling Covid-19 situations and are prepared to manage patients affected by this infectious disease (e.g. Ebola, H1N1; McMullan, Brown, & O'Sullivan 2016; Bugade, Morphet & Moss, 2018). Moreover, the respondents show a mild level of anxiety due to the positive adaptation to stressful situations and personal resilience of the frontline nurses (Labrague & Delos Santos, 2020).

Consequently, the sex was found no significant relationship to knowledge about Covid-19 ($r=-0.027$; $p>0.05$) and anxiety level ($r=007$; $p>0.05$) which lead to the acceptance of the null hypothesis. Likewise, the sex of the respondents does not interfere with their knowledge about Covid-19 and anxiety level. This result implies that both sexes had sufficient and precise information about Covid-19, they were sensibly

knowledgeable about the symptoms and common causes of transmission of the disease. They were able to manage and adopt good and safe health practices in their respective workplace to prevent the spread of the disease. In the study of Shawahna (2021) nurses had adequate knowledge about Covid-19, they frequently visit various social media platforms and professional health organization websites as a way of obtaining information about Covid-19. As to the anxiety level of the respondents, both sexes decrease their anxiety level and mental distress due to their awareness and preparedness in avoidance of the rollout of the disease. Yeung, Wong, Cheung, Yeoh and Wong (2021) found out those nurses' satisfaction with workplace pandemic control guidelines shows fewer anxiety symptoms.

In terms of the blood group of the respondents, the computed correlation coefficient for knowledge about Covid-19 (r=-.043; p>0.05) and anxiety level (r=.0.80; p>0.05) was higher than of 0.05 level of significance which lead to the acceptance of the null hypothesis. This result indicates that the blood group had nothing to do with the knowledge of Covid-19 and the anxiety level of the respondents.

As to the educational level of the respondents, the computed correlation coefficient for knowledge about Covid-19 was (r=.0.105; p>0.05)) and anxiety level (r=0.011; p>0.05) was higher than of 0.05 level of significance which lead to the acceptance of the null hypothesis. This implies that whatever the educational level the respondents have, they most likely exhibited greater knowledge about Covid-19. Likewise, the educational level had nothing to do with the anxiety level of the respondents. The result conformed to the study of Alrubaiee, Al-Qalah & Al-Aawar (2020) that healthcare provider exhibited an adequate level of knowledge, optimistic attitude, moderate level of anxiety, and high-performance in preventive behaviors toward COVID-19.

Table-2: Correlational Analysis between socio-demographic profiles, knowledge and anxiety level of the respondents

Socio-demographic profile		Knowledge	Anxiety Level
Age	Correlation Coefficient	0.021	0.023
	Sig. (2-tailed)	0.719	0.701
	N	290	290
Sex	Correlation Coefficient	-0.027	0.007
	Sig. (2-tailed)	0.646	0.901
	N	290	290
Blood group	Correlation Coefficient	-0.043	0.08
	Sig. (2-tailed)	0.467	0.173
	N	290	290
Educational Level	Correlation Coefficient	0.105	0.011
	Sig. (2-tailed)	0.076	0.853
	N	290	290
Position	Correlation Coefficient	-0.009	-0.026
	Sig. (2-tailed)	0.875	0.658
	N	290	290
Work experience	Correlation Coefficient	0.07	0.022
	Sig. (2-tailed)	0.235	0.709
	N	290	290
Classification	Correlation Coefficient	0.019	-0.054
	Sig. (2-tailed)	0.75	0.361
	N	290	290
Hospital working unit	Correlation Coefficient	0.084	-0.081
	Sig. (2-tailed)	0.152	0.167
	N	290	290
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

Meanwhile, position were found no significant relationship to knowledge about Covid-19 (r=-0.009; p>0.05) and anxiety level (r=-0.026; p>0.05). This result meant that that the respondent's position do not significantly influence their knowledge about Covid-19 and their anxiety level. The respondents regardless of their position tend to demonstrate a higher level of knowledge about Covid-19, they were able to educate themselves by reading online articles about the disease and attending lectures/discussions about COVID-19 as a strategy to acquire appropriate knowledge. Similarly, their position had little contribution to their anxiety level. As frontline nurses, they have frequent contact with the patients and have a high risk of encountering psychological health issues because of fear to be infected. The result of the study of Gul & Kilic (2021) found out that nurses had a moderate level of anxiety due to working with patients causing worry and fear of contracting COVID-19 and transmitting it to their loved ones.

Work experience were found no significant relationship with the respondents knowledge about Covid-19 (r=0.070; p>0.05) and anxiety level (r=0.022; p>0.05). The hypothesis of no significant relationship is accepted. This result implies that working experience does not influence their knowledge about Covid-19 and anxiety level. This further denotes that when the Covid-19 outbreak hit various communities, the healthcare provider immediately plan and implemented various measures to secure the welfare and well-being of their various stakeholders. Although they experience work-related anxiety, they were able to manage these feelings and perform their job roles diligently for the benefit of their patients. The study of Nashwan, Abujaber, Mohamed, Villar & Al-Jabry (2020) found out that nurses' willingness to care for patients with COVID-19 was due to their commitment and compassion to serve others.

Meanwhile, classification were found no significant relationship with the respondents knowledge about Covid-19 (r=0.019; p>0.05) and anxiety level (r=-0.054; p>0.05). The hypothesis of no significant relationship is accepted. This result implies that the classification of employees had no significant association with knowledge about Covid-19 and the anxiety level of the respondents. The result further interfered that whether the employees are classified into various classifications there were able to grasp and understand the effect of Covid-19 to their lives and respective workplaces due to the numerous information posted in social media platforms and health-related organizations websites. Also, their classification had no relationship to their anxiety level. This result further denotes that regardless of their classification they need to overcome anxiety to avoid mental distress and imbalance to serve well and deliver quality nursing care to their patients.

Lastly, hospital working units were found no significant relationship with the respondents' knowledge about Covid-19 (r=0.084; p>0.05) and anxiety level (r=-0.081; p>0.05). The hypothesis of no significant relationship is accepted. This result implies that working units had no significant association with their knowledge about Covid-19 and anxiety level. The respondents as hospital employees they need to demonstrate greater knowledge about Covid-19, and they need to share and disseminate information to significant others about the symptoms, acquisition and transmission to others. They need to be steadfast and overcome their anxiety to do their related job roles and secure workplace safety through health-related safety protocols to avoid the spread of the disease. The study of Wong, Ho, Wong, Cheung and Yeah (2020) result further suggest that the government's overarching policy regarding workplaces, accessibility to organization's workplace policy, comprehensive coverage of workplace policy, and provision of protective measure such as face masks are key consequences of heightened stress related to being infected with COVID-19 in the workplace.

5. Significant Variation Analysis when Groups According to Socio-demographic Profile

Table 3 illustrates the significant variation analysis when groups according to socio-demographic profile.

Table-3: Significant Variation Analysis when Groups According to Socio- demographic Profile

Socio-demographic Profile	Knowledge	Anxiety level
Age	**Mean**	**Mean**
25 - 30	2.41	3.30
31 - 36	2.17	3.31
37 - 42	2.32	3.28
43 - 48	2.15	3.12
49 - 54	2.36	3.50
55 - 60	2.25	3.50
F ratio	**F=.508; p>0.05**	**F = .185; p>0.05**
Sex	**Mean**	**Mean**
Male	2.21	3.24
Female	2.25	3.30
z value	**z =.752; p>0.05**	**z =.226; p>0.05**

Blood group	**Mean**	**Mean**
AB-	0.00	0.00
AB+	1.91	3.26
B-	3.00	3.00
B+	2.29	3.39
A-	2.50	3.75
A+	2.20	3.30
O-	2.42	3.33
O+	2.25	3.24
F ratio	**F = .661; p>0.05**	**F = 1.109; p>0.05**
Educational level	**Mean**	**Mean**
Diploma in nursing	2.35	3.53
Midwife in nursing	2.57	3.50
Bachelor Degree in Nursing	2.21	3.25
Master's degree & more	2.35	3.50
F ratio	**F = 2.144; p>0.05**	**F = .430; p>0.05**
Position in PSMMC	**Mean**	**Mean**
Staff Nurse 3	2.57	3.64
Staff Nurse 2	2.17	3.24
Staff Nurse 1	2.28	3.32
Charge Nurse	2.24	3.28
Head Nurse	3.00	3.50
Clinical Director	2.00	3.67
F ratio	**F = .322; p>0.05**	**F = .321; p>0.05**
Work Experience	**Mean**	**Mean**
Less than 5 years	2.31	3.32
6-10 years.	2.24	3.29
11-15 years	2.15	3.31
16-20 years	2.29	3.21
More than 21 years	2.18	3.24
F ratio	**F = .436; p>0.05**	**F = .131; p>0.05**
Classifications	**Mean**	**Mean**
Technician	2.24	3.22
Specialist	2.25	3.38
Senior specialist	2.25	3.25
Consultant	2.00	4.00
F ratio	**F = .219; p>0.05**	**F = 1.453; p>0.05**
Hospital working unit /Working setting	**Mean**	**Mean**
Emergency units	2.33	3.13
Medical /surgical units.	2.19	3.47
Critical care units	2.42	3.17
Inpatient units	2.19	3.15
Nursing Continuous Training and Research	2.56	3.38
Oncology units	2.08	3.60
Gynecology units	2.07	3.20
Others	2.21	3.33
F ratio	**F = .1.708; p>0.05**	**F = .832; p>0.05**

It can be inferred from the table that age had no significant variations as to knowledge about Covid-19 and anxiety level. The computed F ratio was =.508; p>0.05 and .185; p>0.05, respectively. The hypothesis of no significant difference is accepted. This result indicates that age had no significant impact on the knowledge about Covid-19 and anxiety level of the respondents. The result further interfered that knowledge regarding Covid-19 by the respondents was very good and similar across ages. In the study of Masjedi, Shokrgozer, Abdollahi, Habibi, Asghan, Ofoghi & Pazhooman (2019), they found out that all ages tend to suffer symptoms of anxiety due to uncontrolled situations that contribute to the development of stress and depression.

In terms of significant variations as to knowledge about Covid-19 and anxiety level when grouped according to the sex of the respondents, it shows that the computed z value was .752; p>0.05 and

=.226; p>0.05, respectively. This meant that there is no significant difference existed in both sexes of the respondents about their knowledge and anxiety level. The hypothesis of no significant difference is accepted. Likewise, similar knowledge for both males and females regarding Covid-19 symptoms, precautions and health advisory practices. This finding may be attributed to a similar degree of access to information through print and electronic media and internet access and as the country's digital gateway is currently being prioritized (Hossain, Jahid, Hossain, Walton, Uddin & Hague (2020). Similarly, the anxiety of both males and females was found to have mild anxiety levels. This result further denotes that both sexes were able to handle their anxiety to perform their job-related roles in their respective workplace. The findings of the study were similar to the findings of Masjedi, Shokrgozer, Abdollahi, Habibi, Asghan, Ofoghi & Pazhooman (2019).

The blood group of the respondents shows that there is no significant variations existed as to their knowledge and anxiety level. The compute F ratio was .661; p>0.05 and 1.109; p>0.05, respectively. This result shows that there is no significant difference in the knowledge and anxiety level across the blood group of the respondents. The hypothesis of no significant difference is accepted. This result implies that the blood group had no significant factors in the determination of knowledge about Covid-19 and the anxiety level of the respondents.

As to position in the hospital, it shows that there are no significant variations in their knowledge about Covid-19 and anxiety level. The computed F ratio was 322; p>0.05 and .321; p>0.05, respectively. This result indicates that there is no significant difference in the knowledge about Covid-19 and the anxiety level of the respondents when grouped according to their position. The hypothesis of no significant difference is accepted. This result further interfered that employees' positions had no impact on their knowledge about Covid-19. The very satisfactory knowledge of the respondents as assessed by them shows that they are knowledgeable with various information about Covid-19. The availability of the information through various virtual platforms enables them to gather factual information. Through this information, they were able to lessen the mental distress and psychological imbalance resulting to experience mild anxiety levels.

As to significant variation as to knowledge about Covid-19 and anxiety level when grouped according to work experiences the computed F ratio was .436; p>0.05 and .131; p>0.05, respectively. This meant that there are no significant differences in the knowledge about Covid-19 and the anxiety level of the respondents across work experiences. The hypothesis of no significant difference is accepted. This result further denotes that work experiences had no impact on their knowledge about Covid-19 and anxiety level. Seemingly, the respondents are equipped with the knowledge of how to manage situations and apply the theoretical knowledge they acquired in their continuing education and professional development. Similarly, they were able to manage their mild anxiety level and other stressors due to coping strategies they applied to maintain and balance their quality of life while serving and caring for patients.

In terms of significant variations as to knowledge about Covid-19 and anxiety level when grouped according to the educational level of the respondents, it can be noted that the computed F ratio was 2.144; p>0.05 and .430; p>0.05, respectively. This meant that there is no significant difference existed in various educational backgrounds and found no significant impact of the educational level on their knowledge and anxiety level. The hypothesis of no significant difference is accepted. This result further interfered that educational level was evident for perceived and factual knowledge regarding COVID-19. Either less and highly educated respondents worried about COVID-19 but they were able to manage this due to their commitment and dedication to serving others. On the other hand, their mild anxiety level had no effect because of their educational background and knowledge of how to cope with these life-threatening situations.

As to significant variations as to knowledge about Covid-19 and anxiety level when grouped according to the classification of the respondents, it can be noted that the compute F ratio was .219; p>0.05 and 1.453; p>0.05, respectively. This result indicates that there is no significant variations existed in terms of classification of the respondents on their knowledge and anxiety level. The hypothesis of no significant difference is accepted. This result further denotes that regardless of their work classifications, the employees can verbalize their knowledge about Covid-19 and share their ideas and opinions on how to avoid and transmit the disease to others and their loved ones. Similarly, their mild anxiety level was due to contributory factors like stress, worries, distress and fear because of a higher risk of becoming infected due to their nature of work. Alsharif (2021) found out that the healthcare workforce suffered from anxiety.

The significant variation as to knowledge about Covid-19 and anxiety level when grouped according to hospital working unit of the respondents shows that the compute F ratio was .1.708; p>0.05 and .832; p>0.05, respectively. This implies that there is no significant difference existed when it comes to various workplaces where the respondents are currently working on their knowledge and anxiety level. The hypothesis of no significant difference is accepted. This result further interfered that information about Covid-19 was cascaded to every corner of the communities, social media platforms and in health care facilities which lead

to the dissemination and awareness of every individual. Likewise, the mild anxiety as experienced by the respondents was due to responses to this threatening event that cause sleep disturbance, mental stress and other disorder. Accordingly, 'tonic mobility' and 'sleep disturbance' were identified in the literature as the most common responses to threatening events or situations. Sleep disturbance is a symptom common among individuals who have post-traumatic stress disorder and anxiety disorder (Shelvin, Nolan, Owczarek, McBride, Murphy, Gibson, Miller & McKay (2020).

CONCLUSION AND RECOMMENDATION

The Covid-19 pandemic causes mental distress and psychological imbalance among frontline nurses due to close contact with their patients, but this pandemic never stops them to render quality services and exemplary do their job roles and other related responsibilities for the welfare and well-being of patients.

The present study reveals that most of the respondents belonged within the age range of 31-36 (52.41%), female (90%) with O+ blood type (41.03%), bachelor's degree in nursing (82.41%), staff nurse 2 (49.31%), had 6 – 10 years work experience (40.69%), classified as a technician (50.69%) and currently working at the emergency unit (22.07%). Similarly, the mean knowledge about Covid-19 was 21.82 verbally described as "very good knowledge." Meanwhile, (59.66%) of the respondents had very good knowledge about Covid-19. The computed mean anxiety level of the respondents was 5.89 verbally described as "moderate anxiety," about (48.97%) had mild anxiety.

Furthermore, the socio-demographic profile of the respondents does not significantly correlate to the knowledge about Covid-19 and anxiety level, which leads to the acceptance of the null hypothesis. Finally, there are no significant variations existed in the knowledge about Covid-19 and anxiety level when grouped according to socio-demographic variables which lead to the acceptance of the null hypothesis. Finally, with the foregoing conclusion, the researchers recommend the formulation of psychological interventions, measures to enhance personal resilience and increase social and organizational support to ease the anxiety of nurses to effectively manage themselves as well as the caring needs of patients.

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