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Missed Nursing Care and its Associated Factors during the COVID-19 Pandemic: A Cross-Sectional Study

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Abstract

Background and Aim: Missed nursing care has recently been identified as a key indicator for evaluating nursing care quality and patient safety. This study aims to determine missed nursing care and its associated factors during the COVID-19 pandemic from the perspectives of nurses working in hospitals affiliated with Rafsanjan University of Medical Sciences, Iran in 2020.

Materials and Methods: A total of 220 nurses working in Rafsanjan hospitals were selected to participate in this descriptive cross-sectional study using convenience sampling. Data were collected using the missed nursing care questionnaire self-administered and a related to factors associated with missed care. SPSS software version 22 was employed to analyze the data with the use of variance, Mann–Whitney U, independent t-test, and Kruskal-Wallis.

Results: The mean age of the nurses was 31.60±6.35 years. The mean score of missed nursing care during the COVID-19 pandemic was determined to be 25.48 ± 5.78, which was lower than the questionnaire's mean score of 52.5. Nurses identified the factors associated with missed care to be "fear of family infection," "staff's physical fatigue," "high patient workload per shift," and "lack of psychological and emotional support by the organization". Additionally, a significant relationship was found between the type of ward and missed nursing care (p=.007).

Conclusion: This study found that the level of missed nursing care was below the average and could be reduced through effective management. Decreasing caregivers' workload could also help reduce the factors contributing to missed nursing care.

Keywords: Nursing care, associated factors, COVID-19, pandemic.

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Introduction

In late December 2019, an infectious disease emerged in Wuhan China, caused by a strain of coronavirus. The COVID-19 pandemic continued for an extended period, with nurses being at the forefront of health and social care in extreme situations. This virus was subsequently named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Being highly contagious, it led to the illness known as coronavirus disease 2019 (COVID-19), which quickly spread beyond China's borders and escalated into a global public health emergency [1]. The high prevalence of COVID-19 in the general population of many countries, its novelty, its highly contagious nature, and high morbidity and mortality rates created an unprecedented demand for health care worldwide [2]. The COVID-19 pandemic continued for an extended period, with nurses being at the forefront of health and social care in extreme situations [3]. Nurses act as gatekeepers in health care by serving as planners, coordinators, care providers and evaluators. Their specialized services are essential for achieving high-quality patient care [4].

The quality of nursing care is an important factor in ensuring patient safety [5]. Concerns about improving the quality of care, particularly in relation to patient safety, are among the significant challenges faced by nurses worldwide. Over the past four decades, many nursing researchers have sought to clarify these concepts and explore their interconnections in order to identify the most effective interventions for maintaining high standards of nursing care and ensuring patient safety [6].

Missed nursing care has recently been recognized as an important indicator for evaluating nursing care and patient safety [7]. Missed nursing care refers to any aspect of required patient care that is missed or delayed [8]. Additionally, missed nursing

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care is also known as implicit care that is been affected, unstable nursing care, unmet patient needs, and incomplete nursing care [4]. Almost all nurses have expressed emotions such as anger, concern, frustration and sadness in response to missed care [5]. Missed care reduces the quality of nursing services [5], causes accidents [9-10], and increases complications [10]. Moreover, it can lead to risks such as patient falls [10], side effects [11], medication errors [10,12], reduced job satisfaction, and greater willingness of nurses to leave the service [13]. In addition, medical centers must bear high costs and prolong hospitalization [4].

Overall, the prevalence of missed nursing care in hospitals varies from 55% to 98% across countries [12,14]. A significant number of nursing care processes that have been missed in hospitals include evaluation (44%), basic care and interventions (73%), and planning (71%) [10]. One study conducted in Iran found that 72.1% of nurses reported omitting at least one critical component of nursing care during a shift [10].

Furthermore, studies have shown that the most commonly missed activities include oral care, providing comfort or talking to patients, developing or updating care plans, and educating patients and their families. These activities are essential for patient safety and better patient outcomes [9,15-16].

Certainly, there are factors involved in the occurrence of missed care that can be related to communication as well as human and financial resources [17]. Studies have shown that missed nursing care can be linked to various factors in the care environment. These factors include stressful situations, lack of resources, inadequate staffing, and an ambiguous work environment. An ambiguous work environment is characterized by unclear or inconsistent practices that can either facilitate or hinder

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nursing practice [8]. A study conducted by Winsett and colleagues highlighted several concerning factors that affect patient care, including an unexpected increase in patient's admission and discharge, staff shortages, and limited access to medications [18]. During the COVID-19 pandemic, the challenges became even more pronounced with an increase in the number of patients being cared for, a higher patient-to-nurse ratio, more days of nurse absenteeism due to illness, and greater workloads and overtime hours for nurses [18-19].

During the pandemic, nurses were faced with many challenges. For instance, they had to relocated, or new colleagues have been added to the ward. The work environment has changed deal with the implementation of additional measures such as maintaining personal hygiene, using protective gear, and dealing with restrictions put on contact and communication with patients and others. Additionally, they had to manage psychological issues like stress, anxiety, depression, and emotional exhaustion. Therefore, in order to manage the quality of care and prevent the recurrence of missed nursing care during these challenging times, it is crucial to identify the extent of missed care and the factors that contribute to impairing nurses' clinical performance [20]. Thus, this study was conducted to determine the extent of missed nursing care and its related factors during the COVID-19 pandemic, from the perspective of nurses working in hospitals affiliated with Rafsanjan University of Medical Sciences, Iran in 2020.

Method

This is a descriptive cross-sectional study that was conducted in the city of Rafsanjan, which has three independent hospitals. During the COVID-19 pandemic, the medical, surgical, and infectious disease wards, as well as the intensive care unit of Ali Ibn Abi Taleb hospital, provided

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services to COVID-19 patients. The total statistical population was 630 nurses, and the sample size was estimated using Cochran's formula for a sample size of 220.

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N}\left[\frac{z^2 pq}{d^2} - 1\right]}$$

N=630, z= 1.96, d=0.05, p= 0.5, q=0.5

Convenience sampling was used by the number five researcher to selected the nurses. Sampling was carried out across all three shifts in the selected hospital wards. After explaining the study objectives and obtaining oral consent, data were collected using a questionnaire, which was given to nurses who agreed to participate in the study.

The data collection tools consisted of a three-part Self-administered questionnaire, which included demographic and contextual information, missed nursing care, and related factor to missed care.

The demographic and contextual information questionnaire included questions about age, sex, marital status, degree, work experience, position, and type of employment.

The missed nursing care questionnaire was a researcher-made questionnaire. To design and compile the questionnaire, the items were extracted from scientific sources, national guidelines, and experts' opinions. Initially, it contained 40 items, but after receiving feedback from nursing professors and calculating the validity index, 21 items were deemed essential for nursing care of patients with COVID-19. The items were formatted using a 4-point Likert scale, with response options ranging from "I rarely forget" (score 1) to "I always forget" (score 4). The highest possible score was 84, while the lowest was 21. A higher score indicated a greater likelihood of missed care.

The factors related to missed care was also researcher-made questionnaire. To design

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and compile the questionnaire, the items were extracted from scientific sources, national guidelines, and experts' opinions This 19-item was scored on a 4-point Likert scale, ranging from 1 (unimportant) to 4 (important). The highest and lowest scores were 76 and 19, respectively with higher score indicating a greater importance of factors related to missed nursing care.

Since the questionnaires were developed by researchers, their validity was confirmed by ten faculty members of the Rafsanjan School of Nursing. In terms of content validity, the questionnaire scored was .91. Additionally, Cronbach's alpha was used to measure the reliability of the questionnaires, with coefficients estimated to be .91 for the missed nursing care questionnaire and .98 for the related factors questionnaire. Data were analyzed by SPSS software version 22. Descriptive statistics (frequency, percentage, mean, and standard deviation) were applied to describe participants' characteristics. Analysis of variance, Mann-Whitney U test, independent t-test, and Kruskal-Wallis test was used to investigate the relationship between demographic variables and missed nursing care variables and its related factors due to the lack of normality.

Rafsanjan University of Medical Sciences approved this project (ethical code: IR.RUMS.REC.1399.186). After approval, the permission was offered to the management of hospitals affiliated with Rafsanjan University of Medical Sciences. The researcher provided some oral information to the participants, including the goals and objectives of the study, the confidentiality of personal information, and anonymity of the data. Participants were free to withdraw from the study at any time. Verbal consent was provided by the nurses individually.

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Results

The mean age of nurses involved in the study was 31.60 ± 6.35 years. Majority of them were between 30-40 years old, with 170 of them being male (77.3%), 151 being married (68.8%), 184 having a bachelor's degree (83.6%), and 121 having more than 5 years of experience (55.3%) (Table 1).

Table 1. Demographic and contextual characteristics of nurses working in hospitals affiliated to Rafsanjan University of Medical Sciences

Variable		Nurses (n = 220)	
		Frequency*	**Percent**
Age(years)	20-30	106	48.2
	31-40	95	43.2
	<41	19	8.6
Sex	male	170	77.3
	female	50	22.7
Marital status	Single/divorced	69	31.4
	Married	151	68.6
Education	Associate Degree	15	6.8
	Bachelor	184	83.6
	Masters	21	9.5
Job experience	Month<6	10	4.5
	6 month and 5 years	88	40.2
	5> years	121	55.3
Job experience in Covid-19 departments	6< month	162	73.6
	6 – 15 months	31	14.1
	Missed Data**	27	12.3
Employment Status	Manpower plan	43	19.5
	Contract Employee	34	15.5
	Temporary	65	29.5
	Fixed-Term	78	35.5
Position	Nurse/Practical nurse	212	96.4
	Head Nurse	8	3.6
Shift type	Fixed	23	10.5
	in circulation	197	89.5
Hospital place of work	Ali ibn Abi Talib	205	93.2
	Nik Nafs	7	3.2
	Moradi	8	3.6
Department	Medical	41	18.6
	Surgical	27	12.3
	Infectious	34	15.5
	Neurology	7	3.2
	Intensive care units	92	41.8
	Emergency	19	8.6

**There are missing data in cases with a frequency of less than 220.*
***2 people without work experience and 25 missing data*

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The mean score of missed nursing care during the COVID-19 pandemic was 25.48 ± 5.78, which was lower than the mean score of the questionnaire (52.5). Among the items missed in the nursing care questionnaire, "using screening questionnaires for early diagnosis of COVID-19 in suspected patients"(1.45 ±.75) and "using posters and warning signs for adherence to infection control standards" (1.44 ±.72) received the highest mean scores (Table-2).

Table 2. The highest and lowest mean score of missed nursing care during Covid-19 epidemic among nurses working in hospitals affiliated to Rafsanjan University of Medical Sciences

Line	Missed nursing care in patients during the covid-19	Mean	SD
1	Use of screening questionnaires for early diagnosis of covid-19 disease in suspected patients*	1.45	.75
2	Use of posters and warning signs to meet infection control standards*	1.44	.72
3	Oxygen therapy for patients with respiratory distress as directed by a physician**	1.06	.28
4	Observe standard precautions when sucking patient's lung discharge**	1.08	.27
Total score		25.84	5.78
** The highest mean score, **The Lowest mean score*			

Table-3 shows the importance of factors related to missed care. In other words, the mean importance of all items was higher than 3 (the score range was 1-4). The items

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of "fear of their families being infected", "staff's physical fatigue", "a large number of patients under care in each shift", and "lack of psychological and emotional support from the organization" had the highest mean scores.

Table 3. The highest and lowest mean score to missed nursing care during the Covid-19 pandemic in nurses working in hospitals affiliated to Rafsanjan University of Medical Sciences

Row	Factors related to missed nursing care in patients during covid-19	Mean	SD
1	Fear of infecting the family member *	3.77	.63
2	Physical fatigue of staff *	3.68	.73
3	Lack of psychological and emotional support from the organization *	3.64	.68
4	Lack of cooperation of patients in the implementation of care measures **	3.38	.84
5	Lack of information and knowledge about the disease **	3.44	.82
6	Forced to wear equipment for a long time **	3.49	.88
** The highest mean score, ** Lowest mean score*			

Analysis of variance, Mann-Whitney U, independent t, and Kruskal-Wallis tests revealed a relationship between the type of ward and missed nursing care (p=.007), (Table4).

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Table 4. Relationship between demographic and contextual characteristics of nurses working in hospitals affiliated to Rafsanjan University of Medical Sciences with missed nursing care in patients during the covid-19 era

Variable		Missed nursing care in patients during the covid-19 era		Statistical analysis	*p*
		Mean	SD		
Age (years)	20-30	25.48	5.70	F=.21	.81
	31-40	25.32	5.77		
	>41	26.26	6.54		
Sex	Male	25.20	5.28	Z= -.16	.87
	Female	26.40	7.21		
Marital status	Single/divorced	25.94	6.47	t=-.80	.42
	Married	25.26	5.45		
Education	Associate Degree	24.33	4.29	F=.37	.69
	Bachelor	25.52	5.80		
	Masters	25.95	6.67		
Job experience	6> month	26.80	6.18	F=.35	.70
	6 month and 5 years	25.24	5.31		
	5> years	25.35	5.74		
Job experience in Covid departments	6< month	25.15	5.32	H= 4.28	.12
	6 – 15 months	25.16	6.19		
	Missed Data	27.81	7.48		
Employment Status	Manpower plan	26.65	5.62	F= 1.15	.33
	Contract Employee	25.50	6.36		
	Temporary	25.68	6.15		
	Fixed-Term	24.65	5.26		
Shift type	Fixed	24	3.52	t=-1.30	.20
	in circulation	25.56	5.98		
Department	Medical	25.60	7.24	H= 15.95	.007
	Surgery	22.63	2.79		
	Infectious	26.44	5.25		
	Neurology	24.14	5.16		
	Intensive care units	25.25	4.58		
	Emergency	29.10	9.23		

F = analysis of variance, Z = Mann-Whitney U, independent t = t, H = Kruskal-Wallis

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Discussion

Missed nursing care has recently been recognized as an important indicator for assessing both the quality of nursing care and patient safety. The results of this study showed that the mean score of missed nursing care during the COVID-19 pandemic was below the overall average. In the literature review, no similar studies were found addressing missed nursing care during the COVID-19 pandemic or other pandemics. A study by Naseri in 2023 reported a missed nursing care score of 40.60 during the Coronavirus pandemic (12). In Ethiopia and Sweden, 74% of nurses reported that they commonly missed at least one aspect of nursing care [21-22]. Additionally, a study in Jordan indicated that the frequency of missed nursing care increased during the COVID-19 pandemic (32.6% vs 22.8%) [23]. The lower level of missed nursing care observed in the study of Labrague et al. (2020) was attributed to differences in education levels and nurses' participation in ongoing training courses [24]. Assigning more nursing staff during the COVID-19 pandemic may have contributed to the reduced level of missed care among nurses in this study. Researchers suggest that one of the factors predicting an increase in missed care is an increased nurse-to-patient ratio [25-27]. The results of present study indicated that the items of "using screening questionnaires for early diagnosis of COVID-19 in suspected patients" and "using posters and warning signs for adherence to infection control standards" obtained the highest mean scores among the missed nursing care items. No similar study was found in order to compare its results with the results of present study. Due to the nature of COVID-19 and the severe need of affected patients for basic essentials such as air, nurses first perform oxygen therapy or other caring behaviors to save the patients' lives.

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Regarding the factors related to missed care, the results of present study showed that the highest scores were attributed to the items of “fear of their families being infected", "staff’s physical fatigue", "a large number of patients under care in each shift", and "lack of psychological and emotional support from the organization”. In the study of Von Vogelsang et al. (2021) on barriers to nursing care during the COVID-19 pandemic, the most common barriers, according to participating nurses, were an "unexpected increase in the number of patients and ward crowdedness" and patients' emergency conditions [19]. Also, Mehrabian et al. (2023) reported that the most important reasons for missed care reported by nurses were human resources, material resources, and communication, which align with the results of present study [28]. Moreover, other studies conducted in periods other than the COVID-19 pandemic have reported “workload related to admission and discharge”, “manpower shortage and resource inadequacy" [17-18, 26] to be the most common factors related to missed care. These results are not in line with the results of present study, which may be due to differences in patient conditions and the use of different questionnaires. It is justifiable to say that nurses’ fatigue is the most significant factor associated with missed care, because large number of hospitalized patients, high mortality rate, and possible staff shortage put a high level of physical pressure on nurses. Lack of psychological and emotional support from the organization could have been due to focusing more on patients’ improvement and ignoring the nurses’ condition.

Moreover, in the present study, there was only a significant relationship between the type of ward and missed nursing care, in such a way that the nurses working in Emergency and intensive care units missed nursing care more than others. This is in line

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with the results of a study conducted by Eskin Bacaksiz et al. (2020), [27], while it is not in line with the results of studies by Bragadottir et al. (2017) and Duffy et al. (2018), who reported the level of missed nursing care in the nurses working in intensive care units to be lower [7,29]. Probably the reason for this discrepancy is the frequent transfer of staff between wards that cause some nurses not to have enough experience in the new ward, especially in the intensive care unit. Lack of experience leads to stress and, as a result, missed care. In addition, the use of different questionnaires and the pandemic conditions can also contribute to the differences in these results.

The present study has both advantages and limitations. Its main advantage is that it included the entire population of nurses working in medical/surgical wards and intensive care units in three hospitals pf Rafsanjan, with a response rate of approximately 70%. One limitation of this study is the use of a researcher-made questionnaire, although this tool demonstrated good psychometric properties. Additionally, the high workload of nurses and lack of time to complete the questionnaire were other limitations that may have impacted the accuracy of responses. Furthermore, the psychological conditions, motivation levels, and willingness of nurses to answer questions could have influenced the results. Therefore, future studies are recommended to be conducted on larger populations with diverse cultures to better understand missed nursing care and its contributing factors in critical situations such as the COVID-19 pandemic.

Conclusion

The results of present study indicated that the mean score of missed nursing care in this study was below average, suggesting that more than half of the care was not missed. Nursing managers can utilize these

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findings to address the factors contributing to missed care and ultimately decrease instances of missed nursing care. As patients' well-being is closely tied to the quality of care they receive, the results of this study can also serve as a roadmap for enhancing care quality in hospitals.

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Conflict of interest

There is no conflict of interest in this study.

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