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Original Article

Depressive Symptoms and Missed Nursing Care among Clinical Nurses: A Cross-Sectional Survey

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Purpose: This study aimed to compare missed nursing care between nurses with and without depressive symptoms. **Methods:** A cross-sectional survey was conducted with shift-working nurses at a general hospital in South Korea. Data from 184 nurses were analyzed using the independent t-test, the x^2 test and the Fisher's exact test. **Results:** The most frequently missed nursing care items reported by hospital nurses were, in descending order, monitoring intake/output, assessing the effectiveness of medications, bathing and skin care, washing hands. The order of missed nursing care items was similar between groups with and without depressive symptoms, but there were statistically significant differences between the two groups in the mean scores for vital signs, bedside glucose monitoring, turning patients every 2 hours, providing emotional support to patients, skin/wound care, patient discharge planning, response to the call light, and pro re nata (PRN) medication requests acted on. **Conclusion:** Nurses' mental health needs to be monitored and managed more closely, as it is correlated to missed nursing care. Health institutions and nursing departments should support nurses through strategies that can quickly detect and manage nurses' depressive symptoms. Systematic resources incorporating social support among nurse colleagues could also be used as strategies to reduce depressive symptoms and missed nursing care.

Key Words: Depression; Nurses; Nursing care; Mental health

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INTRODUCTION

Depressive symptoms in nurses have been leading to problems, impacting not only nurses' well-being, but also quality of care and patient safety by diminishing their neurocognitive function [1,2]. The prevalence of depressive symptoms is higher in nurses than in other job groups [3,4] and depressive symptoms are more common among shift-working nurses [5,6], who generally provide direct patient care. Missed nursing care, which is defined as the omission of required nursing care [7] is applied in nursing research as a proxy measurement of direct patient care. In order to examine the impact of depressive symptoms in nurses on direct patient care, a practical step forward would be to examine the differences in missed nursing care based on nurses' depressive symptoms.

Nurse performance includes patient outcomes affected by the quality of nursing care [8]. Missed nursing care is associated with adverse events in patients [9], and with an increased risk of death post-surgery [10]. Therefore, the causes of missed nursing tasks must be examined and managed carefully.

Researchers have primarily focused on analyzing hospital and unit characteristics associated with missed nursing care [11-13]. Missed nursing care is influenced by structural factors such as nurse staffing [11,14,15], teamwork within nursing [12], and other characteristics of nurses' practice environment [16]. However, nurses' personal characteristics are also likely to influence missed nursing care because cognitive factors (e.g., thought processes and decision-making) affect nursing performance [8]. Previous studies have shown that perceived burnout and job dissatisfaction have positive associations with missed nursing care [17,18]. However, because burnout is closely related to the work environment, and results have been reported regarding the relationship between burnout and depression [19,20], it remains necessary to conduct additional research to elucidate the relationship between depressive symptoms and missed nursing care. In previous studies, nurses' depressive symptoms were negatively correlated with health-promoting behaviors [6] and positively related to sleep disturbance, fatigue, anxiety [21], and occupational stress [3]. Those studies presented the effects of depression on various outcomes in nurses. Of note, employees with depressive symptoms generally take more time off from work [22], whereas only 6.0% of employees working with depressive symptoms had positive results for their performance [22]. Skinner and Scott [4] already assumed that depression would lead to declines in nursing performance because of poor concentration, lowered energy levels, and dysphoric mood, and it was also reported that the depressive symptoms most frequently reported by registered nurses included continual fatigue and trouble concentrating [23]. As depressive symptoms among Korean nurses, job stress, emotional labor, fatigue, anxiety, and anger were reported [21], and globally, diminished energy, decreased concentration, fatigue, and indecision were included [24]. Therefore, nurses with depressive symptoms may have poor function at work due to impairments in cognitive and biological function, which may lead to omissions in nursing practice. Therefore, the aims of this study were to analyze nurses' depressive symptoms and the degree of missed nursing care, identify nurses' missed care according to their depressive symptoms, and investigate the causes of nurses' missed nursing care according to nurses' depressive symptoms. Through this, it will be possible to identify differences in the nursing care items that are missed between nurses with and without depressive symptoms.

METHODS

1. Study Design

A cross-sectional survey was conducted among shift-working nurses.

2. Participants and Setting

The setting consisted of nine nursing units at one general hospital in D city, South Korea and data were collected from May to June 2019 using a self-administered survey. We determined the sample size required for t-test analysis using the G-power 3.1.9.4 program. When we set the effect size as 0.50, the significance level .05, and the power 90% based on a previous study [6], the required sample size was 172, and 205 questionnaires were distributed considering the possible dropout rate.

Convenience sampling was conducted after receiving approval from the head of the nursing department. A recruitment announcement was posted online on the hospital bulletin board, and 205 clinical nurses were invited to participate in the study. We included three-shift-working nurses who were dedicated to direct nursing care. Nurses who had any underlying disease that could affect sleep or were taking any kinds of medication that might affect the study results were excluded. A survey packet (including a study introduction letter, a consent form, the questionnaire, and an envelope) was distributed to the nursing units. The nurses sealed the questionnaire after complet-

ing it and stored it in a cabinet in the unit until subsequent collection by the researchers. A total of 190 nurses (92.7%) completed the survey, and the final sample consisted of 184 nurses' data (89.8%) after excluding six survey data with missing responses.

3. Measurements

The MISSCARE survey developed by Kalisch and Williams [7] was used to explore perceptions of missed care and the reasons for missed care. The MISSCARE survey has been translated into Korean and used to examine nurses' performance in South Korea [9,11]. We obtained permission to use the instrument both from the original MISSCARE survey developer and the author who translated it into Korean. Nurses were first asked to answer how frequently they had missed each of 24 nursing care elements (part A) with a 4-point scale. Higher scores indicated a greater extent of missed care. The second part consisted of 16 reasons for missed care (part B), categorized into three subscales: labor resources, material resources, and communication. The nurses responded to each item using a 4-point scale. Higher scores indicated stronger reasons for missed care. When the instrument was first developed and validated [7], its reliability was evaluated by assessing the internal consistency of the items representing the factors in part B. Cronbach's α was .69, .71, and .85 for the three subscales of labor resources, material resources, and communication, respectively [7]. In the previous Korean study [11], Cronbach's α for part A was .89, Cronbach's α for part B was .90, and Cronbach's α for the three subscales of labor resources, material resources and communication were .76, .80, and .88, respectively. In the present study, Cronbach's α for part A was .93, Cronbach's α was .93 for the overall part B, and Cronbach's α was .80, .81, and .92 for the three subscales of labor resources, material resources, and communication, respectively.

The Beck Depression Inventory-II (BDI-II), which consists of 21 items, was used to detect the presence of depressive symptoms [25]. The Korean version of the BDI-II was translated and validated by Sung et al. [26]. The BDI-II was purchased, and we received approval for the use of the Korean version. The cut point score of 14 points was used to include participants with mild, moderate, and severe depressive symptoms [27]. We classified nurses as having depressive symptoms when the score was higher than 14 points. The Korean version of the BDI-II showed good criterion validity and internal consistency, with a Cronbach's α value of .83. The Cronbach's α value for the BDI-II in this study was .91.

4. Ethical Considerations

Before recruitment began, the study received IRB approval (no. 2019-198-01). After the study's purpose was explained, nurses participated in the survey on a voluntary basis and completed a written consent form prior to answering the survey questionnaires.

5. Data Analysis

The data were analyzed using SPSS version 25.0[28]. Participants' general characteristics, including age, gender, marriage, education level, and department, and depressive symptoms were analyzed using descriptive statistics, and these were compared between the depressive symptoms and no-depressive-symptom groups using the independent t-test, x^2 test and Fisher's exact test. Each element and the total sum of missed nursing care and the scores for the 16 reasons for missed nursing care were compared between the depressive-symptom and no-depressive-symptom groups using the independent t-test.

RESULTS

Sample characteristics are presented in Table 1. In total, 184 nurses participated in the study, of whom 39.1% (n=72) had depressive symptoms and 60.9% (n=112) did not. Most of the nurses were women (94.6%). The mean age of participants was 26.54±3.58 years and most of them were unmarried (88.6%). In addition, most of the nurses had a bachelor's degree (88.0%). Fewer nurses with depressive symptoms had a bachelor's or higher degree, but this difference was not statistically significant. Most of the participants worked in the general ward (45.7%) or intensive care unit (25.5%). The BDI-II score showed a statistically significant difference between the depressive symptoms (20.35±5.77) and no-depressive symptom groups (6.71±3.99, p=.004). Furthermore, 21.7% of nurses showed mild depressive symptoms, 13.0% of them showed moderate symptoms, and 4.4% of them showed severe symptoms.

Table 2 presents between-group comparisons of the overall scores and the scores for the 24 items of missed nursing care. Nurses in the depressive symptom group had higher scores, indicating that they missed more nursing care (33.79±9.90) than those in the no-depressive symptom group (30.57±5.83, p=.019). In both groups, the most frequently missed nursing care items were monitor-

Table 1. Correlations between Nurse Characteristics and Depressive Symptoms (*N*=184)

Variables	Categories	n (%) or M±SD	Depressive symptoms		x^2 or t	*p*
			Yes (n=72)	No (n=112)		
			n (%) or M±SD	n (%) or M±SD		
Age		26.54±3.58	26.26±3.45	26.72±3.67	-0.85	.397
Total career experience		3.76±3.92	3.14±3.68	4.16±3.98	-1.74	.084
Gender	Men	10 (5.4)	7 (9.7)	3 (2.7)		.050†
	Women	174 (94.6)	65 (90.3)	109 (97.3)		
Marital status	Not married	163 (88.6)	66 (91.7)	97 (86.6)	1.11	.348
	Married	21 (11.4)	6 (8.3)	15 (13.4)		
Education	Associate degree	18 (9.8)	6 (8.3)	12 (10.7)		.287†
	Bachelor's degree	162 (88.0)	66 (91.7)	96 (85.7)		
	Master's or higher	4 (2.2)	0 (0.0)	4 (3.6)		
Department	General ward	84 (45.7)	34 (47.2)	50 (44.6)		.113†
	Emergency room	20 (10.9)	9 (12.5)	11 (9.8)		
	Intensive care unit	47 (25.5)	22 (30.6)	25 (21.4)		
	Recovery room	33 (17.9)	7 (9.7)	26 (23.2)		
Depressive symptoms			20.35±5.77	6.71±3.99	18.96	.004
	No	6.71±3.99	112 (60.9)			
	Mild	16.28±1.92	40 (21.7)			
	Moderate	23.13±2.68	24 (13.0)			
	Severe	32.38±2.56	8 (4.4)			

M=mean; SD=standard deviation; †Fisher exact test.

ing intake/output, assessing the effectiveness of medications, bathing and skin care, and hand washing, in descending order. The order of missed nursing care items was similar between the depressive-symptom and no-depressive-symptom groups, but there were statistically significant differences between the two groups in the mean scores for vital signs, bedside glucose monitoring, turning patients every 2 hours, emotional support to patients and/or family, skin/wound care, patient discharge planning and teaching, response to call light, and pro re nata (PRN) medication requests acted on. Specifically, the nurses with depressive symptoms tended to report missing some nursing care items more frequently than the nurses without depressive symptoms.

Table 3 presents between-group comparisons of the scores for the 16 items on reasons for missed nursing care. No significant differences were found between the two groups, although the overall scores of labor resources and communication were higher in the depressive-symptom group. The order of the reasons for omitting nursing care was similar between two groups. Specifically, nurses thought that issues involving labor resources were important factors related to missed nursing care.

DISCUSSION

This study aimed to determine whether differences in nursing practice and associated factors related to missed nursing care existed between nurses with and without depressive symptoms.

The prevalence of depressive symptoms among nurses was 39.1% in this study, which was higher than has been reported for the general population in South Korea using national data (6.1% in the 19~29 age group) [29]. However, our study showed a lower prevalence of depressive symptoms than was found in a nationwide study of Korean nurses, where 64.8% of nurses reported mild to severe depressive symptoms and most participants were 29 years of age or younger [30]. The prevalence of depressive symptoms reported herein is also higher than the rate of 18% of hospital-employed nurses in the United States [30]. Between-study differences in the prevalence of depressive symptoms might be due to age differences in nurses, as the mean age of our participants was 26.3, whereas it was 44.7 in the United States' study [30]. Age has consistently been reported as a significant contributor to depression in nurses, with depression being more likely in younger nurses [23]. It is quite plausible that younger nurses, with less

Table 2. Comparison of Missed Nursing Care Items between Nurses with and without Depressive Symptoms (*N*=184)

Item	Total M±SD	Rank	Depressive symptom				t (*p*)
			Yes (n=72)		No (n=112)		
			M±SD	Rank	M±SD	Rank	
Overall total sum of missed nursing care	31.84±7.45		33.79±9.90		30.57±5.83		2.38 (.019)
Ambulation three times per day or as ordered	1.54±0.70	5	1.64±0.82	5	1.48±0.60	6	1.46 (.147)
Patient bathing/skin care	1.68±0.69	3	1.74±0.70	3	1.65±0.69	3	0.86 (.391)
Mouth care	1.31±0.56	11	1.41±0.62	10	1.25±0.50	10	1.87 (.064)
Attend interdisciplinary care conference whenever held	1.35±0.64	8	1.41±0.71	9	1.31±0.59	8	0.95 (.344)
Emotional support to patient and/or family	1.22±0.46	16	1.31±0.55	14	1.16±0.37	14	2.06 (.042)
Full documentation of all necessary data	1.20±0.44	17	1.28±0.54	16	1.15±0.36	16	1.90 (.060)
Patient teaching about procedures, tests, and other diagnostic studies	1.12±0.36	24	1.19±0.46	22	1.07±0.26	24	1.86 (.066)
Setting up meals for patients who feed themselves	1.28±0.53	13	1.36±0.61	11	1.23±0.46	12	1.56 (.121)
Turning patient every 2 hours	1.29±0.51	12	1.44±0.62	8	1.20±0.40	13	2.92 (.004)
Assist with toileting needs within 5 min of request	1.53±0.61	6	1.56±0.65	6	1.50±0.59	5	0.64 (.521)
Assess effectiveness of medications	1.76±0.81	2	1.81±0.78	2	1.73±0.83	2	0.67 (.506)
Hand washing	1.57±0.72	4	1.66±0.74	4	1.52±0.71	4	1.24 (.218)
Skin/wound care	1.23±0.49	14	1.34±0.61	12	1.16±0.36	15	2.27 (.025)
PRN medication requests acted on within 15 min	1.15±0.42	22	1.27±0.53	18	1.07±0.30	23	2.81 (.006)
Medications administered within 30 min before or after scheduled time	1.12±0.40	23	1.17±0.51	23	1.09±0.32	22	1.17 (.246)
IV/central line site care and assessments according to hospital policy	1.16±0.48	19	1.24±0.60	19	1.11±0.37	19	1.64 (.103)
Focused reassessments according to patient condition	1.15±0.41	21	1.21±0.50	21	1.10±0.34	20	1.60 (.112)
Feeding patient when the food is still warm	1.18±0.48	18	1.26±0.58	17	1.13±0.39	18	1.63 (.105)
Patient discharge planning and teaching	1.21±0.53	15	1.33±0.67	13	1.13±0.39	17	2.22 (.029)
Response to call light is initiated within 5 min	1.16±0.45	20	1.26±0.58	20	1.10±0.33	21	2.03 (.045)
Patient assessments performed each shift	1.32±0.55	10	1.30±0.52	15	1.34±0.57	7	-0.51 (.614)
Monitoring intake/output	1.80±0.88	1	1.86±0.95	1	1.77±0.81	1	0.68 (.497)
Vital signs assessed as ordered	1.38±0.63	7	1.53±0.78	7	1.28±0.49	9	2.35 (.021)
Bedside glucose monitoring as ordered	1.33±0.54	9	1.44±0.63	24	1.25±0.46	11	2.15 (.033)

M=Mean; SD=Standard deviation.

work experience, would be more vulnerable to depressive symptoms due to work environment factors such as job-related stress or role overload [31].

Our findings provide further evidence that missed nursing care is common. In previous studies, ambulation, bathing/skin care, turning position, mouth care [11], emotional support, and teaching [32] were the most commonly missed nursing care items. Instead, in our study, monitoring intake/output was the most commonly reported item, followed by assessing the effectiveness of medications and bathing/skin care. Monitoring intake/output and assessing the effectiveness of medications require more cognitive competence than ambulation, bathing, turning, and mouth care. Thus, we can say that the participants in this study omitted tasks requiring higher levels of mental ability, but no significant difference between the depressive symptom and no-depressive symptom groups was found. The discrepancy between our results and those of other studies may be related to differences in the participants, as this study included nurses working in special care units (e.g., the emergency room, intensive care unit, and recovery room), whereas previous studies [11,32] conducted in South Korea only included nurses working in general wards. The tasks required from nurses-and therefore, the

Table 3. Comparison of Reasons for Missed Nursing Care between Nurses with and without Depressive Symptoms (*N*=184)

Item	Total M±SD	Rank	Depressive symptom				t (*p*)
			Yes (n=72)		No (n=112)		
			M±SD	Rank	M±SD	Rank	
Overall reasons for missed nursing care	2.58±0.66		2.61±0.64		2.55±0.66		-0.71 (.477)
Labor resources	3.34±0.60		3.40±0.54		3.29±0.64		1.19 (.236)
Inadequate number of staff	3.55±0.74	1	3.64±0.68	1	3.49±0.77	1	1.33 (.185)
Unexpected rise in patient volume and/or acuity on the unit	3.28±0.77	3	3.38±0.68	2	3.21±0.82	3	1.50 (.076)
Inadequate number of assistive personnel	3.30±0.84	2	3.32±0.84	3	3.34±0.87	2	-0.34 (.737)
Urgent patient situation	3.20±0.72	4	3.28±0.68	4	3.14±0.75	4	1.27 (.206)
Material resources	2.53±0.80		2.53±0.77		2.53±0.79		0.09 (.928)
Medications were not available when needed	2.90±0.99	5	2.86±1.01	5	2.93±0.98	5	-0.47 (.641)
Supplies/equipment not available when needed	2.39±0.97	8	2.39±0.94	7	2.40±0.99	8	-0.10 (.923)
Supplies/equipment not functioning properly when needed	2.29±0.89	11	2.37±0.92	8	2.23±0.86	12	1.02 (.311)
Communication	2.24±0.80		2.26±0.82		2.22±0.78		0.26 (.795)
Unbalanced patient assignments	2.13±0.99	15	2.20±1.11	15	2.09±0.91	14	0.70 (.483)
Inadequate handoff from previous shift or sending unit	2.34±0.96	9	2.35±1.04	9	2.33±0.93	9	0.10 (.922)
Other departments did not provide the care needed	2.20±0.96	13	2.21±0.93	14	2.20±0.99	13	0.12 (.903)
Lack of backup support from team members	2.30±1.02	10	2.26±0.94	11	2.32±1.07	10	-0.43 (.668)
Tension or communication breakdowns with other ancillary/support department	2.14±0.95	14	2.23±0.98	12	2.08±0.93	15	1.02 (.309)
Tension or communication breakdowns within the nursing team	1.97±0.95		2.01±0.99	16	1.95±0.94	16	0.47 (.638)
Tension or communication breakdowns with the medical staff	2.40±0.97	7	2.31±0.99	10	2.45±0.97	7	-0.91 (.366)
Nursing assistant did not communicate that care was not done	2.24±1.08	12	2.21±1.09	13	2.25±1.08	11	-0.22 (.479)
Care giver is off unit or unavailable	2.57±1.07	6	2.64±1.06	6	2.53±1.08	6	0.71 (.478)

M=Mean; SD=Standard deviation.

tasks they omit-vary across settings, as supported by the findings of Kalisch and Williams [7], who reported that the ranking of missed nursing care items differed depending on the study sample. The priority of nursing tasks in each nursing unit should be investigated in further research. In addition, differences likely exist among nurses depending on the country, culture, hospital policy, patient characteristics, and unit characteristics in terms of perceptions of the scope of work, which could affect nurses' perceptions of whether they are missing their work. However, this study could not address these potential differences in perceptions. Therefore, future studies should analyze the work environment and characteristics of nurses in greater depth to analyze factors that can affect missed care.

Nurses with depressive symptoms were more likely to miss nursing care than nurses without depressive symptoms. More specifically, nurses with depressive symptoms more frequently missed items related to emotional support, turning positions, skin/wound care, administering PRN medications on time, discharge planning and teaching, responding to the call light, assessment of vital signs, and glucose monitoring. In the depressive symptom group, it is noteworthy that aspects of nursing practice that require extensive conversations with patients were often omitted. The nurses with depressive symptoms were also more likely to omit basic routine nursing tasks, as well as nursing practices requiring critical judgment and quick performance. A study reported that nurses' depression and the frequency of medication errors was positively correlated [33]. Our findings do not provide information on the direct effects of nurses' depressive symptoms on patient outcomes; however, they do indicate that missed nursing care might be influenced by nurses' mental health status. Further studies are needed to explore the direct link between nurses' depressive symptoms and patient outcomes. The causes of depressive symptoms in clinical nurses and their effect on work performance also require in-depth consideration using various research methods, including nurses in various working environments.

Nurses with depressive symptoms showed higher scores for 10 of the 16 items on reasons for missed nursing care, but the differences were not significant. The depressive symptom group had higher overall scores for two factors (labor resources and communication). The mean score for labor resources was higher than was reported for nurses in the United States, but the scores for material resources and communication were lower [15]. Compared with a previous study conducted in Korea [11], the mean score for la-

bor resources was higher than for high-staffing units and lower than for low-staffing units, while the scores for material resources and communication were lower overall. These findings indicate that nurses with depressive symptoms were more likely to experience inadequate staffing levels and to be unsatisfied with the communication in their units than nurses without depressive symptoms. However, further investigation and interpretation are needed to determine whether these nurses became more depressed while suffering from a lack of adequate nursing staff and communication difficulties at work, or whether nurses with depressive symptoms were more aware of insufficient staffing and communication problems. The possibility cannot be excluded that nurses feel lethargy or experience depressive symptoms when they are constantly in an inadequate work environment. Therefore, the results of this study do not enable an explanation of the predecessor and causal relationship between the causes of missed nursing care and depressive symptoms of nurses, for which additional research would be necessary. In addition, considering the results of a previous study [19] that showed an association between higher job stress and burnout among nurses with higher levels of depression, rather than simply approaching nurses' depressive symptoms as an individual mental problem, it is necessary to approach and manage the accumulated work-related stress and burnout at the organizational and institutional level. As burnout, job stress [20], and inappropriate nurse staffing [9] have been revealed to be factors associated with more frequent missed nursing care, it is necessary to analyze in detail whether personal factors (e.g., depressive symptoms) or institutional factors (e.g., nursing work environment) have a greater impact on missed nursing care.

Since communication involves interaction, it is difficult to find reasons only from the perspective of nurses with depressive symptoms. However, because it was demonstrated that nurses with depressive symptoms missed more nursing practices requiring communication with patients and co-workers, strategies are needed to prevent depressive symptoms of nurses by targeting factors associated with communication failures and missed nursing care. A recent study has demonstrated that social support from colleagues lowers nurses' depressive symptoms, even in an environment where work demands are high [34]. It is important to focus on the depressive symptoms of nurses themselves and to provide appropriate treatment and prevention.

Short-term and long-term strategies are needed to manage nurses' depressive symptoms, and these strategies should include mental health promotion programs such as a mental health first aid course, mental health promotion interventions including stress coping, mental health literacy improvement courses, and educational programs to reduce stigmatizing attitudes [35]. It is necessary to recognize the depressive symptoms of nurses as a problem that needs to be managed not at the individual level, but at the organizational, institutional, and even governmental levels. This is because previous studies have already reported that nurses' accurate job performance is an important factor influencing patients' health and safety. In particular, the results of this study are significant for nursing research and practice because missed care includes basic nursing (i.e., primary nursing care items mainly performed by clinical nurses). Failure to perform primary care items may not have an impact on patients' immediate treatment outcomes, but it is necessary to further examine how this will affect nursing performance and patient outcomes in the long term if missing care items accumulate. In this respect, this study was intended to emphasize that nurses' mental health, in addition to their physical health, is a highly influential factor that constitutes an essential asset for protecting patients' safety and health.

This study has a few limitations. First, it was conducted among nurses at a single general hospital, the participants were relatively young, and a cross-sectional design was used; therefore, the generalizability of the findings may be limited. Second, since there is a cultural expectation in South Korea for families to participate in basic nursing care for hospitalized patients, South Korean nurses' perceptions of missed nursing care might be different from those of nurses in other countries. Third, the study data were obtained from a cross-sectional survey, so the relationships among depressive symptoms and missed nursing care do not reflect causal relationships. Fourth, since we used self-report data, the results might not accurately reflect nurses' true behaviors. Fifth, we tried to control for individual health problems and working environments that might affect depressive symptoms and missed nursing care, but we recommend further studies to conduct a comparative analysis considering more factors that could affect this relationship.

CONCLUSION

The findings of this study provide further evidence that missed nursing care is common and that nurses with depressive symptoms tend to miss nursing care more often than nurses without depressive symptoms. In addition, differences were found in missed nursing care items between nurses with and without depressive symptoms. As

nurses provide health care services to patients close to 24 hours a day, their mental health condition may have implications for patient safety. Therefore, preventing and managing depressive symptoms in nurses is very important, regarding their personal health and job performance. As follow-up research in the future, studies that deal in depth with the causes and experiences of depressive symptoms among nurses are needed. In particular, we suggest conducting qualitative studies that examine the nature of the phenomenon from the perspective of nurses.

CONFLICTS OF INTEREST

The authors declared no conflict of interest.

AUTHORSHIP

Study conception and design acquisition - Jeong YM and Chang HE; Data collection - Jeong YM and Chang HE; Data analysis & Interpretation - Jeong YM and Chang HE; Drafting & Revision of the manuscript - Jeong YM and Chang HE; Study supervision - Chang HE.

DATA AVAILABILITY

Please contact the corresponding author for data availability.

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