PSYCHOLOGICAL IMPACT AND ITS AFFECTING FACTORS AMONG NURSES WORKING AT COVID-19 DESIGNATED HOSPITALS IN BHUTAN

KINLEY GYALTSHEN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE MASTER DEGREE OF NURSING SCIENCE
(INTERNATIONAL PROGRAM)
IN PSYCHIATRIC & MENTAL HEALTH NURSING
FACULTY OF NURSING
BURAPHA UNIVERSITY
2021

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรพยาบาลศาสตรมหาบัณฑิต (หลักสูตรนานาชาติ)

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The Thesis of Kinley Gyaltshen has been approved by the examining committee to be partial fulfillment of the requirements for the Master Degree of Nursing Science (International Program) in Psychiatric & Mental Health Nursing of Burapha University

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The impact of the COVID-19 has posed a significant threat to public health across the world. The majority of frontline nurses were affected, The psychological impact is known to affect the psychological well-being of nurses, hence compromising the quality of care during such a crisis. This study aimed to examine the level of psychological impact and its affecting factors, including knowledge of COVID-19, fear of COVID-19, religiosity, workload perception, and perceived organizational support among the nurses working at COVID-19 designated in Bhutan. Study participants consisted of 133 nurses working at COVID-19 designated hospital in Bhutan. Study participants were selected through simple random sampling. Self-administered questionnaires including demographic questionnaire, Kessler psychological impact scale (K10), knowledge of COVID-19, fear of COVID-19, centrality of religiosity, workload perception questionnaire, and the perceived organizational support scale were used for data collection. Their reliabilities in terms of Cronbach's alpha were .91, .71, .82, .81, .86, and .86 respectively. Descriptive statistics, Pearson's correlation, and standard multiple regression analysis were used to analyze the data.

The results revealed that this sample had a mean score of the psychological impact of 20.49 (SD = 6.7) and showed that the majority of the participants had a moderate level of psychological impact representing 40.6% (n = 133). Standard multiple regression analysis revealed workload perception, perceived organizational support, religiosity, and fear of COVID-19 could explain 15.3% of the variance in psychological impact ($F_{(4, 128)} = 6.95$, $p = < .05$). Among all the selected variables in this study, workload perception ($\beta = .28$, $p < .05$) was the only significant predictor of psychological impact. Policymakers and nursing administrators can use

the finding from this study to develop interventions to mitigate the psychological morbidities among nurses required for combating a similar pandemic crisis by reducing their workload.

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Kinley Gyaltshen

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1
INTRODUCTION

Background and significance

A new severe type of pneumonia known as novel coronavirus disease (COVID-19) was first reported in Wuhan, China in December 2019. Within a few months, almost all the countries in the world reported a COVID-19 infection. After more than three months of the first case, the World Health Organization, on 11 March 2020, declared the COVID-19 outbreak as Pandemic. The COVID-19 pandemic ruined the economy of almost all countries and posed a remarkable threat to public health. As per the recent information, the cases of COVID-19 has already touched 190,671,330 cases with 4,908,758 deaths globally, the USA leading with the highest number of confirmed cases (33,741,532) followed by India (31,174,322) and Brazil (19,376,574).

Bhutan saw its first case on 6th March 2020, from a tourist, and by now several confirmed cases has reached 2,591 with three deaths following recent community transmission (Ministry of Health, 2021). Though Bhutan has fewer number of confirmed cases compared to other countries, its experience with the pandemic is new to Bhutanese, especially for the people involved in the management of the pandemic. Bhutan has a long border and several bilateral communications with India. India holds the maximum caseload of COVID-19 in the South East region and second in the world. This puts Bhutan vulnerable to COVID-19 infection and panic situations amongst the people. Still then Bhutan managed to stay with a less confirmed case with one death and exercised maximum effort to prevent community transmission. Unfortunately, Bhutan couldn't prevent local transmission. Bhutan government initiated nationwide lockdowns to minimize the spread of the virus. The positive cases detected from the quarantine facilities, flu clinic, and contact tracing, were moved to the isolation ward at the different designated hospital depending on the region. The team of health workers with support staff was assigned as per the caseload of the particular designated hospital. The nurse deployed at COVID-19 designated hospital were assigned to provide routine services like medications as

prescribed, vital signs monitoring, collection and dispatch of the samples collected, collect the report, and documentation of the activities. Apart from the routine services, nurses were providing emotional support and mental health services to the inpatients. On completion of the duty at the designated hospital, they were put in mandatory quarantine with a COVID-19 test before they resume regular duty.

In China, during the SARS (2003) epidemic, one-third of all fatalities were health care profession (Mo et al., 2020). Most the health care professionals were involved in many types of infectious diseases outbreak like Severe Acute Respiratory (SARS), The Middle East Respiratory Syndrome (MERS), and the Ebola virus disease, according to previous studies showed anxiety and depression both during and after the outbreak, causing a severe psychological impact on their coping abilities, in some cases with long-lasting effects (Braquehais et al., 2020). Apart from psychological strains, other factors like quarantine, highly infectious setting, and prolonged contact with the infected patient were shown to be associated with long-term post-traumatic symptoms during the Severe Acute Respiratory Syndrome (SARS) epidemic (R. H. Almaghrabi, Alfaraidi, Al Hebshi, & Albaadani, 2020). Among the health care professionals, nurses are the ones with maximum hours of patient contact during the care, so they are most at the risk concerning their physical and mental health compared to other health professionals.

According to the International Council of Nursing, due to COVID-19 more than 1500 nurse's death has been reported and many unreported fatalities. Moreover, nurses exposed to extreme incidents taking care of COVID-19 patient has committed suicide in Italy (Shen, Zou, Zhong, Yan, & Li, 2020) and many more unreported cases around the globe(Jackson et al., 2020). Stress, exhaustion, and depressive mood were associated with nurses working with a patient with COVID-19 compared to their co-workers in the hospital or healthcare centre (Shi et al., 2020). The high death and fatalities among the nurse compared to other health workers is not due to carelessness or poor practice by the nurses, but due to the scale of the present pandemic not prepared to cope, shortage of nurses, inappropriate or lack of PPEs (Jackson et al., 2020). Nurses have played an important role in every such pandemic, so it is of paramount importance to care psychological and physical well-being of the nurses.

In many studies related to COVID-19, different factors like knowledge of COVID-19, fear of COVID-19, religiosity, workload perception and perceived organization support has influenced the psychological impact of nurses. The psychological impact is an outcome of the internal response to external stressors. Depending on the circumstances, the individual reacts to the external stressors and appraises the circumstances depending on their beliefs, self-efficacy, coping ability, demands, cognitive capacity, and social resources (McKenzie & Harris, 2013). Psychological impact for this study is referred to as the state of emotional condition especially characterized by the symptoms of anxiety and depression. In most cases, both symptoms tend to co-occur or co-exist with common chronic illness or somatic issues. Stress-related and sociodemographic factors, imbalance internal and external resources are the factors potentially high risk (Arvidsdotter, Marklund, Kylén, Taft, & Ekman, 2016). One of the recent studies predicted a significant number of nurses experienced psychological impact compared to other HCPs (Shahrour & Dardas, 2020). Conditions like psychosomatic illness, reversible and irreversible brain damage, cardiovascular disorders, depression, suicide, disabilities are few conditions that can be developed if psychological is left untreated or unattended (Marchand, Demers, & Durand, 2005).

Previous studies highlighted that the nurse fears that they might act as a potential carrier of the COVID-19 from the place of their work to the family or community (Galehdar, Kamran, Toulabi, & Heydari, 2020). They fear they might infect their family and friends while returning from the workplace. They also had fear of stigmatization and discrimination from the people when they return to the community. This increases their level of anxiety ultimately causing a psychological impact among the nurses. Fear from previous pandemic or epidemics posed challenges, but this COVID-19 pandemic seems to be more challenging due to the high grade of contagiousness, lesser-known potency of its infection, and absence of available treatment or vaccines (Galehdar et al., 2020). Nurses on COVID-19 duty always carry a fear of their safety, the health of their family and friends, issues related to their child, and infecting others (Almaghrabi et al., 2020). A recent study showed that fear of related to COVID-19 has a positive correlation with psychological impact among the nurse (Labrague & de Los Santos, 2020).

Organizational support plays an important role in the working life of the nurse. Nurses are more vulnerable to psychological impact in settings with a risk of infection, inaccessible to mental health services, and inadequate support from leaders or management (Shang et al., 2020). The organization with good social and mental health support, adequate protective equipment, clear guidelines and job description, and job recognition tend to experience lesser psychological impacts among the nurses. Besides, most of the country's health care system was not adequately equipped with various aspects of health care like hygienic concepts, sufficient PPEs, and ICUs with enough ventilators. Nurses were always part of an epidemic or pandemic, and they have always played a vital role in prevention, infection control, isolation, containment, and public health (Mo et al., 2020). Hence adequate training in all these areas prevents the nurse from work pressure, therefore they are less likely to get psychological impact. Failure from organization to support nurse has a strong correlation ($R^2 = 44\%$) with psychological impact, which ultimately made many nurses leave the profession (Yurumezoglu & Kocaman, 2016).

Pre pandemic also nurse was working tirelessly, however, COVID-19 has increased the workload perception tremendously. Practicing prophylactic measures to prevent and contain the transmission of the virus, donning and doffing of PPEs, following specific decontamination and isolation procedures more than in their regular job has increased their workload significantly. Most of the nurse working in COVID-19 designated hospital is assigned to work in special designed care center after a few days of training to handle COVID-19 patients. Apart from the nursing for COVID-19 at high-risk zone, a nurse is responsible to provide humanistic care in absence of family members and mental health service, which increased their workload (Lucchini, Iozzo, & Bambi, 2020). Increased workload, work stress, a new work environment, and training are the few external factors that influenced the psychological well-being of the nurses. Poor psychological wellbeing among the nurse can reduce their professional performance compromising the quality of the care (Nie, Su, Zhang, Guan, & Li, 2020). A study done in Egypt to assess the occupational stress among the nurse, they found that physical working environment i.e., workload (overtime work, frequent night shifts, newly assigned work, more work demands) is the most significant stressors (Said & El-Shafei, 2020).

Previous studies done in China, showed nurses with over workload are linked with psychological impact, poor quality of patient care, and negative attitudes like job dissatisfaction, the intention of leaving a job (Wu et al., 2020). Nature of job, job experience, working environment, and length of working hours may influence the psychological well-being of the nurse. Bhutan also experiencing an increasing rate of confirmed within the country, putting nursing services under intense pressure, so assessing and providing mental health services to the nursing is an essential part of the pandemic management to control the infection. More the work demand, more stress on the nurses. The recent emergence of more positive cases within the community and increased frequency of repatriation may put more work pressure on a nurse, as Bhutan has a limited number of nurses. Almost all the studies indicated the female nurse were more prone to psychological impact compared to the male nurses, and a maximum number of nurses in Bhutan are female. During this type of pandemic, healthcare professionals, especially nurse were most involved and exposed to increased risk to their physical and mental health, as they spend more time with the patient from the day of admission till their discharge (Galehdar et al., 2020; Mo et al., 2020)

Nursing is one of the stressful careers, that is an emotionally demanding profession where most of the nurses are prone to psychological difficulties. In many studies religiosity has been associated with better psychological wellbeing and improved quality of life. A study done among nurses in Greece indicated that religious practices can be protective factors for depression and anxiety, and increased the psychological wellbeing of an individual. Religiosity can predict a nurse's depression and anxiety (Fradelos et al., 2020). Nurse's religiosity can be a vital resource to equip nurses with better adapting and coping skills that promote psychological wellbeing, especially in such pandemics. A study done in Portugal among health workers indicated that individuals practicing a positive religion are associated with a lower level of depression and anxiety, a higher level of psychological wellbeing, and better depression remission (Prazeres et al., 2021). In general, most of the studies showed a positive association between religiosity and mental health, a better quality of life, lower risk of anxiety and depression, suicidal tendencies, substance abuse, and better cognitive functioning (Malinakova, Tavel, Meier, van Dijk, & Reijneveld, 2020).

In this study, the knowledge of COVID-19 of the nurses will be assessed regarding signs and symptoms, aetiology mode and route of transmission, control and prevention methods, and complications. It is an important component of the management of the pandemic to understand the level of awareness that a nurse has regarding COVID-19, as they spend most of the time with the patient compared to any other healthcare workers. Nurses need to have adequate knowledge of the pandemic to play a greater role in containing and preventing the spread. Lack or low level of knowledge can compromise the quality of care and may speed the spread of the virus. Nurses with adequate knowledge will play a vital role in preventing and controlling the infection. Nurses with inadequate knowledge not only associated with poor outcomes but also increases the health expenditure and makes more errors (Aldohyan et al., 2019; Zhao, Ahmed, & Faraz, 2020). Most of the source of the knowledge of COVID-19 were from different source including social media, and most are not reliable and not evidence-based. Knowledge from the right source and adequate knowledge has helped nurses to overcome the work burden, ultimately protected them from getting psychological impact (González-Padilla & Tortolero-Blanco, 2020). It is equally important for the nurse to know and understanding the levels of the patient's knowledge, overestimation or misunderstanding may cause injury to self and the patient. Among the sociodemographic items, the educational level of the nurse was found to be a risk factor for anxiety and somatic disorder. Nurses with inadequate knowledge regarding infection control and skills tend to develop more stress. Adequate awareness by providing essential training, through job experiences always helped nurses to cope better during such pandemics (Hong et al., 2020).

There is a good number of studies available related to the psychological impact on nurses during this pandemic, no study is done in Bhutan. So the purpose of this study is to examine the prediction of knowledge of COVID-19, fear of COVID-19, religiosity, workload perception, and perceived organizational support on psychological impact among nurses working at COVID-19 designated hospitals in Bhutan. The results from this study will aid concerned authorities to develop interventions for Bhutanese nurses to help them to manage their psychological well-being for the present and future pandemics.

The finding from this study would benefit the nurses as well as other health care workers during such pandemic in the future. Identifying the factors affecting the level of psychological impacts can help to create a safer working environment for the nurses during similar situations and also prevent nurses from psychological morbidity. With the results from this study, it would be easier for policymakers and nursing administrators to plan crisis interventions effectively to support the psychological health of the nurses and sustain a well-trained nursing workforce, especially during such pandemics. Strengthening the psychological wellbeing of the nurses can be an asset to fight such pandemic in the future by improving preparedness systematically. In addition, results can be a valuable reference while developing standard operating procedures and guidelines for nurses in such public health emergencies. The findings from this study can also provide basic information on offering immediate crisis interventions for affected nurses and reduced post-pandemic psychological traumas. Moreover, the result from this study be used by the researchers for further studies.

Research objectives

1. To examine the psychological impact among nurses working at COVID-19 designated hospital in Bhutan.
2. To examine the prediction of knowledge of COVID-19, fear of COVID-19, religiosity, workload perception and perceived organizational support on psychological impact among nurses working at COVID-19 designated hospital in Bhutan.

Hypothesis

Factors regarding knowledge of COVID-19, fear of COVID-19, religiosity, workload perception, and perceived organisational support in combination could predict psychological impact among the nurses working at COVID-19 designated hospitals in Bhutan.

Scope of study

The study examined the psychological impact and its affecting factors including knowledge of COVID-19, fear of COVID-19, religiosity, workload perception and perceived organisational support among the nurses working at COVID-19 designated in Bhutan. Study participants included 133 nurses working at COVID-19 designated hospital in Bhutan. Data were collected from 15th to 25th June, 2021.

Conceptual framework

The conceptual framework used to guide this study is derived from the transactional model of stress developed by Lazarus and Folkman (1984). This model provides an appropriate theoretical base to conceptualize the relationship among variables in this study. This model emphasizes the transactional existence of stressful situations depends on the outcome of an interaction between the person, environment, and situation. The relationship between stress exposure and stress outcome is influenced by how an individual perceives or interacts with factors like harmful or challenging situations, and also by the coping skills of an individual. According to this model different individuals respond differently to the same stressors due to the individual indifferences based on social, emotional, and psychological factors. This COVID-19 pandemic has adversely brought impact the psychological wellbeing of individuals leading to stress, anxiety and behavioural problems (Yıldırım & Solmaz, 2020).

In this study, when a nurse is assigned for a new job, new environment, and new infection, the anxiety they experience is a stressor. This stressor forces the nurse to cope through primary and secondary appraisal, failure to find a suitable coping mechanism, make them vulnerable to psychological impact. As per this model, various variables or factors influence or acts as stressors and are divided into two categories (personal and situational factors). Feelings, beliefs, and individual characteristics are the primary factors. A study done among nurses in Greece indicated that religious practices can be protective factors for depression and anxiety, and increased the psychological wellbeing of an individual (Fradelos et al., 2020).

The belief and practice of the particular religion by the nurses can be source to adapt to a stressful situation The psychological impact of the nurse is widely influenced by demographic variables, fear for COVID-19, organizational support, workload perception, religiosity, and awareness of COVID-19. Nurses with adequate knowledge about such pandemic and a positive attitude towards caring for the patient with COVID-19 suffered lesser stress levels and showed more willingness to work (Hong et al., 2020).

Secondary factors include events that are unpredictable, uncertain, unknown duration of a pandemic, and unguaranteed organizational support. The fear of COVID-19 was related to the unknown entity of the pandemic, fear of being an infection carrier, fear of discrimination, and stigmatization were a source of psychological impact among the nurse. Unavailability of known treatment regime, series of lockdown, mandatory quarantines, an increasing number of cases, and unavailability of vaccines adds more stress to the nurse dealing with COVID-19 patients. The nurse was affected due to past and present pandemic in all the studies compared to other health workers (Rahman et al., 2020). The situation during such pandemic, poor support from the organization in terms of adequate training, sufficient resources, guidance, and protocols were directly associated with job stress, low confidence at work, and increased intention of leaving the job, directly affected the psychological impact among the nurses. The research framework of this study is conceptualized in Figure 1.

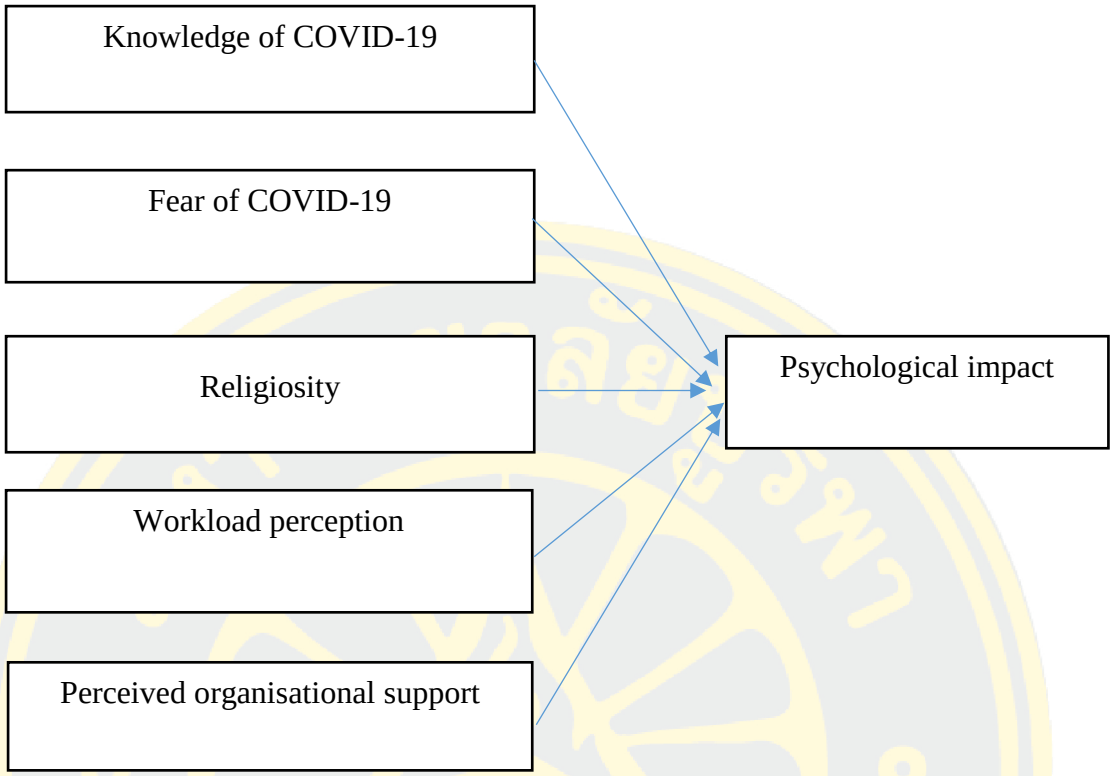

Figure 1 Conceptual framework

Definitions of terms

Knowledge of COVID-19 refers to the nurse's knowledge about the COVID 19 acquired through experience, training, or education about the COVID-19 based on mode and route of transmission, treatment regime, signs and symptoms, aetiology, management and prevention methods and complications. The questionnaire developed by (Olum, Chekwech, Wekha, Nassozi, & Bongomin, 2020) was used to assess the knowledge of COVID-19 for this study.

Fear of COVID-19 refers to an unpleasant emotion of the nurse working with COVID-19 patients in response to a potential threat .Fear of COVID-19 scale developed by Ahorsu et al.(2020) was used to measure the fear for COVID-19 during this pandemic.

Religiosity refers to the belief and practice of the particular religion by the nurses. The Centrality of Religiosity scale (CRS) developed by Huber (2012) was used to measure the religiosity for this study.

Workload perception refers to nurse's perception of being at work environment that arise from the nurse's workload such as the nurse has to work hard and fast to complete additional amount of work, apart from regular assigned task within a specified duration of the time or duty. Workload perception questionnaire, adapted from the Quantitative Workload Inventory was used to measure workload perception (Spector & Jex, 1998).

Perceived organizational support refers as employees' perception that organization values his or her contributions in organization or gets support from the organization like resources, reinforcement, encouragement, and communication to every worker to give better outcome. Perceived Organizational support scale (POS) developed and designed by Eisenberger, Hungtington, Hutchison, and Sowa (1986) was used to measure organization support.

The psychological impact is defined as the effect that the nurses experienced due to the environment and personal factors on the nurse's psychological aspects. The condition of emotional breakdown related to stressors and challenges faced beyond the coping ability of individuals. Anxiety and depression are the main symptoms of psychological impact. Psychological impact was assessed by the Kessler Psychological distress scale (K10) (Kessler et al., 2002).

CHAPTER 2
LITERATURE REVIEW

This study aims to know the prevalence of psychological impact and different factors associated with psychological impact among the nurses working at COVID-19 designated hospitals in Bhutan. Nurses in Bhutan, psychological impact, and factors associated with psychological impact will be reviewed in this chapter by reviewing relevant and existing researches.

Nurses in Bhutan

Modern nursing started with only two nurses in 1961, though the presence of nurses dates back to 1918, an expatriate nurse came to work during the outbreak of cholera. Bhutan saw the first qualified nurse as general nursing midwifery in 1964 (Dorji & Melgaard, 2012; Yangchen, Tobgay, & Melgaard, 2017). Present nursing pool, most of the nurses working in Bhutan are trained within the country. Most of the bachelor, master, and post-doctoral nurses are trained from outside countries like India, and Thailand. There is a handful of bachelor's degree nurses trained as post-bachelor degree nurse in collaboration with universities from Australia. The trend of converting in-service nurses with diploma nursing are given chances to upgrade themselves to a bachelor degree within or outside countries. Generally, the nurse was categorized based on the educational qualification and number of years of training. Assistant Nurse (AN), auxiliary nurse and midwifery (ANM), general nurse-midwifery (GNM), Bachelor in Nursing (BSc. Nursing), Masters in Nursing (MSc. Nursing), and Post-Doctoral Nurse (Ph.D. in Nursing). There is no nurse with a Ph.D. at present working in clinical, most of them are working with the medical university. As per the record from the Ministry of Health, Bhutan, 1364 nurses are working across the country in tertiary, referral, and district hospitals (Ministry of Health, 2020).

The nurses in Bhutan are divided into an assistant nurse, staff nurse, and clinical nurse, however since assistant nurses are upgraded into staff nurse, training of nurse assistant has been terminated since 2006. The staff nurse is the nurse with basic

education of 12th standard with a science background. The maximum number of them are trained within the nursing institute in Bhutan. They are trained for three years and graduate as General nurse-midwifery (GNM). They are responsible for fundamental nursing care, besides, they hold the responsibilities of developing and implementing a nursing care plan, assisting the clinical nurses and doctors. Clinical nurses are with 12th standard with a science background and training for four years within and outside the country. Most of them are trained from countries like India and Thailand. There are few clinical nurses upgraded from GNM to in-service Bachelor's degree nursing. The nurse with a master's degree also falls under the category of a clinical nurse. The responsibilities of a clinical nurse are, in addition to the responsibilities of a staff nurse, they hold the responsibilities of performing critical nursing care, holistic patient care, team management, and research evidence-based practice (Thinley et al., 2017). Almost all of the clinical nurses are concentrated at the tertiary, and referral hospitals. The position of the nurses at the working place depends on the level of education, type of registration or certificate obtained, number of working years, and nature of training achieved (e.g., forensic nurse).

All the health workers including nurses are registered under Bhutan Medical and Health Council, Royal Government of Bhutan (BMHC). The council is responsible to register and regulate all the medical and health professionals working in the kingdom of Bhutan. Apart from registration, the council also provides training to update including continued medical education and disciplinary actions against grievances.

Nurses assigned to work in COVID-19 designated hospital in Bhutan

Bhutan couldn’t stay immune to the COVID-19 pandemic. As the first case hit the country’s capital, a team of health workers was deployed to manage the case. Among the team, most of them were nurses, those who volunteered to be a part of the team. As the cases started increasing, the need for health workers started to increase. Initially, the nurse was deployed based on the department they were working in, volunteerism, single or not married, without family responsibilities, and nurses with medical conditions were excluded. The number of a nurse was deployed as per the caseload at the particular hospital. The nurses were trained in COVID-19 patient management, and donning and doffing of the PPEs before the deployment to the

COVID-19 designated hospitals. All the nurse was briefed on the SOPs and guidelines before they join the team at the designated hospitals. During the COVID-19 duty, they were kept at the hotels, and the hospital's vehicles were used for their shift system. Initially, when the cases were minimal, the parent hospital deployed the nurses, but the increase in caseload made the ministry of health to mobilize the nurse from other hospitals around the country.

The nurse deployed at COVID-19 designed were assigned to provide routine services like medications as prescribed, vitals sign monitoring, collection and dispatch of the samples collected, collect the report, and documentation of the activities. Apart from the routine services, nurses were providing emotional support and mental health services to the inpatients. They work from 8 am to 2 pm (morning shift), 2 pm to 8 pm (evening shift), and 8 pm to 8 am (night shift), working hours were similar to their normal shift system. However, they will have one shift per day. All the nurses are deployed at the designated hospital for 14 days' duty, and thereafter they were quarantined for another 14 days before they resume their regular duties. COVID-19 tests were made mandatory for all the nurses before, during, and at the end of their duty. As of now, more than 300 nurses were deployed at 4 COVID-19 designated hospitals**.**

Psychological impact

The definition of psychological impact from almost all the literature reviewed defines as an emotional imbalance state in which common symptoms of depression and anxiety can be seen. Somatic symptoms usually co-occur with depression and anxiety. Psychological distress is common psychological impact seen in every type of endemic or pandemic. Though psychological impact imbalances the emotional state of an individual, at the same time it also affects the social functioning and daily living function of an individual. The term distress is found in psychiatric nosology, used as diagnostic criteria for a psychiatric diagnosis like Obsessive Compulsive Disorder (OCD) and Post-traumatic stress disorder (PTSD), and as a marker for major depressive disorder and Generalised Anxiety Disorder (GAD).

Psychological distress is prevalent among the general population approximately 5% to 27 %, but increases in a group of the population when exposed

to a stressful situation (Drapeau, Marchand, & Beaulieu-Prévost, 2012). Previous studies highlighted health problems related to emotional, behavioural, and neurological conditions are rising across the globe. Such disabilities are responsible for 10.4 percent of all disability-adjusted life years wasted or lived with a disability (Gust et al., 2017). Gender and age are the two common characteristics of the prevalence of psychological distress, woman and older individuals are more prone to psychological distress compared to others. Sociodemographic factors, stress-based factors, personal resources are three categories of risk factors and protective factors that are related to psychological impact. Understanding these factors will help to plan intervention programs as these are the most common indictors for risk of psychological distress. In sociodemographic factors, apart from gender and age, ethnicity, role in society, family status, and level of education may have strong association with psychological distress. In stress related factors, stressful situation like new place, exposure to stressful events, and ineffective coping skills may have a strong association with psychological distress. As per the stress-distress model, the distress level may vary depending on the stressors and may also vary among an individual. Personal resources are divided into internal and external resources.

The internal resources such as self-esteem and will power are relatively present throughout the life of an individual, but sometimes there be changes temporarily or permanently following traumatic events. High self-esteem and strong will power are associated with a lesser level of psychological distress among the general population. A social network, social support, income, and education are external resources. An individual with a poor social network, lack of support from the community, lower-income, and education are more vulnerable to a higher level of psychological impact (Drapeau et al., 2012; Gadalla, 2009). According to most of the literature reviewed, psychological impact is seen when an individual fail to cope up with a stressful situation, that affects physical and mental health. An individual with effective coping skills is less likely to develop psychological impact.

Psychological impact among nurses during COVID-19 pandemic

World health organization declared novel coronavirus as COVID-19 pandemic in March 2020. The first cases of infection were from China mainland and detected as pneumonia-like infection in November. Later almost all the countries

across the globe were infected, among the countries, the USA, India, and Brazil are worst affected with maximum death compared to other countries (WHO, 2020). Every country throughout the world put its best effort to contain the pandemic. Throughout human history, the world has witnessed many epidemics, endemic and pandemic, however, the present COVID-19 pandemic is a rare one, forcing almost all countries across the globe to initiate lockdown. Due to the pandemic, frontline workers were more affected physically, and mentally. Moreover, among the frontline workers' nurses were the most affected, as a nurse are the one with maximum contact hours with the COVID-19 positive patient compared to any other frontline workers. Studies from different countries showed the burden of the pandemic on the nurse as significant and urged immediate intervention to prevent them from the effect related to mental health. Recent reports from the International Council of Nursing highlighted, there is more than 1500 nurses' death while taking care of COVID-19 positive patients from different part of the world, and more than 20,000 fatalities approximated (Nurses, 2020). Among the occupations across the globe, a nurse is the most stressful occupation.

During this pandemic stress among the nurse has increased by many folds, thus making more the nurse vulnerable to the temporary or permanent effect of psychological impact. Nurses were most suffered frontline health workers even during previous endemic and pandemic. The burden on nurses was from all the dimensions of the health care system like infection control, containment zone, isolation, and public health. The unfolding emergencies and spike in the cases daily have put the nurse under intense work pressure, which indirectly or directly impacts them physically and mentally (Mo et al., 2020). Furthermore, many nurses were assigned duty unfamiliar to them, like intensive care unit, isolations and administrative task, all of these may increase workload leading to increased chances of psychological impact.

Many studies have revealed that fear of the infection due to its high fatality strength, unknown treatment regime, unavailability of vaccine, safety issues, fear of infecting family or community may be associated with higher psychological impact among nurses, these all may lead to poor quality of care or work, and simultaneously may lead to a temporary or permanent impact on mental health among the nurses. There is enough evidence that there is a significant correlation between an outbreak of

COVID-19 pandemic and adverse mental health issues such as stress, anxiety, and depression (Labrague & De los Santos, 2020). Nurse's believe in religion can be a protective factor against the impact of such pandemic and less likely vulnerable to the psychological impact. Inadequate knowledge of health literacy can have a major influence on the nurse and make them more vulnerable to psychological impact. Understanding the level of knowledge of health literacy can help the organization to plan interventions.

Previous studies indicated the association relationship between organizational support and degree of the psychological impact in workers. The literature review showed there is a consistent association between psychological impact and more working hours, intense working demands, poor supervision, poor organizational support, and poor job security. The adequate support from the organization in the form of adequate staff, clear picture of guidelines, adequate hospital resources or equipment, adequate and appropriate PPEs, adequate training and preparedness, and proper supervision has made nurse experience lesser level of psychological impact (Eriksen, Tambs, & Knardahl, 2006). There are many kinds of research on psychological impact among nurses associated with sociodemographic variables. Almost all the variables showed a strong correlation with psychological impact among the nurses. Among the variables, age, gender, educational background, years of experience, and status of marriage showed a positive correlation with psychological impact. For example, younger nurses, females, nurses with a diploma, married nurses, and novice nurses were prone to psychological impact compared to others (Al-Ahmadi, 2009; Chen, Sun, Du, Zhao, & Wang, 2020; Wu et al., 2020).

Theoretical framework

The transactional model of stress (Lazarus & Folkman, 1984) was used to guide this study**.** In various forms, stress has been conceived: as a reaction, as a stimulus, and as a transaction. As a reaction, stress treats stress as a physiological dependent variable. Stress as a stimulus considers stress as an event of life or transition that functions as an autonomous variable (Sanders, 2019). This model is based on the concept which includes influencing factors like personal and situational factors, appraisal, coping, and outcomes, and describes their relationships. Primary

appraisal is the cognitive evaluation of the event and secondary appraisal is the available resource for coping mechanism. Coping is the process in which an individual manages the demands of the person-environment interaction that are appraised as stressful, wearing, or beyond the resources of the person. In the end, outcomes are the result of the process when an individual fails to cope with the stressor (Eysenck, 1985).

Stress means that an interaction (transaction) between a person and an external environment is involved. A nurse during this pandemic was exposed to a new environment like a new setting, new place, new type of infection all of the sudden, and such situation provide much anxiety any one of an individual. A nurse without adequate knowledge about new infections will be vulnerable to anxiety. Besides, the attitudes towards the COVID-19, may not be favourable as they were not ready for new work or new setting. New infection with high pathogenicity, highly contagious, unknown treatment regime, and increasing caseload, may trigger more stressors among the nurse to be anxious. Previous studies indicated the due to a high-demand working environment nurses could experience a high level of psychological impact, decrease job performance, and negative work attitude. A stress response depends on the perception of the stressor by the person and their ability to cope with it. With different evaluations, the same stressor can give you a different response to stress(Sanders, 2019). Fear could one form of a stressor to the nurse while taking care of the COVID-19 patient, as compared to the general population, they are more likely to be infected. This may lead to their feelings of anxiety or fear of becoming infected or infecting others unknowingly, including members of their family or through colleagues. Beside, pandemic-related problems, such as the increased patient number and caseload, availability of supplies, Precautions related to coronavirus, social distancing, and group quarantine could act as stressors intensifying nurse fear that affect their psychological and emotional well-being and their work performance.

Nurse during pandemics tends to have a better coping mechanism or better resilience if the organization they are working for is supportive. Organizational support, or the degree to which an organization provides a person with resources, reinforcement, motivation, and communication to efficiently fulfil their roles, is a critical factor contributing to the psychological well-being of the nurses. For example,

enough numbers and better quality of PPEs, adequate working staff, responsible supervisors or head of the departments, well-adjusted working hours, assurance for safety, and proper working guidelines will ease the nurse anxiety at the workplace. A positive correlation between higher levels of organizational support and positive results in nurses (e.g. work efficiency, job satisfaction, creative behaviours) and patients (e.g. patient satisfaction) has been shown from the previous studies. Evidence has also shown that higher levels of organizational support will decrease the impact.

In summary, the transactional model of stress and coping is a good conceptual guide for this study. The concept of this model is suitable to correlate the different variables used in this study. The finding or outcomes of this study will help to frame appropriate interventions for the present and future nurse to combat this type of situation or pandemic.

Factors affecting psychological impact among nurses working at COVID-19 designated hospital

Studies have shown that nurses assigned to a new environment are vulnerable to psychological impact. Previous endemic and pandemic related to coronavirus, the nurse were more affected psychologically compared to other health workers. the ripple effect due to the pandemic from every aspect of a situation or environments like a new working place, isolation from family, stigma, and discrimination from the community, mandatory quarantine, concern of patients, and risk of contracting the virus increased the sources of stress among the nurses (Stelnicki, Carleton, & Reichert, 2020). Studies also reported there is a link between young nurses without the experience of caring for a patient in this type of pandemic, fear of losing patients whom they care about, overburden with work, support from the organization, and psychological impact (Shen et al., 2020). Most of the nurse experience discomfort while using the PPEs, like difficulty in breathing, more time for donning and doffing, impaired vision through goggle due to fog drops, excessive sweating, pain, dehydration, these lead to sensory deprivation and a psychological response (Zhang et al., 2020). Many factors are influencing psychological impact among nurses working with COVID-19 patients like knowledge of COVID-19, religiosity, organizational support, fear for COVID-19, resilience, coping behaviour,

workload perception and perceived social support. The knowledge of COVID-19, Fear for COVID-19, religiosity, workload perception and organizational support are considered for this study for its strong association to psychological impact and increasing vulnerability of nurses to psychological impacts due to this pandemic.

Knowledge of COVID-19

In this study, nurse's knowledge of COVID-19 indicates a know-how acquired through experience, training, or education. The questionnaire is based on the COVID-19, clinical presentations, transmission, prevention, and control. Adequate knowledge is important assets for the nurses to provide quality care and protect self from occupational injuries. Researchers indicated that those with limited knowledge of health information have less access to quality health care and it is associated with increased risk of morbidity and mortality, increased health expenditure, and one of the main causes of poor psychological wellbeing. Among the frontline health workers, nurses are the ones that spend more time with the patient from the day of admission till discharge. Hence nurses are in the appropriate position to assess the knowledge level of the patient with the COVID-19 and provide appropriate intervention. Adequate knowledge of the disease has always played an important role in every aspect of patient care and in this type of pandemic.

The nurse plays a vital role in identifying the authenticity of the health information before applying it to the patient for the treatment or care. Understanding the levels of the patient's knowledge is also an important aspect of the care, overestimation or misunderstanding may cause injury to the patient. The better the nurses' knowledge about the infection, the more confidence they in taking care of the patient, and the lesser psychological impact they suffer (Zhang et al., 2020). Nurses' knowledge of COVID-19 is indirectly and directly associated with the increased recovery rate. Most of the nurses acquired the knowledge related to COVID-19 from different types of social media and training offered by organizations (Reuben, Danladi, Saleh, & Ejembi, 2020). The information from many studies showed the various source of knowledge about COVID-19 were from social media platforms, training organized by organizations, and websites of different medical and health organizations.

However, information disseminated especially via social media platforms can be false information, and nurses should rely on an authentic source of information to avoid errors during patient care (Huang, Zhao, & Li, 2020). Understanding and identifying knowledge level of the nurse will help to predict the outcome of the interventions, avoid occupational hazards decrease the damage due to errors at the workplace, and planned interventions to improve the psychological health of the nurses. In a study done in China, the knowledge of nurse about COVID-19 is very comprehensive on most of the components of COVID-19 (> 60% accuracy) and lack some aspects of the information (< 45% accuracy). The knowledge had an impact on their practice (Jin et al., 2020). Higher the level of the knowledge of COVID-19 lesser the level of the psychological impact.

Fear of COVID-19

Fear is referred to as an adaptive emotion that alerts us to face a potential threat. Excessive or insufficient fear can have different effects, either psychologically, or physically, or emotionally, real or imagined depending on the situation (Mertens, Gerritsen, Duijndam, Salemink, & Engelhard, 2020). The excessive level of fear can pose a significant effect on an individual level (anxiety or phobia) or the community level (panic shopping). However, lack of fear among an individual can be harmful to individual and community (e.g., ignoring set rules for handwashing or wearing a mask in public places). Furthermore, sometimes a fear triggers safety behaviour (e.g., wearing a mask to avoid the fines) which will help to control the spread of the virus. The fear among nurses is high compared to previous endemic or pandemic due to unknown pathogenicity of the virus, highly contagious virus, unknown treatment regime, increased caseload, and unavailability of vaccines. Apart from all these possibilities, irrelevant or excessive exposure to media related to COVID-19 would predict the fear. Most of the studies showed that fear for COVID-19 was associated with fear of infecting family members, losing a job, fear of losing patients, and stigmatization from society.

In a study from Lebanon, almost 62% of nurses feared that they might get infected with coronavirus, and 90% of them feared that they might infect their family due to the nature of the job. One-third of the nurses feared being stigmatized and discriminated against by the community. Around 60% of nurses experienced

depression and exhaustion because of the COVID-19 pandemic (Saadeh, Sacre, Hallit, Farah, & Salameh). The study by Labrague and De los Santos (2020), indicated at nurses' fear related to COVID-19 need to be addressed immediately, failure to do so may potentially affect the nurses' quality of care, lower job satisfaction, more leave from work, and eventual turnover. One of the studies done among the nurses in the Philippines indicated that the composite score for the fear of COVID-19 scale is higher above the midpoint. Fear for COVID-19 among the contract or part-time nurses was significantly higher compared to the permanent nurses. The nurse trained in COVID-19 care had a lesser level of fear compared to the nurses without training. In this same study, fear of COVID-19 had a significant correlation with psychological impact (L. J. Labrague & J. A. A. de Los Santos, 2020). Higher results of Fear of COVID-19 will indicate a higher level of psychological impact.

Religiosity

Religiosity refers to the actions and attitudes of an individual about a particular religion. it represents a very important aspect of life in the majority of the present culture. Nursing is one of the stressful careers, that is an emotionally demanding profession where most of the nurses are prone to psychological difficulties. In many studies religiosity has been associated with better psychological wellbeing and improved quality of life. A study done among nurses in Greece indicated that religious practices can be protective factors for depression and anxiety, and increased the psychological wellbeing of an individual. religiosity can predict a nurse's depression and anxiety (Fradelos et al., 2020) Nurse's religiosity can be a vital resource to equip nurses with better adapting and coping skills that promote psychological wellbeing, especially in such pandemic. A study done in Portugal among health workers indicated that individuals practicing a positive religion are associated with a lower level of depression and anxiety, a higher level of psychological wellbeing, and better depression remission among the patients also (Prazeres et al., 2021). In general, most of the studies showed a positive association between religiosity and mental health, a better quality of life, lower risk of anxiety and depression, suicidal tendencies, substance abuse, and better cognitive functioning (Malinakova, Tavel, Meier, van Dijk, & Reijneveld, 2020).

Bhutan is a Buddhist country, with more than 90 % of its population practicing Buddhism. Bhutanese culture and heritage are deeply influenced by Buddhism for many centuries. Almost all Bhutanese have great faith and devotion in their religion and practice many religious activities throughout the year. Still, in most parts of the countries, people prefer religious remedies before availing the modern medicine. The prayers and rituals are common in most of the homes, seeking divine help during hard times, a blessing to ward off the bad lucks, and help to recover from illness. In a national referral hospital where most of the patients are referred, a religious head is officially appointed as staff to meet the spiritual needs of the patient. Religion is an important part of every Bhutanese's sphere of life, so it can play an important role in psychological wellbeing during such stressful times. Using religion as one of the variables for this study may yield valuable results to aid in planning better intervention for the nurse for resent and future pandemics. The negative result of religiosity will indicate a higher level of psychological impact. Moreover some studies indicated that the effect of the religiosity on the psychological health of an individual in the time of such pandemic could be difficult to interpret as religion as source will always not act as buffer, but may also act as source of stress (Szałachowski & Tuszyńska-Bogucka, 2021).

Workload perception

The workload is a certain amount of work an individual has to perform within a certain amount of time. During such a pandemic, nurse's work increases dramatically especially the qualified nurse for specialized care, making them prone to a higher level of stress, job insecurity, and low self-esteem. High job demands, inadequate training to provide emotional support to patients and family, exposure to more frequency of mortality are some of the stressors experienced by nurses working during such pandemics. Work overload is the common stressor indicated in most of the studies done. Work overload is a significant predictor of a higher level of psychological impact (Greenglass, Burke, & Fiksenbaum, 2001). Shortage or understaff is also one of the causes of the workload, it pressurizes the working nurse, trying to attend to all the patient in a limited working hour. A research in Bhutan on the workload of nurse staffing, social supervision, nursing staff support and work satisfaction showed that the total number of patients per nurse varied from 5 to 23

patients, with an average of 14 patients. Bhutan has a huge gap between patient and nurse ratio, which increases proportionally during such pandemic. Similar to other countries, the detection of the COVID-19 case, made Bhutan establish COVID-19 designated hospitals in a different region of the country to cater to the patient. Initially, the parent hospital assigned the nurse to the respective designated hospital, but as cases kept increasing with community transmission, more nurses were mobilized from other regions and nearby hospitals. Every nurse assigned to a designated hospital was trained and briefed as per the national guidelines on COVID-19 patient care. There can be stress and anxiety among them, as this type of pandemic is new to this generation of nurses. Though nurses during their training and through CMEs (continue medical education), donning and doffing of PPEs, prophylactic measures, and isolation procedures were taught, but only a few might have practice at specialized care units. So these measures were more than their usual work routine, which might have increased their workload significantly.

Apart from the nursing for COVID-19 at high-risk zone, a nurse is responsible to provide humanistic care in absence of family members and mental health service, which increased their workload (Lucchini, Iozzo, & Bambi, 2020). Increased workload, work stress, a new work environment, and training are the few external factors that influenced the psychological well-being of the nurses. Poor psychological wellbeing among the nurse can reduce their professional performance compromising the quality of the care (Nie, Su, Zhang, Guan, & Li, 2020). A study done in Egypt to assess the occupational stress among the nurse, they found that physical working environment i.e., workload (overtime work, frequent night shifts, newly assigned work, more work demands) is the most significant stressors (Said & El-Shafei, 2020). The positive result of workload perception will indicate a higher level of psychological impact.

Perceived organizational support

Organizational support is understood as employees' perception that organization values his or her contributions in organization or gets support from the organization like resources, reinforcement, encouragement, and communication to every worker to give better outcome (Labrague & De Los Santos, 2020). According to organizational theorists, employment is the exchange of employees' effort and loyalty

for the organization’s provision of material and socio-emotional benefits. The outcomes of the job or work from the employees depends largely on the relationship between employees and employers. The employees well treated, tend to be committed to work, or organization, take better responsibilities, and maximize the benefit to the organization. The psychological impact can be an unintended result of action influenced by constraints related to resources provided by the organization. Constraints may be associated with stressors that may influence the adaptability of an individual at work and cause a psychological disturbance. Organizational support, inclusive of psychological support can be a protective factor if they hold their role and responsibilities adequately. The studies showed that with inadequate support from the organization, a nurse's psychological outcomes are poorest compared to the other HCPs.

Adequate training and preparedness have been shown as a protective factor against psychological impact (Stuijfzand et al., 2020). Limited and insufficient resources can result in ineffective health care and health care worker’s distress (Ransom & Olsson, 2017). The study was done in china among the nurse attached to take care of HIV patient infected with COVID-19, experienced distress directly related to organizational support. The supportive organization showed that nurses exhibited better resilience and experienced a lesser level of psychological impact (Tam et al., 2020). From various previous studies, adequate training related to COVID-19 care, adequate and good quality of PPEs, and personal and family security was the basic support all the nurses expected to an organization to fight the pandemic efficiently and decrease the chances of experiencing psychological impact. Organizational support extended by the organization aids in addressing the physical and psychosocial needs of all the working individuals. Working environment and health infrastructures at any organization are found to be directly associated with the psychological health of the workers. Furthermore, apart from materialistic support, a relation with the supervisor head of the department, an adequate number of workers, and timely support during grievances is associated with the psychological health of the working individual. In a study done in Singaporean nurse showed that there is decreased level of anxiety related to COVID-19, is associated with a supportive organization, strong resilience and good social support (Labrague, Petitte, Leocadio,

Van Bogaert, & Tsaras, 2018). The negative organisation support will increase the level of the psychological impact.

Summary of the literature review

The review of the literature showed nurses experienced more psychological distress among the frontline workers fighting the COVOD-19 pandemic. The previous pandemic around the world had similar findings showing nurses were most affected by frontline workers or health workers. The cases around the world highlighted, COVID-19 pandemic is the worst one the present generation of this century is experiencing, with a high rate of infection, limited known treatment regime, and unavailability of vaccines. Bhutan is situated between two giant countries, a country from where the infection started (China) and (India) country with the second most confirmed cases in the world. Still, Bhutan had limited the confirmed cases below 500, with zero death to date. This scale of a pandemic is new to Bhutan, and especially for the present generation of a nurse. The literature revealed that psychological impact is detected more in female, and younger nurses. Bhutan has younger and female nurses. Educational level is also one factor that showed a correlation with psychological impact, and Bhutanese nurses were more of diploma graduates compared to higher degree nurses.

The inadequate support from the organization hinders the quality of care, the nurses can develop stress affecting the psychological wellbeing negatively. Adequate support such as adequate resources, training, supervision, and enough staffing can help ease the stressful situation during such pandemics. The studies have indicated, nurses with adequate knowledge about COVID-19 were more willing to work, thus making them less vulnerable to stress. The lack of knowledge or inadequate knowledge can hamper or inhibit, the nurse from providing quality care, thus getting psychologically affected negatively. Bhutan is a country with people practicing a religion intensively, and the value of religion has shown positive impacts on the way of life. Nurses practicing religion can be less vulnerable to the psychological impacts, as they tend to be compassionate and show positivity towards the work especially during difficulties such as this pandemic, thus affecting psychological wellbeing positively. Nurses may be vulnerable to stress if the perception of the work is

negative. In most of the case, the attitude to work and the result of the work depends on the perception of the nurse towards the work. The nurse being at work perceive that they might be having to work more or the workload can be increased during such pandemic can affect the psychological wellbeing. This pandemic has affected the psychological health negatively among the nurse across the globe. One such factor is the fear of COVID-19. The fear of getting infected, fear of being a virus carrier, and fear of losing patients with COVID-19 are the few examples that impacted the nurse's psychological wellbeing negatively.

CHAPTER 3
RESEARCH METHODOLOGY

Research design

A predictive correlational design was used to study the prediction of knowledge of COVID-19, fear of COVID-19, religiosity, workload perception and perceived organizational support on psychological impact among the nurses working at COVID-19 designated hospitals in Bhutan.

Population and sample

The population used in this study were the nurses appointed to work at COVID-19 designated hospitals in Bhutan, Jigme Dorji Wangchuk National Referral Hospital [Thimphu], Central Regional Referral Hospital [Gelephu], Eastern Regional Referral Hospital [Mongar], and Phuentsholing General Hospital. During October, 2020, there were more than 300 nurses were appointed to work at the above-mentioned hospitals.

The sample included the nurses appointed to work at COVID-19 designated hospitals in Bhutan. All those nurses who met the following inclusion criteria were recruited for this study included the nurses completed their prescribed duty at COVID-19 designated Hospital. Those nurses who had psychiatric problems as diagnosed by the physician were excluded.

Sample size

The sample size for this study was determined by using the G* Power software as it is known to reduce type 2 error. For this study a power of .90 and effect size of .15 was used with significance level set at .05 (Park, Lee, Park, & Choi, 2018), with that required sample for this study is 116. In nursing research, missing data are not uncommon, and there are many reasons for the problem (Musil, Warner, Yobas, & Jones, 2002). Literature showed that amount of missing data is about 5% to 20% (Saunders, Lewis, & Thornhill, 2007). So to substantiate for the possible missing data,

15% of the sample will be added to the estimated sample thus obtained. Therefore, the total of 133 participants were recruited for this study.

Sampling method

A simple random sampling method was used for this study. In all the four hospitals, nurses were appointed from within the hospitals and from nearby hospitals depending upon the caseload. From every hospital, a certain number of the sample will be taken randomly. As per the sample size requirement (133), 60 nurses from JDWNRH (Jigme Dorji Wangchuk National Referral Hospital, Thimphu), 40 nurses from PGH (Phuentsholing General Hospital), 17 nurses from ERRH (Eastern Regional Referral Hospital), 16 nurses from (Central Regional Referral Hospital) will be recruited. This numbers of nurses are proportionately calculated for 4 COVID-19 designated hospitals. The appointment numbers and information of the appointed nurse were obtained from the nursing in-charge or nursing superintendent. The name and appointment number was mixed in a container and was picked randomly to estimate the study sample.

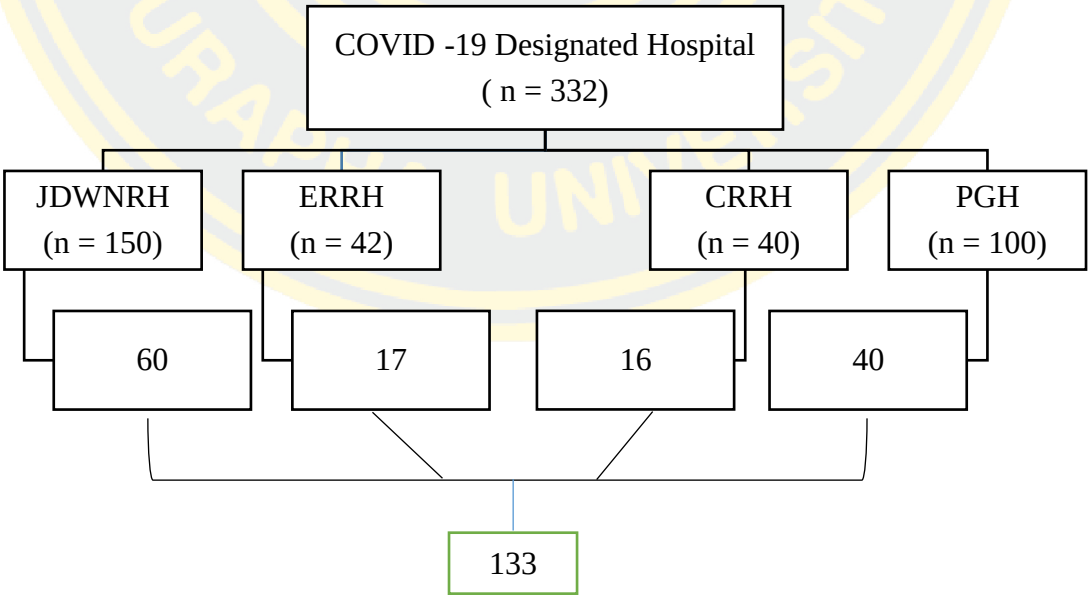

Figure 1 Sampling method

Study setting

There are four hospitals in Bhutan designated for the COVID-19 pandemic. All the designated hospitals are located in different regions of the country to cater to the people infected with the coronavirus. As Bhutan has four important official entries, three by land and one by air. The entry point for the eastern region is catered by Eastern regional referral hospital (Mongar), for the central region is catered by Central regional referral hospital, an entry point for the western region is catered by Phuentsholing general hospital, and the entry point by air is catered by National Referral hospital (Thimphu). Since most of the returnees are by air and land entry in the western part of the country, so hospitals at these two places are having more cases compared to the other two hospitals (Eastern and Central). All the hospitals are equipped with ICUs and labs specially designed to facilitate COVID-19 care. All nurses within the parent hospital, from a nearby hospital, were trained and appointed there to work.

Research instruments

A total of seven research instruments was used for this study which includes demographic questionnaires, knowledge of COVID-19 questionnaire, Fear of COVID-19 scale, Centrality of Religiosity Scale (CRS10), workload perception questionnaire, the perceived organizational support scale and Kessler psychological impact scale (K10). All the questionnaires for this study were self–reporting and in English, thereby all participants were requested to complete themselves. Since all the nurses were trained in English medium courses, translation was not needed.

Part I: Demographic data

A demographic data questionnaire was developed by the researcher. The data included age, gender, marital status, number of children, highest level of education, year of experience, nature of appointment/ deployment, nature of employment, attendance to COVID-19 training, parent workplace, professional title in nursing, and main source of clinical information.

Part II: Knowledge of COVID-19 Questionnaire

The questionnaire developed by Zhong et al (2020) was used. It was based on the COVID-19, mode and route of transmission, treatment regime, signs and symptoms, aetiology, management and prevention methods and complications. There were 12 questions with a three options, “true”; “false”; “I don’t know”. Each correct response will score 1 and 0 for incorrect and “I don’t know” response. Higher score indicates higher level of knowledge of COVID-19. This questionnaire has Cronbach’s alpha coefficient of .71, indicating acceptable internal consistency (Zhong et al., 2020). The Cronbach’s alpha coefficient in this study was 0.72.

Part III: Fear of COVID-19 Scale

Fear of COVID-19 scale developed by Ahorsu et al.(2020), was used in this study. This scale contains 7 items and 5 points Likert scale which includes strongly disagree, somewhat disagree, neither agree or disagree, somewhat agree, and strongly agree. All the scores are categorized as low (score 14-21) and high (score 22-35). The total score of this scale is from 7 to 35, the possible minimum score for each item is 1, and a maximum with 5. Higher score indicates more fear of COVID-19. This scale has acceptable alpha (α) value of .82 and the corrected item-total correlation ranges from 0.47 to .56 (Ahorsu et al., 2020). The Cronbach’s alpha coefficient in this study was 0.84.

Part IV: The Centrality of Religiosity Scale (CRS10)

The Centrality of Religiosity Scale (CRS10) developed by Huber was used to measure the religiosity for this study (Stefan Huber & Odilo W Huber, 2012). The CRS consist of 5 dimensions of religiosity: public practice, private practice, religious experience, ideology, and an intellectual dimension. All items were scored on a five-point Likert type scale, ranging from 1-5. This allows for a range of the CRS score between 1.0 and 5.0. This way three groups are formed: the "highly-religious", "religious", and "non-religious" with a threshold of 1.0 to 2.0: not-religious, 2.1 to 3.9: religious, 4.0 to 5.0: highly-religious (Fradelos et al., 2017; Huber & Huber, 2012). Three reliability analyses were conducted on the complete measure of the CRS, eliciting internal consistencies ranging from 0.92 to 0.96, suggesting that the items consistently measure the salience and centrality of an individual’s religion. Higher score indicates highly religious. The Cronbach’s coefficient for this scale was

0.81 in the previous study done in Bhutan (Wangchuk, Hengudomsub, & Chaimongkol, 2016). The Cronbach's alpha coefficient in this study was 0.89.

Part V: Workload perception questionnaire

The workload perception was measured with the workload perception questionnaire scale developed by Quantitative Workload Inventory (QWI) (Spector & Jex, 1998). This scale consists of a five-item score; participants will be asked to indicate the frequency of the occurrence of each statement. There were five response choices. There were five response choices from "less than once per month or never". There were five response choices from "less than once per month or never (1)", "once or twice a month (2)", "once or twice a week (3)", "once or twice a day (4)" to "several times per day (5)". The responses then will be added and divided by 5 to provide a mean score. A higher score will signify higher levels of workload. As per the previous study done in Bhutan (Norbu, 2010), the reliability of this scale is strong (Cronbach's coefficient = .86). The Cronbach's alpha coefficient in this study was 0.85

Part VI: The perceived organizational support scale

The Perceived Organizational support scale (POS) developed and designed by Eisenberger et al. (1986) was used to this assess the workplace values and wellbeing of the nurse during this pandemic. This scale contained 8 items with 5 points Likert scale which includes the numerical value range from 1 as strongly disagree to 5 as strongly agree. The scores are interpreted in a range from 1.00 to 2.99 as low organizational support, 3.00 to 4.30 as moderate support, and 4.31 to 5.00 as high organizational support. Higher score indicates higher level of perceived organisational support. This scale has acceptable validity as evidence by positive association with its variables and reliability with an internal consistency of 0.89 from previous articles and Cronbach's alpha of 0.86 (Labrague et al., 2018) The Cronbach's alpha coefficient in this study was 0.69.

Part VII: Kessler psychological impact scale (K10)

Psychological impact was assessed by the Kessler psychological distress scale (K10). K10 consists of 10 items and 5 Likert type scales which include none, a little, sometimes, most of the time and all the time are the responses used against each questionnaire. All the scores are categorized as low level of psychological distress

(score 10 -15), moderate level (score 16-21), high level (score 22-29), and very high level (score 30-50) (Coombs, 2007). Lower score indicates lower level of psychological impact and higher score indicate higher level of psychological impact. The validity and reliability of this scale have high internal consistency in the adult population and strong internal item correlation (range between .350-.659) among the non-western population. The Cronbach's alpha value of this scale is 0.91(Pereira et al., 2019). The Cronbach's alpha coefficient in this study was 0.87.

Psychometric properties of instruments

Validity

All the instruments used for this study were validated and standardised instruments used in previous studies. Therefore, instrument validation was not conducted.

Reliability

The reliability of the instrument for this study was tested with 30 nurses working at COVID-19 designated hospital as a pilot study. The nurses participated in the pilot study was not included in the main study.

Ethical consideration

The permission to conduct this study was granted by the Institutional Review Board (IRB) for graduate studies (G-HS014/2564), Burapha University and the Research Ethical Board of Bhutan (REBH), Ministry of Health (REBH/Approval/2021/020). The data from different hospitals was collected after getting permission from the respective medical and nursing superintendent. All the participants were informed about the study before data collection and consent from each participant was obtained before data collection. The data collected was confidential and protected for human right. Data obtained was used for this study only.

Data collection procedures

During data collection, the following procedures was followed:

1. The proposal of this study was submitted to the Institutional Review Board (IRB) of graduate school, Burapha University, and Research Ethical Board of Bhutan (REBH), Ministry of Health, Bhutan for ethical approval.
2. The site approval for data collection from different COVID-19 designated hospitals was obtained from the medical and nursing superintendent of respective hospitals.
3. The data collection procedure was briefed to all research assistants before data collection by the principal investigator.
4. The data was collected at a convenient time for the participants.
5. A research assistant explained about the research including objectives, data collection procedures, consent, and their confidential protection.
6. A thorough explanation was provided to all the participants about the questionnaire before they started answering by the research assistant.
7. The data collected was electronically sent to the principal investigator by google drive for data analysis.
8. The data collected was entered for analysis.

Data analysis

1. The data was entered to analyse by the statistical software after data coding.
2. The data was tested to fulfil the assumptions of multiple regression which includes absence of outliers, normality of variables, linearity, homoscedasticity, no auto correlation and no multi-collinearity.
3. Descriptive statistics like frequency, percentage, mean, standard deviation was used to describe the variables and demographic characteristics.
4. The standard multiple regressions applying enter method was used to determine the predictors of psychological impact.

CHAPTER 4
RESULTS

This chapter presents the results of data analysis which were divided into three parts consisting of Part I: Demographic characteristics, Part II: The level of psychological impact, Part III: Factors affecting the psychological impact and Part IV: The influence of factors predicting psychological impact among nurses working at COVID-19 designated hospitals in Bhutan.

Part I: Demographic characteristics of participants

The demographic characteristics are presented in Table 1. Most of the respondents are in the age group of 26 to 30 years (78.4%) with mean age of 29.6 (*SD* = 5.72). Among the respondents, the majority were female (60.2%) compared to male (39.8%). In terms of marital status, more than half were single (51.1%) while 45.9% were married. While 10.5% respondents reported having two children, 15.8% reported having only one child. The majority of the respondents hold a diploma certificate (66.2%) followed by bachelor degree certificate (32.3%). Of the total respondents, nearly half (46.7%) had 2 to 5 years of experience, 27.5% had 5 to 10 years of experience, 10.5% had more than 10 years of experience and 20.3% had less than one year of experience in the service. Most of the respondents 107 (80.5%) were appointed to work at COVID-19 designated hospitals and the rest were volunteers. More than three quarters (79.7%) of the respondents were regular employees while others were contract employees. Close to two third (66.2%) attended COVID-19 related training before working at COVID-19 designated hospitals. While 69.2% of respondents working at COVID-19 designated hospitals were from national and regional referral hospitals only 28.6% were from district hospitals. A huge number of respondents was staff nurses (66.9%) followed by clinical nurses (33.1%). For information on COVID-19, most of the respondents referred to the website of the Ministry of Health, Bhutan followed by World Health Organization website, then social media and from healthcare or colleagues' professionals.

Table 1 Characteristics of participants (n = 133)

Characteristics	Number (n)	Percentage (%)
Age		
20-25years	34	25.60
26-30 years	59	44.40
31-35 years	28	21.00
36 years and older	12	9.00
(M = 29.26, SD = 5.72, min = 22, max = 57)		
Gender		
Male	53	39.80
Female	80	60.20
Marital status		
Single	68	51.10
Married	61	45.80
Divorced	3	2.30
Living together	1	.80
Number of children		
None	96	72.20
One	21	15.80
Two	14	10.50
3 or more	2	1.50
Highest level of education		
Diploma	88	66.20
Bachelor’s degree	43	32.30
Master’s degree	2	1.50
Years of experience		
< 1 year	27	20.30
2- 5 years	62	46.70
5 -10 years	30	22.50
>10 years	14	10.50

Table 1 (Continued)

Characteristics	Number (n)	Percentage (%)
Nature of appointment/deployment		
Officially Appointed	107	80.50
Volunteer	26	19.50
Nature of employment		
Contract	27	20.30
Regular	106	79.70
Attendance to COVID-19 training		
Yes	88	66.20
No	45	33.80
Permanent workplace		
Primary Health Centers	3	2.30
District Hospitals	38	28.60
Referral Hospitals	92	69.20
Professional title in nursing		
Staff Nurse	89	66.90
Clinical Nurse	44	33.10
Main source of COVID-19 information		
Ministry of Health, Bhutan	96	42.10
World Health Organization	56	24.56
Social Media/Public news	41	17.98
Healthcare professional/ Colleagues	35	15.36

Part II: Description of psychological distress

The actual score of psychological impact ranges from 10 to 50 with the mean score of 20.49 (*SD* = 6.7). The result indicates 21.05%, 40.60%, 38.35% and 7.52% of the respondents had low, moderate, high levels and very high of psychological impact respectively (Table 2).

Table 2 The level of psychological impact (n = 133)

Characteristics	Number (n)	Percentage (%)
Total psychological impact level ($\bar{x}$ = 20.49, *SD* = 6.07, Min = 10, Max = 50)		
Low	28	21.05
Moderate	54	40.60
High	41	30.83
Very High	10	7.52

Part II: Description of factors associated with psychological impact

In this study, 5 factors associated with psychological impact were examined which included knowledge of COVID-19, Fear of COVID-19, Centrality of Religiosity, workload perception and perceived organizational support.

The results showed that knowledge about COVID-19 had mean score of 9.66 (*SD* = 1.12) which is more than the central value of the possible score (Median = 6.00), fear of COVID-19 had mean score of 19.05 (*SD* = 5.54) which is less than the central value of the possible score (Median = 21), centrality of religiosity had mean score of 33.6 (*SD* = 7.43) which is more than the central value of the possible score (Median = 30), workload perception had mean score of 17.47 (*SD* = 3.91) which is higher than the central value of the possible score (Median = 15), perceived organizational support had mean score of 24.49 (*SD* = 7.78) which is more than the central value of the possible score (Median = 24) as presented in Table 3.

Table 3 Mean and Standard Deviation (*SD*) of the factors related to psychological impact (n = 133)

Variables	**Possible scores**	**Actual scores**	$\bar{x}$	***SD***
Psychological impact	01-50	10-50	20.49	6.07
Knowledge of COVID-19	0-12	1-12	9.66	2.35
Fear of COVID-19	7-32	7-32	19.05	5.54
Centrality of religiosity	10-50	10-50	33.36	7.43
Workload perception	5-25	7-25	17.47	3.91
Perceived organizational support	0-48	2-45	24.49	7.78

Part III: Factors affecting the psychological impact

Prior to the test of multiple regression, correlation analysis was performed. According to the correlation matrix, psychological impact was significantly associated with fear of COVID-19 (r = .20, p < .05), religiosity (r = .21, p < .05) workload perception (r = .09, p < .01) and perceived organizational support (r = -.01, p < .01). Knowledge of COVID-19 was not significantly correlated with psychological impact as presented in Table 4.

Table 4 Pearson Correlations between examined factors (n = 133)

Variables	**1**	**2**	**3**	**4**	**5**	**6**
1. Knowledge of COVID-19	1.00					
2. Fear of COVID-19	.09	1.00				
3. Religiosity	-.01	.21*	1.00			
4. Workload perception	-.14	.09	.09**	1.00		
5. Perceived organizational support	-.02	.01	-.03	-.29**	1.00	
6. Psychological Impact	.04	.20*	.21*	.34***	-.19*	1.00

* p < .05, ** p < .01, *** p < .001

Part IV: The influence of factors predicting psychological impact.

To determine the predictors of psychological impact, standard multiple regression applying enter method was conducted. One of the predictor, knowledge of COVID-19 was not entered into the regression model since it was not significantly correlated with the psychological impact. The results of the analysis are presented in Table 5.

Table 5 The influence of factors predicting psychological impact (n = 133)

Predicting variables	**B**	**SE**	**β**	**T**	**P value**
Workload perception	.400	.117	.28	2.54	<.05
Perceived organizational support	-.076	.058	-.108	-1.293	>.05
Religiosity	.109	.060	.149	1.816	>.05
Fear of COVID-19	.137	.081	.140	1.699	>.05
Constant = 8.86, p = <.05, R^2 = .178, adj R^2 = .153 $F_{(4, 128)}$ = 6.95, p = <.05					

Table 5 showed workload perception, perceived organizational support, religiosity and fear of COVID-19 could explain 15.3% of variance in psychological impact ($F_{4, 128}$ = 6.95, p = < .05). Workload perception had significant effect on psychological impact (β = .28, p < .05). Whereas, fear of COVID-19 (β = .140, p > .05), religiosity (β = .149, p > .05) and perceived organizational support (β = -.108, p > .05) had no significant effects on psychological impact.

CHAPTER 5
DISCUSSION

This chapter presents the summary and discussion of the study findings. Nursing implications, strengths and limitations, and future recommendations are addressed.

Summary of the results

A total of 133 nurses working at COVID-19 designated hospitals in Bhutan were recruited for this study. Self-report questionnaires were used to collect data, including a demographic questionnaire, knowledge about COVID-19, fear of COVID-19, centrality of religiosity, workload perception, and perceived organizational support.

The results indicated that the majority of the participants were female (60.2%), aged 26-30 years (44.4%), single (51.1%), staff nurses (59.4%) and regular in service (79.7%). Major proportion of the participants didn't have children (72.2%) and had work experiences of 2 to 5 years in the service (46.7%). Most of the participants (80.5%), were officially assigned to work at COVID-19 designated hospitals with 69.2% of them from the referral hospitals. More than a half of the respondents (66.2%) attended COVID related training before joining the COVID-19 designated hospitals. The majority of the respondents referred to the websites of the Ministry of Health, Bhutan (42.10%) followed by the World Health Organization (24.56%) for information related to COVID-19.

The mean score of psychological impact was 20.49 (*SD* = 6.7) and showed that the majority of the participants had a moderate level of psychological impact representing 40.6%. The mean score of the factors predicting psychological impact such as knowledge about COVID-19, fear of COVID-19, religiosity, workload perception and perceived organizational support were 9.66 (*SD* = 1.12), 19.05 (*SD* = 5.54), 33.6 (*SD* = 7.43), 17.47 (*SD* = 3.91) and 24.49 (*SD* = 7.78) respectively which were all greater than its median value.

Standard multiple regression analysis revealed that 15.3% of variance in psychological impact could explained by the factors examined which included fear of COVID-19, religiosity, workload perception, and perceived organizational support. Workload perception (β = .28, p < .05) was the only one factor that had significant effect on psychological impact.

Discussion

The study aimed to evaluate the level of psychological impact and its affecting factors among the nurses working at COVID-19 designated hospitals in Bhutan. Transactional theory by Lazarus was used to guide this study. A total of 133 nurses working at COVID-19 designated hospitals in Bhutan were recruited for this study by simple random sampling technique. Self-report questionnaires were used to collect data, including a demographic questionnaire, Kessler Psychological distress scale, knowledge about COVID-19, fear of COVID-19, centrality of religiosity, workload perception, and perceived organizational support.

The first objective of this study is to examine the psychological impact of nurses working at COVID-19 designated hospitals in Bhutan. As per our knowledge, this is the first study to evaluate the psychological impact among the nurses working at COVID-19 designated hospitals in Bhutan. There is no study done in Bhutan to compare the results. The results showed a mean score of psychological impact among the nurses at COVID-19 designated hospitals in Bhutan was 20.25 (*SD* = 5.4). This study showed that 40.60% and 30.83 % of respondents indicated the psychological impact as moderate to high levels, respectively. Only 10% and 20 % of respondents indicated higher and low levels of the psychological impact, respectively. Similar results were found from a previous study, a study done among Mexican nurses using the same scale K10 indicated almost identical results; 26.39% and 41.78% of nurses showed moderate to high psychological distress (Cortés-Álvarez, Pineiro-Lamas, & Vuelvas-Olmos, 2020). Another study from Singapore also indicated a similar range of psychological distress (37.4%). Many others previous studies have shown moderate to the high level of psychological impacts among the nurses compared to others healthcare workers (Lee et al., 2020; Stelnicki, Carleton, & Reichert, 2020) (Zerbini, Ebigbo, Reicherts, Kunz, & Messman, 2020). As a nurse, contact time with the

patients is the highest, and the risk associated with hospital-acquired infections are more among any other healthcare workers during such pandemics (Galehdar, Kamran, Toulabi, & Heydari, 2020). Even in a study done among the general population in Italy to assess the psychological impact of this pandemic, using the same scale (K10) showed similar results (38%) as of this study (Elhessewi, Almoayad, Mahboub, Alhashem, & Fiala, 2021). The high prevalence of psychological impacts among nurses might be explained by a series of events, including increasing numbers of cases in and out of countries, uncertainty or shortages of vaccines, increasing numbers of new variants and unavailability of defined treatment.

Possible explanation for moderate to high psychological impacts among nurses working at COVID-19 designated hospitals could be, the results from the previous endemics and pandemics, in the general population showed females experienced a higher level of psychological impacts (Cortés-Álvarez et al., 2020). Among the nurses, females experienced more elevated psychological effects than male nurses in almost all the studies done in previous and present pandemics. Similar studies from Mexico and Singapore also have similar findings indicating female nurses being more prone to psychological distress (Cortés-Álvarez & Vuelvas-Olmos., Lee et al., 2020). Among the nurses, younger and less experienced nurses were prone to psychological impact compared to senior and experienced nurses (Shahrour & Dardas, 2020). In one of the literature reviews, the author indicated that more years of experiences of the healthcare workers are less prone to psychological impact (Miranda et al., 2021). So in line with the previous studies, results from this study, more than fifty percent of 80 (60.2%) were female, majority 121(91%) were below thirty-six years, younger than older ones. The majority of the respondents experienced a moderate to high level of psychological impact ($\bar{x}$ = 20.49, *SD* = 6.07) as per the result of this study, consistent with previous studies. A similar finding also reported from a study done in a general population in Australia and China, Italy and the USA, younger females more prone to psychological impact (Rahman et al., 2020). This result is similar to the results from previous studies, which reported a moderate to high psychological impact among nurses across the globe. A possible reason could be the nurses in Bhutan didn't experience such a pandemic before. Another likely reason could be; females are more in the nursing profession. Studies have shown that

during the SARS outbreak and similar pandemics, the reasons for the younger individuals to experience it can be due to ineffective coping mechanisms, but the psychological impacts decrease as with the increase in age. Another reason could be the impact on the healthcare system was considerably high, as the burden on nurses was increasing with a spike in cases and reports of severe fatalities from neighbouring countries. In addition, other reasons could be fear of infection, unknown treatment regime, delayed vaccinations, fear of infecting family members or the community; similar reasons were presented across the globe.

In our study, there was an almost equal number of single 68(51.1%) and married 61(45.9%) nurses, but a nearly third quarter was without children 96 (72.2 %). One of the cross-sectional studies done among the general population in Saudi Arabia showed single had a significant level of psychological impacts than married (13% vs 6%, $p < 0.01$) (Elhessewi et al., 2021). A study done among Mexican nurses using the same scale (K10) indicated that nurses with more than two children were more prone to psychological impacts than other nurses (Cortés-Álvarez & Vuelvas-Olmos). But in one of the literature reviews done among healthcare workers, the author indicated from different studies, both single and married were equally vulnerable to psychological impact (Stuijfzand et al., 2020). So the mixed result could be associated with the cultural difference between different countries with different nuances in the expression of the psychological outcomes, as findings discussed here were from other countries. Moreover, another reason could be the varying scale and methods used to evaluate and the scale of the pandemic severity.

A significant number of 88(66.2%) of respondents attended COVID-19 related training before their deployment at COVID-19 hospitals, and nearly 80% of the nurses deployed were regular in-service 106(79.7%). These results contradict the previous studies finding that nurses who attended training related to COVID-19 and regular in services had a lower level of fear impacting their psychological well-being (Labrague & de Los Santos, 2020). Previous studies showed better the nurses' knowledge about the infection, the more confidence they have in taking care of the patient, and the lesser psychological impact they suffer (Zhang et al., 2020). So in this study most of the nurse had high level of knowledge about COVID-19 ($\bar{x}$ = 9.66, *SD* = 2.35), and more than half 88(66.2%) of the nurses attended COVID-19 related

training prior joining the duty, this could be the reason for the moderate level of psychological impact. In previous studies, nurses with adequate knowledge, training related to COVID-19, and accurate updates from the relevant sources made nurses experience lesser levels of psychological impacts (Janeway, 2020) Stuijfzand et al., 2020).

The reason could be, though an adequate number of the respondents had attended training related to COVID-19, the shorter duration of the training and deployment might have provided lesser time for preparation physically and psychologically. Another reason could be the severity level of such a pandemic, this present generation of Bhutanese nurses had never experienced, and increasing reports of severe fatality from other countries might have affected their psychological wellbeing. Moreover, findings from previous studies, the nurse was prone to an increased level of psychological impact, as they are assigned to a new environment. Increasing caseloads due to pandemic from every aspect of a unique situation or environment like a new place of work, isolation of family, fear of discrimination, mandatory quarantine, concern for patients and fear of getting infected from workplace could be the reason for moderate to the high level of psychological impact among nurses at COVID-19 designated hospitals. Nurses working with COVID-19 patients experienced higher levels of stress as they face overwork and uncertainty about the future (Zerbini et al., 2020). The transactional model Lazarus and Folkman used for this study also support the concept of situational factors, personal factors, appraisals, coping, and the outcome can be a stressor to cause psychological imbalance.

Regarding the regular nurse and temporary or contract nurse, a study done among Indonesian nurses showed that contract nurses were 3.8 times riskier to suffer from psychological impacts than regular nurses (Fathiariani & Nassimbwa, 2021). In a study done in France, depression symptoms were more observed in regular nurses than reinforced or part time nurses (Altmayer et al., 2020). Another study done among the nurses indicated that part-time nurses exhibited a higher level of fear than regular nurses, subsequently affecting psychological well-being (Labrague & de Los Santos, 2020). The regular nurse indicating a more elevated level of psychological impact could be possibly due to the burden of the work. Apart from the routine work, they

were responsible for training and guiding the contract or part time nurses. Another reason could be the accountability of the work solely on the regular nurse, so this could be a burden for them. The reason for the contract or part time nurse to exhibit a higher level of psychological impact could be due to their limited advantages in service like less payment, limited career development, uncertain job security and lack of pension after retirement. The mixed result could be the different treatment of the employees in other countries and the nature of job descriptions. However, another reason could be the scale and methods used in the study.

The second aim of this study's purpose was to examine predictors of psychological impact. According to the multiple regression model, the selected factors examined in this study could explain 15.3% of variance in psychological impact ($F_{4, 128} = 6.95$, $p = < .05$). The results from this study showed workload perception as a significant predictor of the psychological impact among nurses, which is consistent with the previous study conducted by Greenglass, Burke, and Fiksenbaum (2001). During such a pandemic, the nurse's perception about the work increases, as they assume the new place or situation will be more strenuous than a regular job. Many factors contribute to the nurse's workload perception during such pandemics, like longer duration of work, multitasking jobs, the new place of work with limited orientation, and unfamiliar faces. The role of the nurse increases during such pandemic. Apart from regular work, they will be held responsible for specialized functions, like counselling patients and providing humanistic care in the absence of family members. So these roles become more of a burden than their usual routine work, which could increase their workload significantly, thus negatively affecting psychological well-being. During such pandemics, nurses are assigned new roles and are compelled to work beyond their regular or usual nursing role. Increased workload perception was identified as the most distressing parts of the job. A study done among Bhutanese nurses indicated high levels of workload perception (Cheki, Cheki, & Wacharasin, 2021; Norbu, 2010). Though the length of the duty or hours of the duty was the same as regular duty, nurses perceived the work at the COVID-19 designated hospital might be more. They assume, donning and doffing PPEs, training and guiding the new or contract nurses, and mandatory quarantine after the duty as additional workload which directly or indirectly affects their psychological well-being

negatively. Negative psychological wellbeing among the nurses can reduce their performance affecting the quality of the care. Another reason could be the shortages of nurses, increasing cases of COVID-19, unavailability of treatment regime, shortage of vaccines and evolution of new variants makes nurses perceive the more workload.

From this study the factors that did not significantly predict psychological impact included fear of COVID-19, religiosity and perceived organisational support. Possible reasons could be explained as follows. In this study, fear of COVID-19 has positive significant correlation with psychological impact, but did not significantly predicted psychological impact (β = .14, p < .09), which is consistent (β = .46, p < .001) with previous study (Labrague & de Los Santos, 2020). Even though, fear is an intense emotion occurred in response to threat. Nevertheless, fear is somehow serves as an adaptive emotion that alerts the person to face a potential threat. An excessive level of fear can have a negative impact on an individual psychologically, whereas some amount of fear can trigger safety behaviour (wearing a mask to avoid fines, washing hands to prevent infection). A study suggested that the primary source of psychological impact in the nurses during the COVID-19 pandemic was fear of getting infected or infecting others, resulting in increased job dissatisfaction, fear of COVID-19 predicting a psychological impact among the nurses was significant in the present and previous outbreaks (Surrati, Mansuri, & Alihabi, 2020). An Indian study showed fear of COVID-19, not only associated with infecting self or others, but it is also associated with quarantine, inadequate PPEs, no or insufficient training and increasing workload, similar results were reported from previous studies (Parthasarathy, Jaisoorya, Thennarasu, & Murthy, 2021).

A family pattern, living with the elderly or with children, is one factor that increases the fear leading to psychological distress. This study result has more singles and married too, but most of them without a child; this could be the reason for less fear of the COVID-19, not predicting the psychological impact. A study done among the Filipino nurses indicated that nurses with inadequate training related to COVID-19, part time or contract nurses, and inadequate knowledge about COVID-19 made nurses exhibit more fear of COVID-19 and significantly predicted psychological impacts among the Filipino nurses (Labrague & de Los Santos, 2020). Same study highlighted that nurses trained in COVID-19 management reported lesser

levels of apprehensions and better psychological well-being. However, results from this study indicated that fear of COVID-19 is not a significant predictor of psychological impact. The reason could be, as most of the respondents from this study had attended training related to COVID-19 before deployment; most of them are regular in-service, and the majority posed with a high level of knowledge of COVID-19, making them less likely to fear COVID-19. In addition, the COVID-19 Hospitals were well supplied PPEs or hospital resources, and adequate numbers of staffs were posted, these could also be the reason for lesser fear and not predicting the psychological impact.

Another study done among the general populations in Australia, China, Italy, and the USA indicated that female, young and middle age groups feared more about COVID-19 than males, demonstrating a psychological impact among them (Rahman et al., 2020). The reason could be the higher percentage of females in the sample, dual responsibilities of females (working at home and workplace), the young and middle-aged individuals carrying more fear of COVID-19 could be associated with the increased use of social media and following harmful sources during such pandemics. Though this study had more young and middle-aged female nurse, results indicated a lesser level of fear of COVID-19, not defining COVID-19 as a significant predictor of psychological impact. Bhutanese nurses exhibiting a lesser (69%) level of COVID-91 could be related to their profession; being a nurse, they might have thought it as part of their job and accepted the situation. Another reason could be the lesser severity of the pandemic in Bhutan and the excellent flow of clinical management for the COVID-19 patients. The most important reason could be the trust of every nurse in the initiatives taken by the government like providing training, adequate supply of PPEs and resources, increased testing for COVID-19, taking all possible precautions to prevent the transmission and providing moral support.

Despite the most respondents from this study being highly religious, religiosity was not a significant predictor of the psychological impact, however it has a significant correlation with psychological impact. The components of the religion generally include religious beliefs, religious practices and experiences related to religion. Each component may act as buffering or exacerbating source of the psychological morbidity. The scale used in this study includes similar the

components, the effect of the religiosity on the psychological health of an individual in the time of such pandemic could be difficult to interpret as religion as source will always not act as buffer, but may also act as source of stress (Szałachowski & Tuszyńska-Bogucka, 2021). Religion plays a vital role in almost every human being, and everyone uses it as a protective factor to cope during times of stress. Around the world, religiosity is regarded as a mental health resource used to mitigate psychological distress and promote psychological well-being. Moreover, it provides a source of attitude and cognitions used to reframe adverse events into a less stressful frame (Pirutinsky, Cherniak, & Rosmarin, 2020). A study from Greece among the nurses, contrary with this study's result, found that religious practices can be a protective factor to minimize the psychological impacts during hard times and indicated religiosity as a predictor for nurse's psychological distress (Fradelos et al., 2020). Another study done among the students (medical and non-medical) has indicated a similar finding, religiosity ($\beta = .19$, $p < .05$) is a significant predictor of a psychological impact (Saleem & Saleem, 2017). A study done in Portugal showed that healthcare workers practicing positive religion were less vulnerable to the psychological effects and led to a good quality of life (Prazeres et al., 2021). A study supports these findings, a positive association between religiosity and mental health, a better quality of life, lower risk of anxiety, suicidal tendencies, substance abuse, and better cognitive functioning (Malinakova, Tavel, Meier, van Dijk, & Reijneveld, 2020.

Perceived organizational support is also not a significant predictor of the psychological impact but positively correlated ($r = -.19$, $p < .01$). Though the uncertainty of COVID-19 pandemic is increasing every day, and a huge surge of fatality reported across the world, has burdened the nurses' and frontline workers, but still Bhutan has not experienced a huge impact of the pandemic. Moreover, the government has adequately supplied all necessary PPEs, other essential resources and a maximum number of nurses are trained to combat the surge of infection. These all could be the reasons, where Bhutanese nurses working at COVID-19 designated hospitals might have perceived positive organizational support, hence perceived organizational support not predicting psychological impact in this study.

Perceived organizational support is defined as employees' perception that organization values his or her contributions in organization or gets support from the organization. If the employees perceive the support from the organization, they will be motivated to perform better to provide quality care, hence it will make employees less vulnerable to the psychological impacts also (Eisenberger et al. 1986). The perception of nurses about the organizational support acts as his or her personal positive resources, which in return decreases the vulnerability of psychological impact.

As the transitional theory used in this study defines personal factors if positive can enhance the resilience or coping mechanism to reduce the impacts of the stressors. The psychological impacts on the employees can be an unintended result of action influenced by constraints related to resources provided by the organization. Constraints can be associated with stressors that may affect an individual's adaptability at work and cause a psychological disturbance. Therefore, support from the organization during such pandemics will motivate the nurse to be more resilient which subsequently provides them positive psychological wellbeing. The working environment and health infrastructure at any organization are directly or indirectly associated with the psychological health of the workers. In the previous studies from many countries during the initial phase of the COVID-19 pandemic, there were shortages of PPEs, no definite clarity on instructions and guidance, shortage of staffs, lots of untrained staff and disrupted feedback, which made many nurses dissatisfied with the job, experiencing a higher level of psychological impacts and compromising the quality of care (Rana H Almaghrabi, Huda, Al, & Albaadani, 2020) (Nie, Su, Zhang, Guan, & Li, 2020; Wu et al., 2020).

Strength and limitations

The strengths of this study included nurses from all four COVID-19 designated hospitals in Bhutan. In addition, the high response rate (100%) allowed for a more generalizable interpretation of the findings. This predictive correlational study was the first study of its kind in Bhutan, and also the study was conducted during this pandemic. This study could benefit nurses and other frontline healthcare workers during the present and future pandemics.

In this study, some limitations could be considered. First, the limitation of this study could be the fluctuating impact of the pandemic, and the prevalence of psychological impact in the present study might be underestimated due to the reporting of more new variants and increasing cases. Second, as this study is based on participants' self-reported data, results might be over or underestimated due to the uncertain impact of this pandemic.

Implication of this study

This result highlighted that the nurses have experienced moderate to a high level of psychological impact. It was affected by various factors that can be modified, enhanced, and strengthened to promote the nurses' psychological well-being. The findings from this study will also benefit the nurses and other health care workers during such pandemics in the future. Identifying the factors affecting the level of psychological impacts can help create a safer working environment for the nurses during similar situations and prevent nurses from psychological morbidity in the future.

Results from this study, indicated the perceived workload as only significant predictor of psychological impact. Thus reducing the workload, by addressing nurse's shortages and relevant trainings among the nurses could lessen the vulnerability of experiencing psychological impacts. It will be also easier for policymakers and nursing administrators to effectively plan crisis interventions to support the nurses' psychological health and sustain a well-trained nursing workforce, especially during such pandemics. Strengthening the nurses' psychological well-being can be an asset to fight such pandemics in the future by systematically improving preparedness. In addition, results can be a valuable reference while developing standard operating procedures and guidelines for nurses in such public health emergencies. The findings from this study can also provide basic information on offering immediate crisis interventions for affected nurses and reduced post-pandemic psychological traumas. Moreover, the result from this study could be used by the researchers for further studies.

Recommendation

The results from this study, only workload perception predicted psychological impact. The relevant organizations or policymakers need to liaise with a nursing body to institute regular nursing interventions to reduce psychological impact among nurses and other healthcare workers. Nurses working with COVID-19 patients should undergo psychological evaluations. Nurses affected by psychological impact during such present and future pandemics could reduce their professional performance compromising the quality of the care, and should be addressed urgently. Hence, organizations need to provide psychological counselling and interventions early to avoid psychological impact during such pandemics.

This study was done among the nurses deployed during the initial phase of the COVID-19 crisis, and the results might be under or over estimated. So we would like to suggest future research on the psychological impact among the nurses to examine the long-term effects of this crisis on the nurses' psychological well-being so that the psychological well-being of the nurse could be protected and avoid or minimize psychological morbidities. Policy makers and nursing administrators can use the findings from this study plan intervention to mitigate the psychological morbidities among nurses required for combating the similar pandemic.

REFERENCES

Ahorsu, D. K., Lin, C.-Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: development and initial validation. *International journal of mental health and addiction, 9*(2), 1-9 https://doi.org/10.1007/s11469-020-00270-8

Al-Ahmadi, H. (2009). Factors affecting performance of hospital nurses in Riyadh Region, Saudi Arabia. *International Journal of Health Care Quality Assurance, 22,* 40-54.

Aldohyan, M., Al-Rawashdeh, N., Sakr, F. M., Rahman, S., Alfarhan, A. I., & Salam, M. (2019). The perceived effectiveness of MERS-CoV educational programs and knowledge transfer among primary healthcare workers: a cross-sectional survey. *BMC infectious diseases, 19*(1), 273.

Almaghrabi, R. H., Alfaraidi, H. A., Al Hebshi, W. A., & Albaadani, M. M. (2020). Healthcare workers experience in dealing with Coronavirus (COVID-19) pandemic. *Saudi Med J, 41*(6), 657-660. doi:10.15537/smj.2020.6.25101

Almaghrabi, R. H., Huda, A., Al, H. W. A., & Albaadani, M. M. (2020). Healthcare workers experience in dealing with Coronavirus (COVID-19) pandemic. *Saudi medical journal, 41*(6), 657-660.

Altmayer, V., Weiss, N., Cao, A., Marois, C., Demeret, S., Rohaut, B., & Le Guennec, L. (2020). COVID-19 crisis in Paris: a differential psychological impact between ICU regular staff and reinforcement. *Australian Critical Care, 34*(2), 142-145.

Arslan Yurumezoglu, H., & Kocaman, G. (2016). Predictors of nurses' intentions to leave the organisation and the profession in Turkey. *Journal of Nursing Management, 24*(2), 235-243.

Arvidsdotter, T., Marklund, B., Kylén, S., Taft, C., & Ekman, I. (2016). Understanding persons with psychological distress in primary health care. *Scandinavian Journal of Caring Sciences, 30*(4), 687-694. doi:10.1111/scs.12289

Braquehais, M. D., Vargas-Caceres, S., Gomez-Duran, E., Nieva, G., Valero, S., Casas, M., & Bruguera, E. (2020). The impact of the COVID-19 pandemic on the mental health of healthcare professionals. *QJM*. doi:10.1093/qjmed/hcaa207

Cheki, T., Cheki, T., & Wacharasin, C. (2021). *Factors influencing workplace violence as percieved by nurses in Bhutan.* Chonburi: Burapha University.

Chen, H., Sun, L., Du, Z., Zhao, L., & Wang, L. (2020). A cross-sectional study of mental health status and self-psychological adjustment in nurses who supported Wuhan for fighting against the COVID-19. *Journal of Clinical Nursing, 29*(21-22), 4161-4170.

Coombs, T. (2007). Information paper: Use of the Kessler psychological distress scale in ABS health surveys. Canberra: Australian Bureau of Statistics,

Cortés-Álvarez, N. Y., Pineiro-Lamas, R., & Vuelvas-Olmos, C. R. (2020). Psychological effects and associated factors of COVID-19 in a Mexican sample. *Disaster medicine and public health preparedness, 14*(3), 413-424.

Dorji, T., & Melgaard, B. (2012). *Medical history of Bhutan: Chronicle of health and disease from bon times to today*. Thimphu Centre for Research Initiatives.

Drapeau, A., Marchand, A., & Beaulieu-Prévost, D. (2012). Epidemiology of psychological distress. *Mental illnesses-understanding, prediction and control, 69*, 105-106.

Eisenberger, R., Hungtington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*, 500-507.

Elhessewi, G. M. S., Almoayad, F., Mahboub, S., Alhashem, A. M., & Fiala, L. (2021). Psychological distress and its risk factors during COVID-19 pandemic in Saudi Arabia: a cross-sectional study. *Middle East Current Psychiatry, 28*(1), 1-7.

Eriksen, W., Tambs, K., & Knardahl, S. (2006). Work factors and psychological distress in nurses' aides: a prospective cohort study. *BMC Public Health, 6*(1), 290. doi:10.1186/1471-2458-6-290

Eysenck, H. J. (1985). Stress, appraisal, and coping: R.S. Lazarus and S. Folkman: Springer, New York (1984). 445 pages. $31.95. *Behaviour Research and Therapy, 23*(6), 714-715. doi:https://doi.org/10.1016/0005-7967(85)90087-7

Fathiariani, L., & Nassimbwa, J. (2021). Investigating the burden of mental distress among nurses at a provincial COVID-19 referral hospital in Indonesia: a cross-sectional study. *BMC nursing, 20*(1), 1-8.

Fradelos, E. C., Alikari, V., Vus, V., Papathanasiou, I. V., Tsaras, K., Tzavella, F., & Lekka, D. (2020). Assessment of the relation between religiosity, anxiety, depression and psychological resilience in nursing staff. *Health Psychology Research, 8*(1), 30-34.

Fradelos, E. C., Papathanasiou, I. V., Kourakos, M., Zyga, S., Tzavella, F., & Tsaras, K. (2017). Religiosity in nursing: The translation, validation and cultural adoption of the centrality of religiosity scale–10 in Greek language. *Likars'ka sprava, 7*, 180-187.

Gadalla, T. M. (2009). Determinants, correlates and mediators of psychological distress: A longitudinal study. *Social Science & Medicine, 68*(12), 2199-2205.

Galehdar, N., Kamran, A., Toulabi, T., & Heydari, H. (2020). Exploring nurses' experiences of psychological distress during care of patients with COVID-19: a qualitative study. *BMC Psychiatry, 20*(1), N.PAG-N.PAG. doi:10.1186/s12888-020-02898-1

González-Padilla, D. A., & Tortolero-Blanco, L. (2020). Social media influence in the COVID-19 pandemic. *International Brazilian Journal of Urology, 46*, 120-124.

Greenglass, E. R., Burke, R. J., & Fiksenbaum, L. (2001). Workload and burnout in nurses. *Journal of community & applied social psychology, 11*(3), 211-215.

Gust, D. A., Gvetadze, R., Furtado, M., Makanga, M., Akelo, V., Ondenge, K., & McLellan-Lemal, E. (2017). Factors associated with psychological distress among young women in Kisumu, Kenya. *International Journal of Women's Health, 9*, 255.

Hong, S., Ai, M., Xu, X., Wang, W., Chen, J., Zhang, Q., & Kuang, L. (2020). Immediate psychological impact on nurses working at 42 government-designated hospitals during COVID-19 outbreak in China: A cross-sectional study. *Nursing Outlook, 24*, 6-12. doi:https://doi.org/10.1016/j.outlook.2020.07.007

Huang, H., Zhao, W.-J., & Li, G.-R. (2020). Knowledge and psychological stress related to COVID-19 among nursing staff in a hospital in China: Cross-sectional survey study. *JMIR Form Res, 4*(9), e20606. doi:10.2196/20606

Huber, S., & Huber, O. W. (2012). The centrality of religiosity scale (CRS). *Religions, 3*(3), 710-724. doi:10.3390/rel3030710

Huber, S., & Huber, O. W. (2012). The centrality of religiosity scale (CRS). *Religions, 3*(3), 710-724.

Jackson, D., Bradbury-Jones, C., Baptiste, D., Gelling, L., Morin, K. H., Neville, S., & Smith, G. D. (2020). International nurses day 2020: Remembering nurses who have died in the COVID-19 pandemic. *Journal of Clinical Nursing (John Wiley & Sons, Inc.), 29*(13/14), 2050-2052. doi:10.1111/jocn.15315

Janeway, D. (2020). The role of psychiatry in treating burnout among nurses during the Covid-19 pandemic. *Journal of Radiology Nursing, 39*(3), 176-178. doi:https://doi.org/10.1016/j.jradnu.2020.06.004

Jin, Z., Luo, L., Lei, X., Zhou, W., Wang, Z., Yi, L., & Liu, N. (2020). *Knowledge, attitude, and practice of nurses towards the prevention and control of COVID-19*. Retrieved from https://www.researchgate.net/publication/343174103_Knowledge_Attitude_and_Practice_of_Nurses_Towards_the_Prevention_and_Control_of_COVID-19

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological medicine, 32*(6), 959-976.

Labrague, L. J., & De los Santos, J. (2020). Fear of Covid-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management, 29*(3), 395-403.

Labrague, L. J., McEnroe Petitte, D. M., Leocadio, M. C., Van Bogaert, P., & Tsaras, K. (2018). Perceptions of organizational support and its impact on nurses' job outcomes. *Nursing Forum, 53*(3), 339-347.

Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), *The handbook of behavioral medicine* (pp. 282-325). New York: Guilford.

Lucchini, A., Iozzo, P., & Bambi, S. (2020). Nursing workload in the COVID-19 era. *Intensive & critical care nursing, 61*, 102929-102929. doi:10.1016/j.iccn.2020.102929

Malinakova, K., Tavel, P., Meier, Z., van Dijk, J. P., & Reijneveld, S. A. (2020). Religiosity and mental health: A contribution to understanding the heterogeneity of research findings. *International Journal of Environmental Research and Public Health, 17*(2), 494.

Marchand, A., Demers, A., & Durand, P. (2005). Does work really cause distress? The contribution of occupational structure and work organization to the experience of psychological distress. *Social Science & Medicine, 61*(1), 1-14. doi:https://doi.org/10.1016/j.socscimed.2004.11.037

McKenzie, S. H., & Harris, M. F. (2013). Understanding the relationship between stress, distress and healthy lifestyle behaviour: a qualitative study of patients and general practitioners. *BMC Family Practice, 14*, 166-166. doi:10.1186/1471-2296-14-166

Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders, 74*, 102258. doi:10.1016/j.janxdis.2020.102258

Ministry of Health. (2020). *Annual health bulletin 2020*. Retrieved from http://www.moh.gov.bt/wp-content/uploads/ict-files/2017/06/health-bulletin-Website_Final.pdf

Ministry of Health. (2021). *National situational update On COVID-19*. Retrieved from http://43.230.208.13/

Miranda, F. B. G., Yamamura, M., Pereira, S. S., Pereira, C. D. S., Protti-Zanatta, S. T., Costa, M. K., & Zerbetto, S. R. (2021). Psychological distress among nursing professionals during the COVID-19 pandemic: Scoping Review. *Escola Anna Nery, 25*.

Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., & Huang, H. (2020). Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *Journal of Nursing Management, 28*(5), 1002-1009,2020.

Musil, C. M., Warner, C. B., Yobas, P. K., & Jones, S. L. (2002). A comparison of imputation techniques for handling missing data. *Western Journal of Nursing Research, 24*(7), 815-829.

Nie, A., Su, X., Zhang, S., Guan, W., & Li, J. (2020). Psychological impact of COVID-19 outbreak on frontline nurses: A cross-sectional survey study. *Journal of Clinical Nursing, 29*(21-22), 4217-4226.

Norbu, P. (2010). *Nurse staffing workload, supervisory social support and job satisfaction of nursing staffs in Bhutan.* Masters Thesis, Faculty of Nursing, Burapha University.

Nurses, I. C. O. (2020). *ICN COVID-19.* Retrieved from https://www.icn.ch/

Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus disease-2019: knowledge, attitude, and practices of health care workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in public health, 8*, 181.

Park, J.-S., Lee, E.-H., Park, N.-R., & Choi, Y. H. (2018). Mental health of nurses working at a government-designated hospital during a MERS-CoV outbreak: a cross-sectional study. *Archives of Psychiatric Nursing, 32*(1), 2-6.

Parthasarathy, R., Jaisoorya, T., Thennarasu, K., & Murthy, P. (2021). Mental health issues among health care workers during the COVID-19 pandemic-a study from India. *Asian Journal of Psychiatry, 58*, 102626.

Pereira, A., Oliveira, C. A., Bártolo, A., Monteiro, S., Vagos, P., & Jardim, J. (2019). Reliability and factor structure of the 10-item Kessler Psychological Distress Scale (K10) among Portuguese adults. *Ciencia & saude coletiva, 24*, 729-736.

Pirutinsky, S., Cherniak, A. D., & Rosmarin, D. H. (2020). COVID-19, mental health, and religious coping among American Orthodox Jews. *Journal of religion and health, 59*(5), 2288-2301.

Prazeres, F., Passos, L., Simões, J. A., Simões, P., Martins, C., & Teixeira, A. (2021). COVID-19-Related Fear and Anxiety: Spiritual-Religious Coping in Healthcare Workers in Portugal. *International Journal of Environmental Research and Public Health, 18*(1), 220.

Rahman, M. A., Hoque, N., Alif, S. M., Salehin, M., Islam, S. M. S., Banik, B., . . . Cross, W. (2020). Factors associated with psychological distress, fear and coping strategies during the COVID-19 pandemic in Australia. *Globalization and Health, 16*(1), 1-15.

Ransom, H., & Olsson, J. M. (2017). Allocation of Health Care Resources: Principles for Decision-making. *Pediatrics in Review, 38*(7), 320. doi:10.1542/pir.2016-0012

Reuben, R. C., Danladi, M. M., Saleh, D. A., & Ejembi, P. E. (2020). Knowledge, attitudes and practices towards COVID-19: an epidemiological survey in North-Central Nigeria. *Journal of community health, 7*, 1-14.

Saadeh, D., Sacre, H., Hallit, S., Farah, R., & Salameh, P. (2020). Knowledge, attitudes, and practices toward the coronavirus disease 2019 (COVID-19) among nurses in Lebanon. *Perspectives in Psychiatric Care, 1*(10), 1-10. doi:10.1111/ppc.12676

Said, R. M., & El-Shafei, D. A. (2020). Occupational stress, job satisfaction, and intent to leave: nurses working on front lines during COVID-19 pandemic in Zagazig City, Egypt. *Environmental Science and Pollution Research, 28*(7), 8791-8801. doi:10.1007/s11356-020-11235-8

Saleem, S., & Saleem, T. (2017). Role of religiosity in psychological well-being among medical and non-medical students. *Journal of Religion and Health, 56*(4), 1180-1190.

Sanders, J. A. C. A. L. (2019). *Introduction to Psychology*. Saskatoon, SK: University of Saskatchewan Open Press.

Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods* (4th ed.). Edinburgh Gate, Harlow: Pearson Education Limited.

Shahrour, G., & Dardas, L. A. (2020). Acute stress disorder, coping self-efficacy and subsequent psychological distress among nurses amid COVID-19. *Journal of Nursing Management (John Wiley & Sons, Inc.), 28*(7), 1686-1695. doi:10.1111/jonm.13124

Shang, Y., Pan, C., Yang, X., Zhong, M., Shang, X., Wu, Z., & Chen, D. (2020). Management of critically ill patients with COVID-19 in ICU: statement from front-line intensive care experts in Wuhan, China. *Ann Intensive Care, 10*(1), 73. doi:10.1186/s13613-020-00689-1

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), 200. doi:10.1186/s13054-020-02926-2

Shi, Y., Wang, J., Yang, Y., Wang, Z., Wang, G., Hashimoto, K., & Liu, H. (2020). Knowledge and attitudes of medical staff in Chinese psychiatric hospitals regarding COVID-19. *Brain Behav Immun Health, 4*, 100064. doi:10.1016/j.bbih.2020.100064

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology, 3*(4), 356.

Stelnicki, A. M., Carleton, R. N., & Reichert, C. (2020). *Nurses' mental health and well-being: COVID-19 impacts*. CA: Los Angeles: Sage.

Stuijfzand, S., Deforges, C., Sandoz, V., Sajin, C.-T., Jaques, C., Elmers, J., & Horsch, A. (2020). Psychological impact of an epidemic/pandemic on the mental health of healthcare professionals: a rapid review. *BMC Public Health, 20*(1), 1230. doi:10.1186/s12889-020-09322-z

Surrati, A. M. Q., Mansuri, F. M. A., & Alihabi, A. A. A. (2020). Psychological impact of the COVID-19 pandemic on health care workers. *Journal of Taibah University Medical Sciences, 15*(6), 536-543.

Szałachowski, R., & Tuszyńska-Bogucka, W. (2021). "Dies Irae?" The Role of Religiosity in Dealing with Psychological Problems Caused by The COVID-19 Pandemic—Studies on a Polish Sample. *Religions, 12*(4), 267.

Tam, C. C., Sun, S., Yang, X., Li, X., Zhou, Y., & Shen, Z. (2020). Psychological distress among HIV healthcare providers during the COVID-19 pandemic in China: Mediating roles of institutional support and resilience. *AIDS and Behavior, 25*(1), 9-17. doi:10.1007/s10461-020-03068-w

Thinley, S., Tshering, P., Wangmo, K., Wangchuk, N., Dorji, T., Tobgay, T., & Sharma, J. (2017). Rates and indications of caesarean section deliveries in Bhutan 2015–2019: a national review. *The Kingdom of Bhutan Health System Review, 21*(1), 1-11.

Wangchuk, P., Hengudomsub, P., & Chaimongkol, N. (2016). Relationships between Protective Factors and Mental Health of Adolescents in Mongar, Bhutan. *Thai Pharmaceutical and Health Science Journal*, *11*(2), 49-61.

WHO. (2020). *Coronavirus disease (COVID-19) pandemic, World Health Organisation*. Retrieved from https://www.who.int/

Wu, Y., Wang, J., Liu, J., Zheng, J., Liu, K., Baggs, J. G., & You, L. (2020). The impact of work environment on workplace violence, burnout and work attitudes for hospital nurses: A structural equation modelling analysis. *Journal of Nursing Management, 28*(3), 495-503.

Yangchen, S., Tobgay, T., & Melgaard, B. (2017). Bhutanese health and the health care system: past, present, and future. *The Druk Journal, 2*(1), 1-10.

Yıldırım, M., & Solmaz, F. (2020). COVID-19 burnout, COVID-19 stress and resilience: Initial psychometric properties of COVID-19 Burnout Scale. *Death Studies*, 1-9.

Zerbini, G., Ebigbo, A., Reicherts, P., Kunz, M., & Messman, H. (2020). Psychosocial burden of healthcare professionals in times of COVID-19–a survey conducted at the University Hospital Augsburg. *GMS German Medical Science, 18*.

Zhang, X., Jiang, Z., Yuan, X., Wang, Y., Huang, D., Hu, R., & Chen, F. (2020). Nurses reports of actual work hours and preferred work hours per shift among frontline nurses during coronavirus disease 2019 (COVID-19) epidemic: A cross-sectional survey. *Int J Nurs Stud*, 103635. doi:10.1016/j.ijnurstu.2020.103635

Zhao, F., Ahmed, F., & Faraz, N. A. (2020). Caring for the caregiver during COVID-19 outbreak: Does inclusive leadership improve psychological safety and curb psychological distress? A cross-sectional study. *Int J Nurs Stud, 110*, 103725. doi:10.1016/j.ijnurstu.2020.103725

Zhong, B.-L., Luo, W., Li, H.-M., Zhang, Q.-Q., Liu, X.-G., Li, W.-T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International journal of biological sciences, 16*(10), 1745.

APPENDIX

APPENDIX A

Questionnaires and scales

The Demographic Questionnaires

Directions: Please tick [✓] out your information in the given options below.

Gender

- ☐ Male
- ☐ Female

Age ……. years

Marital status

- ☐ Single
- ☐ Married
- ☐ Divorced
- ☐ Others

How many children do you have?

- ☐ None
- ☐ One
- ☐ Two
- ☐ 3 or more

Highest level of education

- ☐ Certificate
- ☐ Diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- Others (Specify)…….

Years in nursing profession ……. Years

Nature of appointment/deployment

- ☐ Mandatory
- ☐ Volunteer

Nature of employment

- ☐ Contract
- ☐ Regular

Attendance to COVID-19 training prior to deployment

- ☐ Yes
- ☐ No

Parent workplace

- ☐ Primary Health Centre
- ☐ District Hospital
- ☐ Referral hospital

Professional title in nursing

- ☐ Staff Nurse
- ☐ Clinical Nurse

What is your main source of clinical information in regards to COVID-19?

- ☐ Ministry of Health, Royal Government of Bhutan
- ☐ World Health Organization
- ☐ Social Media/Public news
- ☐ Health Care Professional/ Colleague

KNOWLEDGE OF COVID-19 QUESTIONNAIRE

Direction: The questionnaire is based on the COVID-19 in terms of the clinical presentations, transmission, prevention and control. Fill the statement by marking [✓] in the appropriate column

Sl. No	Questions	True	False	I don't know
1	Cough, fever, sore throat, runny nose, myalgia, diarrhea, loss of smell and loss of appetite are the main clinical symptoms of COVID-19.			
2	……..			
3	……..			
4	……..			
5	……..			
6	……..			
7	……..			
8	……..			
9	……..			
10	……..			
11	……..			
12	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days.			

Fear of COVID-19 Scale

Direction: Below is the list of statements on Fear of COVID-19. Please choose and mark the answer that you think is the correct one. Fill the statement by marking [✓] in the appropriate column

Sl.no	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1	You are most afraid of COVID-19					
2	……..					
3	……..					
4	……..					
5	……..					
6	……..					
7	Your heart races or palpitates when you think about getting COVID-19					

CENTRALITY OF RELIGIOSITY SCALE (CRS 10)

Direction: Please read each statement and respond which is most appropriate for you. Fill the statement by marking [✓] in the appropriate column.

Sl. No.	Statement	Never	Rarely	Occasionally	Often	Very often
		1	2	3	4	5
1	How often do you think about religious issues?					
2	……..					
3	……..					
4	……..					
5	……..					
6	……..					
7	……..					
8	……..					
9	……..					
10	How often do you experience situations in which you have the feeling that God or something divine wants to communicate or to reveal something to you?					

WORKLOAD PERCEPTION QUESTIONNAIRE

Note: This questionnaire is aimed to determine workload in the hospital as perceived by the nurses. There are statements of the situation or events. Please read each statement carefully, and determine the frequency with which you experience it by marking √ in the column that correspond to your perception**.**

	Statements	**Less than once per month**	**Once or twice per month**	**Once or twice per week**	**Once or twice per day**	**Several times per day.**
		1	**2**	**3**	**4**	**5**
1	How often does your job require you to work very fast?					
2	……..					
3	……..					
4	……..					
5	How often do you have to do more work than you can do well?					

Perceived Organizational Support Survey

Direction: Listed below are statements that represent possible opinions that **YOU** may have about working at COVID-19 Designated Hospital. Please indicate the degree of your agreement or disagreement with each statement by filling in the column on your answer sheet that best represents your point of view about the support provided by your organization during your posting at the COVID-19 designated hospital. Please choose from the following answers:

0	**1**	**2**	**3**	**4**	**5**	**6**
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Moderately Agree	Strongly Agree

Sl.no	**Statement**	**0**	**1**	**2**	**3**	**4**	**5**	**6**
1	The organization values your contribution to its well-being							
2	…….							
3	…….							
4	…….							
5	…….							
6	…….							
7	…….							
8	The organization takes pride in your accomplishments at work.							

Kessler Psychological Impact Scale (K10)

Direction: Below are the list of statement on psychological impact. Please choose and mark the answer that you think is the correct one. Fill the statement by marking [✓] in the appropriate column.

Sl.no	Statement	All of the time	Most of the time	Some of the time	A little of the time	None of the time
		5	4	3	2	1
1	In the past 4 weeks, about how often did you feel tired out for no good reason?					
2	…….					
3	…….					
4	…….					
5	…….					
6	…….					
7	…….					
8	…….					
9	…….					
10	In the past 4 weeks, about how often did you feel worthless?					

APPENDIX B

Permission to use instruments

1. Knowledge of COVID-19

from: **Ronald Olum** <olum.ronald@gmail.com>
to: Kinley Gyaltshen<kinleysonam09@gmail.com>
date: Feb 21, 2021, 10:38 AM
subject: Re: Permission to use Questionnaire

Dear Gyaltshen,
I hope you're well. I'm humbled that you found our tool of use to you. I hereby grant you permission to use the questionnaire on condition that it is cited appropriately in all your dissertations or manuscript or publication. In case of any inquiries, please do not hesitate to contact me.
Kind regards

Ronald Olum
Makerere University

2. **Fear of COVID-19 Scale**

from: **Griffiths, Mark** <mark.griffiths@ntu.ac.uk>

to: Kinley Gyaltshen<kinleysonam09@gmail.com>

date: Dec 23, 2020, 2:18 PM

subject: Re: seeking permission

No permission is needed to sue the scale Kinley because the scale is in the public domain. Good luck with your research

Dr Mark Griffiths
Distinguished Professor of Behavioural Addiction

Director, International Gaming Research Unit
Psychology Department, Nottingham Trent University
Burton Street, Nottingham, NG1 4FQ
Direct Telephone Line: 0115-8482401

3. Centrality of Religiosity Scale

from: **stefan.huber@theol.unibe.ch**
to: kinleysonam09@gmail.com
cc: stefan.huber@ager.unibe.ch
date: Jan 18, 2021, 12:54 PM

Dear Kinley

I give you the permission for using the Centrality of Religiosity Scale (CRS) in your study. Attached you find information – including items and scoring – about all versions of the CRS. If you have any questions, don't hesitate to contact me again.

I'm interested in the findings of your research. So, I would be glad, if you send me pdf's of your master thesis after you've finished it.

Kind regards,
Stefan
Prof. Dr. Stefan Huber
Director of the Institute for „Empirical Research on Religion"
University of Berne
Längassstr. 51
CH-3012 Berne
Switzerland
http://www.ier.unibe.ch/
http://www.ager.unibe.ch/en/index_en.html
https://scholar.google.com/citations?user=JfTqf-4AAAAJ

4. The Workload Perception Questionnaire

from: **Spector, Paul** <pspector@usf.edu>

to: Kinley Gyaltshen<kinleysonam09@gmail.com>

date: Jan 17, 2021, 8:56 PM

subject: RE: permission to use scale.

Dear Kinley:

You have my permission for noncommercial research/teaching use of any of my scales that are in the No Cost Assessments section of my website paulspector.com, including the QWI.

For additional assessment resources check out the assessment section of my website for organizational measures http://paulspector.com/scales/ and my companion site for general and mental health measures: https://www.stevenericspector.com/mental-health-assessment-archive/

Thank you for your interest in my scales, and good luck with your research.

Best,

Paul Spector, PhD
Courtesy Distinguished Professor Emeritus, School of Information Systems and Management
Distinguished Professor Emeritus, Department of Psychology
University of South Florida
Tampa, FL 33620
pspector@usf.edu
Website: http://paulspector.com/

5. **The Perceived Organizational Support scale**

from: **Glenn Malone** <glennpm2662@gmail.com>

to: Kinley Gyaltshen<kinleysonam09@gmail.com>

date: Mar 3, 2021, 6:51 PM

subject: Re: Request to Use POS

Hello Kinley,

You have my permission to use the questionnaire in your study. Good luck with your research!

Best,
Glenn P. Malone, PhD

6. Kessler psychological Distress Scale (K10)

from:	**Kessler, Ronald** <kessler@hcp.med.harvard.edu>
to:	Kinley Gyaltshen<kinleysonam09@gmail.com>
date:	Mar 2, 2021, 3:30 PM
subject:	Re: Permission to use the scale (K10)

You have my permission to use the K10 scale.

Ronald C. Kessler, Ph.D.
McNeil Family Professor
Department of Health Care Policy
Harvard Medical School
180 Longwood Avenue
Boston. MA, USA 02115-5899
617-432-3587 voice; 617-432-3588 fax
Kessler@hcp.med.harvard.edu

APPENDIX C

Participants information sheet and consent form

AF 06-02

เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย
(Participant Information Sheet)

รหัสโครงการวิจัย : .....
(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง : **... Psychological impact and its affecting factors among nurses working at COVID-19 designated hospitals in Bhutan**

Dear participants

I am Mr. Kinley Gyaltshen, a master degree nursing student at Faculty of Nursing, Burapha University Thailand. My study is "Psychological impact and its affecting factors among nurses working at COVID-19 designated hospitals in Bhutan".The objectives are:

1. To examine the level of psychological impact among nurses working at COVID-19 designated hospital in Bhutan

2. To examine the prediction relationship between different factors and nurses' psychological impact working at COVID-19 designated hospital in Bhutan

This study will be a survey study. Participating in this study is voluntary. If you agree to participate in this study, you will be asked to answer the following questionnaires, which will take approximately 20-30 minutes. During the data collection period, the research assisstant will clarify any questions posed by the participants for clarity regarding the language or content. You will not get any direct benefits by participating in this study. However, the information collected from this study may be valuable in developing Standard operating procedures, guidelines and mental health interventions which can help the nurses' psychological wellbeing for present and future pandemics. There will be no identified physical and psychological risk to the person participating in the study and no risk to the society.

You have the right to end your participation in this study at any time, and no necessary to inform the research assistant, and it will not affect the quality of services you receive from the organisation. Any information collected from this study, including your identity, will be kept confidential. A coding number will be assigned to you and your name will not be used. Findings from the study will be presented as a group of participants and no specific information from any individual participant will be disclosed. All data will be accessible only to the researcher which will be destroyed one year after publishing the findings. You will receive a further explanation of the nature of the study upon its completion, if you wish.

The research will be conducted by Mr. Kinley Gyaltshen under the supervision of my major-advisor, Associate Professor Dr. Pornapt Hengudomsub. If you have any questions, please contact me at mobile number: + 0658529759 or by email kinelysonam09@gmail.com and/or my advisor's e-mail address pornpath@buu.ac.th. Or you may contact Burapha University Institutional Review Board (BUU-IRB) telephone number 038 102 620. Your cooperation is greatly appreciated. You will be given a copy of this consent form to keep.

Kinley Gyaltshen

AF 06-03.1

เอกสารแสดงความยินยอม
ของผู้เข้าร่วมโครงการวิจัย (Consent Form)

รหัสโครงการวิจัย : .....
(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง **Psychological impact and its affecting factors among nurses working at COVID-19 designated hospitals in Bhutan**

Date **of data collection ……Month……Year …….**

Before giving my signature below, I have been informed by researcher Mr. Kinley Gyaltshen about the purposes, method, procedures, benefits and possible risks associated with participation in this study thoroughly, and I understood all of the explanations. I consent voluntarily to participate in this study. I understand that I have the right to withdraw from the study any time, without any affects regarding the quality of services that I will receive from the hospitals.

The researcher Mr. Kinley Gyaltshen has explained to me that all data and information of the participants will be kept confidential and only be used for this study. I have read and understood the information related to participation in this study clearly and I am signing this consent form.

Signature ……..……..
Participant

Signature
…… Witness

APPENDIX D

Ethical approval letters

สำเนา

ที่ IRB3-030/2564

เอกสารรับรองผลการพิจารณาจริยธรรมการวิจัยในมนุษย์

มหาวิทยาลัยบูรพา

คณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยบูรพา ได้พิจารณาโครงการวิจัย

รหัสโครงการวิจัย : G-HS014/2564

โครงการวิจัยเรื่อง : Psychological impact and its affecting factors among nurses working at COVID-19 designated hospitals in Bhutan

หัวหน้าโครงการวิจัย : MR.KINLEY GYALTSHEN

หน่วยงานที่สังกัด : คณะพยาบาลศาสตร์

คณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยบูรพา ได้พิจารณาแล้วเห็นว่า โครงการวิจัยดังกล่าวเป็นไปตามหลักการของจริยธรรมการวิจัยในมนุษย์ โดยที่ผู้วิจัยเคารพสิทธิและศักดิ์ศรีในความเป็นมนุษย์ไม่มีการล่วงละเมิดสิทธิ สวัสดิภาพ และไม่ก่อให้เกิดภยันตรายแก่ตัวอย่างการวิจัยและผู้เข้าร่วมโครงการวิจัย

จึงเห็นสมควรให้ดำเนินการวิจัยในขอบข่ายของโครงการวิจัยที่เสนอได้ (ดูตามเอกสารตรวจสอบ)

๑. แบบเสนอเพื่อขอรับการพิจารณาจริยธรรมการวิจัยในมนุษย์	ฉบับที่ 1 วันที่ 9 เดือน เมษายน พ.ศ. 2564
๒. เอกสารโครงการวิจัยฉบับภาษาไทย	ฉบับที่ 1 วันที่ 9 เดือน เมษายน พ.ศ. 2564
๓. เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย	ฉบับที่ 1 วันที่ 9 เดือน เมษายน พ.ศ. 2564
๔. เอกสารแสดงความยินยอมของผู้เข้าร่วมโครงการวิจัย	ฉบับที่ 1 วันที่ 9 เดือน เมษายน พ.ศ. 2564
๕. เอกสารแสดงรายละเอียดเครื่องมือที่ใช้ในการวิจัยซึ่งผ่านการพิจารณาจากผู้ทรงคุณวุฒิแล้ว หรือชุดที่ใช้เก็บข้อมูลจริงจากผู้เข้าร่วมโครงการวิจัย	ฉบับที่ 1 วันที่ 9 เดือน เมษายน พ.ศ. 2564
๖. เอกสารอื่น ๆ (ถ้ามี)	ฉบับที่ ..-.... วันที่ ...-..... เดือน ...-..... พ.ศ. ..-.....

วันที่รับรอง : วันที่ ๙ เดือน เมษายน พ.ศ. ๒๕๖๔

วันที่หมดอายุ : วันที่ ๙ เดือน เมษายน พ.ศ. ๒๕๖๕

ลงนาม *นางสาววรมร แย้มประทุม*

(นางสาววรมร แย้มประทุม)

ประธานคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยบูรพา

ชุดที่ ๓ (กลุ่มคลินิก/ วิทยาศาสตร์สุขภาพ/ วิทยาศาสตร์และเทคโนโลยี)

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
RESEARCH ETHICS BOARD OF HEALTH
THIMPHU : BHUTAN
P.O. BOX : 726

Ref. No. REBH/Approval/2021/020 1st March 2021

REBH APPROVAL LETTER (valid through 28/02/2022)

PI: Mr. Kinley Gyaltshen **Institute:** Faculty of Nursing, Burapha University, Thailand	**Study Title:** Psychological impact and its affecting factors among nurses working at COVID-19 designated hospitals in Bhutan
Co-Investigator(s): 1. Dr. Pornpat Hengudomsub, and 2. Dr. Chintana Wacharasin, Faculty of Nursing, Burapha University, Thailand **Proponent of the study:** Individuals	
Mode of Review: Initial Review: ✔ *Expedited Review* Resubmission Review: ✔ *Expedited Review*	
Date of continuing review: *31/05/2021* *Note: Please submit continuing review report along with application form AF/01/015/05 at least seven days before the date of continuing review. If the study is completed, then please submit final report of the study.*	
List of document (s) approved: Protocol : Version No.2 Dated: 16th February, 2021 ICF/Information Sheet : Version No.2 Dated: 16th February, 2021 Tools (Questionnaire, etc) : Version No.2 Dated: 16th February, 2021	
Conditions for Approval: 1. *This approval is granted for the scientific and ethical soundness of the study. The PI shall be responsible to seek all other clearances/approvals required by law/policy including permission from the study sites before conducting the study.* 2. *Report serious adverse events to REBH within 10 working days after the incident and unexpected events should be included in the continuing review report or the final report.* 3. *No biological material shall be used for other research purpose beyond which is specified in this protocol.* 4. *Any new research study with stored biological material from this study will need a new approval from the REBH before study begins.* 5. *Any changes to the proposal or to the attachments (informed consent and research tools such as forms) shall be approved by REBH before implementation.* 6. *Final report of the study shall be submitted to REBH at the end of the study for review and protocol file closure.*	

(Dr Neyzang Wangmo)
Chairperson, REBH

For further information please contact: REBH secretary at rebhsecretary@gmail.com or
PABX: + 975-2-322602, 322351, 328091, 328092, 328093 (Extension 308) Fax: 324649

BIOGRAPHY

NAME	Kinley Gyaltshen
DATE OF BIRTH	11 April 1982
PLACE OF BIRTH	Thimphu, Bhutan
PRESENT ADDRESS	Thimphu, Bhutan
POSITION HELD	2005- 2006 - Clinical Nurse 2007- 2014 - Chief Nurse 2014 - Present - Lecturer
EDUCATION	1999-2003 Bachelor of Science (Nursing) JSS College of Nursing, Mysore (Rajiv Gandhi University of Health Sciences) Bangalore, Karnataka, India 2019-2021 Masters Nursing Science International Program Faculty of Nursing, Burapha University, Thailand