Job Stress and Presenteeism Prevalence among Nursing Staff during the Outbreak of Pandemic Coronavirus Disease 2019

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Abstract

Background: Job stress and presenteeism are perplexing issues in the nursing profession during the crisis of COVID-19 pandemic that must receive increasing attention. **Aim:** It aimed to assess the job stress and presenteeism prevalence, as well as verify the association between two concepts among nursing staff during the outbreak of coronavirus disease 2019. **Design:** It utilized a descriptive, correlational design. **Setting:** It was conducted in the Main Tanta University and Emergency Hospitals. **Subjects:** All nursing staff (503), who had a Diploma, Bachelor of Sciences, or Master of Sciences in nursing. **Tools:** The questionnaire involved nursing staff's demographic data, the adapted Extended Nursing Stress Scale, the Presenteeism Prevalence Questionnaire, and the Stanford Presenteeism Scale. **Results:** The organizational factors were the dominant reasons for presenteeism among nursing staff rather than the personal factors. Workload, inadequate emotional preparation, death and dying, and conflict with supervisors were the most prominent factors for causing stress. Furthermore, there was a positive correlation between job stress factors and nursing staff's perception of presenteeism. **Conclusion:** Presenteeism behavior is evidence for organizational risk-taking behavior with diverse implications in the nursing profession, in which the nursing staff perceived a high level of job stress associated with a high prevalence of presenteeism behavior during the coronavirus pandemic. **Recommendations:** Develop a policy and practices with more guidelines to avoid the vagueness regarding what nursing staff should do while sick. Moreover, promoting the coping strategies and conflict resolution for managing job stress among nursing staff to reduce presenteeism behavior.

Keywords: Coronavirus disease 2019, Nursing staff, Job stress, Prevalence, Presenteeism.

Introduction

Coronavirus Disease 2019 (COVID-19) is currently an emerging health problem that is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first discovered in December 2019 in Wuhan, China, and spread quickly worldwide to become pandemic **(WHO, 2020)**. The disease is highly contagious, in which fever, dry cough, weakness, myalgia, diarrhea, tiredness, and dyspnea are the main clinical symptoms **(Choi, et al., 2020; Liu et al., 2020; Zhou et al., 2020)**. Additionally, there may be other complications including, but not limited to, shock, acute kidney damage, gastrointestinal bleeding, respiratory failure, and rhabdomyolysis **(Qiu et al., 2020)**. As of September 7, 2020, the prevalence of the virus had infected 27.3 million cases with more than 893 thousand deaths, while the number of recoveries was close to 18.3 million in more than 210 countries around the world **(WHO, 2020)**. The control of critically ill patients with SARS-CoV-2 infection tends to be supportive rather than definitive, suggesting an extraordinary workload for nurses **(Qiu et al., 2020)**.

Nursing staff represents the majority of healthcare workforce and plays a crucial role in responding to these crises in public health

problems, including direct patient care and risk of exposure to infectious diseases **(Bhagavathula et al.. 2020; Choi et al., 2020)**. Nursing staff is valuable resources in fighting this pandemic in each country and their health is important not only for ensuring quality and for promoting the safety of patient care but also for controlling and preventing infection of any outbreaks **(Fernandez et al., 2020; Liu et al., 2020)**. Many nurses prefer to attend the work even if suffering from low-efficiency physical or psychological problems rather than an absence to earn full wages and maintain their employment that entitled the act of presenteeism **(Coutu et al., 2015; Ospina et al., 2015)**.

Cary and Cooper (2016); Malhi et al., (2016) defined the presenteeism phenomenon as a contemporary concept showing up nurses at work despite their complaints and ill health. Moreover, **Yang et al., (2017)** described presenteeism as chatting, procrastination, or surfing the internet, which decreases nursing staff performance. It is a global occupational health problem that prevalent among healthcare providers particularly among nursing staff, which cause cost organizations much more than absenteeism does **(Ospina et al., 2015; Mekonnen et al., 2018; Santos et al., 2018; Wee et al., 2019)**. Increasing evidence shows that presenteeism represents a "silent problem" but a significant source for losing productivity below-normal work quality that causing reduction in work performance, loss of concentration, increasing absenteeism, and presence of musculoskeletal symptoms **(Ospina et al., 2015, Santos et al., 2018)**.

In another scene, **Malhi et al., (2016**) classified presenteeism into two dimensions; completing work and avoiding distraction. The focus of completing work dimension refers to the amount of work accomplished accompanied by some kind of ill. The focus of avoiding distraction indicates the ability to concentrate in the process of doing work despite some sort of sick. Nevertheless, during the extreme acute and chronic disease outbreaks, nurses care for patients under unprecedented stress with a high risk of infection, stigma, understaffing, and confusion, therefore adequate assistance during and after the outbreaks was a high priority **(Lin et al., 2011)**.

The literature review has declared that nursing is a strenuous work associated with high workload, long working hours, clinical challenges, dissatisfaction with wages and benefits, understaffed, working on holidays, and demands communications with patients, peers, and physicians **(Umann et al., 2014; Mo et al., 2020)**. Therefore, stress is inherent to the nursing profession and prevailing among nursing staff **(Kwiecień-Jaguś et al., 2018; Kim et al., 2019)**. The unusual circumstances of the work environment lead to the creation of job stress that further results in negative consequences and poor quality of patients' care. During the COVID-19, nurses play a vital role in infection prevention and control during patients' hospitalization that contributing to greater physical and psychological stress symptoms, which adversely affect their health and well-being **(Mo et al., 2020)**.

Prevalence is the proportion of individuals who have a specific characteristic over a time period that offers an indicator of the frequency of an event or a phenomenon **(Mekonnen et al., 2018; Mdziniso, 2016)**. Therefore, the explosion of presenteeism prevalence among nursing staff is a critical issue particularly if accompanied by job stress that can stimulate undesirable feedback of increased costs and burdens during the crisis of COVID-19 **(Yang et al., 2017)**. **Malhi et al., (2016)** stated that stressful work, lack of social support, experiencing health problems, inability to adjust the amount and type of work within the allotted time are the predisposing factors that prompt the incidence of presenteeism.

Significance of the study:

Notably, presenteeism and job stress are perplexing issues in the nursing field that must receive increasing attention. The responsibility of nurses towards maintaining the health and wellbeing of the patients makes presenteeism a serious problem. The prevalence of presenteeism among nursing staff may lead to a reduction of work efficiency, a declining standard of care, impaired social functioning, low morale of employees and job

insecurity/turnover, as well as deterioration of their health, and jeopardizing patient safety **(Umann et al., 2014; Wee et al., 2019)**.

Nevertheless, there has been little researches focused on nursing staff presenteeism and job stress. The presenteeism behavior has not been measured in Egypt. Therefore, management of presenteeism and stress will save cost and effort in both the short and long term that contribute to the development of a productive workforce. Therefore, this research emphasized studying the job stress and prevalence of presenteeism among nurses at Tanta University Hospitals.

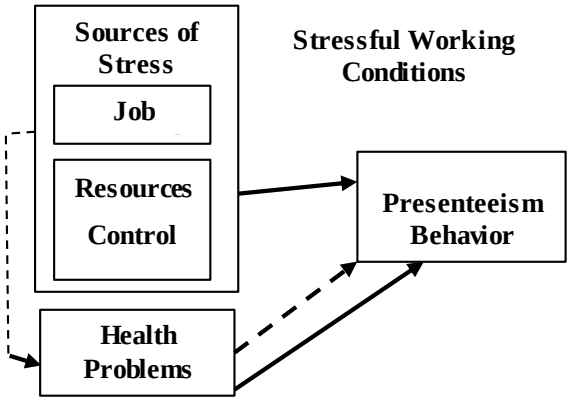

Figure (1): Conceptual Model Study the Relationship between Sources of Job Stress and Presenteeism

Aim of the study:

This research aimed to assess the job stress and presenteeism prevalence, as well as verify the associations between two concepts among nurses who work in different departments at Tanta University Hospitals during the outbreak of pandemic Coronavirus Disease 2019.

Research's questions

The current study designed to answer the following research's questions:

1. What are the levels of job stress among nursing staff working at Tanta University Hospitals?
2. What are the prevalence and experiences of presenteeism among nursing staff working at Tanta University Hospitals?
3. What is the relation between the nurses' job stress and their presenteeism behavior?

Methods:

Conceptual framework: Jourdain and Vézina (2014) were developed the conceptual model to study the relationship between sources of job stress and presenteeism behavior, which used as a basis for conducting this study as shown in figure (1). It explains the effects of high job demands, inability to manage the working environment, lack of social support from managers and colleagues, as well as presence of nursing staff health problems contributing to the tendency of presenteeism.

Research design: This study used a cross-sectional, correlational design to answer the research questions. This design is more suitable to provide an accurate explanation of respondents' prevalence of presenteeism behavior, and perception of job stress in presence of tense working conditions of COVID-19, as well as explores the relationships between variables.

Research Setting: This study was conducted at governmental Tanta University Hospitals including; Main Hospital, and Emergency Hospital. It compromised the Intensive Care Units (ICUs) of Adults, Pediatric, Neonatal, Neurology, and Coronary Care Units (CCU), as well as male and female inpatient wards (Medical, Surgical & Pediatric) in the previously mentioned settings.

Subjects: A convenience sampling was utilized in this research, which involved 503 nursing staff who had either diploma, Bachelor of Sciences (BSc), or Master of Sciences (MSc) in nursing during the time of data collection. This sampling type enabled the researchers to collect the most readily available participants with the least cost, particularly during the COVID-19 crisis.

Research instruments: This study used a set of questionnaire that included the following sections:

(1) The first section was developed by the researchers, which involved the participants' demographic data including; hospital name, working unit, age, gender, marital status, distance from home to work, educational level, years of work experience, current position, method of delivering care, and salary/month. Moreover, two additional questions were asked; what is the type of employment in this hospital?, and what is the acuity/intensity of COVID-19 patients' cases?

(2) The second section incorporated the Extended Nursing Stress Scale (ENSS), which was developed by **French et al., (2000)**, and contained 57 items. It included eight parts; death and dying (7 items), conflict with physicians (5 items), inadequate psychological preparation (3 items), problems with peers (6 items), problems with supervisors (7 items), workload (9 items), uncertainty concerning treatment (8 items), patients and their families (9 items), and discrimination (3 items).

This tool was adapted by the authors to be suitable for participants' culture and study's aim through modifications, deletion, or clarifying of some items. It contained 44 items dividing into nine factors; (6 items) death and dying, (5 items) conflict with physicians, (3 items) inadequate emotional preparation, (5 items) problems relating to peers, (5 items) problems relating to supervisors, (8 items) workload, (8 items) uncertainty concerning treatment, and (4 items) patients and their families. The discrimination part has been deleted because it is not fit for the Egyptian culture. The nursing staff responses were used on a 5-point Likert scale ranged from 1 (never stressful) to 5 (extremely stressful).

Upper scores suggested a higher level of perceived stress. For each factor, the subtotal score was determined separately according to the number of statements. The total scale score ranged from 44-220. The levels of total stress score determined accordingly; (more than 80%) high level, moderate level (60 and 80%) and (less than 60%) low level **(Salari et al., 2020)**.

(3) The third section combined two parts. It entitled the presenteeism prevalence questionnaire (PPQ) that was established by the researchers. It comprised three questions including; "did it happened over the last six months that you experience presenteeism over the last six months of the COVID-19?" The answers involved yes or no. The second question asked about "how many times did you experience health problems while attending work?" The answers involved three categories; once (1), 2-5 times (2), and more than 5 times (3).

The last question asked about "what did the common reasons for presenteeism behavior in this crisis? This question had multiple answers involving; personal reasons (fear of salary cut off, fear to cause extra work of colleagues, shortage of alternative job opportunities, …… etc.) or organizational reasons (fear of disciplinary action, shortage of staff, limited pay for sick absence, …….. etc.). The nursing staff had the ability to choose more than one answer. It used to assess the prevalence of presenteeism behavior among nurses by dividing the number of nurses who had experienced presenteeism by the total number of surveyed nursing staff multiplying in 100. The participants' answers identified the most common causes of presenteeism behavior.

(4) The fourth section titled the Stanford Presenteeism Scale (SPS-6) that was developed by **Koopman et al., (2002)**, consisted of six items including two dimensions; completing work and avoiding distraction, each one involves three items. It was used to determine the ability to complete work-related tasks without distractions, despite experiencing a health problem. The participants were asked to indicate their level of presenteeism using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Three of the items in the dimension of avoiding distraction were scored reversely. The total score calculated by summing all scale items of participants.

Validity and reliability:

To test face and content validity, a panel of five experts from the nursing administration specialty was invited to review the previously described set of questionnaires. Therefore, the necessary modifications were made and the pilot study was carried out on 10% of the participants that excluded from the study's sample. In addition, the tools were tested two times for their reliability (test-retest reliability) with two separate weeks to ensure that the questionnaire was applicable and respondents' answers consistency. The values of Cronbach's alpha test coefficient were 0.91, 0.83, and 0.93 for the adapted ENSS, PPQ, and SPS-6 respectively. The least test-retest reliability value for nominal data of the questionnaire was 0.72.

Data Collection Procedures

The procedure of data collection was carried out through an online survey of the self-administered questionnaire that was convenient to be accessible to the majority of participants after being translated into the Arabic language. The researchers had collected the lists of participants' telephone numbers from the authoritative person in each department, then sent the survey link to the participants to be answered after explanation of the study's aim and had obtained their consent at the beginning of the survey. The estimated time to answer the questionnaire was consumed from 13 to 15 minutes for each participant. Two months and 15 days from the beginning of September to mid-November 2020 was utilized for data collection.

Ethical considerations

Prior to data collection, the approval for conducting the study was obtained from each hospitals' Chief Executive Officers (CEO). Moreover, written consent was gained from respondents after informed about the study's purpose. The participation of nursing staff in this research was voluntary without penalty from withdrawal or nonparticipation. Additionally, the participants' responses were kept confidential and anonymous.

Statistical analysis:

After the data collection stage was finished, the participants' responses were trans-copied to SPSS Statistics version 20 to be analyzed. The Mean, Standard Deviation (SD), and Range (Maximum-Minimum) were used to describe the quantitative variables, while the percentages were used to identify the qualitative variables. Analyzed data was done using the Pearson test and Chi-square for measuring correlation. The independent t-test was used for comparing the means and the analysis of Variance one-way ANOVA F test was applied to compare the means of more than two groups. The significance level was quantified at = 0.05.

Results:

Table (1) shows the frequency and distribution of nursing staff demographic data. It was apparent that 73% of participants were less than 30 years old with a mean score of 28.28±8.10, and the majority (94.0%) of them worked at Tanta Main University Hospital. More than two-thirds of participants (78.5%) were working in various critical care units (ICUs, CCU, Medical, pediatric, Neonatal & Neuro), while 21.5% of them worked in the inpatient units. Moreover, 76.3% of them had less than 10 years of experience with a mean score of 28.28 ± 8.10, 52.3% of them were married, and 82.9% of them were females.

Additionally, 70.4% of participants had less than 36 hours/week with a mean score of 23.88 ± 11.55, 64.4% of them had a Bachelor of Science in nursing, 64.0% of them used the case method for delivering nursing care. More than half of the participants (59%) had less than eight patients census/day in a shift with a mean score of 14.62 ± 11.79, 61.8% of them lived far away from their work and 43.5% of their patients had severe acuity of illness. Furthermore, 59.4% of participants worked full time, 53.5% of them were staff nurses and two-thirds of them (66.6%) slept less than or equal to seven hours with a mean score of 7.19 ± 1.92.

Figure 2 represents the perceived levels of nursing stress factors among nursing staff. It was found that the utmost percent of nurses perceived a high level of nursing stress in all factors. Moreover, the topmost percent of

participants (44.1%) perceived a high level of overall nursing stress, while 30.4% and 25.4% of them perceived low and moderate levels of total mean scores of nursing stress respectively.

Figure 3 declares the mean scores' ranking of perceived nursing stress factors among the nursing staff. Accordingly, the ranking of prominent mean values stated that the workload (67.89) was perceived as the most important factor for causing nursing stress, followed by inadequate emotional preparation factor (66.68), death and dying factor (65.61), then the factor of conflict with supervisors (65.6) and after that uncertainty concerning treatment factor (65.07). Finally, the factors of patients and their families (62.07), problems with peers (61.80), and conflict with physicians (58.36) were perceived as the least factors of nursing stress.

Table 2 describes the prevalence of presenteeism among nursing staff over the last six months during the COVID-19. The table showed that the majority of participants (98.2%) had experienced presenteeism over the duration of COVID-19, while the rest of them (1.8%) did not have an experience of presenteeism. Additionally, more than half of them (57.5%) reported that the frequency of presenteeism was 2 – 5 times, while around one-third of them experienced presenteeism more than five times.

Figure 4 illustrates the percentages of presenteeism common reasons among nursing staff over the last six months. This figure highlighted that the majority of participants (77.7%) reported that the organizational factor was the main reason for presenteeism including; fear of disciplinary action (99%), shortage of staff (84.8%), organizational policy (67.8%), and limited pay for sick absence (59%). While, 58.7% of them reported that the personal factor was a reason for presenteeism incorporating job insecurity (95.5%), shortage of alternative job opportunities (89.5%), appreciated as a productive member (72%), professional obligation to the community (61.7%) and work commitment (60.5%), which represented the more prominent reasons.

Table 3 shows the perception of presenteeism among nursing staff over the last six months during the COVID-19. The majority of participants (74.6%, 75.7% & 61.8%) respectively told that their health problems always and often cause job stress, which difficult to be handled, distracted them from taking pleasure during their work, and felt them hopeless. On the other side, the highest percents (37.6%, 35.4% & 33.4%) of participants told that their health problems prevent them to be energetic enough to complete all work, inhibit them to focus on achieving goals, and impede them from finishing hard tasks respectively.

Table 4 states the correlation between nursing staff stress factors and their perception of presenteeism. The table revealed highly positive statistical significant correlations between both factors of nursing stress (workload and uncertainty concerning treatment) with presenteeism at r= 0.177, p=0.001 and r= 0.150, p=0.001 respectively. Moreover, positive statistical significant correlations also was found between nursing stress factors of inadequate emotional preparation (r= 0.126, p 0.005), conflict with a supervisor (r= 0.111, p=0.013), problems with peers (r=0.105, p= 0.018), and conflict with physician (p= 0.097, p= 0.030) with presenteeism.

Figure 5 illustrates the correlation between the total score of nursing staff perception of stress factors and presenteeism. The figure disclosed a positive statistically significant correlation between the total score of stress factors and nursing staff perception of presenteeism.

Table 5 describes the relationship between the nursing staff demographic data and their perception of nursing stress factors & presenteeism. It was noted the existence of statistically significant relationships between both participants' job stress and all their demographic data. While, there were statistical significant relations between participants' presenteeism perception and their demographic data of department's name (f=2.429, p<0.025), number of working hours/week (t=2.738, p<0.006), patient census / day in shift (t=2.540, p<0.012) and job title (f=6.048, p<0.001).

Table (1): Frequency and distribution of nursing staff's demographic data (n = 503)

Demographic data		No.	%
Age (years)	<30	367	73.0
	30-<40	85	16.9
	40-<50	37	7.4
	≥50	14	2.8
Mean ± SD.		28.28 ± 8.10	
Hospital name	Tanta Main University Hospital	473	94.0
	Tanta Emergency Hospital	30	6.0
Department	ICU	136	27.0
	CCU	98	19.5
	Pediatric ICU	48	9.5
	Neonatal ICU	33	6.6
	Neuro ICU	9	1.8
	Medical ICU	71	14.1
	Inpatient Units	108	21.5
Years of experience	<10	384	76.3
	10<20	68	13.5
	≥20	51	10.1
Mean ± SD.		7.24 ± 9.16	
Marital status	Not married	240	47.7
	Married	263	52.3
Sex	Male	86	17.1
	Female	417	82.9
Working hours/week	<36	354	70.4
	≥36	149	29.6
Mean ± SD.		23.88 ± 11.55	
Qualification	Secondary Diploma	18	3.6
	Technical Nursing/Health Institute	111	22.1
	Bachelor Science	324	64.4
	Postgraduate Diploma	22	4.4
	Master Science	28	5.6
Methods of care delivery	Case	322	64.0
	Team	84	16.7
	Functional	73	14.5
	Primary	24	4.8
Patient census/day in your shift	≤8	203	40.4
	>8	300	59.6
Mean ± SD.		14.62 ± 11.79	
Distance of Home from your work	Near	192	38.2
	Far	311	61.8
Acuity of patients' illness	Suspected	104	20.7
	Mild	54	10.7
	Moderate	126	25.0
	Severe	219	43.5
Type of employment	Full time	299	59.4
	Part time	174	34.6
	Volunteer	30	6.0
Job title	Nurse intern	144	28.6
	Staff nurse	269	53.5
	Head nurse	90	17.9
Number of sleeping hours	≤7	168	33.4
	>7	335	66.6
Mean ± SD.		7.19 ± 1.92	

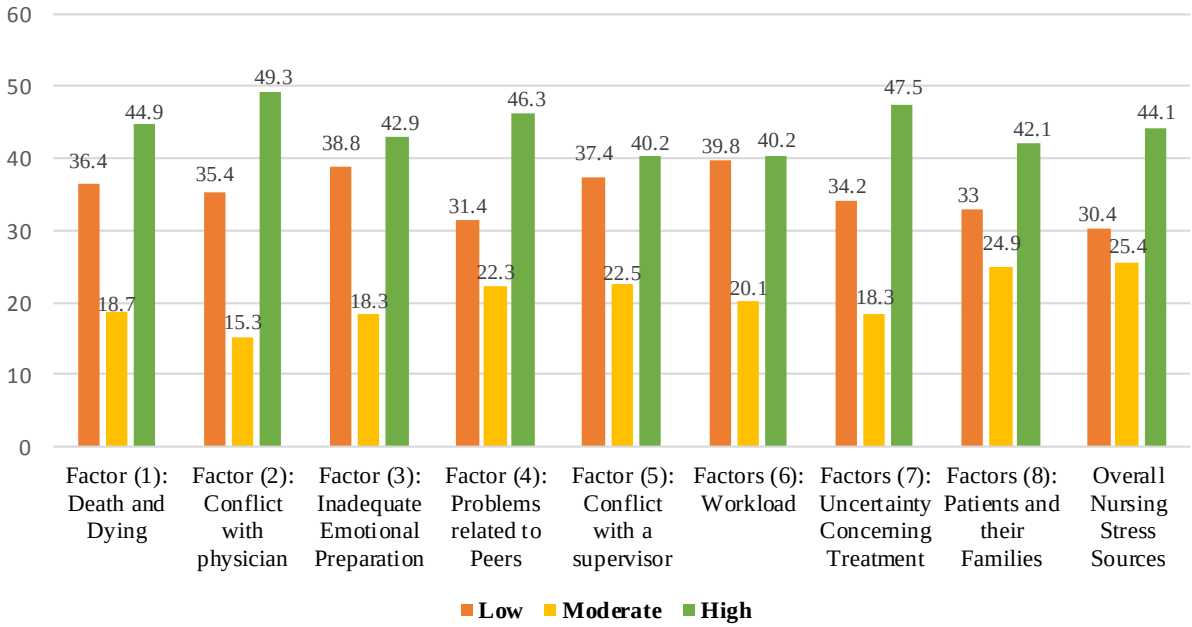

Figure (2): Perceived levels of stress factors among the nursing staff

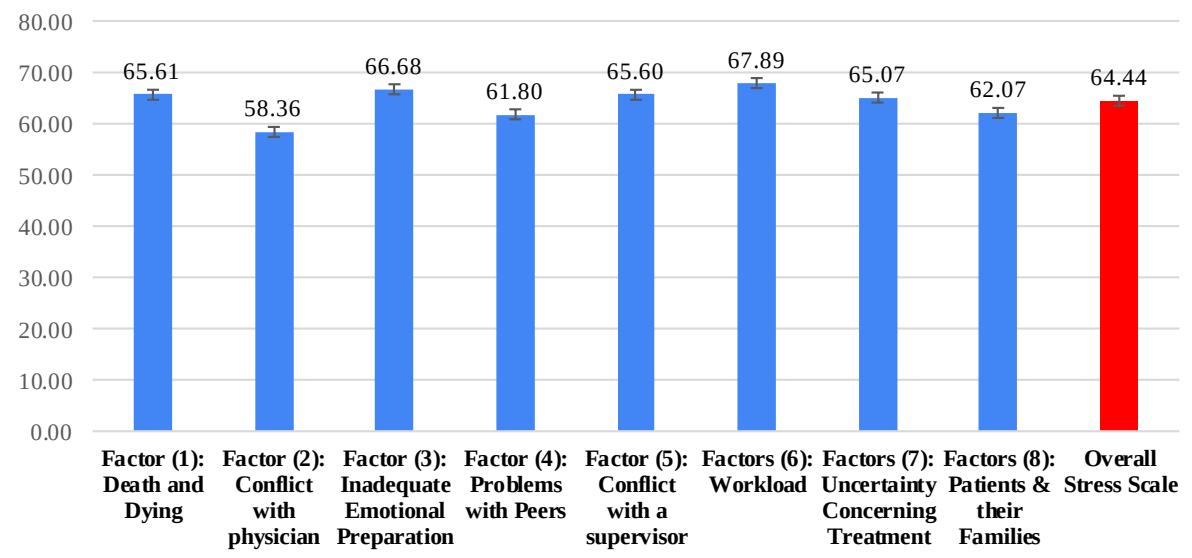

Figure (3): Mean scores' ranking of stress factors among the nursing staff

Table (2): Prevalence of presenteeism experienced among nursing staff over the last six-months during COVID-19 pandemic

Presenteeism scale	No.	%
Does it happened over the previous six months that you have experienced feeling of sick due to your state of health over a duration of COVID-19?	**(n = 503)**	
Yes	494	98.2
No	9	1.8
If your answer Yes, How many times did you experience health problems while attending the work?	**(n = 494)**	
Once	35	7.1
2 - 5 times	284	57.5
More than 5 times	175	35.4

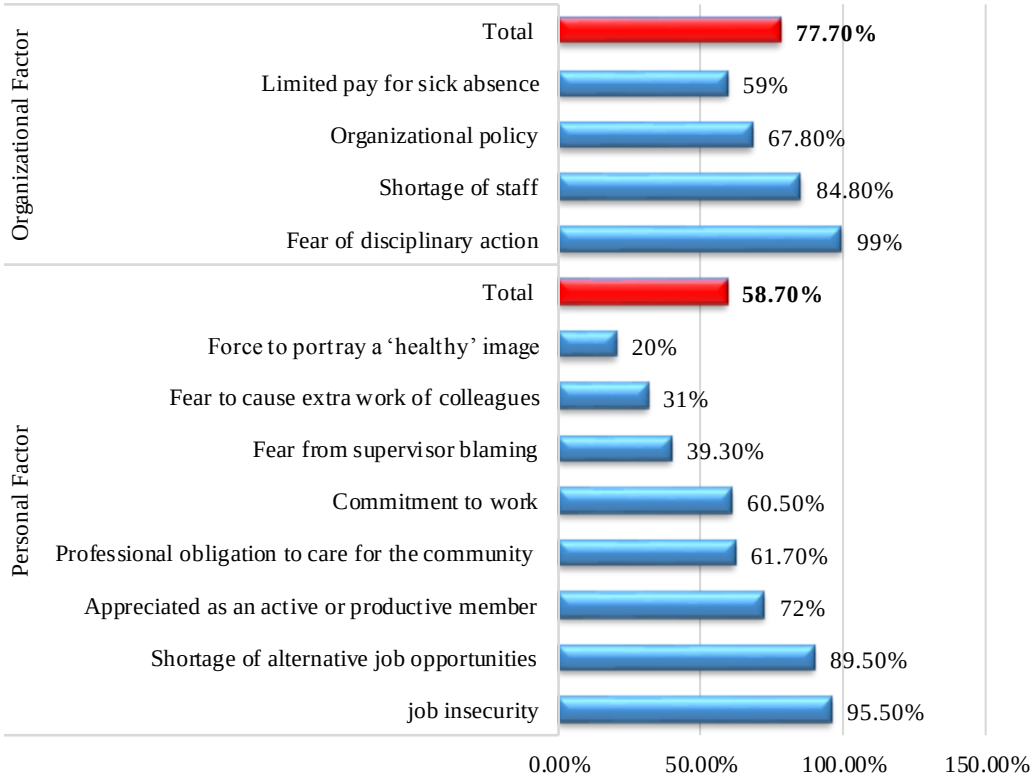

Figure (4): Percentages of presenteeism common reasons among nursing staff over the last six months

Table (3): Perception of nursing staff for presenteeism over the last six-months during COVID-19 pandemic

Items	Never		Rarely		Sometimes		Often		Always	
	No.	%	No.	%	No.	%	No.	%	No.	%
Because of my health problem, the stresses of my job were much harder to handle especially during COVID-19.	16	3.3	34	6.8	77	15.3	108	21.5	267	53.1
Despite having my health problem, I was able to finish hard tasks in my work.	168	33.4	149	29.6	74	14.7	70	13.9	42	8.3
My health problem distracted me from taking pleasure in my work.	27	5.4	11	2.2	84	16.7	128	25.4	253	50.3
I felt hopeless about finishing certain work tasks due to my health problem.	37	7.4	67	13.3	88	17.5	139	27.6	172	34.2
At work, I was able to focus on achieving my goals despite my health problem	178	35.4	144	28.6	92	18.3	58	11.5	31	6.2
Despite having my health problem, I felt energetic enough to complete all my work.	189	37.6	131	26.0	101	20.1	50	9.9	32	6.4

Table (4): Correlation between nursing staff stress factors and their perception of presenteeism

Expanded Nursing Stress Scale	Presenteeism scale	
	r	p
Factor (1): Death and Dying	0.072	0.107
Factor (2): Conflict with physician	0.097	0.030*
Factor (3): Inadequate Emotional Preparation	0.126	0.005*
Factor (4): Problems related to Peers	0.105	0.018*
Factor (5): Conflict with a supervisor	0.111	0.013*
Factors (6): Workload	0.177	0.001*
Factors (7): Uncertainty Concerning Treatment	0.150	0.001*
Factors (8): Patients and their Families	0.037	0.402
Overall Stress Scale	0.125	0.005*

r: Pearson coefficient, *: Statistically significant at $p \leq 0.05$

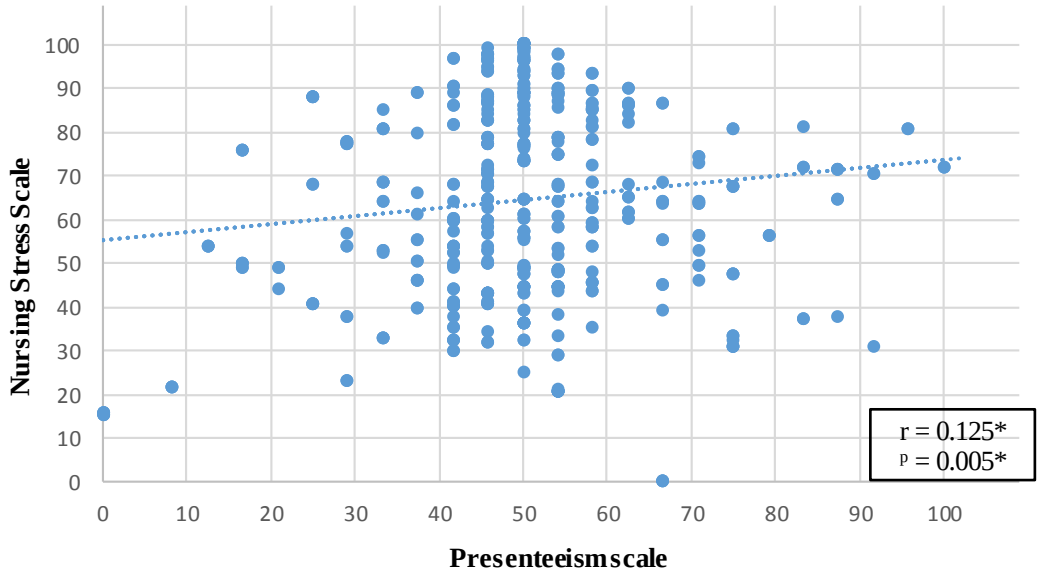

Figure (5): Correlation between the total score of nursing staff perception of stress factors and presenteeism behavior

Table (5): Relations between the nursing staff demographic data and their perception of stress factors & presenteeism

Demographic data	Test	Nursing Stress	Presenteeism
Age (years)	f(p)	12.139 (<0.001*)	0.372 (0.774)
Hospital's name	t(p)	2.242 (0.032*)	1.431(0.162)
Department's name	f(p)	3.409 (0.019*)	2.429 (0.025*)
Years of experience	f(p)	16.450 (<0.001*)	1.548 (0.214)
Marital status	t(p)	2.685 (0.008*)	0.378 (0.706)
Sex	t(p)	5.560 (<0.001*)	1.939 (0.053)
Working hours/week	t(p)	7.733 (<0.001*)	2.738 (<0.006*)
Qualification	f(p)	4.172 (0.002*)	0.857 (0.490)
Methods of care delivery	f(p)	7.502 (<0.001*)	1.826 (0.141)
Patient census per day in your shift	t(p)	5.118 (<0.001*)	2.540 (0.012*)
Distance of Home from work	t(p)	4.760 (<0.001*)	0.953 (0.341)
Acuity of patients' illness	f(p)	40.395 (<0.001*)	0.746 (0.525)
Type of employment	f(p)	40.867 (<0.001*)	1.433 (0.239)
Job title	f(p)	5.696 (<0.001*)	6.048 (<0.001*)
Number of sleeping hours	t(p)	5.135 (<0.001*)	1.330 (0.185)

t: Student t-test, F: F test (ANOVA), p: value for comparing between the studied categories,
***: Statistically significant at p ≤ 0.05**

Discussion:

Workplace presence has been assumed to be related to higher productivity, better performance, and staff health well-being. The attending workplaces cannot necessarily mean that nursing staff is in the best condition to work **(Kim et al., 2019)**. Indeed the risk of presenteeism is not limited in the short term, but it is most dangerous and costly in the long term especially if associated with stress factors. To date, no studies had been established concerning the causal relationship between stress factors' levels and presenteeism among nursing staff during the COVID-19 pandemic. Thus, the current study aimed to assess the job stress and presenteeism prevalence among nursing staff.

The current study findings indicated that the highest percentage of participants perceived a high level of overall nursing stress sources, in which 44.1% of them had a high level, and 25.4% of them had a moderate level. The logical explanation for these results was related to many reasons. The first reason may be due to that the vast majority of participants worked in ICUs and used the case method for delivering care of COVID-19 patients. The second reason was related to that the majority of participants were female with less than ten years of experience, slept less than 7 hours/day, and had many personal commitments including family caring needs. The third explanation may be linked to worrying about the scarce of necessary resources (especially personal protective equipment) that were required to protect them from infection of COVID-19 patients, and their inability to cope with the outbreak.

These findings accords with the Egyptian study of **Hendy et al., (2020)**, the Saudi study of **Tayyib and Alsolami (2020)**, and the Iranian study of **Aziznejadroshan et al., (2020)** whose showed that nurses had high levels of anxiety and stress during the COVID-19 outbreak. Moreover, the study of **Said and El-Shafei (2020)** argued that approximately all work-related physical, psychological, and social stressors elevated among nurses who worked in COVID-19 triage hospitals compared to those who work in general hospitals. Furthermore, the Chinese studies of **Hu et al., (2020)** and **Huang et al., (2020)** reported that the front-line nurses experienced stress associated with extreme levels of anxiety, fear, sadness, and anger during the COVID-19 outbreak.

According to the present findings, the nursing staff perceived workload as the most important factor for causing stress, followed by inadequate emotional preparation, death and dying, conflict with supervisors, and uncertainty concerning treatment. Then patients and their families, problems with nurses, and conflict with physicians were other factors of stress. These results attributed to nurses' lack of information and awareness regarding the management plan of novel COVID-19, which associated with increasing numbers of confirmed and suspected cases. Besides, the psychological distress caused by the surrounding community due to stigma disease exposure (family members, neighbors, friends) and lack of supervisors' support. These results consistent with **Said and El-Shafei (2020) and Hendy et al., (2020)** findings, which stated that nurses had aggregated job stress factors in increasing workload, dealing with death and dying, inadequate emotional preparation, and uncertainty concerning treatment during the COVID-19 outbreak.

The present findings highlighted that the vast majority of nursing staff attended to work while sick during the last six-months. Additionally, more than half of them reported that the frequency of experienced presenteeism was 2 – 5 times, while around one-third of them was countered presenteeism more than five times. This indicated that the participants suffered from the high presenteeism prevalence over the last six months during the period of COVID-19 outbreak. These results were recognized as understaffing, irregular working hours, fear of infection, and separation from family for two weeks (incubation period of coronavirus). This crisis forced the nurses to attend the work

while they were ill that affected their performance, thus impaired the patient care quality and threatening their life.

These findings aligned with **Homrich et al., (2020)** and **Sendén et al., (2016)** results who displayed the high prevalence of presenteeism among healthcare personnel that aggregated to serious errors. Moreover, the American study of **Szymczak et al., (2015)** stated that 83.1% of nurses reported presenteeism at least one time, in the past year. In this regard, **Lui and Johnston (2019)** noted that nurses are four times more likely to display presenteeism relative to other professions. In addition, the Turkish study of **Aysun and Bayram (2017)** demonstrated a higher tendency of presenteeism among nurse-midwives, University health staff and health workers.

These research findings provided evidence that the organizational factors were the dominant reason for presenteeism among nursing staff rather than the personal factors. The reasons of organizational factors included fear of disciplinary action, shortage of staff, organizational policy, and limited pay of sick leave. On the other hand, the reasons of personal factors involved job insecurity, shortage of job opportunities, to be an appreciated member, professional obligation to the community, job commitment, and fear of supervisor blaming.

These findings can be justified that the majority of participants told that their health problems always and often cause job stress that difficult to be handled, distracted them from taking pleasure during their work, and felt them with hopelessness. Furthermore, around one-third of them told that their health problems prevented them to be energetic enough to complete all work, inhibited them to focus on achieving goals, or finished hard tasks.

Similarly, the Lebanon study of **Mach et al., (2018)** identified that the organizational variables play a crucial role in the creation of presenteeism behavior among healthcare professionals due to low autonomy, role ambiguity, and inadequate manager support. In this scene, **Szymczak et al., (2015)** proposed that the healthcare professionals involved in sickness presenteeism due to responsibility's feelings, patients' commitment, lack of coverage, fear of disappointing colleagues, fear of colleagues' ostracism, and dominance of presenteeism culture. The other reasons included unsupportive supervisors, under delegation, professional image maintaining, and doubts about the meaning of "too ill to work". While **Dietz and Scheel (2017)** decided that supervisor and time pressure are the most stated reasons for presenteeism among the academic staff who work in 30 German universities.

The present findings confirmed a positive, statistically significant correlation between nursing staff's perception of job stress factors and presenteeism. This result means that the increasing intensity of stress factors adversely disturbs the nurses' health status, particularly when they are forced to attend work while sick. This result was reasonable due to the increasing number of deaths and infected personnel among nursing staff, which acquired from close contact with COVID-19 patients, and lack of confidence in the viral vaccine.

This finding corresponds to the study of **Brborovic et al., (2016)**, who discovered the similar results among Croatian nurses working in a Public General Hospital. Likewise, **Yang et al., (2017)** documented a positive correlation between hindrance stress and presenteeism with the mediating effect of affective commitment. While another study of **Yang et al., (2017)** in the same year recognized that presenteeism had negatively correlated with challenge stress and positively correlated hindrance stress with partially mediating of health.

It was worth noting the existence of significant relationships between nurses' job stress and all their demographic data. This observation endorsed panic from unfamiliarity with stressful working environments of COVID-19 outbreak. Whilst

significant relations were found between nurses' perception of presenteeism and their demographic data of the department's name, the number of working hours/week, patient census/day in a shift, and job title. This implies an increase of presenteeism tendency among nurses who employed with critically ill patients for long hours with high patient census.

In this aspect, **Aziznejadroshan et al., (2020)** displayed significant relations between nurses' stress level and their age, having children, work experience, and employment status. While **Keykaleh et al., (2018)** suggested only a significant relation between nurses' job stress and their marital status. The **Yang et al., (2017)** results found that the nursing job stress had significant differences with working shift, payment structure, and achieving work-family balance. On the other hand, **Sendén et al., (2016)** explained that the prevalence of presenteeism is higher among older and females healthcare professionals. **Aysun and Bayram (2017)** claimed significant relations between nurses' presenteeism predispositions and their gender, age, profession, and perceived health status.

Study's limitations:

The current study employed a cross-sectional research design and convenience sample, both of which have shortcomings in terms of representation, findings' generalization, and bias. Furthermore, the study's participants recruited via WhatsApp to fill the questionnaire that had trouble reaching specific categories of individuals who no internet connectivity with time constrains.

Conclusion:

It was concluded that the presenteeism behavior is evidence for organizational risk-taking behavior with diverse implications in the nursing profession. The nurses perceived a high level of job stress associated with a high prevalence of presenteeism behavior during the COVID-19 outbreak. Workload, inadequate emotional preparation, death and dying, and conflict with supervisors were the most prominent factors for causing nursing stress. The organizational factors were the dominant reasons for presenteeism among nurses rather than the personal factors. The emphasis implies a positive correlation between nursing stress factors and nurses' perception of presenteeism. Moreover, strong relationships between nurses' job stress and all their demographic data, as well as between nurses' presenteeism and their department's name, number of working hours/week, patient census/day in shift, and job title.

Recommendations:

Based on the abovementioned findings, the study recommended to:

- Develop a policy and practices with more guidelines to avoid the vagueness regarding what nursing staff should do while sick.
- Establishment of a training workshop for nurse managers about the meaning, reasons, and consequences of presenteeism and its impact on organizational cost.
- Arrangement of workplace ergonomic factors that facilitate the nursing staff workload, and eliminate the presenteeism tendency.
- Promoting the coping strategies and conflict resolution for managing job stress among nursing staff to reduce presenteeism behavior.
- Ensuring the implementation of periodical medical interventions, follow up and vaccinations for nursing staff to reduce the presenteeism propensity.
- Enhancement of supervisors' support through building of conducive work environment (using flexible schedule, allowing break time, permitting paid sick leave), positive interpersonal relationships, and promoting staff rewards among nursing staff especially during the epidemic outbreak.
- Conducting a longitudinal future research to identify the adverse events of presenteeism especially on nursing staff health and patients' safety.

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