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Factors Affecting The Level Of Occupational Stress Among First Line Healthcare Workers Saudi Arabia Hospitals During Covid-19 Pandemic

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Abstract

Background: the rapid increase in number of covid-19 patients has led to an elevated demand of nursing care services, which may cause physiological issues and concerns among the first line Healthcare Workers. While there are speculations of increased cases of occupational stress among the first line Healthcare Workers, little has been done to verify the rate among Healthcare Workers in Saudi Arabia Hospitals.

Purpose: this study was conducted to determine the factors affecting occupational stress among first line Healthcare Workers in Saudi Arabia Hospitals during covid-19 pandemic.

Methods: this study applied the cross-sectional correlational design of the quantitative methodology. Data was collected using the occupational stress scale from a randomly sampled 250 first line Healthcare Workers working in Saudi Arabia Hospitals. The collected data was analyzed using Chi-square and descriptive statistics of SPSS.

Results: 82.8% of the Healthcare Workers had high level of stress, 17.2% had moderate stress and none had low level of stress. The level of occupational stress is affected by four demographic characteristics, including Healthcare Workers' age (p=.000; r=.713), level of education (p=.000; r=.655), whether the Healthcare Workers stayed alone or with others (p=.000; r=.507) and marital status (p=.014; r=.624). Six work-related factors were also noted to affect the level of occupational stress, including nature of working conditions (p=.000; r=.597), access to PPEs (p=.000; r=.594), nature of relationship with the other co-workers (p=.000; r=.594), hours of working (p=.000; r=.542), years of experience (p=.002; r=.734) and department of work (p=.040; r=.756).

Conclusion: there is a high level of occupational stress among the first line Healthcare Workers. Therefore, there is a need for the healthcare systems to devise measures to address the propagating factors around stress among these Healthcare Workers.

Key words: covid-19, first line Healthcare Workers, occupational stress.

Introduction

Background

The covid-19 pandemic has impacted a lot of changes in nursing profession and practice (Schwerdtle et al., 2020). One of the significant changes is the upsurge in the number of patients (WHO, 2021). With the rapid spread of the virus, millions of people contracted the infection until the healthcare facilities became overwhelmed (Shu-Ching et al., 2020; Tsamakis et al., 2020). Talaee et al. (2020) also identified that the pandemic promoted psychological distress among the Healthcare Workers in major public hospitals as the overcrowding of patients and death tolls rise. Overworking and diminished breaks and leave further

enhanced the stress levels, particularly among the healthcare providers over the age of forty-five years.

The increase in number of patients has also led to an equal elevated demand of nursing care services, which may cause physiological burden (Sampaio, Sequeira & Teixeira, 2021; Magnavita et al., 2020; AlAteeq et al., 2020; Talaee et al., 2020). As a result, frequent case of burnout and fatigue have been reported among the Healthcare Workers since they do not get time for adequate sleep. Apart from the increased demands for nursing care services, the pandemic has also led to the deterioration in the quality of nursing care services (Fernandez et al., 2020). And since Healthcare Workers stand at the center of healthcare service delivery, a lot of weight has befallen them.

There have been cases of worries and fear of contracting the disease among Healthcare Workers since they interact with the patients closely (Tan et al., 2020). On the same note, Temsah et al. (2021) identified the risk of being infected by the virus contributed to the increase stress among the frontline healthcare providers. The study further confirmed increased fear among the caregivers on the inadequacy of appropriate protective gear and prevention measures in the hospitals.

Many studies have examined the psychological implication of the pandemic on Healthcare Workers and fear, anxiety, panic, and reported cases of mental discomfort (Spoorthy, Pratapa & Mahant, 2020; Tan et al., 2020; Zhan et al., 2020). For instance, a recent study by Khan et al. (2021) observed that since the outbreak of the pandemic, healthcare providers are at risk of developing mental health disorders, including insomnia, post-traumatic stress, anxiety, and depression. More distress also came from social isolation whenever the healthcare workers are suspected to have contracted the virus (Jackson et al., 2020).

Studies have also reported the implication of various work-related and sociodemographic factors on the Healthcare Workers' level of occupational stress (Almazan et al., 2019; Manzano et al., 2021; Said & El-Shafei, 2021; Wang et al., 2020; Román-Mata et al.,

2020). For instance, Li et al. (2021) noted that Healthcare Workers with work experience of fewer than two years had a high risk of developing post-traumatic stress disorder. Further, Román-Mata et al. (2020) found out that Healthcare Workers with higher education were more likely to cope with job stress, while those with common academic standards were unwilling to work in emergency departments. Restila (2015) also indicated that low wages, long working hours, shift work, job demands correlated with stress levels among healthcare provider. Therefore, there is a need to examine the possible impact of such factors on the level of stress among Healthcare Workers during the covid-19 pandemic.

The extensive literature has focused on determining the level of stress among the first-line healthcare providers, particularly during covid- 19. However, there is an inconsistency in the stress level among the workers depending on the environment and the country of the study. Nevertheless, a little has been done in regard to stress among the first line Healthcare Workers in the time of covid-19 in Saudi Arabia. Therefore, this proposed study seeks to use quantitative methods to determine level of stress and the impact of various occupational factors on stress among the Healthcare Workers in Saudi Arabia.

Methods

This study applied the quantitative research methodology. The cross-sectional quantitative research design using the correlational approach used to pursue the research purpose.

the research used survey questionnaires to collect the quantitative data regarding the level of occupational stress among the first line Healthcare Workers in Saudi Arabia Hospitals in the time of covid-19 pandemic.

The research questionnaire for determining level of occupational stress will be obtained from the Perceived Stress Scale by Cohen, Kamarck and Mermelstein (1994). The instrument had three sections; the demographic factors, work-related factors, and the stress scale. The items about Healthcare Workers' demographics

included age, marital status, gender, level of education. Further, work-related factors included the hospital-based factors such as the department of work, duration of working in the named department, years of experience, hours of working in a week, training on covid-19, availability of PPEs, and nature of relationship with the co-workers, and working conductions. The last section was the Perceived Stress Scale, which consisted of 10 items regarding the level of occupational stress among Healthcare Workers.

Data was collected using the survey questionnaires, which were administered online to a sample of 250 participants. The sample participants were recruited through the simple random sampling techniques. Data was then analyzed using two statistical tests of SPSS – the descriptive statistics and Chi-square test of independence.

Results

Data was collected from a total of 250 participants. The participants' socio-demographic characteristics show that most participants were between the age of 31 and 40 (n=78; 31.2%). The second largest age group was 20-30 (n=75; 30%), and the least was 51-60 (n=31; 12.4%). Most participants were males (n=; 135; 54%). There were 152 (60.8%) participants with bachelors' degree, 56 (26.4%) with masters' degree and 42 (16.8%) with diploma in nursing. Majority of the participants were married (n=153; 61.2%). A total of 162 (64.8%) were staying with others and only 88 (35.2%) were staying alone (Table 1).

Table 1. Socio-demographic characteristics

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 along or with others		
Alone	88	35.2
With others	162	64.8

The analysis of the work-related factors also revealed that 45 (18%) Healthcare Workers worked at the medical-surgical unit, and the least proportion (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. Moreover, most participant worked for 60 – 79 hours/week (69.6%) with the only 30.45 working for between 40 - 59 hours per week. Regarding years of experience, the highest number constituting 30% had worked for 6-10 years while the least fraction (0.8%) had worked for over 21 years. A total of 227 (90.8%) of the participants already had a training in covid-19 and 61.6% had adequate access to the PPEs in their departments.

It was also observed that 122 (48.8%) participants had a relatively supportive relationship, 95 (38.0%) had a friendly and very supportive, and 33 (13.2%) had unsupportive relationships. Working relationships were also examined, and 96 (34.4%) participants noted that 35 they have safe working condition, 121 (48.4%) had relatively safe working condition, and 33 (13.2%) had unsafe working condition.

Table 2. Work-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		
2-3 years	2	.8
4-5 years	20	8.0
6-10 years	83	33.2
	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 among Healthcare Workers was shown to vary among the respondents as 207 (82.8%) respondents had high level of stress and 43 (17.2%) had moderate level of stress.

Table 3. Level of stress

Level of stress	Frequency (N)	Percentage (%)
Low stress (0-13)	0	0
Moderate stress (14-26)	43	17.2
High stress (27-40)	207	82.8

The Chi-square test showed that level of occupational stress among the first line Healthcare Workers was influenced by four socio-demographic characteristics, including age (p=.000), education level (p=.000), marital status (p=.014), and whether one stays alone or with other (p=.000) (Table 4).

Table 4. Socio-demographic characteristics affecting the level occupational stress

Variable	Chi-square value	P-value
Age	127.016	.000
Gender	24.332	.386
Education level	107.257	.000
Marital status	97.236	.014
Staying alone or with others	64.329	.000

Further, correlational analysis showed that the level of occupational stress among the first line Healthcare Workers is influenced by six work-related factors, including nature of working condition (p=. 000), nature of relationship with the co-workers (p=.000), access to all the personal protective equipment (p=.011), years of experience (p=.002), hours of working per week (p=.000) and department of work (p=.040) (Table 5).

Table 5. Work-related factors affecting the level occupational stress

Variable	Chi-square value	P-value
Department of work	142.91	.040

Duration of working in department	77.186	.234
Hours of working per week	73.529	.000
Years of experience	134.866	.002
Training on covid-19	20.195	.630
Access to all the required personal protective equipment	41.240	.011
Nature of relationship with co-workers	89.00	.000
Nature of working conditions	694.548	.000

Discussion

This study shows that there is a high level of stress among the first line Healthcare Workers in Saudi Arabia Hospitals during the covid-19 pandemic. The observed high level of stress in this study concurs with the previous researchers' outcomes during covid-19 (AlAteeq et al. 2020; Said and El-Shafei, 2021). For instance, Magnavita et al. (2020) high level of occupational stress among the frontline healthcare workers. However, some studies have also reported moderate level of stress among the healthcare workers during covid-19 pandemic. For example, Zhan et al. (2020) noted a moderate level of stress among Healthcare Workers in China. It is apparent that, at least, the covid-19 pandemic led to an increased level of occupational stress among the first line healthcare workers.

However, it was also noted that the level of occupational stress among the first line healthcare workers depended on many sociodemographic factors, including Healthcare Workers' age, level of education, whether the Healthcare Workers stayed alone or with others and marital status. While some of these factors are unique to this research, some previous researchers also reported the significance of various demographic factors on the level of occupational stress among Healthcare Workers during covid-19. For instance, Jahrami et al. (2021)'s a study aimed to address the link between occupational stress and demographic factors of the

frontline Healthcare Workers in the covid-19 clinical environment and reported an influence of the years of experience on the level of occupational stress.

Gender was also noted a significant influencer of occupational stress among Healthcare Workers during covid-19. Females were more predisposed to occupational stress than the male Healthcare Workers. A similar observation had also been made by AlAteeq et al. (2020) who found out that females were more predisposed to psychological challenges, such as anxiety than males. Wang et al. (2020) also noted that females had a more psychological distress affecting their quality of sleep than the male Healthcare Workers. In another study, Alamri et al. (2021) found that females had higher levels of depressive symptoms than males in the time of covid-19. To account for this difference, Passarelli et al. (2021). highlights the biosocial model citing that females invest more emotions in their social relationships and sociocultural gender roles than males. This may spur the development or elevation of stress among the female Healthcare Workers in addition to the direct challenges presented by the covid-19 pandemic.

While as this study, among other previous studies noted that stress was more apparent in female Healthcare Workers than the male Healthcare Workers, some studies have argued the opposite. In fact, they reason that females have a better way of coping with stress than males (Macintyre, Hunt & Sweeting, 1996; Seedat et al., 2009; Mayor, 2015). In another study, Sampaio, Sequeira and Teixeira (2021) also noted that stress among Healthcare Workers highly depended on the Healthcare Workers' gender, age and specialty. It therefore, seems that the impact of gender on stress does not steadily stand in the time of covid-19.

Apart from gender, it was also noted that age has a significant impact on the level of occupational stress among the first line Healthcare Workers. In fact, the relationship was noted to be positive – older Healthcare Workers had more stress than the younger counterparts. Similar observations involving the implication of age had been made by many previous researchers who focused on various psychological health problems

experienced by Healthcare Workers in the time of covid-19 (Sampaio, Sequeira & Teixeira, 2021; Danet, 2021; Shahrour & Dardas, 2020). Studies showed that old age was a significant predictor of contacting the virus, which created more fear and distress among Healthcare Workers with older age (Sterpetti, 2020; Sharma et al., 2020; Dhama et al., 2020). At the same time, some researchers noted that younger Healthcare Workers were more predisposed to occupational stress during the pandemic (Galanis et al., 2021; Murat, Köse & Savaşer, 2021). As such the implication of age may be seen as a circumstantial factor whose effect varies from case to case.

As this study observed, Healthcare Workers who stayed alone were more predisposed to suffering stress during the pandemic. Staying alone would imply that there are little chances of receiving social support from the family or other members of the homestead compared to those who stayed alone. The same relationship can be explained in the cases of marital status, which was also noted to affect stress among Healthcare Workers. Previous studies have also pointed out the significance of social support among the healthcare workers during the time of covid-19 (Alnazly et al., 2021; Sriharan et al., 2021). At the same, there is a dissonance over the significance of social support in controlling mental challenges brought about by covid-19. For instance, Tatsuno et al. (2019) reported no significant association between social support and post-traumatic stress disorder among Healthcare Workers in Japan.

Six work-related factors also had an impact on Healthcare Workers' level of occupational stress during covid-19. These included the nature of working condition, nature of relationship with the coworkers, access to all the personal protective equipment, years of experience, hours of working per week, and department of work. Department of work could affect the amount of task put on Healthcare Workers, workload, time for rest, intensity of care needed, and level of exposure to the virus (Galanis et al., 2021). For instance, Chidiebere, Tibaldi and La Torre (2020) pointed out the high level of psychological discomfort among

Healthcare Workers working in the intensive care unit during covid-19.

The nature of relationship with the coworkers could affect the amount of emotional support and encouragement received by Healthcare Workers during the pandemic. Galanis et al. (2021) also reported that "working in hospitals with inadequate and insufficient material and human resources, increased workload and lower level of specialized training regarding COVID-19." This finding may also imply to the nature of technical and professional support received by the Healthcare Workers during the pandemic. Hence, the significance of the working conditions. Soto-Rubio, Giménez-Espert and Prado-Gascó (2020) also pointed put the benefit of emotional intelligence as a derived benefit of a socially reliable work environment in fighting against psychological problems among Healthcare Workers.

The other significant predictor of stress among the first line Healthcare Workers was the availability of the personal protective equipment. Inadequacy of the personal protective equipment leads to fear and worries among the staff, which may lead to the buildup of stress. de Cordova et al. (2022) noted that lack of personal protective gears had a psychological effect on Healthcare Workers. Lack of these protective equipment would also accelerate Healthcare Workers' fear of contacting the virus. The other related factor was workload. The amount of work also had a significant positive effect on the first line Healthcare Workers' occupational stress. Workload leads to burnout, which elevates mental distress among the Healthcare Workers (Murat, Köse & Savaşer, 2021).

Conclusion

This study reports that the first line Healthcare Workers in Saudi Arabia faced occupational stress that range from moderate to high during covid-19 pandemic. It was also observed that the level of stress among these Healthcare Workers vary with many demographic and work-related factors. However, a comparative assessment of the impact of some factors, like age and gender

shows a considerable variation in various researchers' observations.

Limitations

The outcomes in this research are limited to recruitment of participants from a single site. As cross-sectional research, it would have been better to include data from different hospitals in different regions within the country since the management of covid-19 varies from one hospital to another.

Recommendations

The Saudi healthcare system needs to come up with measures to educate or enlighten the first line Healthcare Workers about ways of reducing stress before a pandemic arrives. At the same time, hospitals need to come up with policies to impact more resilience among the first line against infectious disease pathogen outbreaks. Moreover, hospital management needs to keep shifting the first line across departments since it was noted that nursing working in some hospital departments were more exposed to stressful conditions than others.

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