Original Research Article

Level of Stress Among First Line Nurses in East Jeddah Hospital, Saudi Arabia During COVID-19 Pandemic

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Abstract

Objective: This study sought to determine the level of occupational stress and the associated factors among first line nurses in East Jeddah Hospital, Saudi Arabia, during COVID-19.

Methodology: Data was collected from a sample of 250 first line nurses working in East Jeddah hospital using survey questionnaires. The questionnaires consisted of occupational stress scale. The collected data was then analyzed using Chi-square and the descriptive statistical tools of SPSS.

Results: The analysis showed that 82.8% of the nurses had high level of stress and only 17.2% had moderate stress. The level of occupational stress is affected by various demographic factors, including nurses' age (*p=.000; r=.713*), level of education (*p=.000; r=.655*) marital status (*p=.014; r=.624*), and whether the nurses stayed alone or with others (*p=.000; r=.507*). Many work-related factors were also noted to affect the level of occupational stress, including department of work (*p=.040; r=.756*), hours of working (*p=.000; r=.542*), years of experience (*p=.002; r=.734*), access to PPEs (*p=.000; r=.594*), nature of relationship with the other coworkers (*p=.000; r=.594*) and nature of work relationship (p=.000; r=.597).

Conclusion: The high level of stress among the first line nurses varies with sociodemographic and work factors, and this calls for the healthcare systems to implement devise measures to address the propagating factors around stress among these nurses.

Key words: Occupational stress, first-line nurse, Covid -19, anxiety, Saudi Arabia

Introduction

The COVID-19 pandemic caused adverse changes in healthcare, particularly in nursing practice.[1] With the rapid spread of the virus, millions of people contracted the virus, leading to congestion in healthcare facilities.[2] Consequently, there was an extreme demand for nursing care services and ultimately posing psychological challenges to the nursing workforce.[3] Apart from the increased demands for nursing care services, the pandemic also led to the deterioration in the quality of nursing care services and since nurses are at the center of healthcare service delivery, a lot of the burden befalls them.[4]

Since the outbreak of COVID-19, the fear of contracting the disease had sparked more worries,

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anxiety, panic and many other mental health conditions among nurses since they interact with the patients closely.[5] More distress also came from social isolation whenever the healthcare workers are suspected to have contracted the virus.[6] Further to the incidence of the psychological distress, many studies have also focused on demographic factors as modulators of occupational stress among first-line healthcare workers.[7] Some researchers have also made significant steps towards explaining work-related factors that influence depression and anxiety among first-line clinical caregivers.[8]

While there have been significant milestones made towards assessing the level of occupational stress among nurses, there is an inconsistency among the health workers depending on the environment and the country of the study. Similarly, there is a variation in socio-demographic factors. Therefore, there was a need to conduct further studies to determine the current statistics for occupational stress among the frontline nurses.

Methodology

This study applied cross-sectional quantitative research design. Ethical approval was obtained from the research Ethics Committee of the Directorate of Health Affairs in Jeddah. Accordingly, ethical principles that guide nursing research practices were all observed in all the research activities, and informed consent was taken from the participants. A total of 250 participants were included in the study, including the first line nurse employees in East Jeddah Hospital. Data was collected using online survey questionnaires administered online via Google forms. The questionnaire scale for assessing the level of occupational stress was obtained from Cohen, Kamarck and Mermelstein[9], who used it to examine level of occupational stress among health workers and employee, and hence suitable for determining occupational stress among the first line nurses. The collected data was then analyzed using two statistical tools of SPSS, version 26 – Chi-square and descriptive statistics.

Results

Most of the participants were males (54%), and those aged between the 31 and 40, making 31.2% of the total. Other sociodemographic features are shown in Table 1.

Table 1. Participants' demographic factors

Variables	Frequencies (N)	Percentages (%)
Age		
20-30	75	30.0
31-40	78	31.2
41-50	66	26.4
51-60	31	12.4
Gender		
Male	135	54.0
female	115	46.0
Level of education		
Diploma/tertiary college	42	16.8
Bachelor degree	152	60.8
Master degree	56	22.4
Marital status		
Married	153	61.2
Unmarried	67	26.8
Divorced	15	6.0
Widowed	15	6.0
Staying alone or with people		
Alone	88	35.2
With others	162	64.8

Regarding the hospital factors, 45 (18%) nurses worked at the medical-surgical unit, and the least number, 33 (13.2%) worked at the outpatient clinics. Majority of the participants, 145 (58%) had between 6 and 10 years of experience, while only 2 (0.8%) had worked for less than one year in the current department. Additional hospital factors are presented in Table 2.

In terms of the relationship with co-workers, 122 (48.8%) participants had a relatively supportive relationship, 95 (38.0%) had a friendly and very supportive, and 33 (13.2%0 had an unsupportive

relationship. Working relationships were also examined, and 96 (34.4%) participants noted that they have safe working condition while 33 (13.2%) had unsafe working condition.

Table 2. Hospital related factors

Variables	Frequencies (N)	Percentages (%)
Department		
Intensive Care Unit	46	18.4
Emergency department	42	16.8
Medical - Surgical unit	45	18.0
Operation rooms unit	40	16.0
Pediatric unit	44	17.6
Out Patient clinics	33	13.2
Duration of working in the department		
Less than 1 year	2	.8
2-3 years	20	8.0
4-5 years	83	33.2
6-10 years	145	58.0
Hours of working per week		
40 - 59 hours per week	76	30.4
60 - 79 hours per week	174	69.6
Years of experience		
1-5 years	36	14.4
6-10 years	76	30.4
11-15 years	75	30.0
16-20 years	41	16.4
Over 21 years	22	8.8
Training on COVID-19		
Yes	227	90.8
No	23	9.2
Adequate access to all PPEs		
Yes	154	61.6
No	96	38.4
Relationship with co-workers		
Friendly and very supportive	95	38.0
Relatively supportive	122	48.8
Unsupportive	33	13.2
Nature of working conditions		
Safe working condition	96	38.4
Relatively safe working condition	121	48.4
Unsafe working condition	33	13.2

Level of occupational stress

The level of occupational stress was assessed, and found that majority of the respondents reported high stress levels 207 (82%) while only 43 (17.2%) admitted to have suffered moderate stress. None of the participants reported low levels of stress.

Sociodemographic factors affecting level of occupational stress

Age (p=.000; r=.713), level of education (p=.000; r=.655) marital status (p=.014; r=.624), and as to whether the nurses stayed alone or with others (p=.000; r=.507) had a positive relationship with the level of occupational stress at 95% confidence interval. However, gender of the first line nurses does not influence their level of occupational stress with a Chi- square value of 24.332 (p=.386) (Table 3).

Table 3. Chi-square test of association between sociodemographic factors and occupational stress

Variables	Nominal by Nominal (Phi)	X^2	df	P value
Age	.713	127.016	69	.000
Gender	.312	24.332	23	.386
Education level	.655	107.257	46	.000
Marital status	.624	97.236	69	.014
Staying alone or with others	.507	64.329	23	.000

Hospital factors affecting level of occupational stress

Table 4 show the association between department of work and level of occupational stress (p=.040; r=.756). Moreover, the department of work (p=.040; r=.756), hours of working (p=.000; r=.542), yeas of experience (p=.002; r=.734), access to PPEs (p=.000; r=.594), nature of relationship with the other co-workers (p=.000; r=.594) and nature of work relationship (p=.000) had a statistically significant relationship with the level of occupational stress among the first line nurses.

Table 4. Chi-square test of association between hospital factors and occupational stress

Variables	Nominal by Nominal (Phi)	X2	df	P value
Department of work	.756	142.91	23	.040
Duration of working	.556	77.186	69	.234
Hours of working per week	.542	73.529	23	.000
Years of experience	.734	134.866	92	.002
Training on COVID-19	.284	20.195	23	.630
Access to all the required personal protective equipment	.406	41.240	23	.011
Nature of relationship with co-workers	.597	89.00	46	.000
Nature of working conditions	1.667	694.548	92	.000

Discussion

This study observed that there is a high level of occupational stress among the first line nurses in East Jeddah hospital, Saudi Arabia during COVID-19 pandemic. Indeed, many research studies have already reported significantly worrying levels of occupational stress among the frontline workers.[10]Therefore, this observation is neither unique to this study not to Saudi nurses who handle Covid-19 patients like other nurses across the globe.

Interestingly, the level of occupational stress was noted to vary according to the nurses' age, marital status, and education levels. Again, similar observations were made by many other researchers who also identified that age of the nurses has a significant impact on the levels of occupational

stress.[10-12] However, while this present study established a diminished relationship between gender and the occupational stress levels among the front-line nurses, Al-Mansour and colleagues, in the study found that gender contributed to increased occupational stress among the clinical first line nurses.[8] Another interesting observation is that the married nurses are less stressed compared to the unmarried. According to Smallwood's study COVID-19 increased the level of occupational stress among the married than before.[13] The severe impact can be explained by the relatively lesser social distress that the unmarried encounter. The same study indicated that frontline nurses living with children or loved ones reported high occupational stress levels than those living alone in the COVID-19 working environment due to fear of infecting family with the virus than those staying alone.[13]

This study also noted that the frontline nurses above forty years and those who had lower education levels had an increased level of occupational stress. According to Despoina and colleagues, older frontline nurses are worried about their safety at work than nurses below thirty-five years.[14]This could be due to the age-related distress in life. Education can be explained to affect stress-handling capacity. AlAteeq and colleaguesreiterate that level of education defines the capability of frontline nurses to solve arising issues. The nurse with higher educational achievements (those with master's degrees) interprets and simplifies the complexity of situations while identifying alternative approaches.[12]

Apart from the sociodemographic factors, this study also noted that level of occupational stress varied with work factors, such as department work, relationships worth co-workers, hours of working, access to personal protective equipment and level of experience. The nature of the department and its activities can enhance stress due to safety issues and job stress.[15] Improper coordination and team working in critical departments like operation rooms promote high-stress levels among the first line nurses in the Covid-19 working environment.[16,17] Some studies reported that longer working hours diminishes rest time for the first line nurses contributing to stigmatization and intentions to leave work.[18]

Regarding hours of working; longer hours of exposure to the sufferings of patients, and noisy environment contributes to psychological and mental issues thus leading to stress.[15.19]While this research established a moderate impact of working hours on stress levels of first-line nurses, some researchers reported that hours of work has a higher ability to cause elevated stress levels among the frontline nurse during the COVID-19 pandemic.[20]Moreover, years of experience have a strong positive impact on the level of occupational stress among the first-line nurses according to this study. Nurses with more years of working in hospitals are more resilient to occupational stress than those with few years. A study by Zhan and colleagues identified that frontline nurses exposed to more COVID-19 training are more comfortable working in hospitals than the nurses with limited exposure and that work experience ensures mitigation of risks and more appropriate mechanisms of handling patients' critical conditions.[19]

This study also established that access to all the required personal protective equipment has a positive impact on the level of occupational stress among the first-line nurses. Similarly, some studies found that during the initial surge of COVID-19 despite being a resilient group, the majority of frontline healthcare providers experienced stress, anxiety, fear, and concerns regarding personal safety due to COVID-19, with many at risk for burnout.[21,22]

Overall, this study findings correlates with many previous observations concerning the impact of the nature of relationships with co-workers and the nature of working conditions on the level of occupational stress among the first-line nurses. Mo et al. asserts that poor relationships with others deteriorate the working culture and promote anxiety leading to increased occupational stress levels among the frontline nurses particularly in the; COVID-19 pandemic. First line nurses also experiences dealing with dying or dead victims, insufficient emotional preparation, and treatment uncertainty lead to elevated nurses' occupational stress levels.[18]

Conclusion and recommendations

There is a high level of occupational stress among the first line nurses in East Jeddah hospital, Saudi Arabia during COVID-19 pandemic. Even though

the previous studies also indicated that there have been cases of occupational stress among nurses, the cases in the time of COVID-19 were relatively higher. It was also noted that level of occupational stress varies according to many sociodemographic and work factors. From the observations, the healthcare policymakers should come up with practical measures to help reduce the burden of occupational stress among the first line nurses in East of Jeddah. Nurses should also be aware of the high likelihood of occupational stress, and take precautionary measures to prevent the adverse outcomes. In addition, the healthcare system needs to come up with measures to educate or enlighten the first line nurses about ways of reducing stress before a pandemic arrives as well as the need to keep shifting the first line nurses across departments since it was noted that nurses working in some hospital departments were more exposed to stressful conditions than others.

Limitations

It would have been better to include data from different hospitals in different regions within the country. Nevertheless, the collected data still gave outcomes that resemble the outcomes from the previous studies.

Conflict of Interest: The authors declare no conflict of interest.

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Availability of Data

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

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