

# Job-Related Stress of Nurses Serving Cancer Patients in a Specialized Hospital during COVID-19 Pandemic

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## INTRODUCTION/BACKGROUND

Work-life is crucial in human life. A person in a job faces many stimuli from internal and external environments and is thus affected by them positively or negatively [Maslach et al., 2003]. Stress can be generated in the face of negative stimuli. In contrast, positive Stimuli, in general, make individuals happy. [Maslach et al., 2001] Stress is an important part of life and necessary for coping with everyday challenges. Problems start to occur when the stress response is inappropriate to the size of the challenge. If not managed, stress levels result in high levels of employee stress dissatisfaction, illness, absenteeism, high turnover, decreased productivity, and, as a result, difficulty in providing quality service to clients. [Thomas et al., 2008] Nurses play a pivotal role in any health care institution and encompass the largest workforce of any health care institution; they act as direct caregivers who serve a hospital twenty-four hours a day, seven days a week. This gives nurses a unique perspective on both patient care and hospital operations [FDRE MOH et al., 2011]. Nursing is generally perceived as a demanding profession. Along with the increased demand and progress in the nursing profession, stress among nurses has also increased. The nursing profession follows a holistic approach, taking into account the person in totality in his or her environment. Nurses provide presence, comfort, help, and support for people confronted with loneliness, pain, incapacity, disease, and even death. The fact that nursing has been extensively and unfailingly recognized worldwide as a stressful job is, therefore, not surprising [Gulavani et al., 2014] Nurses, having an important role in the health care system, are considered to be members of a stressful job as a profession because they care for a stressful group comprising patients or those at health risk. The organizational structure of the health care system, improper working environment, critical patient care, working on a shift basis, and the process of becoming a professional can affect the level of stress in nurses. Therefore, it is suggested that nurses comprise the group that experiences the maximum stress among health professionals. [Stordeur et al., 2001]

**Justification /Rationale:** Job-related stress exists in every profession; nevertheless, the nursing profession appears to experience more stress at work compared to other healthcare workers. Unmanaged stress leads to high levels of employee dissatisfaction, illness, absenteeism, high turnover, and decreased productivity that compromise the provision of quality service to clients. However, there is a scarcity of information about nurses' job-related stress of nurses in serving cancer patients. This study will help to know the current stress level and make the nation aware of its importance in preventing and ultimately reducing morbidity and mortality related to job stress. It will also be helpful for the planning of strategies for the control of job-related stress and prevention of its complications. The main purpose of this study is to assess the factors associated with Job-Related Stress of Nurses Serving Cancer Patients in a Specialized Hospital during the COVID-19 Pandemic. Overall findings of the study will help the frontline nurses and policymakers focus on reducing job stress, thus improving the quality of work-life at the workplace.

**Research Question:** What are the factors associated with Job-Related Stress of Nurses Serving Cancer patients in a Specialized Hospital during the COVID-19 Pandemic?

**General Objectives:** To assess Job-Related Stress of Nurses Serving Cancer Patients in a Specialized Hospital during COVID-19 Pandemic

### **Specific Objectives:**

- i. To assess the socio-demographic characteristics of nurses working in the cancer unit.
- ii. To identify the factors of job-related stress in the COVID-19 pandemic.
- iii. To determine the level of job-related stress are respondents.

### **List of key Variables:**

Dependent Variable: Job-related stress level Independent Variable: Variables related to COVID-19 pandemic

- History of COVID-19 infection.
- Availability of PPE.
- Loss of family member due to COVID-19.
- Vaccination.

Variables related to the job-related stress level

- Workload.
- Conflict.
- Lack of support.
- Uncertainty regarding patient treatment.
- Dealing with death and critical patient.
- Organizational decisions.
- Inadequate preparation.
- Sexual harassment.

Variables related to socio-demographic characteristics:

- Age
- Sex
- Marital status
- Educational status
- Residence
- Family members
- Family type
- Number of children
- Monthly family income

## LITERATURE REVIEW

The study was designed to assess the level of stress of nurses working in cancer hospitals during the COVID-19 pandemic. For the search of the literature, a considerable number of research articles were reviewed. As well as libraries, especially the library of NIPSOM, and different websites, were used for the review of the relevant research studies. It helped to explore comprehensively the job-related stress of the nurses serving cancer patients in the specialized hospital the contents of the ongoing COVID-19 pandemic.

**Nursing as a job:** Nursing is a varied and respected profession. Nurses work in a variety of settings and specialties. They may choose to practice in hospitals, nursing homes, medical offices, ambulatory care, occupational health, and community health centers, schools, clinics, camps, and shelters. Nursing is a responsible and rewarding career, but it is not always easy. Developing skills such as management, listening skills, compassion, and inner strength can help nurses face the daily challenges of their chosen career path. [Wikipedia] It is no surprise that nursing can be a stressful profession. Up to 70% of nurses experience high stress during their careers. Job stress in nursing can lead to fatigue, anxiety, increased blood pressure, angry behaviors, and low job satisfaction. "Nursing is not an easy profession—it requires both physical and mental stamina to make it through those 14-hour shifts." If you love the work you are doing and believe in the impact it makes on every patient's life, you might find yourself thriving even in a whirlwind of activity. [Wikipedia] Nursing is a profession within the health care sector focused on the care of individuals, families, and communities so they may attain, maintain, or recover optimal health and quality of life. Nurses may be differentiated from other health care providers by their approach to patient care, training, and scope of practice. Nurses practice in many specialties with differing levels of prescription authority. Personal level Literature has identified an extensive relationship between stress and poor health outcomes among medical professionals; for example, extraordinary stress may be responsible for heart disease, headaches, asthma, peptic ulcers, lower back pain, and numerous other physical health issues. Occupational stress can also hurt nurses' mental health, such as anxiety and depression [Kinney et al .,2011].

**Job-related stress:** Stress is often described as a feeling of being overloaded, wound up tight, tense, and worried. It is a disruptive condition that occurs in response to adverse influences from the internal or external environments. Stress can be experienced from four basic sources: environment, social stressors, physiological factors, and thoughts. The working environment is one of the most important resources of occupational stress. Stress at work is one of the major psychosocial risks at work. Work-related stress is a problem and is of great concern to employees, employers, psychologists, and counselors. Nursing, by its nature, is a profession subjected to a high degree of stress. Occupational stress exists in all professions, but the nursing profession appears to experience more stress at work compared to other healthcare workers. Perceived stressful work increases the desire to leave the employer [Paille et al .,2010]. Job stress in the nursing profession has been a global problem, with rates of 9.20–68.0 % of nurses suffering from stress. The success in delivering quality patient care depends on the efficiency and motivation of the nursing personnel. Stress is an important part of life and is a necessary part of coping with everyday challenges. Problems start to occur when the stress response is inappropriate to the size of the challenge. If not managed, high-stress levels result in high levels of employee dissatisfaction, illness, absenteeism, high turnover, decreased productivity, and, as a result, difficulty in providing quality service to clients. Stress contributes to health problems in nurses and decreases their efficiency, imposing a direct economic cost on employers and a great impact on patients' care [Onasoga et al .,2013]. Job-related stress is a recognized problem in healthcare workers. Nursing has been identified as an occupation that has high levels of stress. [Burbeck et al.,2006] It was found that job stress brought about hazardous impacts on nurses' health and their abilities to cope with job demands. This seriously impairs the provision of quality care and the efficacy of health services delivery. [Lee et al .,2003] Nursing has been identified by several studies as a stressful occupation. Stress has a cost for individuals in terms of health, well-being, and job satisfaction, and for the organization in terms of absenteeism and turnover, which in turn may impact the quality of patient care. [Price et al.,1981] Most people can cope with stress for short periods, but Chronic stress produces prolonged changes in the physiological state. The issues of job stress, coping among nurses are of universal concern to all managers and administrators in the area of health care. All these stresses can be modified positively by the use of appropriate stress management skills. [Tehrani et al.,2008] The topic of work stress in nursing has been documented for more than 40 years (Lazarus et al., 1966) and reported to be increasing in many countries, such as South Africa (Khamisa, Oldenburg, Peltzer, & Ilic et al., 2015), China,

(Yau et al., 2012), India (Singh et al., 2013), and Middle East countries such as Saudi Arabia (SA) (Al-Makhaita, Sabra, & Hafez, 2014; Wazqar, Kerr, Regan, & Orchard Et al., 2017a). Work stress is the harmful physical and emotional reaction to a poor match between work overloads and the employee's abilities, resources, or needs (Lazarus & Folkman et al., 1984). Occupational stress, job stress, organizational stress, and work-related stress are used interchangeably. The nature of the nursing profession and the health care system are some of the contributors to work-related stress. Research findings have indicated that the sources of occupational stress, its levels, and effects vary depending on local factors such as the nature of work, work setting, and cultural orientation. Thus, occupational stress among nurses may have significant differences in different countries due to different work settings and levels of social support [Evans et al., 2002]. Therefore, identification of the sources and contributing factors to work-related stress is necessary for improving stress management programs in the organization. In Ethiopia, nurses have been playing a crucial role in the health care delivery system. However, there is limited research evidence regarding work-related stress among nurses, specifically in the study area. Therefore, this study aimed to assess work-related stress and associated factors among nurses working in governmental hospitals in Harar, Eastern Ethiopia. [French et al., 2000] Oncology nursing: An oncology nurse is a specialized nurse who cares for cancer patients. These nurses require advanced certifications and clinical experiences in oncology further than the typical baccalaureate nursing program provides. Oncology nursing care can be defined as meeting the various needs of oncology patients during the time of their disease, including appropriate screenings and other preventive practices, symptom management, care to retain as much normal functioning as possible, and supportive measures upon the end of life. [Ferrell et al., 2003] Oncology nurses, like any Registered Nurse, have a large variety of settings they can work. Oncology nurses can work in inpatient settings such as hospitals, outpatient settings, hospice services, or physician offices. There are a variety of specialties, such as radiation, surgery, pediatric, or gynecologic. Oncology nurses have advanced knowledge of assessing the client's status, and this assessment will help the multi-disciplinary medical team to develop a treatment plan. [American Nurses Association and the Oncology Nursing Society 2016]

**COVID-19 pandemic and its impact:** We know COVID-19 is a new disease, and there is limited information regarding risk factors for severe disease. Based on the currently available and clinical expertise, older adults and people of any age who have serious underlying medical conditions<sup>30</sup> might be at higher risk for severe illness from COVID-19. Emerging evidence supports the necessary acknowledgment of populations at higher risk for COVID-19, including adults over age 65, individuals with underlying conditions, including obesity, diabetes, hypertension, and those who are immunocompromised by diseases, including cancer and treatments that impair the immune system.<sup>31</sup> Although studies exploring the effects of COVID-19 on cancer care are so far very limited, it is surmised that people with cancer and cancer survivors may well be at higher risk for developing complications relating to COVID-19, including the need for intensive care, mechanical ventilation, and death. Moreover, to create new local COVID-19 services means that there is an ongoing re-shuffling of and re-allocating of resources (human and budget), which puts additional strain on existing services that were already at full capacity. Figures from China's National Health Commission demonstrated that more than 3,300 HCWs were infected, and 22 had died related to COVID-19.<sup>40</sup> As the pandemic accelerates, providing PPE to deliver safe oncology services is a key concern worldwide.<sup>12</sup> If acute care services are at maximum capacity, institutions may provide alternative provisions for the care of people affected by cancer. Therefore, oncology nurses will need to be flexible to facilitate the safe delivery of alternative models of care. Alternative and adaptive models of care could increase the use of community care or private facilities. [Nursing and Midwifery Council UK 2020]

**Measuring stress among nurses:** Expanded nursing stress scale, which was developed by Gray-Toft and Anderson and revised by Susan E. French, Rhonda Lenton, Vivienne Walters, & John Eyles in 1995, McCloskey/Mueller Satisfaction Scale (MMSS), and other relevant literature. It contains five parts: part-I consists of nine socio-demographic questions. Part II contains 26 items that help to measure job-related stress among nurses. The items are divided into seven major subscales. Thus, are workload (has five items), lack of support (has three items), conflict (has four items), uncertainty regarding patient treatment (has four items), dealing with death & dying (has three items), inadequate preparation (has three items), organizational decisions (has three items) and sexual harassment (has one item). A four-point Likert item represents the items. Likert item has options from 1 to 4 where 1 represents "if the condition is never a cause of stress", 2 "if the condition is sometimes stressful", 3 "if the condition is frequently stressful", and 4 "if the condition is always

stressful". Respondents were asked to indicate how often the causes of job stress stated in the questionnaire occurred in their work life. The higher the score, the more the respondent agrees that the situation is stressful. The total stress score that provides the overall levels of stress among nurses was obtained by adding all the scores on 26 items together. The overall level of job-related stress has been calculated by adding the 26 items. A minimum score of 26 and a maximum score of 104 were possible, the higher the score indicates the higher level of stress. The minimum total stress score was 28, and the maximum of 99. Based on a data-driven tertial rank classification, the lowest score indicates low stress (stress score 26–52), a medium score indicates moderate stress (stress score 53–63) & a high score indicates high stress (stress score 64–104). [Wikipedia. Jimma zone 2010]Jex and Beehr's theory includes three types of individual consequences: psychological, physical, and behavioral. Physiological can include elevated cortisol levels, increased heart rate, blood pressure, cardiovascular symptoms, and back pain; psychological can include depression, anxiety, and burnout; and behavioral can include workplace violence and reduced mortality [Moustaka et al ., 2010]. Healthcare sector stress produces various negative, costly, and serious consequences that affect both individuals and organizations. Thus, the consequences of occupational stress can be grouped into those at an individual level and those at an organizational level [Beheshtifar et al .,2013].

## MATERIALS AND METHODS

**Study Design:** A descriptive type of cross-sectional study was conducted to assess the factors associated with Job-Related Stress of Nurses Serving Cancer Patients in a Specialized Hospital during the COVID-19 Pandemic.

**Study Period:** The study was carried out for one year. It was initiated in January 2021 and started with a selection of research areas and a literature review. The research topic was selected in June 2021. The protocol was prepared. Hence, the protocol presentation was done in front of the faculty members of NIPSOM for technical approval on October 10, 2021. The protocol was approved by the committee members. Questionnaire development and pre-testing were completed on 21 December 2021. Ethical clearance was given by the Institutional Review Board (IRB) of NIPSOM. Data collection was done from 22 December 2021 to 16 January 2021. Data analysis and report writing were completed, and then submission of the final report was submitted. The literature review was continued from the beginning to the submission of the report.

**Study Place:** This is the only specialized hospital in the public sector of the country. It is situated at Mohakhali is under the North City Corporation's territory in the capital. this Institute, to a 500-bedded Center, has been completed. In April 2015, NICRH was upgraded to a 500-bed hospital. The senior staff nurse posts a total of 500 nurses working in the NICRH.

### Study Population

Senior staff nurses were serving the cancer patients during the COVID-19 pandemic.

### Selection Criteria

#### 1. Inclusion criteria

- Nursing staff who were working with cancer patients in the specialized hospitals during the COVID-19 pandemic.
- Nurses who gave informed written consent to participate in the study.
- Minimum 6 months of working experience.

#### 2. Exclusion criteria

- Nurses who are physically and mentally ill.
- Nursing staff who were not in direct patient care.



## Sample Size

The sample size was calculated by using the formula,  $n = \frac{z^2 pq}{d^2}$

$d^2$

Where,  $n$  = Desired sample size

$z$  = Standard normal deviate; usually set at 1.96, which correspond to 95%

$p$  = Prevalence of job-related stress among nurses is 45% = 0.45 [ Maria et al.,2020]

$q = 1 - p = 1 - 0.45 = 0.55$

$d$  = Degree of accuracy required, usually set at 0.05 level the expected sample size

$= 0.05$

So,  $n = \frac{(1.96)^2 \times 0.45 \times 0.55}{(0.05)^2} = 380$ .

So my calculated sample size was 380, but eventually, data were collected from 285 respondents due to time constraints.

## Sampling Technique

- Purposive sampling technique.

## Data Collection Instruments

After preliminary observation and review of the literature, a semi-structured questionnaire was developed. The questionnaire was developed in English and then translated into Bangla. Following informed written consent, the respondents were interviewed while ensuring privacy and confidentiality. On average 10-15 minutes were needed for data collection from every respondent. The questionnaire was developed using the selected variables according to the specific objectives.

**Data Collection Technique:** At the beginning of data collection, written permission was taken from the head of the institution. Informed written consent was taken from respondents. The purpose of the study was explained in detail to the respondents. The respondents gave full assurance on the ethical point of view that under no circumstances would any part of the interview be disclosed to any unauthorized person. Considering the exclusion criteria, data were collected by face-to-face interviews. Face-to-face interviews were conducted at the National Institute of Cancer Research and Hospital, Mohakhali, Dhaka.

**The pre-testing questionnaire** was pre-tested in a place other than the study area. Pre-testing was done among 25 nurses having the Dhaka Medical College Hospital, Dhaka. To check the accuracy and degree of reliability of the questionnaire. The questionnaire was finalized based on findings and revised by the supervisor.

## Data Processing and Data Analysis

- Initially data were checked for completeness and correctness to exclude missing or inconsistent data.
- Then data was entered into the computer using Statistical Package for Social Sciences (SPSS).
- Data was analyzed by using statistical software, namely SPSS (Statistical Package for Social Sciences).
- Descriptive data were analyzed by simple frequency distribution (mean, standard deviation, percentage). Data were presented using a frequency table, graph, and chart.

**Ethical Implications:** The protocol was approved by the approval committee of NIPSOM. Intervention or any other invasive procedure was not used. Ethical clearance of the study was obtained from the Institutional Review Board (IRB) of NIPSOM. Informed written consent was taken from every participant. The objective of the study was explained in brief to the respondents. Privacy and confidentiality were maintained strictly. Participants had all right to withdraw from the study at any time. They were assured that there would be no harm to them during the study there was no invasive procedure applied.

**Imitation of the Study:** The following limitation was found during the study: the study is cross-sectional and describes the situation of a small sample that may not reflect the whole of the country. The calculated sample size was 380, but eventually data were collected from 285 respondents due to time constraints. In this study, purposive sampling was followed for the selection of the study sample, so there were chances of selection bias.

## RESULTS

This cross-sectional study was conducted among 285 respondents to assess the level of job-related stress of nurses serving cancer patients in a specialized hospital during the COVID19 pandemic in the National Institute of Cancer Research and hospital. Mohakhali, Dhaka. Relevant data were collected by a structured questionnaire through a face-to-face interview. The collected data were cleaned and analyzed with SPSS software version 23. The findings of the study have been presented in the following section with tables and figures.

### The socio-demographic characteristics of respondents.

**Age of the respondents (n=285)** The table shows the age distribution of study respondents. The mean age was 32.94(±)7.841 years. Most (41%) respondents were in the 29–35-year age group. The maximum age was 58 years, and the minimum was 24 years

**Gender of the respondents (n=285)** The distribution of the respondents shows that 91.23% of the respondents were The female and the rest were male.

**Marital status of the respondents(n=285).** The table shows that the majority of the respondents, 78.25%, were married, and 20.00% of respondents were unmarried.

**Religion of the respondents(n=285)** The table shows that the majority of the respondents, 71.93 %, were Muslims, 17.19% were Hindu, and 10.53% of respondents were Christian.

**Educational qualification of the respondents(n=285)** The distribution of the respondents shows that 52.28% of the respondents had a Diploma, 37.54% had a B.Sc., and 10.18% had a Master's degree.

**Number of family members of the respondents(n=285)** The table shows that the majority of the respondents, 80.70%, were 4-8 persons, and 17.19% were 9 to above persons in the family.

**Number of children of the respondents(n=285)** The table shows that the majority of the respondents, 37.89%, had 2 or above children, and 32.98% were single.

**Residence of the respondents (n=285)** The distribution of the respondents shows that 98% of the respondents were urban, and 2% were rural.

**Monthly family income of the respondents (n=285)** The table shows that 51.20% of the respondents had a monthly family income of ≥70000 takas.

**COVID-19 infection status by the respondents(n=285)** The distribution of the respondents shows that 52.30% of the respondents were infected with COVID-19.

**Availability of PPE by the respondents (n=285)** The distribution of the respondents shows that 60% of the Respondents were getting PPE available.

**Loss of relative or family members from COVID-19** (n=285) The distribution of the respondents shows that 71.90% had no loss of relatives and family members from COVID-19.

**Distribution of the COVID-19 vaccination** status of the respondents. (n=285) The distribution of the respondents shows that 81% were vaccinated.

**Use of face mask by the respondents** (n=285) The face mask is personal protective equipment, which prevents the spread of cross-infection so used face mask The distribution of the respondents shows that 91% used face masks.

**Hand washing by the respondents** (n=285) Handwashing is a method of controlling infection, so nurses need to handwash regularly with soap and water. The distribution of the respondents shows that 88% did handwashing regularly.

**Use of hand sanitizer by the respondents** (n=285). Hand sanitizer is another method of controlling infection, so nurses need to sanitize their hands regularly. The distribution of the respondents shows that 86% sanitized their hands regularly.

**Separate room for doffing and donning of the respondents** (n=285). The terms donning and doffing are often used with PPE. Donning is the procedure of assembling PPE on the user, and doffing is the procedure for the removal of PPE. The distribution of the respondents shows that 58% did not use the doffing and donning room separately.

#### **Stress scale category of the respondents(n=285)**

A four-point Likert scale of 26 items was used to assess job-related stress. It was categorized as follows: Low-stress score 26-52, Moderate level of stress score 53-63, and High level of stress score 64-104. Among 285 respondents, 74% were found to have low stress, 20.7% were found to have moderate stress, and 5.3% respondents found to have high stress. Low-stress score of 26-52, a Moderate level of stress score of 53-63, and a High level of stress score of 64-104. Among 285 respondents, 74% were found to have low stress, 20.70% were found to have moderate stress, and 5.30% of respondents were found to have high stress. Distribution of the respondents by workload. 285 respondents, 71.20% stated that they felt sometimes stressed due to not enough staff to complete the work in the unit, 69.50% stated they felt sometimes having stress due to not having enough time to complete all were of the tasks, 69.50% were sometimes stressed due to not having enough time to provide emotional support to The patient was 62.10% sometimes stressed due to too many non-nursing tasks required. such as clerical works, 65.30% of respondents felt stressed due to not having enough time to respond to the needs of the patient's family.

**Conflict of the respondents**(n=285) 285 respondents, 41.40% stated that they never felt stressed due to Conflict with a physician, 49.80% stated they felt sometimes stressed due to disagreement Concerning the treatment of a patient, 63.20% are sometimes stressful due to conflict With a nurse supervisor, 65.60 % sometimes stressful due to difficulty in working with a specific nurse in the unit.

**Lack of support by the respondents**(n=285) 285 respondents, 56.50% stated that they felt sometimes stressed due to a lack of opportunity to talk openly with other unit personnel in the unit, 51.20% stated that They felt sometimes stressed due to a lack of opportunity to share experiences and feelings with other personnel in the unit, 56.50% sometimes stressful due to lack of support of my immediate supervisor.

**Uncertainty regarding the patient treatment of respondents** (n=285) 285 respondents, 59.30% stated that they felt sometimes stressed due to Inadequate information from a physician regarding the medical condition of a patient, 49.10% stated they felt sometimes stressed due to a physician ordering what appears to be an inappropriate treatment for a patient, 57.50% sometimes stressful due to a physician not being present in a medical emergency, 65.60 % sometimes stressful due to not knowing what a patient or a patient's family ought to be told about the patient's condition and treatment.



**Dealing with the death and dying of the respondents**(n=285) 285 respondents, 61.40% stated that they felt sometimes stressed due to Feeling, as my support is helpless in the case of a patient who fails to improve, 50.20% stated they felt sometimes stressed due to watching a patient suffer, 42.10% are frequently stressed due to the death of the patient.

**Organizational decisions of the respondents**(n=285). 285 respondents, 59.60% stated that they felt sometimes stressed due to Frequent change of unit of work, 57.90% stated they felt sometimes stressed due to rotating work shifts, 60.40% sometimes felt stressed due to Centralization, and low participation in decision making. Inadequate preparation of the respondents(n=285) 285 respondents 48.10% stated that they felt sometimes and never stressful due to feeling inadequately prepared to help with the emotional needs of a patient, 61.10% stated they felt sometimes stressed due to being asked a question by a patient for which I do not have a satisfactory answer, 56.80% sometimes stressful due to feeling inadequately prepared to help with the emotional needs of a patient's family.

**Sexual harassment of the respondents**(n=285). 285 respondents, 90.20% stated that they never felt stressed due to being sexually harassed/ requests for sexual favors, and other verbal.

**Association between job-related stress category and COVID-19 infection status of the respondents**(n=285). The dependent variable of the study was the job-related stress of nurses serving cancer patients during the COVID-19 pandemic. A chi-squared test was done to assess the job-related stress category between covid-19 infection status. There were no significant assets to find. ( $p > 0.122$ ).

**Association between job-related stress category and vaccination status.** (n=285) A chi-square test was done to assess the job-related stress category between covid-19 vaccination status. There were no significant assets to find. ( $p > 0.826$ ).

**Association between job-related stress level and educational qualification of the respondents**(n=285). A chi-square test was done to assess the job-related stress category between educational qualifications. There were no significant assets to fund. ( $p > 0.203$ ).

## DISCUSSION

This was a cross-sectional study conducted to assess the level of job-related stress of nurses serving cancer patients in a specialized hospital during the COVID-19 pandemic. The study was conducted from January to December 2021. The samples were collected from the National Institute of Cancer Research and Hospital, Mohakhali, Dhaka. The purposive sampling technique was followed for data collection. The data were collected on a Semi-structured questionnaire. The data was analyzed by SPSS. This study determined the level of nurses' job-related stress. The study findings were compared with the findings of other relevant studies and were logically argued to be appropriate. The originally calculated sampling size was 380, but eventually, data were collected from 285 respondents due to time constraints. Among 41% of respondents were aged between 29-35 years. The total mean ( $\pm$ SD) of the age group was 32.94( $\pm$ 7.841). Most of the respondents, 91.23% of nurses, were female, which was similar to another study where they found 93% of nurses were female. [Bhatia N et al., 2013] Maximum (78.20%) of the nurses were married and 52.60% had educational qualification diploma in nursing, BSc in nursing, and post-graduate degree which was not similar to the study of Jordan [Bhatia et al., 2013] This difference was so much admissible because of differences in socio-cultural patterns and practice between the two countries [Das SR et al., 2018] In this study among 285 respondents 71.90% were Muslim followed by 17.20% were Hindu & rest of Christian. The higher percentage of Muslims is because Bangladesh is a Muslim country. The monthly family income of the respondents of the current study was 51.20% between  $\geq 70000$  takas This study presents 52.30% of the respondents were infected with coronavirus, 59.60% of respondents said that they got proper PPE. 71.90% of the respondents were did not lose relatives and family members in the COVID-19 pandemic, 81.10% of the respondents were COVID-19 vaccination. 90.88% of the respondents were wearing a face mask, 88.10% of the respondents were hand washing regularly, 86.00% of the respondents were using hand sanitizer regularly. The distribution of the respondents according to the present level of job stress of the respondents. Overall, job-related stress questions were 26 items that helped to measure the level of job stress among nurses, that was developed through adaptation from the expanded nursing stress scale (ENSS). This was developed by Gray-Toft and Anderson. The items were divided into

eight major subscales. A four-point Likert item represents each of the items. The Likert item has options from 1 to 4. The total score of all subscales was classified as follows: Low-stress score 26-52, Moderate level of stress score 53-63, and High level of stress score 64-104. Among 285 respondents, 74% were found to have low stress, 20.7% were found to have moderate stress, and 5.3% of respondents were found to have high stress. The mean ( $\pm$ SD) overall job-related stress level of 48.42 ( $\pm$  7.998). Moreover, 74% of nurses had low stress, 20.70% moderate stress, and 05.30% had high stress. In contradiction to the current study, a study done in the United Arab Emirates showed that the mean stress level was  $42 \pm 6$  & nurses' level of stress where 44.4 % had a low-stress level, 55.1 % had a moderate stress level, and 0.5 % had a high-stress level [Mozdeh et al.,2008] which shows the overall mean stress score & high-level stress lower than this study. This discrepancy may be due to a staffing/workload difference between these two studies. The workload is the most important domain in the stress scale. It shows that 285 respondents, 71.20%, stated that they felt sometimes stressed due to not having enough staff to complete the work in the unit, 69.50% stated they felt sometimes stress due to not having enough time to complete all were of the tasks, 69.50% were sometimes stressed due to, not having enough time to provide emotional support to the patient, 62.10% sometimes stressed due to too many non-nursing tasks required, such as clerical works, 65.30% respondents felt sometimes stressed due to not having enough time to respond to the needs of the patient's family. These study findings are similar to the study in South-west Ethiopia, the study finding 35.90% of respondents found it sometimes stressful due to not having enough staff to complete the work in the unit, 39.70% of respondents found sometimes having stress due to having to not enough time to complete all were of the tasks, and 44.40% of nurses found sometimes stressed due to, not having enough time to provide emotional support to the patient [Said & EL-Shafei,2020] This variation might be due to the study setting since the Iranian study was carried out only in a teaching hospital, whereas the current study included specialized hospitals. The descriptive analysis indicated that the workload was the most stressful subscale for nurses. This might be due to a shortage of staff, extra non-nursing tasks, and less time to accomplish the work and support each other emotionally. Bangladesh, like other developing countries, suffers from a shortage of nurses (2 nurses for 10,000 people) [WHO], which increases nurses' workload. This finding was in line with research reported in Addis Ababa, which stated that a greater source of stress for nurses were "not enough staff to adequately cover unit," followed by "not enough time to finish all their nursing tasks [Sailih et al .,2014], South Africa which indicated nurses' stress was caused by "not enough staff to adequately cover unit" [Makie et al ., 2006], and Thailand which was found that heavy workloads caused high work-related stress in nurses [Aoki et al .,2011]. Another stress scale domain was a conflict shows that out of 285 respondents 41.40% stated that they felt never stressed due to Conflict with a physician, 49.80% stated they felt sometimes stressed due to disagreement concerning the treatment of a patient's, 63.20% are sometimes stressful due to conflict with a nurse supervisor, 65.60 % sometimes stressful due to difficulty in working with a specific nurse in the unit. These study findings are similar to the study in South-west Ethiopia [Said & EL-Shafei,2020] Another stress scale domain was lack of support shows that 285 respondents 56.5% stated that they felt sometimes stressed due to lack of opportunity to talk openly with other unit personnel in the unit, 51.2% stated they felt sometimes stressed due to a lack of opportunity to share experiences and feelings with other personnel in the unit, 56.5% sometimes stressful due to lack of support of my immediate supervisor. Another study reported that 22% stated that they felt sometimes stressed due to a lack of opportunity to talk openly with the unit personnel in the unit. In addition, a study reported in the International Journal of Science Research reported that 52% of nurses lacked the support of their immediate supervisor. [Gulavani & Shinde et al ., 2014] uncertainty regarding patient treatment domain shows that 285 respondents 59.3% stated that they felt sometimes stressed due to Inadequate information from a physician regarding the medical condition of a patient, 49.1% stated they felt sometimes stressed due to a physician ordering what appears to be an inappropriate treatment for a patient, 57.5% sometimes stressful due to a physician not being present in a medical emergency, 65.6 % sometimes stressful due to not knowing what a patient or a patient's family ought to be told about the patient's condition and treatment. A similar study in the Jimma zone public hospital, southwest Ethiopia, found uncertainty regarding patient treatment due to patients feeling stressed. [ALnemes et al.,2005] Dealing with the death and dying domain shows that 285 respondents 61.4% stated that they felt sometimes stressed due to Feeling as my support is helpless in the case of a patient who fails to improve, 50.2% stated they felt sometimes stressed due to watching a patient suffer, 42.1% are frequently stressed due to the death of the patient. A similar study conducted in a South African tertiary hospital revealed that the greatest perceived source of job-related stress was emotional issues related to death and dying [Makie et al.,2006]. dealing with death and dying was the most significant stressor among the participants. This is in

line with the findings of other researchers who have used ENSS for the measurement of job-related stress in Greece and several other countries. The highest stressful conditions that nurses rated as always stressful were the death of a patient, followed by watching a patient suffer. This may be due to linking death with clinical failure. Not enough staff to cover the unit adequately was a frequently stressful condition. In line with this, a study done in Jordan showed that the lack of enough staff to adequately cover the unit is the most stressful event perceived by the staff nurses. [ALnems et al 2005] This study indicated that higher overall job-related stress from dealing with death & dying subscale followed by uncertainty regarding patient treatment and workload which is consistent with a study done in Gaza Palestine that stated death & dying and workload as the most frequent and severe occupational stressors [Hajjar et al .,2013]. In line with this, a study conducted in the South African tertiary hospital revealed that the greatest perceived source of stress appears to be workload followed by emotional issues related to death and dying [Makie et al .,2006] Organizational decisions show that 285 respondents 59.6% stated that they felt sometimes stressed due to Frequent change of unit of work, 57.9% stated they felt sometimes stressed due to Rotating work shift, 60.4% sometimes stressful due to Centralization; low participation in decision making. A study was also found between work shifts and work-related stress in this study. Rotating shift nurses were more stressed than fixed shift nurses. This finding was consistent with research reported in Addis Ababa, Egypt [Mohammed et al .,2011], and Jordan [Hamaideh et al .,2008], which have indicated that nurses who worked rotating shifts were more stressed than nurses who worked fixed shifts. Inadequate preparation shows that 285 respondents 48.1% stated that they felt sometimes and never stressful due to feeling inadequately prepared to help with the emotional needs of a patient, 61.1% stated they felt sometimes stressed due to being asked a question by a patient for which I do not have a satisfactory answer, 56.8% sometimes stressful due too feeling inadequately prepared to help with the emotional needs of a patient's family. A factor of the intense emotional support that is needed for the patient and family is yet another burden of stress placed on nurses. In addition to exposure to pain, suffering, and traumatic life events that the nurse experiences daily, this can contribute to stress. [Cohan et al., 2005] Sexual harassment shows that 285 respondents, 90.2% stated that they felt never stressed due to being sexually harassed/ requests for sexual favors, and another verbal. The least stressful conditions rated among nurses were being sexually harassed in the work environment. In contradiction to this American Nurses Association study found that sexual harassment as greater nurse distress, the less likely the incident would be reported [Thomas et al.,2008]. This difference may be due to the sensitive nature of the subject matter inquired. The dependent variable of the study was the job-related stress of nurses serving cancer patients during the COVID-19 pandemic. A chi-squared test was done to assess the job-related stress category between covid-19 infection status. There were no significant assets to be found. ( $p > 0.122$ ). A chi-squared test was done to assess the job-related stress category between covid-19 vaccination status. There were no significant assets to be found. ( $p > 0.826$ ). A chi-squared test was done to assess the job-related stress category between educational qualifications. There were no significant assets to fund. ( $p > 0.203$ ).

**Conclusion/summary In this study**, one-fourth of the respondents were found to have experienced a moderate to high level of job-related stress. The uses of job-related stress among nurses serving cancer patients need to be addressed with due priority and attention. Findings suggest that nurses' exposure to stress-related factors can increase job stress of nurses, while this also affects their health-related quality of life negatively. Nurses' ability to cope with the demands and stress from work may be improved with specific occupational health education and specific training programs that improve their knowledge and ability.

**Recommendation The study aimed** to assess the level of job-related stress of nurses serving cancer patients in a specialized hospital during the COVID-19 pandemic. The following recommendations are suggested to reduce the job-related stress of nurses. Measures should be taken to reduce conflicts between colleagues and co-workers. Ensure organizational support. The study recommends that the workload be reduced by maintaining the nurse-patient ratio. Encouraging teamwork between co-workers and finally introducing training courses about COVID-19. Further large-scale study is needed to see the overall stress situation of nurses in the whole country.

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