

## PRESENTEEISM AMONG NURSING STAFF OF INTENSIVE CARE UNITS

By

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### Abstract

**Introduction:** Presenteeism is an emerging occupational health problem that affects nurses; however, it receives little attention despite its culmination in poor health and sickness absenteeism. Nurses have high rates of mental and physical health conditions that may make them more at risk for presenteeism. **Aim of Work:** To measure the prevalence of presenteeism among nurses at intensive care units and determine its possible associated risk factors. **Materials and Methods:** A comparative cross-sectional study was conducted among 160 nurses at intensive care units of the main Mansoura University hospital and 160 nurses not working in ICUs from the same hospital. A questionnaire was used to study socio-demographic characteristics, occupational profile of nurses, and history of physical complaints in the past 12 months. Nurses' presenteeism and performance was assessed using Stanford presenteeism scale-6 (SPS-6). **Results and Recommendations:** All nurses in both study groups reported having presenteeism in the past twelve months. ICUs nurses had a significantly lower mean SPS-6 total presenteeism and "avoid distraction" dimension scores and significantly higher mean "completing work" dimension scores than the comparison group. However, higher scores (>18) of SPS-6 total score were significantly less reported among ICUs nurses (75%) compared to the comparison group (85%). The independent predictors of higher presenteeism were being female, graduated from the Technical Institute of Nursing, having musculoskeletal complaints, with high job demands, high decision latitude, and having an additional job. **Conclusion:** High presenteeism represents a health problem among nursing staff. It can be ameliorated through health education, provision of rest breaks during work, and regulation of work for facilitating sick leaves when needed.

**Keywords:** Presenteeism, Intensive care units, Nurses, Stanford presenteeism scale-6

## Introduction

Presenteeism is a serious organizational burden and represents a health and patient safety problem (Critz et al., 2020). It occurs when employees go to work while sick and are incapable of performing effectively because of their illness (Lohaus and Habermann, 2019). It can be broadly defined as “decreased productivity and below-normal work quality” when physically present at work (Hemp, 2004).

Presenteeism has been linked to stress at work, loss of productivity, decreased patient safety, and increased health problems in professionals suffering from it (Baldonado-Mosteiro et al., 2020). In the healthcare industry, high rates of presenteeism are common among healthcare workers, including registered nurses and nurse aides, regardless of their work setting. For example, in 2005, 44% of Swedish health sector workers reported frequent presenteeism (Dhaini et al., 2016). Worldwide, nurses have a high presenteeism rate (Critz et al., 2020) where 80.7% of nurses go to work while they feel sick (Mdziniso, 2016).

Intensive care units (ICUs) are critical and specialized places for patients who require skilled professional assistance. In ICUs, there must be human resources, essential

equipment, and material for monitoring and treatment of critically ill patients, and giving them specialized care (Silva et al., 2019). Working at ICUs requires an adequate level of specialization in a complex work environment which includes several conflicts and end-of-life care issues (Moon & Kim, 2015).

Furthermore, the intensification of work daily routine has become a source of physical fatigue and mental breakdown, which might cause stress, as the individual commonly goes to work without being capable of performing the tasks (Bubonya et al., 2017).

Presenteeism has increased during the past few years especially between nurses and care assistants, among other healthcare employees, and to the best of the authors' knowledge, no studies have investigated the problem of presenteeism among nurses at ICUs in Mansoura city.

### Aim of Work

To measure the prevalence of presenteeism and determine its possible associated risk factors among nursing staff of ICUs at Mansoura city.

### Materials and Methods

**Study design:** A comparative cross-sectional study.

**Place and duration of the study:**

This study was conducted on the nursing staff of seven ICUs in the main Mansoura University Hospital (MUH): Chest, Anesthesia, Neurosurgery, Neurology, Internal medicine, Hematemesis, and Surgery ICUs during the period from January 1<sup>st</sup> to June 30<sup>th</sup>, 2020.

**Study sample:**

- A total of 180 ICUs nurses out of 223 were eligible (with inclusion criteria) to participate in the study; 160 (88.9%) were included in the present study, and 20 (11.1%) refused to participate.
- Inclusion criteria: both sexes, all shifts and ranks, temporary and permanent contract, working at the ICUs for at least one year, and on duty.
- A comparison group of 160 nurses from the same hospital, matching the study group in most of the confounding factors apart from working in ICUs, were included in the study.

**Study methods:** Each participant was subjected to a **questionnaire** that was developed and translated into Arabic by authors and it was administered during a face-to-face

interview to collect the following data:

1. Socio-demographic and occupational profiles e.g., age, sex, marital state, smoking history, residence, educational level, participants' perception of present health, type of contract, duration of employment, and shift work.
2. Psychological job demands were measured by 5 items with a 4-point scale. The psychological job demands index was measured by summing of scores, with 5 as minimum and 20 as maximum. Similarly, the decision latitude was measured by six-item scale, with 6 as minimum and 24 as maximum. Decision latitude and psychological job demands were expressed as "high" and "low", based on median score relative to cut-off value (18 and 13 for decision latitude and job demands, respectively) (Theorell et al., 1998).
3. Medical history (physical complaints and medical disorders) over the past 12 months.
4. Prevalence of presenteeism: the following question was utilized: Has it happened over the previous twelve months that you have gone

to work despite feeling that you really should have taken sick leave due to your state of health? If they had answered positively (yes) they should complete a validated Arabic version of the short version of the Stanford presenteeism scale-6 (SPS-6).

5. Stanford presenteeism scale-6 (SPS-6): SPS-6 consists of six items that measure individuals' self-rated work performance while they are affected by presenteeism. It has two dimensions: 'Completing Work' (items 2, 5, and 6) refers to the amount of work accomplished despite being sick and 'Avoiding Distraction' (items 1, 3, and 4) refers to the ability to concentrate when there is a factor that favors presenteeism. The total score ranges between 6 and 30. Lower scores ( $\leq 18$ ) denote presenteeism, reduced performance of work activities. Higher scores ( $> 18$ ) denote better performance at work despite health problems (Koopman et al., 2002).

The reliability of Arabic version of the short version of the SPS-6 Scale was tested on 20 nurses, not included in the full-scale study. The test-re-test correlation coefficients ranged from

0.71-0.79. The Cronbach's alpha was 0.80. The contents validity indices (CVI) for different items of the scale ranged from 0.90 to 1.0 as judged by a jury of 10 experts in occupational medicine. Item Content Validity Index (I-CVI) of SPS-6 for both clarity and relevance ranged from 0.90 to 1.0. The Scale Content Validity Index (S-CVI) was 0.95 for relevance and 0.90 for clarity. On the contrary, Expert Content Validity Index (E-CVI) ranged from 0.66 to 1.0 for relevance and 1.0 for clarity. Content validity index (CVI) was judged by a jury of 10 experts in occupational health and industrial medicine.

### **Consent**

An informed consent was obtained from the participants with the assurance of confidentiality and anonymity of the data. They were assured that participation was voluntary and that they had the right to withdraw at any time.

### **Ethical Approval**

The study protocol was approved by Mansoura Faculty of Medicine-Institutional Research Board (code number: MS19.08.764). Approval of managing authority of ICUs of

Mansoura University Hospitals (MUH) was also obtained.

### **Data Management**

Data were entered and statistically analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Qualitative data were expressed as numbers and percentages.  $\chi^2$  test, Fisher's exact test, and Monte Carlo test were utilized to compare between groups, as appropriate. Quantitative data were expressed as mean  $\pm$  standard deviation or median after testing for normality using Kolmogorov-

Smirnov test. In normally distributed variables, independent sample t-test was used while in the non-normally distributed variables Mann-Whitney test was used for comparison between groups. Significant predictors of higher presenteeism in bivariate analysis were entered into a multivariate logistic regression using the forward Wald method and adjusted odds ratios (AOR) were calculated. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated.  $p \leq 0.05$  was considered statistically significant.

## Results

**Table (1): Socio-demographic and occupational profiles of the studied groups (No=160 each)**

Characteristics	ICU nurses No (%)	Comparison group No (%)	Test of significance
<b>• Socio-demographic</b>			
Age/ years (mean ± SD)	27.9 ± 4.2	28.1 ± 4.8	t = 0.4, p = 0.7
≤ 27	96 (60.0)	79 (49.4)	$\chi^2 = 3.6, p = 0.06$
> 27	64 (40.0)	81 (50.6)	
<b>Gender</b>			
Male	58 (36.3)	49 (30.6)	$\chi^2 = 1.1, p = 0.3$
Female	102 (63.7)	111 (69.4)	
<b>Marital status</b>			
Unmarried	58 (36.3)	43 (26.9)	$\chi^2 = 3.3, p = 0.1$
Married	102 (63.7)	117 (73.1)	
<b>Educational level</b>			
Faculty of nursing	82 (51.2)	77 (48.1)	$\chi^2 = 0.3, p = 0.9$
Technical Institute of Nursing	66 (41.3)	70 (43.8)	
Nursing diploma	12 (7.5)	13 (8.1)	
<b>Residence</b>			
Rural	121 (75.6)	124 (77.5)	$\chi^2 = 0.2, p = 0.7$
Urban	39 (24.4)	36 (22.5)	
<b>Current smoking</b>	14 (8.8)	6 (3.8)	$\chi^2 = 3.4, p = 0.07$
<b>Statement of present health (As reported by participants)</b>			
Good	108 (67.5)	126 (78.8)	$\chi^2 = 5.2, p = 0.02^*$
Bad	52 (32.5)	34 (21.3)	
<b>• Occupational profile</b>			
<b>Type of contract</b>			
Permanent	147 (91.9)	153 (95.6)	$\chi^2 = 1.9, p = 0.2$
Temporary	13 (8.1)	7 (4.4)	
<b>Duration of employment/years</b>	5 (1.2 – 22)	6 (1.1 – 22)	Z = 1.9, p = 0.06
<b>Shift work</b>			
Yes	131 (81.9)	129 (80.6)	$\chi^2 = 0.08, p = 0.8$
NO	29 (18.1)	31 (19.4)	

\*: Statistically significant.

Table 1 showed that there is no statistically significant difference between both groups as regards socio demographic characteristics. However, a statistically significant low percentage of ICUs nurses (68%) reported that their health status was good compared to 78.8% of the comparison group. Most ICUs nurses as well as the comparison group had a permanent contract (91.9% and 95.6%, respectively) and worked in shifts (81.9% and 80.6%, respectively).

**Table (2): Distribution of physical complaints and medical disorders as reported by the studied groups in the past 12 months (No=160 each)**

Complaints/ Disorders <sup>#</sup>	ICU Nurses	Comparison group	Test of significance
	No (%)	No (%)	
Fatigue	111 (69.4)	59 (36.9)	$\chi^2 = 33.9, p < 0.001^*$
Headache	94 (58.8)	90 (56.3)	$\chi^2 = 0.2, p = 0.7$
Digestive	93 (58.1)	45 (28.1)	$\chi^2 = 29.4, p < 0.001^*$
Musculoskeletal	84 (52.5)	46 (28.8)	$\chi^2 = 18.7, p < 0.001^*$
Eye	52 (32.5)	33 (20.6)	$\chi^2 = 5.8, p = 0.02^*$
Neurological	44 (27.5)	24 (15.0)	$\chi^2 = 7.5, p = 0.006^*$
Skin & subcutaneous tissue	42 (26.3)	9 (5.6)	$\chi^2 = 25.4, p < 0.001^*$
Respiratory	38 (23.8)	22 (13.8)	$\chi^2 = 5.3, p = 0.02^*$
Cardiovascular	36 (22.5)	20 (12.5)	$\chi^2 = 5.5, p = 0.02^*$
Ear	30 (18.8)	17 (10.6)	$\chi^2 = 4.2, p = 0.04^*$
Urinary	24 (15.0)	26 (16.3)	$\chi^2 = 0.1, p = 0.8$

<sup>#</sup>: Categories are not mutually exclusive.

\*: Statistically significant.

The prevalence of all physical complaints and disorders during the past 12 months was statistically significantly higher among ICUs nurses compared to the control group except for headache and urinary complaints (Table 2).

ICUs nurses had significantly more upper and lower back musculoskeletal complaints compared to the comparison group ( $p=0.005$ ,  $p=0.004$ , respectively) (Data were not shown in the tables).

**Table (3): Stanford presenteeism scale (SPS-6); total and dimensions scores among the studied groups (No=160 each)**

Scores	ICU Nurses	Comparison group	Test of significance
<b>SPS 6 score (M±SD)</b>	21.7 ± 5.1	24.4 ± 4.9	<b>t = 4.8, p &lt; 0.001*</b>
Higher score (>18) No (%)	120 (75.0)	136 (85.0)	<b>χ<sup>2</sup> = 5.0, p = 0.03*</b> OR (95% CI) =1.9 (1.1-3.3)
Lower score (6-18) No (%)	40 (25.0)	24 (15.0)	
<b>Completing work (M±SD)</b>	12.4 ± 2.2	11.7 ± 3.5	<b>t = 2.1, p = 0.04*</b>
<b>Avoiding distraction (M±SD)</b>	9.3 ± 3.4	12.0 ± 3.1	<b>t = 7.6, p &lt; 0.001*</b>

OR = Odds Ratio

CI = Confidence Interval

\*: Statistically significant.

All nurses reported that having presenteeism (100%) (Results are not shown in the table)

ICUs nurses had a significantly lower mean SPS-6 total presenteeism and “avoid distraction” dimension scores and significantly higher mean “completing work” dimension scores than the comparison group. However, higher scores (>18) of SPS-6 total score were significantly higher among the comparison group (85%) compared to ICUs group (75%) (Table 3).

**Table (4): Significant risk factors for presenteeism among the studied groups (No = 320)**

Risk factors	Higher presenteeism No = 256	Lower presenteeism No = 64	Test of significance OR (95%CI)
	No (%)	No (%)	
<b>I. Personal factors:</b>			
<b>Gender</b>			
Male	74 (28.9)	33 (51.6)	$\chi^2 = 11.8, p = 0.001^*$ 0.4 (0.2-0.7)
Female	182 (71.1)	31 (48.4)	
<b>Marital status</b>			
Married	183 (71.5)	36 (56.2)	$\chi^2 = 5.5, p = 0.02^*$ 2.1 (1.1-3.4)
Unmarried	73 (28.5)	28 (43.8)	
<b>Educational level</b>			
Faculty of nursing	123 (48.0)	36 (56.2)	Monte Carlo test, p = 0.02*
Technical Institute of Nursing	117 (45.7)	19 (29.7)	
Nursing diploma	16 (6.2)	9 (14.1)	
<b>Health status</b>			
Fatigue	151 (59.0)	19 (29.7)	$\chi^2 = 17.6, p < 0.001^*$ 3.4 (1.9-6.2)
Headache	164 (64.1)	20 (31.2)	$\chi^2 = 22.6, p < 0.001^*$ 3.9 (2.2-7.1)
Musculoskeletal complaints	122 (47.7)	8 (12.5)	$\chi^2 = 26.2, p < 0.001^*$ 6.4 (2.9-13.9)
<b>II. Job-related factors:</b>			
High job demands	241 (94.1)	45 (70.3)	$\chi^2 = 30.6, p < 0.001^*$ 6.8 (3.2-14.3)
High decision latitude	250 (97.7)	50 (78.1)	Fisher's exact, p < 0.001* 11.7 (4.3- 31.8)
Additional job	48 (18.8)	4 (6.2)	$\chi^2 = 5.9, p = 0.02^*$ 3.5 (1.2 -9.9)
Subjective job satisfaction	207 (80.9)	43 (67.2)	$\chi^2 = 5.6, p = 0.02^*$ 2.1 (1.1 -3.8)
Duration of employment /(years)			
≤6	148 (57.8)	46 (71.9)	$\chi^2 = 4.2, p = 0.04^*$ 0.5 (0.3 -0.9)
>6	108 (42.2)	18 (28.1)	
Shift work	215 (84.0)	45 (70.3)	$\chi^2 = 6.3, p = 0.01^*$ 2.2 (1.2 -4.2)

\*: Statistically significant.

Table 4 showed that presenteeism was significantly higher among female nurses (71.1%), married (71.5%), graduated from the Faculty of Nursing (48%) and the Technical Institute of Nursing (45.7%). As regard health status, presenteeism was significantly higher among nurses who had headaches (64.1%), fatigue (59.0%), and musculoskeletal complaints (47.7%). Concerning job-related factors, presenteeism was significantly higher among nurses employed  $\leq 6$  years (57.8%), with high job demands (94.1%), high decision latitude (97.7%), who had shift work (84.0%), additional job (18.8%), and nurses satisfied with their jobs (80.9%).

**Table (5): Logistic regression analysis of independent predictors of higher presenteeism among the studied groups**

Independent predictors	$\beta$	p	AOR (95% CI)
<b>Gender</b>			
Female	1.3	<0.001*	3.8 (1.9 - 7.7)
Male (r)			
<b>Educational level</b>			
Faculty of Nursing	1.1	0.05	3.1 (0.99 - 9.8)
Technical Institute of Nursing	1.9	0.002*	6.9 (2.03 - 23.2)
Nursing diploma (r)			
<b>Musculoskeletal complaints</b>			
Yes	1.8	<0.001*	6.03 (2.5 - 14.9)
NO(r)			
<b>Job Demands</b>			
High	1.6	0.001*	4.99 (1.9 - 13.2)
Low(r)			
<b>Decision latitude</b>			
High	2.8	<0.001*	15.7 (4.1 - 60.1)
Low(r)			
<b>Additional job</b>			
Yes	1.3	0.04*	3.6 (1.1 - 11.7)
NO (r)			
<b>Constant</b>			-5.3
<b>Model <math>\chi^2</math></b>			<b>92.4, p &lt; 0.001*</b>
<b>% correctly predicted</b>			85.9%

AOR= Adjusted Odds Ratio

r = reference group.

\*: Statistically significant.

Logistic regression analysis (Table 5) showed that female nurses, graduated from Technical Institute of Nursing, having musculoskeletal complaints, with high job demands, high decision latitude, and having an additional job were independently associated with the likelihood of having higher presenteeism [AOR (95%CI); (3.8 (1.9-7.7), 6.9 (2.03- 23.2), 6.03 (2.5-14.9), 4.99 (1.9-13.2), 15.7 (4.1 – 60.1), 3.6 (1.1 – 11.7), respectively].

### **Discussion**

Presenteeism is the term used when people continue going to work even with a physical or psychological health problem. In such cases, the quality of the work performed may be impaired entailing lost productivity and reflecting in losses to workers' health, to the institution where they work, and to the society. It is also considered an early indicator of future sickness absence and disability pensions. Thus, its investigation is essential since it is possible to formulate strategies and means to mitigate its occurrence by knowing it better (Kigozi et al., 2017).

Healthcare professionals generally have a strong sense of duty, which can force them to attend work despite illness, especially during staffing shortages. Nurses have been reported to exhibit high rates of sickness presenteeism (SP) which is particularly problematic because it is linked to care quality and patient safety (Min et al., 2021).

The present work included 320 nurses (ICU nurses and the comparison group; 160 each). Both groups were comparable in all socio-demographic characteristics (Table 1).

The current study aimed to measure the prevalence of presenteeism among nurses and its possible associated factors. The prevalence of presenteeism among ICUs nurses and the comparison group in MUH was 100%. This agrees with Shan et al. (2021) who found that the prevalence of presenteeism among nurses was 94.25% in China. Relatively lower prevalence rate (75%) was reported by Linnerud (2013) in Norway, and much lower prevalence rate (55%) was reported by Mosteiro-Díaz et al. (2020) in Portugal.

These differences in prevalence rates may be due to the higher frequency of physical complaints reported by ICUs nurses such as fatigue, headache, digestive, and musculoskeletal disorders in the current study (Table 2). Similar chronic health conditions (fatigue,

headache, and back/neck pain) were significantly related to presenteeism in previous studies (Loeppeke et al., 2009; Lerner et al., 2010). Besides, professionals working in ICUs face a high number of working hours that cause physical and mental exhaustion leading to psychological and physical changes that may result in sickness presenteeism (Silva et al., 2019).

The current work showed that ICUs nurses and the comparison group had high mean total SPS-6 scores ( $21.7 \pm 5.1$ ,  $24.4 \pm 4.9$ , respectively) (Table 3). This is in agreement with the results of the study done by Mosteiro-Díaz et al. (2020) on presenteeism in nurses: comparative study of Spanish, Portuguese and Brazilian nurses and detected a mean total SPS-6 score of  $20.23 \pm 4.44$ .

Also, it was in accordance with the work of Brborović et al. (2014) on nurse presenteeism and patient safety culture associated: a cross-sectional study and reported that nurses had a mean total SPS-6 score of  $22.53 \pm 4.32$ , respectively. However, it is slightly higher than a study conducted in Pakistan where the overall presenteeism perceived by nurses was  $19.15 \pm 3.79$  (Malhi et al., 2016). The higher scores are indicative

of active engagement of nurses for a short duration and performing work tasks instead of being concerned about their health problems, conversely, there is much likelihood to have a negative influence among nurses on the long run, if this remains continuously (Brborović et al., 2014)

ICUs nurses had a significantly higher mean “completing work” dimension score than the comparison group ( $12.4 \pm 2.2$ ,  $11.7 \pm 3.5$ , respectively) (Table 3). The same result was obtained by Silva-Costa et al. (2020) who detected a mean completing work score ( $12.43 \pm 2.97$ ) at a public hospital in Brazil. The higher this score, the least the difficulties for the worker to finish his/her activities (Silva et al., 2019). Also, ICUs nurses had a significantly lower mean “avoiding distraction” dimension score than the comparison group ( $9.3 \pm 3.4$ ,  $12.0 \pm 3.1$ , respectively) (Table 3). This is in accordance with the results of the study conducted by Silva-Costa et al. (2020) who reported a mean avoid distraction score of ( $8.65 \pm 3.78$ ) where the lower this score, the higher the concentration of the individual at work, and a better psychological state (Paschoalin et al., 2013).

The current research work showed that nurses with high decision latitude had significantly higher presenteeism (Table 4). Johansson & Lundberg (2004) and Miraglia and Johns (2016), in their studies, agreed with this result. They suggested that high adjustment latitude reduces the likelihood of sickness absence (SA) in favor of sickness presenteeism because employees may be able to work with reduced intensity, despite feeling unwell, due to their capacities to adjust work characteristics to their temporary reduced ability. In fact, job control is expected to increase positive job attitudes, motivation, and dedication, which encourage employees to invest extra effort in meeting their job demands and go to work despite illness.

There was a significantly higher presenteeism among the studied nurses who had an additional job (Table 4). When the individual experiences long working days, perform excessive overtime, or has double employment, he/she may have his/her quality of life influenced negatively and submit to the highest levels of occupational stress resulting in excessive workload, favoring the occurrence of negative events like presenteeism (Quadros et al., 2016; Silva et al., 2019).

Married nurses reported significantly higher presenteeism compared to the control group (Table 4). It could be explained that married nurses are likely to consider not only themselves but also their families, spouses, and children and for fear of affecting family income, parenting ability, and quality of life by their absence behavior, they may be more likely to work while in poor health (Shan et al., 2021).

Also, nurses complaining of fatigue and headache reported significantly higher presenteeism (Table 4). These results agreed with a previous study that demonstrated that high presenteeism scores are associated with migraines, headaches, and tiredness (Merriman & Dalby, 2012).

In addition, nurses employed  $\leq 6$  years experienced higher presenteeism (Table 4). This result is supported by the findings of Yang et al. (2018) who stated that junior healthcare professionals showed higher presenteeism, although it disagrees with the findings of other researchers (Mosteiro-Díaz et al., 2020). This difference may be attributed to the nature of junior workers are more career-oriented and would rather come to work while sick (Gosselin et al.,

2013).

Higher presenteeism was reported among studied nurses who had shift work (Table 4). This is compliant with Jeon et al. (2014), and Min et al. (2021) who reported higher presenteeism among nurses working in shifts. Shift nurses are particularly vulnerable to long hours and insufficient rest and most of them take regular breaks during work hours indicating that these factors can lead to SP among them (Min et al., 2021).

Furthermore, higher presenteeism was detected among nurses satisfied with their jobs (Table 4). This is in line with a study carried out among nurses in Nigeria where the high prevalence of presenteeism was attributed to the high level of job satisfaction (Ofili et al., 2018). Besides, Miraglia & Johns (2016) revealed a positive association between job satisfaction and presenteeism where engaged workers satisfied with their job are motivated to practice good attendance even they are sick.

The independent predictors of higher presenteeism among the studied group were; being female nurses, graduated from Technical Institute of Nursing, having musculoskeletal complaints, high job demands, high

decision latitude, and had an additional job (Table 5).

Callen et al., 2013; and Santos et al., 2018 detected that being a female significantly predicts higher presenteeism. This may be due to the predominance of female nurses in this study (63.7%). Also, women may be more likely to show up for work while ill because they need the money and have lower seniority on the job than men (Callen et al., 2013). Additionally, women tend to display more symptoms of illness and come to work even though they may be sick (Yi & Kim, 2020).

Another significant predictor of higher presenteeism is being a Technical Institute of Nursing graduate. This finding coincides with a previous study which denoted that the health of employees with a lower level of education contributed more to presenteeism than the group with a higher level of education (Yang et al., 2015). However, Shan et al. (2021) found a non-significant relationship between presenteeism and education level.

The studied group nurses with musculoskeletal complaints have significantly higher presenteeism scores (Table 5). This result is consistent with a study done in Brazil

which revealed that musculoskeletal problems lead to presenteeism among nursing professionals and influenced their performance of work activities in relation to avoiding distraction, completing work, and an overall reduction in work activities performance (Santos et al., 2018).

Moreover, the present work showed that a job with high demands is a significant occupational predictor of higher presenteeism (Table 5). These findings are consistent with the outcomes of studies conducted by Linnerud (2013), and Schreuder et al. (2013) which suggested that high job demand is the most important risk factor of presenteeism among job stressors. Highly demanding occupations such as medicine, nursing, welfare, and teaching occupations usually involve great responsibilities, high workloads, and inflexible deadlines that make workers feel pressured to attend. Therefore, those high job demands lead workers to work while sick and have a greater risk of presenteeism (Aronsson et al., 2000).

**Conclusion:** All nurses in the studied groups reported having presenteeism in the past twelve months. It was found that female nurses, graduated from the Technical Institute of Nursing, having

musculoskeletal complaints, with high job demands and high decision latitude, and having an additional job were independently associated with the likelihood of having higher presenteeism among all nursing staff.

**Recommendations:** Presenteeism is high among nurses in ICUs and this can be ameliorated through provision of rest breaks during work hours, conducting ongoing ergonomics educational programs on right working postures and application of ergonomics principles at work, offering mechanical aids for proper positioning of patients, increasing the number of male nurses as nursing is a highly demanding job requiring force, and finally increasing the number of highly educated nurses in ICUs and encourage other nurses to achieve a higher level of education through training courses and workshops.

#### **Conflict of Interest**

None

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