

Missed nursing care before and during the COVID-19 pandemic: A comparative cross-sectional study

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Abstract

Aim: This study aimed to compare perception of nurses about missed care for the patients before and during the coronavirus disease 2019 (COVID-19) in Jordan. It also examined how nurses differed in terms of the type of missed care and the factors that contributed to it before and during the COVID-19 pandemic. Additionally, socio-demographic factors, including gender, educational level, length of clinical experience, work position, age, and type of shift, were examined to evaluate their association with missed nursing care.

Background: Missed nursing care refers to omission of any aspect of required patient care. Missed care lowers patient satisfaction and also leads to adverse hospital outcomes.

Methods: We adopted a cross-sectional design among 260 nurses working in medical/surgical wards and intensive care units. Views of 130 nurses before COVID-19 were compared with views of 130 nurses during the COVID-19 pandemic. We used the Arabic version of the MISSCARE survey. Data were collected between November 2019 and May 2020.

Results: During COVID-19, nurses had significantly higher satisfaction levels and lower levels of absence and intention to leave than nurses before the COVID-19 pandemic. Differences were observed between nurses' perceptions of missed care before and during the COVID-19 pandemic. It was observed that missed nursing care increased during COVID-19. The inadequate number of staff nurses was the main reason for missed care activities among both groups. Additionally, age and shift type were significantly associated with an increased reason for missed nursing care among both groups.

Conclusion and implications for nursing: Nurses reported higher satisfaction levels and fewer absences and planned departures during this period. Nurse managers should pay attention by maintaining high satisfaction levels and formulating appropriate policies to reduce missed care levels and thus improve patient care quality.

KEYWORDS

COVID-19, MISSCARE survey, missed care, nurses, reasons for missed care, satisfaction

INTRODUCTION

Quality nursing care is an essential element for patient safety, as sub standard nursing care directly contributes to adverse effects for patients (Keogh, 2013). Missed care has been associated with preventable adverse events (Henderson et al., 2017; Kalisch & Xie, 2014). Missed nursing care have a negative impact not only on the quality of health care but also on patient outcomes such as patient satisfaction and readmission (Kalisch & Xie, 2014). Missed nursing care is demonstrated to

have a tremendous impact on nurses' health, job commitment, and personal lives and can result in psychological burnout to a certain extent (Alfuqaha et al., 2019; Jiang et al., 2017). Therefore, missed nursing care has become a major hospital problem requiring urgent attention from decision-makers.

Missed nursing care can be illustrated by unfinished duties, delayed and ineffective care that is mainly related to workplace factors, personal factors, and job demand resources (Jones et al., 2015). According to the previous study, there are three reasons for missed nursing care. The reasons include labor



resources, material resources, and communication (Kalisch et al., 2012a). Other reasons for missed nursing include issues related to hospital infrastructure, ward working environment, insufficient staffing, time pressure, and excessive hours per shift (Chegini et al., 2020). Workplace factors such as resource level, work system, and head nurse leadership have the greatest impact on missed nursing care (Jangland et al., 2018). Previous studies have linked the socio-demographic factors of nurses with missed nursing care. These factors included gender, age, qualification, work position, and length of clinical experience (Blackman et al., 2018). However, the effect of these factors on missed nursing care during the COVID-19 pandemic has not yet been investigated.

Quality nursing care for COVID-19 patients is a great challenge (Kaltwasser et al., 2021). The patients need experienced and competent nurses to provide safe care and ensure that necessary services and equipment are available (Ki et al., 2020; Wang et al., 2020). COVID-19 contributed to additional workload and psychological challenges resulting in increased risk of missed nursing care. Several studies addressed missed nursing care before the COVID-19 pandemic (Cho et al., 2020; White et al., 2019). However, little attention has been paid to missed care during COVID-19.

Aim

The current study aimed to compare the nurses' perceptions of missed patient care before and during the COVID-19 pandemic in Jordan. It also aimed to comprehensively examine the relationship between missed nursing care and other factors such as job satisfaction, absence, and plans of leaving the current position. Socio-demographic factors such as gender, educational level, length of clinical experience, work position, age, and the type of shift were also examined to assess their association with missed nursing care.

METHODS

Study design

The present study adopted a cross-sectional design to compare the nursing perception of missed care and its factors for the patients before and during the COVID-19 pandemic. We used the STROBE checklist (22 items) to ensure that we had all the necessary information.

Participants

We conducted the current study among nurses' population working in a tertiary hospital in Amman, the capital of Jordan. The hospital provides a wide range of services and employs 900 nurses who work in medical/surgical wards, intensive care units (ICUs), operation rooms, outpatient clinics, and nurse management offices. We conveniently selected nurses who

worked at medical/surgical wards and ICUs. A total of 500 nurses were working in the selected departments. This study excluded nurses who worked in outpatient clinics, operating rooms, and nurse management offices, such as supervisors and managers. We needed a minimum of 100 nurses to meet the sample size requirement (Hair et al., 2014). Considering the dropout rate, we distributed 300 self-administered questionnaires at different times (150 vs. 150) to achieve the required sample size. We divided participants into two groups. The first group was from November 2019 to January 2020, and a total of 150 nurses were conveniently surveyed. In Jordan, no cases of COVID-19 were reported during this period (WHO, 2020). The number of returned valid surveys for analysis was ($N = 130$), with a response rate of 86.7%. One hundred and fifty self-administered surveys were also distributed in the second group from March 2020 to May 2020, since the first COVID-19 case in Jordan was reported in March 2020 (WHO, 2020). The number of returned valid surveys for analysis was ($N = 130$), with the same response rate as the first group.

Data collection

Invitation letters containing the researchers' contact details were distributed in the selected departments to explain the purpose of the study. The survey consisted of socio-demographic factors such as gender, educational level, length of clinical experience, work position, age, and type of shift and background variables such as job satisfaction, absence, and plans of leaving the current position, as well as an Arabic version of the MISSCARE survey. The self-reported MISSCARE survey was distributed in the early morning and during break time. The researchers obtained written informed consent from participants and assured them that they could withdraw from the study at any time and that their data would remain anonymous and confidential. In both groups, completed surveys were returned to the nursing office in a special box. Questionnaires with missing information were omitted from analysis.

Study tool

Demographic and background variables

Participants were asked to fill in socio-demographic information such as their gender, educational level, length of clinical experience, work position, age, and type of shift. The background variables of job satisfaction, absence, and plans of leaving the current position were also explored. Job satisfaction was measured using three items that assessed satisfaction with position, profession, and teamwork. Satisfaction with current position implied that nurses were satisfied with their current position and felt valued. Also, satisfaction with the profession involved being a registered nurse or assistant nurse. Satisfaction with teamwork referred to feeling fulfilled among

team members within same units or departments. The job satisfaction items were assessed on a 5-point Likert scale ranging from 5 “Very satisfied” to 1 “Very dissatisfied.” Additionally, participants were asked to indicate their absence levels, from 1 day to more than 6 days. Finally, the plans of leaving the current position item were: no plans of leaving, plans of leaving within the next 6 months, and plans of leaving within the following year.

MISSCARE survey tool

The study used the MISSCARE survey tool, which was developed by Kalisch (2009). The MISSCARE survey has shown good psychometric properties globally in different languages (Nymark et al., 2020; Sönmez et al., 2020). The researchers translated the MISSCARE survey into Arabic language, examined its psychometric properties, and found that the translated MISSCARE survey has good psychometric properties among Jordanian nurses. The translated MISSCARE survey is being considered for publication elsewhere. Therefore, the Arabic version of the MISSCARE survey was used. Cronbach's alpha was 0.92 for all items in the Arabic version of the MISSCARE survey.

The MISSCARE survey tool consisted of a 41-item divided into two sections. The first section contained 24 items and was concerned with missed nursing care activities. The respondents were asked to answer the first section on a 5-point Likert type scale ranging from 5 “Never missed” to 1 “Always missed.” Lower scores indicate higher levels of missed care based on overall levels using cutoff criteria: low missed care from 3.68 to 5; moderate missed care from 2.34 to 3.67 and high missed care from 1 to 2.33. The second section discussed the factors that contribute to missed nursing care activities. This section consisted of the following dimensions: communication/support subscale, which comprise nine reasons that assess the interrelationships with team members; material resources subscale, which comprised three reasons that assessed the inadequate material in hospitals; labor resources subscale, which included five reasons that assess the increase in patient volume and heavy activities. The second section utilized a 4-point Likert type scale, ranging from 4 “Significant reason” to 1 “Not a reason for missed care.” Higher scores indicate significant levels for reasons of missed care. The following range was considered as nonsignificant reason scores: 1.00–2.50; meanwhile, the significant reason scores ranged from 2.51 to 4.00.

Ethical considerations

The Jordanian hospital's institutional review board approved this study (No. 10/2018/5746) to collect data from nurses. The study tool was accompanied with a consent form that included a clear statement about free participation and withdrawal without penalty. The participant's rights (e.g., confi-

dentiality, privacy) were confirmed. The collected data were password-protected and stored using an ID number on the principal's investigator desktop.

Data analysis

The normal distribution of data was verified by the Kolmogorov–Smirnov test. Pearson's chi-square and descriptive statistics were performed to examine missed nursing care before and during the COVID-19 pandemic. Next, an independent sample *t* test was used to explore the differences in missed nursing care, reasons for missed care, and background variables such as job satisfaction, absence, and plans of leaving the current position. Finally, binary logistic regression analysis was performed with nurses' reasons for missed care (significant reason, not a reason).

RESULTS

Demographic and background variables

Valid self-administered surveys were completed by 260 nurses in the selected hospital. The Kolmogorov–Smirnov test showed that the data follow a normal distribution since there were no significant differences between the two samples of nurses.

Table 1 also displays the sample characteristics of the selected group of nurses. The percentages of nurses between 25 and 34 years old in both groups exceeded two thirds. Fifty percent of nurses in both groups were female, held bachelor's degrees, worked on the medical/surgical floor, and had a rotation between A (7 a.m.–3 p.m.), B (2 p.m.–9.30 p.m.), and C-shift (9 p.m.–7.30 a.m.).

The results of the *t* test indicated a significant difference ($P < 0.001$) between the total score of satisfaction level, absence level, and plans of leaving the current position level among nurses before and during the COVID-19 pandemic (Table 1). Nurses during the COVID-19 pandemic were more satisfied, had lower absenteeism, and had lower turnover rates.

Differences in missed nursing care between the two nurses' samples

Perceived missed care of nurses before and during the COVID-19 pandemic is offered in Table 2. The *t* test exhibited a significant difference ($P < 0.001$) in missed nursing care activities between both nurses' groups. The percentage of missed nursing care activities during COVID-19 was 32.6%, while it was 22.8% before COVID-19. During the COVID-19 pandemic, more than three quarters (78%) of nurses expressed many significant reasons for missing care, compared with 72% before COVID-19. The total score of the reasons for missed nursing activities during COVID-19

TABLE 1 Demographic and background variables of the study sample ($N = 260$)

Variables	Descriptive	Before COVID-19 ($n = 130$) Frequency (%) or $M \pm SD$	During COVID-19 ($n = 130$) Frequency (%) or $M \pm SD$	Chi-square value/ t test	P value
Gender	Male	61 (46.9)	46 (35.4)	80.52	0.31
	Female	69 (53.1)	84 (64.6)		
Educational level	Diploma degree	27 (20.8)	42 (32.3)	152.93	0.42
	Bachelor's degree	92 (70.8)	80 (61.5)		
	Postgraduate	11 (8.5)	8 (6.2)		
Length of clinical experience (years)	<1 year	5 (3.8)	4 (3.1)	247.29	0.15
	1–5 years	43 (33.1)	56 (43.1)		
	>5 to 10 years	54 (41.5)	50 (38.5)		
	>10 years	28 (22.3)	20 (15.4)		
Work position	Floor (medical/surgical)	102 (78.5)	92 (70.8)	78.76	0.36
	Intensive care units	28 (21.5)	38 (29.2)		
Age	≤ 24 years	9 (6.9)	15 (11.5)	139.38	0.72
	25–34 years	107 (82.3)	94 (72.3)		
	35–44 years	14 (10.8)	21 (16.2)		
Shift type	A-shift (7 am–3 pm)	44 (33.8)	70 (53.8)	229.19	0.41
	B-shift (2 pm–9.30 pm)	13 (10)	11 (8.5)		
	C-shift (9 pm–7.30 am)	6 (4.6)	7 (5.4)		
	Rotates between (A, B, C)	67 (51.5)	42 (32.3)		
Satisfaction level	Q1: Position	3.06 \pm 0.98	3.51 (0.96)	4.32	<0.001***
	Q2: Role	3.20 \pm 0.93	3.62 (0.86)		
	Q3: Profession	3.18 \pm 0.95	3.55 (0.94)		
Absence	Non	3.76 \pm 0.74	3.44 \pm 0.74	3.29	<0.001***
	1 day	3.53 \pm 0.70	3.47 \pm 0.51		
	2–3 days	3.51 \pm 0.83	3.05 \pm 0.83		
	4–6 days	3.47 \pm 0.73	3.47 \pm 0.63		
	More than 6 days	4.14 \pm 0.78	3.56 \pm (-)		
Plans for leaving the current position	1. Next 6 months	3.26 \pm 0.68	3.03 \pm 0.83	3.31	<0.001****
	2. Next year	3.45 \pm 0.69	3.44 \pm 0.58		
	3. No plans for leaving	3.84 \pm 0.73	3.41 \pm 0.74		

Abbreviations: n , number; Q, question; $M \pm SD$, mean \pm standard deviation.

*** $P < 0.001$.

was statically higher ($P < 0.001$) than before the COVID-19 pandemic.

We also examined the lowest and highest average scores of all items in the MISSCARE survey. The highest and lowest items of missed care activities were surprisingly the same before and during the COVID-19 pandemic. The item (Ambulation three times per day or as ordered) exhibited the highest average score, and the item (Bedside glucose monitoring as ordered) had the lowest average score. Also,

the item (Inadequate number of staff) is the top reason for missed nursing care activities before and during the COVID-19 pandemic. The items (Caregiver off unit or unavailable) and (Nursing assistant did not communicate that care was not provided) are the lowest reason for missed care before and during the COVID-19. Finally, statistical differences ($P < 0.001$) were discovered in 19 items of the missed care survey. For more detailed results, see Appendix A.

TABLE 2 Differences in missed nursing care among both samples ($N = 260$)

Variables	Sample 1M \pm SD (%)	Overall level	Sample 2M \pm SD (%)	Overall level	<i>t</i> test	<i>P</i> value	
Missed nursing care activities	3.68 \pm 0.75 (22.8%)	Low missed care	3.37 \pm 0.72 (32.6%)	Moderate missed care	3.40	<0.001***	
Reasons of missed nursing care activities	Communication	2.74 \pm 0.60	Significant reason	3.02 \pm 0.54	Significant reason	3.95	<0.001***
	Material resources	2.85 \pm 0.78	Significant reason	3.19 \pm 0.63	Significant reason	3.87	<0.001***
	Labor resources	3.20 \pm 0.62	Significant reason	3.26 \pm 0.55	Significant reason	0.83	0.41
	Total	2.90 \pm 0.55 (72%)	Significant reason	3.12 \pm 0.49 (78%)	Significant reason	3.41	<0.001***

Sample 1: Before COVID-19 ($n = 130$). Sample 2: During COVID-19 ($N = 130$). Overall level category: low level from 3.68 to 5; moderate level from 2.34 to 3.67; and high level from 1 to 2.33. Abbreviations: M \pm SD: Mean \pm standard deviation.

*** $P < 0.001$.

Factors associated with missed nursing care

To evaluate the association of socio-demographic factors including gender, educational level, length of clinical experience, work position, age, and shift type with the reason of missed nursing care (significant reason, not a reason), binary logistic regression analysis was performed with both nurses' groups before and during the COVID-19, and Table 3 shows the result.

We used the following variables as reference levels, length of experience less than one year, age variable less than or equal to 24 years, and work type of A-shift. The results revealed that the following were significantly associated with an increased reason for missed nursing care before the COVID-19 pandemic including 1–5 years' length of experience (odds ratio [OR] 0.04, 95 confidence interval [CI] 0.01–0.71, $P = 0.02$), 5–10 years' length of experience (OR 0.09, CI 0.01–0.60, $P < 0.01$), age between 25 and 34 (OR 66.51, CI 3.81–1161.91, $P < 0.01$), age between 35 and 44 years (OR 14.65, CI 3.10–69.21, $P < 0.01$), B-shift work type from 2 p.m. to 9.30 p.m. (OR 0.21, CI 0.06–0.67, $P < 0.01$); and rotates between types of work A, B, and C (OR 0.15, CI 0.02–1.04, $P = 0.05$). During the pandemic period, age between 35 and 44 years (OR 9.70, CI 2.07–45.46, $P < 0.001$) and B-shift work type (OR 8.65, CI 1.78–42.12, $P < 0.001$) were significantly associated with an increased reason for missed nursing care (Table 3).

DISCUSSION

This study provides evidence of the perceived level of missed care and highlights the nuances of the differences in missed nursing care activities that affected nurses before and during the COVID-19 pandemic. In the present study, the researchers assessed the differences between nurses before and during COVID-19 in relation to missed nursing care, satisfaction level, absence level, and plans of leaving a profession level, and the results revealed important differences between the two groups.

Demographic and background variables

Our results indicate that nurses had higher satisfaction levels during the COVID-19 pandemic than before. When confronted with a stressful situation, the increase in the satisfaction level among nurses depends on several factors, such as less workload and high commitment (Alfuqaha et al., 2020; Zeleníková et al., 2019a). Thus, outbreaks could be said to have a positive impact on nurse satisfaction. This study disagrees with a recent study that found high job dissatisfaction among healthcare providers, claiming that satisfaction depends on management's appreciation and communication during the COVID-19 outbreak (Afulani et al., 2021).

The present study found that nurses, during the pandemic, reported fewer absences and planned departures than nurses before the COVID-19 pandemic. This demonstrates the impact of the pandemic on reducing nurse absenteeism. This could be rationalized by feeling more sense of commitment and responsibility toward the community during the critical situation of spreading COVID-19 cases. In contrast, a recent study found that the COVID-19 pandemic has negative consequences on job satisfaction, teamwork climate, and work conditions among Polish nurses (Malinowska-Lipień et al., 2022).

Differences in missed nursing care between the two nurses' samples

Our results revealed that perceived missed nursing care activities before and during the COVID-19 pandemic by Jordanian nurses were relatively low compared to the Czech Republic and Slovakian nurses (Zeleníková et al., 2019a), Turkish nurses, and US nurses (Kalisch et al., 2012a). This might have been due to the differences in participants' demographic characteristics in both studies. Additionally, our participants established a balanced level of satisfaction, which was negatively associated with the missed care activities, which increased when nurses reported less satisfaction (Schmidt, 2018; Zeleníková et al., 2019b). Low perceived levels of missed

TABLE 3 Binomial regression analysis for reason of missed nursing care among both samples ($N = 260$)

Variables	Before COVID-19 Adjusted OR ($n = 130$) (95% CI)	<i>P</i> value	During COVID-19 ($n = 130$) Adjusted OR (95% CI)	<i>P</i> value
Gender				
Male	1.00 (reference)		1.00 (reference)	
Female	1.53 (0.57–4.13)	0.39	1.20 (0.34–4.25)	0.77
Educational level				
Diploma degree	1.00 (reference)		1.00 (reference)	
Bachelor's degree	0.34 (0.02–5.05)	0.43	0.71 (0.05–11.14)	0.81
Postgraduate	0.38 (0.03–4.67)	0.45	3.35 (0.25–45.62)	0.37
Length of clinical experience (years)				
<1 year	1.00 (reference)		1.00 (reference)	
1–5 years	0.04 (0.01–0.71)	0.02*	0.32 (0.01–7.28)	0.47
>5–10 year	0.09 (0.01–0.60)	0.01**	0.65 (0.09–4.59)	0.67
>10 years	0.23 (0.04–1.38)	0.11	1.15 (0.17–7.98)	0.88
Work position				
Floor (medical/surgical)	1.00 (reference)	0.38	1.00 (reference)	0.40
Intensive care units	0.52 (0.12–2.31)		0.57 (0.15–2.15)	
Age				
≤ 24 years	1.00 (reference)		1.00 (reference)	
25–34 years	66.51 (3.81–1161.91)	0.01**	10.72 (0.55–209.03)	0.12
35–44 years	14.65 (3.10–69.21)	0.01**	9.70 (2.07–45.46)	0.001***
Shift type				
A-shift	1.00 (reference)		1.00 (reference)	
B-shift	0.21 (0.06–0.67)	0.01**	8.65 (1.78–42.12)	0.001***
C-shift	0.47 (0.07–2.95)	0.42	1.65 (0.22–12.33)	0.62
Rotates between (A, B, C)	0.15 (0.02–1.04)	0.05*	1.31 (0.15–11.48)	0.81

Dependent variable: reason for missed nursing care. Abbreviations: *P* value of the Wald Chi-square statistics.

* $P < 0.05$.

** $P < 0.01$.

*** $P < 0.001$. 95% CI = 95% confidence interval.

nursing care may be associated with fear of ethical and legal responsibilities and obligations that prevented nurses from reporting the omission or missing nursing care or related to family members who provide basic nursing care.

The present study highlights differences in perceptions of missed care between nurses before and during the COVID-19 pandemic. It was found that participating nurses during the pandemic obviously reported moderate missed nursing care activities (32.6%) compared with a sample of nurses before the pandemic (22.8%). Potential explanations for more missed care during an outbreak include difficult situations caused by not controlling outbreaks and increased nurse exposure to critical situations, resulting in many nurses failing to provide the most effective care for patients. These results are also similar to those found before the COVID-19 outbreak, where nurses in the USA had higher levels of missed care (56.4%) due to job dissatisfaction and burnout (Clark & Lake, 2020). Psychological burnout negatively influences nurses' psychological status (Alfuqaha & Alsharah, 2018).

Interestingly, a quantitative study in Sweden revealed that missed nursing care during the COVID-19 pandemic has not differed from the reference sample (Vogelsang et al., 2021). This similarity was related to maintaining the nurse-to-patient ratio, patient dependency levels, and meeting staff needs. A review study of 14 articles conducted by Ogboenyi et al. (2020) found several associated factors with missed nursing care such as excessive work and nurses' characteristics.

We found that 70% of nurses reported significant reasons for missed care before COVID-19, compared with 78% of nurses during the pandemic, with significant differences. The labor construct had the highest average score for missed nursing care among both groups, which is consistent with previous studies (Saquer & AbuAlRub, 2018). It is inevitable that the COVID-19 pandemic would increase nurses' workload due to an increased number of infected cases, staff shortage, and acuity of cases. This consequently could affect the type of services provided. Usually, nurses prioritize physiological needs over psychological needs (Jones et al., 2015),



clearly represented in Abraham Maslow's pyramid of human needs.

According to our qualitative data, the main reason for missed nursing care is staff shortage. This issue has been observed in previous studies (Kalisch et al., 2012c; Schmidt, 2018). Health management should seriously address this issue, especially during the crisis, to provide appropriate care and eliminate missed nursing care. On the other hand, the ambulation item had the highest score in missed nursing care activities, which is similar to previous studies (Chapman et al., 2017; Kalisch et al., 2012b; Smith et al., 2018).

Factors associated with missed nursing care

The main predictors of reasons for missed nursing care before the COVID-19 pandemic were length of clinical experience, the B-shift type of work, and age. Meanwhile, age and type of shift work were the predictors of missed care reasons during the COVID-19 pandemic. Higher workloads and responsibilities in the B-shift type of work represent higher missed nursing care among both groups, making nurses fall into mistakes. Nurses who worked on this shift had a higher ratio of getting missed care than those who worked in the morning (A-shift), which is consistent with previous studies that found working on night shifts (e.g., B and C) increased the missed nursing care (Ball et al., 2014; Schmidt, 2018).

Surprisingly, nurses from 35 to 44 years old have more missed care than other age categories in both groups. This could be due to interactions with other responsibilities and obligations (role in the family) or being concerned about their families becoming infected with COVID-19. According to Longhini et al. (2021), as nurses age, their clinical experience increases, which is associated with fewer missed nursing care days. Previous studies have revealed other factors that lead to missed care before COVID-19, such as gender and number of patients under care (Chegini et al., 2020), break time (Min et al., 2020), and less than five years of nursing clinical experience (Phelan et al., 2018).

Limitation

The current study findings are limited in that the data were collected from a single setting using self-reported questionnaires, which may have serious implications concerning possible bias. Another limitation might come from nurses' willingness to reply in a manner that protects them from any obligations and in a way that is favorable to their management. The results of this study show the perceived levels, differences, and predictors of missed nursing care before and during the COVID-19 pandemic, rather than causality, that should be overcome in future studies. We have translated the MISS-CARE survey into Arabic, so its feasibility in responding to the biggest health emergencies, such as COVID-19, remains to be tested. However, the results show a significant difference in the perception of missed care between the two samples of nurses.

CONCLUSIONS AND IMPLICATIONS FOR NURSING

During the COVID-19 pandemic, nurses reported higher satisfaction levels and fewer absences and planned departures. Missed nursing care during the biggest health emergency in 2019 was noted; therefore, nurse managers should pay attention by maintaining high satisfaction levels, formulating appropriate policies, and preserving adequate staff nurses to eliminate/reduce missed care levels and consequently improve patient care quality. Identifying missed nursing care activities and reasons helps nurse leaders initiate special training programs for nurses to prevent them. Missed care is seen as an important source of patient mortality (Ball et al., 2018). Hence, assertive strategies by the directors should be adopted to improve adherence to nursing intervention policies. This study provides insights for further research on missed care during potential crises in the future.

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CONFLICTS OF INTEREST

No conflict of interest has been declared by the authors.

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AUTHORSHIP STATEMENT

Study design: OAA, AA, FNA; data collection: OAA, MKA; data analysis: OAA, FNA; study supervision: OAA; manuscript writing: OAA, MKA, AA, FNA; critical revisions for important intellectual content: OAA, FNA.

STATEMENT OF ETHICAL APPROVAL

The authors have sought permission from the Institution Review Boards of Jordan University Hospital (No. 10/2018/5746) to allow the collection of data from nurses.

RESEARCH STATEMENT

The research conforms to the provisions of the Declaration of Helsinki. All researchers gave informed consent for the research, and their anonymity was preserved.

PERMISSIONS STATEMENT

Permission has been received from the copyright holder to use the employed scale in this study.


RESEARCH REPORTING GUIDELINES EQUATOR

The authors adhere to an EQUATOR research reporting checklist and have been attached.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix A. Means, standard deviation, and overall level of missed care subscale before and during COVID-19.

Items	Order	Before COVID-19 (N = 130)		Level	Order	During COVID-19 (N = 130)		Level
		M ± SD	Level			M ± SD	Level	
Ambulation three times per day or as ordered	1	3.23 ± 1.29	Moderate missed care	Moderate missed care	1	2.85 ± 0.89	Moderate missed care	Moderate missed care
Mouth care	2	3.26 ± 1.18	Moderate missed care	Moderate missed care	4	3.14 ± 1.07	Moderate missed care	Moderate missed care
Turning patient every 2 hours	3	3.28 ± 1.13	Moderate missed care	Moderate missed care	2	2.97 ± 0.99	Moderate missed care	Moderate missed care
Patient teaching about illness, tests, and diagnostic studies	4	3.30 ± 1.14	Moderate missed care	Moderate missed care	5	3.16 ± 1.05	Moderate missed care	Moderate missed care
Emotional support to patient and/or family	5	3.42 ± 1.15	Moderate missed care	Moderate missed care	3	3.09 ± 1.07	Moderate missed care	Moderate missed care
Attend interdisciplinary care conferences whenever held	6	3.46 ± 1.10	Moderate missed care	Moderate missed care	8	3.25 ± 0.98	Moderate missed care	Moderate missed care
Setting up meals for patient who feeds themselves	7	3.55 ± 1.01	Moderate missed care	Moderate missed care	11	3.34 ± 1.07	Moderate missed care	Moderate missed care
Patient bathing/skincare	8	3.58 ± 1.01	Moderate missed care	Moderate missed care	12	3.35 ± 1.07	Moderate missed care	Moderate missed care
Assess effectiveness of medications	9	3.58 ± 1.05	Moderate missed care	Moderate missed care	10	3.33 ± 1.07	Moderate missed care	Moderate missed care
Assist with toileting needs within 5 minutes of request	10	3.63 ± 0.99	Moderate missed care	Moderate missed care	9	3.30 ± 1.15	Moderate missed care	Moderate missed care
Patient discharge planning and teaching	11	3.65 ± 1.26	Moderate missed care	Moderate missed care	15	3.48 ± 1.17	Moderate missed care	Moderate missed care
Medications administered within 30 minutes before or after scheduled time	12	3.66 ± 1.16	Moderate missed care	Moderate missed care	16	3.49 ± 1.12	Moderate missed care	Moderate missed care
Focused reassessments according to patient condition	13	3.67 ± 1.12	Moderate missed care	Moderate missed care	7	3.20 ± 0.98	Moderate missed care	Moderate missed care
Feeding patient when the food is still warm	14	3.68 ± 1.12	Low missed care	Low missed care	6	3.19 ± 0.99	Moderate missed care	Moderate missed care
Response to call light is initiated within 5 minutes	15	3.71 ± 1.14	Low missed care	Low missed care	13	3.42 ± 1.15	Moderate missed care	Moderate missed care
PRN medication requests acted on within 15 minutes	16	3.77 ± 1.10	Low missed care	Low missed care	21	3.62 ± 1.05	Moderate missed care	Moderate missed care
Skin/wound care	17	3.79 ± 1.05	Low missed care	Low missed care	17	3.52 ± 1.16	Moderate missed care	Moderate missed care

(Continues)

Items	Order	Before COVID-19 (N = 130)		Order	During COVID-19 (N = 130)	
		M ± SD	Level		M ± SD	Level
Patient assessments performed each shift	18	3.81 ± 1.20	Low missed care	19	3.60 ± 1.14	Moderate missed care
Full documentation of all necessary data	19	3.97 ± 0.99	Low missed care	14	3.48 ± 1.06	Moderate missed care
Hand washing	20	3.97 ± 1.12	Low missed care	18	3.55 ± 1.24	Moderate missed care
Vital signs assessed as ordered	21	3.98 ± 1.13	Low missed care	23	3.78 ± 1.06	Low missed care
IV/central line site care and assessments according to hospital policy	22	4.02 ± 0.94	Low missed care	20	3.62 ± 1.01	Moderate missed care
Monitoring intake/output	23	4.09 ± 1.07	Low missed care	22	3.68 ± 1.16	Low missed care
Bedside glucose monitoring as ordered	24	4.09 ± 1.09	Low missed care	24	3.78 ± 1.11	Low missed care
Total missed care	Before	3.68 ± 0.75 (77.2%)	Low missed care	During	3.37 ± 0.72 (67.4%)	Moderate missed care

Appendix A. Means, standard deviation, and overall level of reason for missed care before and during COVID-19.

Items	Order	Before COVID-19		Order	During COVID-19	
		M ± SD	Level		M ± SD	Level
Inadequate number of staff	1	3.51 ± 0.80	Low missed care	1	3.68 ± 0.71	Moderate missed care
Heavy admission and discharge activity	2	3.24 ± 0.83	Low missed care	7	3.13 ± 0.86	Moderate missed care
Inadequate number of assistive and/or clerical personnel (e.g., nursing assistants, techs, unit secretaries, etc.)	3	3.15 ± 0.77	Low missed care	9	3.08 ± 0.80	Moderate missed care
Unexpected rise in patient volume and/or acuity on the unit	4	3.13 ± 0.83	Low missed care	6	3.15 ± 0.75	Moderate missed care
Urgent patient situations (e.g., a patient's condition worsening)	5	3.02 ± 0.83	Low missed care	3	3.25 ± 0.75	Moderate missed care
Supplies/ equipment not functioning properly when needed	6	2.93 ± 0.90	Low missed care	8	3.11 ± 0.78	Moderate missed care
Unbalanced patient assignments	7	2.90 ± 0.86	Low missed care	13	3.05 ± 0.83	Moderate missed care
Supplies/ equipment not available when needed	8	2.85 ± 0.92	Low missed care	4	3.17 ± 0.72	Moderate missed care
Tension or communication breakdowns with other ancillary/support departments	9	2.82 ± 0.83	Low missed care	10	3.07 ± 0.78	Moderate missed care
Other departments did not provide the care needed (e.g., physical therapy did not ambulate)	10	2.81 ± 0.80	Low missed care	16	2.95 ± 0.76	Moderate missed care
Medications were not available when needed	11	2.80 ± 0.97	Low missed care	2	3.28 ± 0.93	Moderate missed care
Tension or communication breakdowns with the medical staff	12	2.79 ± 0.86	Low missed care	11	3.05 ± 0.72	Moderate missed care
Lack of backup support from team members	13	2.76 ± 0.88	Low missed care	12	3.05 ± 0.76	Moderate missed care
Inadequate hand-off from previous shift or sending unit	14	2.71 ± 0.86	Low missed care	5	3.16 ± 0.80	Moderate missed care
Tension or communication breakdowns within the nursing team	15	2.70 ± 0.86	Low missed care	14	3.04 ± 0.80	Moderate missed care

(Continues)

Items	Order	Before COVID-19 M ± SD	Order	During COVID-19 M ± SD
Nursing assistant did not communicate that care was not provided	16	2.60 ± 0.86	17	2.85 ± 0.78
Caregiver off unit or unavailable	17	2.58 ± 0.92	15	2.98 ± 0.83
Total reasons of missed care	Before	2.90 ± 0.55 (72%)	During	3.12 ± 0.49 (78%)