

The Effect of Workload on Nurses Who Are Taking Care of COVID-19 Patients

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Abstract

Nurses, especially ICU staff, complain of high level of stress regarding the workload. This can be related to many factors such as: nurse-patient ratio, doctor's orders, timing, hospital environment to name a few. Nursing workload can be defined as all nursing work that must be carried out over a defined period of time. For example the effect of workload on covid-19 patients in intensive care units (ICUs) showed that higher RN staffing was associated with lower levels of hospital related mortality. Each additional full time equivalent RN per patient day corresponds to a 9% reduction in odds of death in ICUs. The aim of this study was to determine the extent of the effect of workload on nurses and other associated factors. A descriptive cross-sectional study was conducted in July to September 2020. 406 staff nurses were enrolled in the study. Instrument of the study was a questionnaire on the effect of workload on nursing staff who were taking care of covid-19 patients. Multiple logistic regression was utilized to identify the factors associated with high nursing workload of nurses. By using bivariate analysis; workload was found to be significantly associated with: nurse patient ratio, duty hours and type of department; the critical care units such as ICU, CCU and HD complained of higher workload (28.8, SD 3.7) than general units (20.7, SD 3.0) the P-value was 0.033. There was no significant difference between the workload and other demographic variables such as: environmental status, nationality, and type of hospital.

Keywords: Nursing workload, high level of stress, COVID-19 patients, family support, nurse-patient ratio.

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INTRODUCTION

Nurses, especially ICU staff, complain of high levels of stress regarding the workload. This can be related to many factors such as: nurse-patient ratio, doctor orders, timing, and hospital environmental to name a few (Giulian, 2018). There has been a growing interest in the effects of nurse staffing on various patient outcomes due to the increasing number of patients and the complexity of the healthcare system. The reduction in the number of nurses has been attributed to the cost-containment efforts and the increasing acuity of patients (Greaves, 2018). Previous studies also showed that a decrease in the number of nursing staff was significantly associated with the development of pneumonia in ICU patients requiring more nursing requirements. An increase in nursing workload is significantly associated with an increase in the incidence of nosocomial infections. Previous studies also support the association between nursing workload in ICU patients and increased mortality rates (Amaravadi, 2000). Additionally, for a number of

reasons, nurses who are under retirement age are quitting the field and pursuing other careers. The lack of nurses available to review to meet current requirements is due, in part, to job stress and burnout. Despite a rise in recent years, there are not enough students enrolled in nursing programs to meet projected demand (Carol, 2005).

Nursing workload can be defined as 'all nursing work that must be carried out over a defined period of time', (Myny *et al.*, 2011). It can also be described as 'the amount of time and care that a nurse devotes (directly and indirectly) to patients, the workplace, and professional development' (Alghamdi, 2016). For example, the effect of workload on COVID-19 patients in intensive care units (ICUs) showed that higher RN staffing was associated with lower levels of hospital related mortality; each additional full-time equivalent RN per patient day corresponds to a 9% reduction in the odds of death in ICUs (ORs, 0.91; 95% CI 0.86 to 0.96), which would save 5 lives per 1000 patients (Bambi, 2020). However, the findings of multi-

center studies conducted in ICU patients have not supported the presence of a significant, independent association between nurse staffing levels and in-hospital. "Moreover, mortality might not be sensitive as an outcome measure, while in-hospital mortality might be affected by the care patients receive after being discharged from an ICU" (Kiekkas, 2008).

A national overview on the impact of COVID 19 on the nursing workforce showed an increase in the levels of depressive symptoms, concern over their health, tiredness, general anxiety and past and future appraisal of COVID-related stress which caused them to leave their job positions while the COVID 19 patients surges. Many nurses also had concerns about bringing the virus home and infecting their families. A lot of healthcare workers, including nurses, had contracted the COVID-19 virus and even died (Chan, 2021).

The aim of the study is to determine the extent of the effect of COVID-19 on the nurses' workload and other associated factors.

OBJECTIVES

1. To determine the prevalence of workload on nursing staff and other associated factors.
2. To determine which gender has a higher level of workload and stress.
3. To describe the result of the prevalence of workload on nursing staff and other associated factors

METHODS

This is a descriptive cross-sectional study of all nurses, who were taking care of COVID-19 patients, conducted in July to 20 September 2020. A total of 406 staff nurses received the questionnaire electronically, which assessed the nurses' perceptions on factors that increased the workload and its effect while taking care of COVID-19 patients. The ethical committee granted permission to conduct the study. All involved nurses were informed about the study's purpose and method, and their verbal and written consent was obtained. Data collected were kept confidential and not shared with other healthcare workers. Data were collected for a period of 8 weeks from 1 July 2020 to 1 September 2020 through electronic questionnaires which were distributed in either English or Arabic. The instrument was also administered by the researcher where some of the information was handwritten in order to collect adequate data as much as possible. The researcher conducted the interviews with the aid of a semi-structured interview guide. The interview guide questions were formulated from concepts from literature with an aim of determining the effect of workload on nursing staff which were taking care of COVID-19 patients. Unplanned and unanticipated

probes were used as supplementary questions. Questions included: Describe how the high workload influences your performance? How does it affect your performance? What are the effects/consequences on the provision of critical care? Did you find your job interesting? Do you have family support during COVID- 19? Do you like to work in ICU, if no why? Participants were followed up for member checking purposes.

Data were entered and coded using SPSS. Three types of analysis were proposed for this study. First, descriptive information such as gender, marital status, patient ratio, doctor orders, timing, and hospital environment were described, as well as the mean, mode and median. Second, variances were determined between workload on nursing staff and associated factors, by using t-test and ANOVA. Third, percentages of the variables were measured. The initial data and all the relevant data extracts were sorted, collated and analyzed. The different data were clearly examined and recurring views were then combined and the researcher started to form overarching themes from the data. Themes identified were poor quality care, compromised nursing workload, ICU nurse-patient ratio, cardiac arrests, and impact on the nurses. These themes were characterized by significance and predominantly described patterns in the data relevant to the research question. The researcher then reviewed the devised set of themes to ensure that they made sense and that themes were working in the context of the entire data set: themes of the extent of the effect of workload on nurses and themes of nurse-patient ratio.

RESULTS

The extent of the effect of workload on nurses was 89%. The highest rates of workload were on ICU staff nurses, at 55%. 90 % of nursing staff have family support, 69 % of nursing staff find interesting jobs, late doctor orders are affected by 66% of the workload for the nurses, and 70% of nursing staff have support from administrative departments. 65% of nursing staff who found interesting jobs also have family support. 95% were found to be worried about being infected with COVID-19. 70 % were worried about being a carrier of COVID-19 to their family. The mean score of workload among female nurses (25.2, SD 3.72) was higher than male nurses (26.8, SD 3.41): By using bivariate analysis; workload was found to be significantly associated with: nurse patient ratio, duty hours and type of department; the critical care units such as ICU, CCU, and HD complained of higher workload (28.8, SD 3.7) than general units (20.7, SD 3.0) The P-value was 0.033. There was no significant difference between the workload and other demographic variables such as; environmental status, nationality, and type of hospital.

Table 1: Distribution of Demographic Variables

Variables		Mean (SD)	P value
Gender	Male nurse	26.8, SD 3.41	0.032*
	Female nurse	25.2, SD 3.72	
Unit	Critical care units	28.8, SD 3.7	0.03*
	General ward	20.7, SD 3.0	
Duty hour	8 hours	22.7, SD 3.2	0.031*
	12 hours	25.7, SD 3.3	
Patient ratio in ICU	1:1	23.3, SD 3.5	0.033*
	1:2	20.5, SD 3.0	
Nationality	Saudi	26.2, SD 3.3	0.23
	Non-Saudi	19.7, SD 2.99	
Type of hospital	General hospital	20.7, SD 3.0	0.25
	Specialty hospital	22.7, SD 3.2	
ANOVA WITH POST HOC*			

Table 2: Description the percentage of variables

Variables	Percentage
▪ The extent of the effect of workload on nurses	89%
▪ Highest rates of workload were on ICU staff nurses	55%
▪ Nursing staff they found interesting job	69%
▪ Nursing staff have family support	90%
▪ late doctor orders affected to nursing workload	65%
▪ Nursing staff have support from administrative departments	70%
▪ Nursing staff who found interesting job they have family support	65%
▪ Nurses are worried about being infected of Covid -19	95%
▪ Nurses were worried to be a carrier of covid-19 to them family	70%

DISCUSSION

This study finds that workload on nurses was very high and the highest rates of workload were on ICU staff nurses. It depicts that quality care is not achieved due to high workload which is in line with other literature (Chen, 2011). Nurses are of the opinion that nursing procedures are mostly conducted in a rush in order to get to the next activity or to help the next patient, which compromises both quality of care and the safety of patients' incidences of unplanned extubations. Since the early 1970, tools and procedures for measuring nursing workload in the intensive care unit (ICU) have been tested and improved according to clinical, technological and organizational developments and also the evolution of the nursing role. Furthermore, in the COVID- 19, new factors can greatly affect the nursing workload. COVID-19 patients need preventive measures to prevent or contain the spread of the virus to other patients: wearing protective clothing, specific decontamination procedures, and isolated designated areas where designated supplies are stored. All of these measures increase the nursing workload, not only for the time required to implement them, but also for their organization and management. Critical care nurses face a new challenging working scenario within the COVID-19 intensive care units. In these circumstances, they are called upon to provide the usual high standard of care for patients with additional problems caused by PPE, especially for prolonged periods. COVID-19 ICU patients cannot receive outside visitors, they are dependent on support from healthcare workers. The

study findings found that 69% of nursing staff found an interesting job (Gastmans, 2008). On the other hand, 31% were dissatisfied with their job (Chang, 2019), and 72% reported missing one or more necessary care tasks on their last shift due to lack of time or resources. The majority of nurses have social and family support which helped nurses feel less work pressure. There are a multiplicity of responsibility for supervising work, a lack of clarity in work instructions, and a lack of job descriptions for the profession, in addition to the multiplicity and different moods of doctors and colleagues (Gibson, 1994). There is a level of tension resulting from changing the shift schedule for patients, especially after it was approved by the administration. The study findings found that long duty hours reduces nursing energy and strength, which affects their performance in physical and mental care activities. In the long run, nurses further reported fatigue and exhaustion which reduces their focus and level of concentration when providing care. An individual's well-being and curtailed work performance may occur when there is a high workload resulting in behavior changes, such as reduced work space. Evidence has shown that chronically fatigued nurses experience changes in their alertness and concentration while providing patient care (Banda, 2022). Efforts to decrease workplace stress of ICU nurses by focusing on facilitating peer collaboration, improving resource availability, and staffing ratios are likely to reduce stress levels. Related to gender, females express feelings of high workload and anger more than males

when faced with situations of high workloads where they cannot deliver care appropriately and result in negative patient outcomes (Lucchini, 2019). Feelings have been described as signifying moral distress in critical care nurses, which can consequently result in emotional exhaustion, affect the ability of critical care nurses to provide proper patient care and perform expected responsibilities and can also increase nurses' intention to leave the profession. This illustrates that psychological effects posed by high nursing workloads in ICU affect nurse performance and consequently increase the problem of nurse shortages (Muacevic, 2021). Findings from this study show that nurses in critical care units aim to provide comprehensive and quality nursing care to patients. However, a high workload hinders their ability for such quality care provision (Banda, 2022).

CONCLUSION

Nurses experience the highest amount of workload, which can be impacted by a variety of variables including: nurse-patient ratio, doctor orders, department type, working hours, and ambient conditions. The unit's patients were affected in a variety of ways by the nurses' heavy workload, including reduced patient safety and care. The excessive nursing burden in critical care units, according to nurses, has a significant impact on their physical and psychological health as well as their ability to perform, which in turn compromises patient safety (Polit, 2019). Healthcare organizations, and nurse management must work together to develop plans for reducing nurse workloads and assessing the standard of nursing care in intensive care units in order to increase patient safety. Studies should concentrate on nursing workforce (Vahedian-Azimi, 2019).

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