Psychological Impact and Its Affecting Factors Among Nurses Working in COVID-19 Designated Hospitals in Bhutan

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Abstract

The purpose of this study was to examine psychological impact and its affecting factors among the nurses working at COVID-19 designated hospitals in Bhutan. A predictive correlational design was used. The sample consisted of 133 nurses providing care for patients with COVID-19 in these hospitals using the simple random sampling technique. Self-reported questionnaires were used to collect data regarding nurses' demographic information, knowledge about Covid-19, fear of Covid-19, religiosity, workload perception, perceived organizational support and psychological impact. Data were analyzed using the descriptive statistics and standard multiple regression.

The results showed that this sample had a mean psychological impact score of 20.49 (SD = 6.07), and classified in a moderate level. Fear of COVID-19, religiosity, workload perception and perceived organizational support accounted for 15.3% of the variance in psychological impact. Only workload perception has significant effect on psychological impact (β = .28, p < .05). The study results will help to generate baseline data on the psychological impact occurred among these nurses. It can also be used to develop interventions to mitigate this psychological impact and support the work of nurses during such pandemics.

Key words: Nurses, COVID-19, religiosity, workload perception, psychological impact

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ผลกระทบด้านจิตใจและปัจจัยที่ส่งผลของพยาบาลที่ปฏิบัติงาน
ในโรงพยาบาลรักษาผู้ป่วยโควิด-19 ในประเทศภูฏาน

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บทคัดย่อ

  งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลกระทบด้านจิตใจและปัจจัยที่ส่งผลในพยาบาลที่ปฏิบัติงานโรงพยาบาลรักษา ผู้ป่วยโควิด-19 ประเทศภูฏาน เป็นการศึกษาแบบความสัมพันธ์เชิงทำนาย กลุ่มตัวอย่างคือพยาบาลที่ให้การดูผู้ป่วย โควิด-19 จำนวน 133 คน ด้วยวิธีการสุ่มตัวอย่างแบบง่าย เก็บข้อมูลโดยใช้แบบสอบถามเกี่ยวกับ ข้อมูลทั่วไป ความรู้ เกี่ยวกับโควิด-19 ความกลัวเกี่ยวกับโควิด-19 ความเลื่อมใสและปฏิบัติด้านศาสนา การรับรู้ภาระงาน การรับรู้การสนับสนุน จากหน่วยงาน และผลกระทบด้านจิตใจ วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนาและการวิเคราะห์การถดถอยพหุ

  ผลการวิจัยพบว่ากลุ่มตัวอย่างมีค่าเฉลี่ยผลกระทบด้านจิตใจเท่ากับ 20.49 (SD = 6.07) ซึ่งจัดอยู่ในระดับ ปานกลาง จากตัวแปรที่ศึกษาทั้งหมด พบว่ามีเพียงความรู้เกี่ยวกับโควิด-19 ที่สัมพันธ์กับผลกระทบด้านจิตใจอย่าง ไม่มีนัยสำคัญทางสถิติ ความกลัวเกี่ยวกับโควิด-19 ความเลื่อมใสและปฏิบัติด้านศาสนา การรับรู้ภาระงาน และการรับรู้ การสนันสนุนจากหน่วยงาน สามารถร่วมกันทำนายความแปรปรวนของผลกระทบด้านจิตใจได้ ร้อยละ 15.3 การรับรู้ ภาระงาน เท่านั้นที่มีอิทธิพลต่อผลกระทบด้านจิตใจอย่างมีนัยสำคัญทางสถิติ (β = .28, p < .05) ผลการวิจัยนี้ทำให้ ทราบถึงผลกระทบด้านจิตใจที่เกิดกับพยาบาล สามารถใช้เป็นข้อมูลพื้นฐาน ในการพัฒนารูปแบบการพยาบาลเพื่อบรรเทา ผลกระทบนี้และสนับสนุนการปฏิบัติงานของพยาบาลในสภาวะการระบาดของโควิด-19

คำสำคัญ: พยาบาล โควิด-19 ความรู้ ความกลัว ความเลื่อมใสและปฏิบัติด้านศาสนา การรับรู้ภาระงาน การสนันสนุน จากหน่วยงาน ผลกระทบด้านจิตใจ

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Introduction

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. As every country across the globe reported cases of COVID-19, by 6th March 2020, Bhutan also reported the first case. By the 20th September 2021, among 0.79 million populations, 2597 COVID-19 cases, and three deaths related to COVID-19 were confirmed nationwide (Ministry of Health, 2021).

The COVID-19 pandemic has ruined the economy of the world and posed a serious threat to both physical and mental health of the people. Health professionals are no exception. Most of 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, and studies showed that they suffered with anxiety and depression both during and after the outbreak (Braquehais et al., 2020). Nurses are the health professionals with maximum hours of patient contact, and therefore are at greater risk for health impacts. Studies showed that stress, exhaustion, and depressive mood were associated with nurses working with a patient with COVID-19, (Shi et al., 2020) and suicides were reported among nurses exposed to extreme incidents taking care of COVID-19 (Shen, Zou, Zhong, Yan, & Li, 2020).

Studies have reported that factors like knowledge of COVID-19, fear of COVID-19, religiosity, workload perception and perceived organization support has influenced the psychological impact of nurses. Knowledge of COVID-19 for nurses is an important component of their skill to manage such pandemic. 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., 2021). Nurses fear 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 also fear stigmatization and discrimination from the people when they return to the community. A recent study showed that fear related to COVID-19 has a positive correlation with psychological impact among nurses (Labrague & de Los Santos, 2020).

Bhutanese population are predominantly Buddhist, 90.2% of people in Bhutan practiced Buddhism. Religiosity has been associated with better psychological wellbeing and improved quality of life. A study showed that religiosity could predict a nurse's depression and anxiety (Fradelos et al., 2020). 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). Likewise, Workload was reported to be a significant stressor (Said & El-Shafei, 2021). Previous studies done in China showed that nurses with more workload were linked to psychological impact, poor quality of patient care, and negative attitudes like job dissatisfaction and intention of leaving job

(Wu et al., 2020).

Perceived 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.

To our knowledge, this is the first study conducted in Bhutan to assess the psychological impact on nurses during this pandemic. 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 manage their psychological well-being for the present and future pandemics.

Research Objectives

1. To examine psychological impact among nurses working at COVID-19 designated hospitals 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 hospitals in Bhutan.

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 depending 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 interact 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 behavioral problems (Yildirim & Solmaz, 2020).

Methods

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 participants

The sample included 133 nurses working in COVID-19 designated hospitals in Bhutan recruited using simple random sampling technique. Nurses who completed their prescribed duty at COVID-19 designated hospital and willing

to participate were included for this study.

The sample size for this study was determined by using the G* Power software. For this study, a power of 0.90 and effect size of 0.15 was used with significance level set at 0.05 (Park, Lee, Park, & Choi, 2018). G*Power software suggested a sample size of 116. However, 15% of the sample was added to substantiate for the possible missing data, thereby giving a total of 133 participants.

Research instruments

Demographic record form 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.

Knowledge of COVID-19 Questionnaire was used to measure knowledge (Zhong et al., 2020). It was based on the COVID-19 mode and route of transmission, treatment regime, signs and symptoms, etiology, management and prevention methods and complications. There are 12 questions with three options: "true"; "false" and "I don't know". Each correct response was scored 1, and 0 for incorrect and "I don't know" response. Higher score indicated higher level of knowledge of COVID-19. This questionnaire has Cronbach's alpha coefficient of .71 (Zhong et al., 2020). The Cronbach's alpha coefficient in this study was .72.

Fear of COVID-19 Scale was used to measure fear (Ahorsu et al., 2020) .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 scores were categorized as low (score 14-21) and high (score 22-35). The total score of this scale ranged from 7 to 35. Higher score indicated more fear of COVID-19. This scale has acceptable alpha (α) value of .82 (Ahorsu et al., 2020). The Cronbach's alpha coefficient in this study was .84.

The Centrality of Religiosity Scale [CRS10] was used to measure the religiosity (Huber & Huber, 2012). 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 were 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). Higher scores indicated more religiosity. The Cronbach's alpha coefficient in this study was .89.

Workload perception questionnaire was measured with the workload perception questionnaire (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: "less than once per month or never", "once or twice a month", "once or twice a week", "once or twice a day" and "several times per day". The responses were then added and divided by 5 to provide a mean score. A higher score indicated higher levels of workload. According to a previous study done in Bhutan, the Cronbach's coefficient for this scale has .86 (Norbu, 2010). The Cronbach's alpha coefficient in this study was .85.

The Perceived Organizational Support scale was used to measure organizational support. This scale contained 8 items with 5 points Likert

scale which included the numerical value ranging from 1 as strongly disagree to 5 as strongly agree. Higher score indicated higher level of perceived organizational support. The Cronbach's coefficient for this scale has .86 (Labrague, McEnroe Petitte, Leocadio, Van Bogaert, & Tsaras, 2018). The Cronbach's alpha coefficient in this study was .69.

Kessler Psychological distress scale [K10] was used to assess psychological impact. K10 consists of 10 items and 5 Likert type scales which include none, a little, sometimes, most of the time and all the time. All scores were 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). Higher score indicated higher level of psychological im-pact. The Cronbach's alpha value of this scale has .91 (Pereira et al., 2019). The Cronbach's alpha coefficient in this study was .87.

Data collection procedures

The study was approved by the Institutional Review Board [IRB] of Burapha University, Thailand (G-HS014/2564), and the Research Ethical Board the Ministry of Health [REBH], Bhutan (REBH/ Approval/2021/020). Participants meeting the inclusion criteria were recruited through simple random sampling technique. After obtaining permission from all the heads of the COVID-19 designated hospitals, all the volunteered participants were briefed on the objectives and the data collection procedures. Informed consent was taken before collecting the data. Each participant took about 40-60 minutes to complete the questionnaires.

Data analysis

Data were entered for analysis by the statistical software after data coding. The data were tested to fulfill the assumptions of multiple regression which included absence of outliers, normality of variables, linearity, homoscedasticity, no auto correlation and no multi-collinearity. Descriptive statistics like frequency, percentage, mean and standard deviation were used to describe the variables and demographic characteristics. The standard multiple regression was used to determine the predictors of psychological impact among the nurses working at COVID-19 designated hospitals.

Results

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). The majority were female (60.2%), more than half were single (51.1%) and majority had a diploma certificate (59.4%). The detail of the demographic characteristics is presented in Table 1.

Table 1 Characteristics of participants (n = 133)

Characteristics	Number (n)	Percentage (%)
Age		
20-25 years	34	25.60
26-30 years	59	44.40
31-35 years	28	21.00
36 years and above	12	9.00

Table 1 (Cont.)

Characteristics	Number (n)	Percentage (%)
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
Three 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		
< 1year	27	20.30
2- 5 years	62	46.70
6 -10 years	30	22.50
11 years and above	14	10.50
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	28.50
Referral Hospitals	92	69.20

Table 1 (Cont.)

Characteristics	Number (n)	Percentage (%)
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

Description of psychological impact

The score of psychological impact ranged from 10 to 50 with the mean score of 20.49 (SD = 6.07), classified in moderate level. The result showed that 21.05%, 40.60%, 38.35% and 7.52% of the respondents had low, moderate, high levels and very high of psychological impact respectively. The mean scores of the study variables are presented in Table 2.

Table 2 Mean and Standard Deviation [SD] of the Variables (n = 133)

Variables	Possible range	Actual range	$\bar{x}$	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

Factors predicting psychological impact

Knowledge of COVID-19 was not entered into the multiple regression model since it was not significantly correlated with the psychological impact. As presented in Table 3, results showed, fear of COVID-19, religiosity, workload perception and perceived organizational support together explained 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.

Table 3 The predicting factors of psychological impact (n=133)

Predicting variables	B	SE	β	t	p-value
Workload perception	.400	.117	.280	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, $p < .05$

Discussion

The study aimed to examine psychological impact and its affecting factors among the 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. The 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 and high levels respectively. This finding is consistent with previous studies where moderate to the high level of psychological impacts were reported among the nurses working with COVID-19 patients (Lee et al., 2020; Zerbini, Ebigbo, Reicherts, Kunz, & Messman, 2020). Reasons for moderate to high psychological impacts among nurses working at COVID-19 designated hospitals in this study could be related to gender and years of experience as it was found that 60.2% were females and 67% of these nurses have working experience less than 6 years. Previous study has shown that younger and less experienced nurses were prone to psychological impact compared to senior and experienced nurses (Miranda et al., 2021). Also, females were reported to experience a higher

level of psychological impacts (Cortés-Álvarez, Piñeiro-Lamas, & Vuelvas-Olmos, 2020).

Based on multiple regression model, fear of COVID-19, religiosity, workload perception and perceived organizational support combined could explain 15.3% of variance in psychological impact. For each factor effect, only workload perception from this study was the significant predictor of psychological impact among nurses at COVID-19 designated hospitals in Bhutan. 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). 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. Bhutan has a huge gap between patient and nurse ratio due to shortage of nurses, 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. Similar like nurses in every country, nurses in Bhutan provide similar care, but during such pandemic psychological care is also in greater need. The patients need more care and mental support unlike routine care. Furthermore, the parents and relatives of the Covid-19 patients were not allowed to visit them. Apart from regular work, nurses will be held responsible for specialized functions, like in-depth counselling patients and providing humanistic care in the absence of family members (Lucchini, Lozzo, & Bambi, 2020). 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. Increased workload perception was identified as the most distressing parts of the job. The reasons for other variables not predicting significantly could be due to the different situations of the present pandemics in different country. Participants might have focused more on the workload as the pressure on the nursing professions has been increasing in every country. Another possible reason could be the culture differences in interpreting the selected variables used in this study. Moreover, the severity of the pandemic was not as severe compared to our neighboring countries and adequate support from the government could have help to mitigate the impact, thus making the selected variables for this study a non-significant effect on psychological impact.

Limitations

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 solely on participants' self-reported data, incorporation of qualitative study to have better understanding towards psychological impact and its affecting factors among nurses working with Covid-19 is recommended.

Implication for Nursing

Healthy psychological wellbeing of nurses is an essential integral part in nursing care especially during pandemics. The findings of this study will aid the policy makers and administrators in framing interventions to mitigate psychological morbidities during pandemics. 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 information from this study will benefit the nurses and other health care workers during such pandemics in the future. It will also be 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.

Acknowledgements

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