

ORIGINAL ARTICLE

Identification and comparison of missed nursing care in the United States of America and South Korea

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Abstract

Aims and objectives: This study aimed to identify and compare missed nursing care types and reasons between South Korea and the United States of America.

Background: Patient safety has become a significant task of the healthcare delivery systems worldwide. The omission of nursing care constitutes a growing concern because it threatens both patient safety and nursing care quality.

Design: This study used a cross-sectional, descriptive and comparative design.

Methods: Data were collected from registered nurses working in two university-affiliated tertiary hospitals and a general hospital in Korea and a Midwest United States tertiary hospital. In addition, the STROBE checklist was used in this study.

Results: While substantial, the level of missed nursing care reported by Korean nurses was lower than that of United States nurses. Only three nursing care activities, setting up meals, patient assessment and skin/wound care, did not significantly differ between two countries. More basic nursing care types such as ambulation, feeding and mouth care were missed more than others in both countries. The reasons for missed care differed between two countries. However, both Korean and US nurses reported labour resource problems as reasons for missed care.

Conclusions: Although the types of missed nursing care differed significantly between countries, both Korean and US nurses reported labour resource problems for the top reasons for missed care. Thus, comparing missed nursing care could assist nursing administrators in developing strategies to improve care quality and patient safety.

Relevance to clinical practice: The level and reasons for missed nursing care are very influential factors for patient outcomes and patient safety. Appropriate skill mix and staffing are needed to decrease extent of missed care, so that enhancing patient safety and quality of nursing care.

KEYWORDS

missed nursing care, patient safety, quality of care, South Korea, staffing

What does this paper contribute to the wider global clinical community?

- The type of missed nursing care is a critical element in both nursing and patient outcomes, although it generally differed between countries.
- Both Korean and the US nurses reported labour resources as top reasons for missed care.
- The mixture of appropriate staffing and skill could be an extremely critical factor in decreasing the extent of missed care.
- Nurse managers and administrators in hospitals should develop operational plans that could minimise the probability of missed nursing care in their units and hospitals as this would improve nurses' job satisfaction, care quality and patient safety.

1 | INTRODUCTION

An alarming report released by the Institute of Medicine of the National Academies of Sciences indicated that between 44,000–98,000 deaths occurred due to preventable medical errors annually in the United States of America (USA) (Kohn et al., 2000). Subsequently, improving patient safety by preventing medical errors has become one of the most significant tasks of the healthcare delivery systems worldwide.

Errors that occur during nursing care also constitute a growing concern because they threaten both patient safety and nursing care quality (Osmon et al., 2004; Thomas, 2010; Wakefield, 2014). As the largest group of healthcare professionals, nurses are in the best position to enhance patient safety and prevent medical errors (Osmon et al., 2004). Miller and Swain (1987) stated that human errors could be divided into those of omission or commission. In other words, nursing errors could constitute either an omission (i.e. failure to administer medication) or a commission (i.e. administering the incorrect medication), which lead to adverse outcomes and could potentially significantly harm patients.

Missed nursing care is defined as any aspect of patient care that is omitted (either in part or in whole) or significantly delayed (Kalisch et al., 2009). Previous research has consistently indicated that missed nursing care is a prevalent and severe problem in the USA and other countries (Blackman et al., 2015; Bragadóttir et al., 2015; Kalisch et al., 2012, 2013). Thus, missed nursing care can serve as an indicator of both patient safety and care quality in healthcare settings (Ball et al., 2014; Cho et al., 2017; Thomas, 2010).

Kalisch, Landstrom, and Williams (2009) reported that 85% of missed care was attributed to the lack of nurses. Moreover, nurses may omit care for patients' needs and miss the steps required in approved standards due to lack of time. Additional factors of missed care include personal and environmental factors and lack of resources. Missed nursing care is the most common cause of adverse patient outcomes such as infection, pressure ulcer, increased length of stay, unnecessary treatment and death (Kalisch et al., 2014). In addition, missed nursing care could be an influential factor in nursing outcomes (e.g. job satisfaction, intention to leave, turnover, moral distress and burnout). A systematic research performed by Griffiths et al. (2018) reported that nurse staffing and omission of nursing care are associated internationally. Therefore, missed care affects

both nurses and patients. As an approach to decrease the level of missed nursing, increasing the staffing levels is necessary (Griffiths et al., 2018).

However, only a few studies on the level of and the reasons for missed care have been conducted in South Korea despite the importance of understanding missed nursing care (Cho et al., 2015, 2017, 2020). Certain types of nursing interventions are missed more frequently than others. However, this differs according to the country because different countries have different healthcare delivery systems, staffing mixes, workloads and work environments. Better strategies that could decrease certain types and amount of missed care could not be guaranteed, and quality of nursing care would not be enhanced in both countries without identifying and comparing the variation in the types, amount of missed care and the reasons for the missed care between countries.

Therefore, the purposes of this study were to identify missed nursing care types and reasons in South Korea and compare them with those in the USA. The findings of the study could assist nursing managers in the improvement of care quality and patient outcomes and safety because the determination of the variation in missed nursing care types, levels and reasons between countries allows the establishment of improved strategies to reduce the levels of missed nursing care.

The specific research questions were as follows:

1. What are the levels and types of missed nursing care in Korean and United States (US) hospitals?
2. What are the reasons for missed nursing care in Korean and US hospitals?
3. How do missed nursing care levels, types and reasons in Korean hospitals compare with those in US hospitals?

2 | BACKGROUND

2.1 | Previous studies examining missed nursing care

Kalisch (2006) conducted a qualitative study to identify the types of nursing care missed in medical–surgical and intensive care units and the reasons for this missed nursing care. Thus, it was found that

missed nursing care often occurs in US hospitals. Missed nursing care predicts unanticipated patient outcomes because of the omission or reduction of critical interventions. Often, it occurs because nurses experience work overload.

Kalisch, Doumit, et al. (2013) examined missed nursing care types and reasons in Lebanese nurses and found that nursing care was often missed in Lebanon, albeit less frequently than it was in the USA ($t = 11.53$, $p < .001$) (Kalisch, Doumit, et al., 2013). Recently, Lake et al. (2020) reported that most hospitals in the study exhibited an improved work environment and better nurse staffing, which resulted in decreased missed care, in over a 10-year period. An improved work environment had more effect on decreasing missed care than improved nurse staffing. Chegini et al. (2020) examined the prevalence of missed care in Iranian hospitals and found 72.1% of nurses reported that they missed at least one on their last shift.

Lebanese RNs reported communication ($t = 2.94$, $p = .004$) and material resource ($t = 3.52$, $p = .001$) problems more often than US RNs as reasons for missed nursing care. In contrast, staffing resources received similar ratings as a reason for missed nursing care in both countries. In addition, US RNs also reported significantly higher satisfaction with their current positions, professions and teamwork compared with Lebanese RNs (Kalisch, Doumit, et al., 2013). Furthermore, the number of patients cared for by US RNs was lower (mean (M) = 3.32, standard deviation (SD) = 1.39) than that by Lebanese RNs ($M = 3.94$, $SD = 2.09$).

Missed nursing care levels and reasons were also compared between Turkish and US nurses (Kalisch et al., 2012). Specifically, Turkish nurses reported lower levels of missed nursing care and identified material resources and communication/teamwork needs as reasons for missed nursing care compared with US nurses. Nurses in both countries reported that ambulation three times daily, feeding patients while food is still warm, and turning patients every 2 hr were the types of care that were most frequently missed. A summary of relevant literature on missed care is shown in Table S1.

2.2 | Health care and nursing in South Korea

The demand for high-quality health care dramatically increased in Korea with noticeable economic development and the implementation of the universal coverage for all Korean residents through national health insurance in 1989 (World Health Organization. Regional Office for the Western Pacific, 2015). With this explosion of healthcare demand, it is unsurprising that healthcare spending increased rapidly from 2.8%–4.0% of the growth domestic product (GDP) between 1975–1989, respectively, 7.2% in 2009, and rising to 8.0% of the GDP in 2019 (Organization for Economic Cooperation and Development [OECD], 2020).

The healthcare system in Korea predominantly relies on private providers (Chun et al., 2009) and are located in urban areas. For instance, private clinics and hospitals represent approximately 90%

of all healthcare facilities and employ nearly 90% of physicians and contain 90% of the total number of hospital beds (Jones, 2010). Kim et al. (2010) examined 226 units in 44 university-affiliated hospitals in Korea to clarify the nursing delivery system. Of the 226 units, 106 (46.9%), 79 (35%) and 37 (16.4%) used primary or modified primary care, team and functional models to deliver inpatient nursing care.

A policy linking reimbursement rates for nursing care fees for inpatients to nurse-to-bed ratios was enacted in 1999 to improve the staffing ratios in Korean hospitals. Based on the nurse-to-inpatient ratios, hospitals were categorised in 1999 according to grades (1, highest; 6, lowest), with an additional grade 7 introduced in 2008 (Cho et al., 2008). Staffing ratios increased following the enactment of the policy, with higher numbers in tertiary hospitals than in general hospitals. For example, 62.8% of tertiary hospitals were labelled as grade 6 in 1999, whereas grades 3 and 4 were the most common labels for tertiary hospitals in 2008 (48.8% and 35%, respectively). Furthermore, the proportion of grade 6 in general hospitals decreased from 87% in 1999 to 48% in 2008 (Cho, June, et al., 2008). All the tertiary hospitals were labelled grades 1 and 2 in 2019 (Lee, 2019). However, among 996 hospitals that reported nurse-to inpatient ratio, still 33% of hospitals were labelled grade 6 and 7 in 2019 (Lee, 2019). Therefore, shortage of nurses are serious problem especially middle and small sized hospitals in South Korea.

Since each country has a different healthcare system and different nursing staffing mandates and guidelines, it is necessary to compare the level of and reasons for the missed nursing care between countries. This comparison would not only provide an opportunity to identify nursing care performed by each country, but also ultimately contribute knowledge on how to improve the quality of nursing care as well as patient outcomes with consideration of nurse staffing level.

3 | METHODS

3.1 | Design

A cross-sectional, descriptive, comparative design was used in this study. The guideline for reporting cross-sectional studies was used. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was followed in this study (Appendix S1).

3.2 | Sample and setting

RNs working in two university-affiliated tertiary hospitals and a general hospital located in two metropolitan areas in Korea were included in this study. One hospital employed approximately 400 nurses and contained 500 beds, and the other two tertiary hospitals employed more than 600 nurses and contained around 850

beds. To allow comparability between the US and Korean data, data from a Midwest US tertiary hospital were extracted from a larger dataset collected by the research team led by Kalisch. Originally, the US data were collected from 14 acute care hospitals in the USA, and a survey was administered to the nursing staff who provided direct patient care. In addition, the US sample exhibited similar characteristics to those of the Korean sample concerning the sizes and types (nonprofit, state hospitals) of university-affiliated tertiary hospitals involved. The Korean and the United States data were collected in 2012 and between 2008–2009, respectively.

Korean participants were recruited by convenience sampling. Staff nurses employed in all clinical patient units except for the outpatient and perioperative units were asked to participate in the study. In Korea, 725 questionnaires were returned, but 16 were discarded because of incompleteness responses. The response rates in Korea and the USA were 85% and 60%, respectively. However, data from only staff nurses were extracted from both databases because nurses who did not provide direct patient care (i.e. nursing managers and administrators or supervisors) were not appropriate for this study. Finally, the total numbers of nurses in Korea and the USA were 555 and 633, respectively.

The sample size was calculated for a medium effect size of 0.5, power of 0.9 and type I error probability of 0.05 for two independent tests. The required sample size for one group was calculated as 86 using the G*Power programme. Therefore, the sample size used here had sufficient power to test the hypothesis of this study.

3.3 | Measures

The MISSCARE Survey—English (Kalisch & Williams, 2009) was translated into Korean using three steps to collect data with the permission of its authors. First, the researcher translated it into Korean. Second, a bilingual nursing faculty member who had not seen the original instrument performed a back-translation into English. Third, the original developer of the MISSCARE Survey—English compared the original and back-translated versions and confirmed that consistency exists between their meanings.

Parts A (elements of missed nursing care, 24 items) and B (reasons for missed nursing care, 17 items) comprised the survey. In part A, the participants rate each item on how often it is missed, with responses of 1 (rarely), 2 (occasionally), 3 (frequently) and 4 (always) possible (Kalisch & Williams, 2009). In part B, the participants assess the reasons for missed nursing care, with responses of 1 (not a reason), 2 (minor reason), 3 (moderate reason) and 4 (significant reason) possible (Kalisch & Williams, 2009). The survey also contains items concerning the participants' characteristics and backgrounds.

The results of psychometric testing for the MISSCARE Survey—English have been published (Kalisch & Williams, 2009). The content

validity index was 0.89, and the Cronbach's alphas for part B ranged from 0.64–0.86. The overall test-retest coefficients for parts A and B were 0.87 and 0.86, respectively. In psychometric testing for the MISSCARE Survey—Korean, Cronbach's alphas for parts A and B were both 0.90. Cronbach's alphas for communication, material and labour resources subscales in part B were 0.87, 0.75 and 0.74, respectively.

3.4 | Study procedures

Administrative approval for the study was obtained from the all participating Korean hospitals and institutional review board approval was obtained by K university hospital. Approval to conduct the study was also granted by the administrators at each hospital after explaining the study's purpose. In addition, data collection methods were provided to the nursing director via telephone.

A research assistant visited each patient unit and distributed questionnaires to the participants or left them at the nursing station if direct distribution was not possible. A cover letter explaining the study's purpose and data collection procedures was included with questionnaire. Nurses who participated in the study completed the surveys within 2 weeks and placed them in the designated box located at each nursing station. All information collected from the participants was stored securely. Confidentiality, anonymity and privacy were ensured. Participation was completely voluntary, and the participants were informed of their right to withdraw from the study at any time.

3.5 | Data analysis

This study used the chi-square (χ^2) test to compare the homogeneity of variables (e.g. nurses' demographic variables) between the Korean and US samples. The research questions were used to identify and compare missed nursing care elements and reasons for missed care between USA and Korea using a cross-sectional, descriptive, comparative design. The Mann-Whitney *U* test with median was used as a nonparametric test to identify the difference that existed in the level of missed care and reasons for the missed care between Korea and the USA because the data were not normally distributed. The Mann-Whitney *U* test is a highly appropriate method to determine whether a statistically significant difference exist between two independent groups with non-normally distributed data.

In addition, Spearman's correlation was performed to compare the rank orders of missed nursing care types and the reasons between the two countries. The Spearman rank correlation coefficient is the nonparametric version of the Pearson correlation coefficient. To perform Spearman's rank correlation, all 24 types of missed nursing care and 17 reasons for missed were sorted by

mean, then ranked by each country. Thus, the sequence or association of ranks in the amount of and reasons for missed care between two countries could be identified with the Spearman correlation.

4 | RESULTS

4.1 | Participant characteristics

Table 1 shows the results of the comparative characteristics of the participants between the USA and Korea. The majority of the participants from both Korea and the USA were women (98.0% and 90.8%, respectively), but the US sample included a significantly higher number of men compared with the Korean sample. The mean age of Korean nurses was 29.74 years. They were younger and had less clinical experience compared with US nurses.

A higher proportion of Korean nurses held an associate degree (53.5%) compared with those with a Bachelor of Science in Nursing (56.1%) in the USA. A significantly higher proportion of US nurses

had at least 10 years of experience both in nursing and current unit work compared with that of Korean nurses (31.6% vs 9.4% and 14.4% vs 0.4, respectively). A higher proportion of Korean nurses had been employed as staff nurses for 2–5 years (30.5%) compared with that of US nurses (20.2%).

4.2 | Levels of missed nursing care in Korean and US hospitals

Table 2 shows the levels of missed nursing care in Korea and the USA. On the one hand, the five most frequently missed types of care in Korea were turning the patient every 2 h, patient bathing/skin care, ambulation three times daily, mouth care and setting up meals for patient. On the other hand, the five most frequently missed types of care in the USA were attending all available interdisciplinary care conferences, ambulation three times daily, mouth care, feeding patients while food is still warm and full documentation of all necessary data.

The top five least frequently missed types of care in Korea were monitoring intake/output, vital signs assessed as ordered,

Variable	South Korea (n = 555) n (%)	United States (n = 633) n (%)	χ^2	p
Sex				
Male	11 (2.0)	56 (9.2)	27.85	<.001
Female	544 (98.0)	553 (90.8)		
Age				
<25 years	142 (25.6)	88 (13.9)	204.70	<.001
25–34 years	365 (65.8)	260 (41.1)		
35–44 years	42 (7.6)	151 (23.9)		
45–54 years	5 (0.9)	101 (16.0)		
55–64 years	1 (0.2)	33 (5.2)		
Highest education level				
Associate degree	297 (53.5)	236 (37.5)	31.687	<.001
Bachelor of Science in Nursing	237 (42.7)	353 (56.1)		
Graduate degree	21 (3.8)	39 (6.2)		
Nursing experience				
≤6 months	73 (13.2)	29 (4.7)	111.152	<.001
6–24 months	138 (24.9)	164 (26.5)		
2–5 years	169 (30.5)	125 (20.2)		
5–9 years	121 (21.8)	106 (17.1)		
> 10 years	52 (9.4)	196 (31.6)		
Experience in current unit				
≤6 months	87 (15.7)	47 (7.6)	101.374	<.001
7–24 months	199 (35.9)	241 (39.0)		
2–5 years	202 (36.4)	163 (26.4)		
5–9 years	65 (11.7)	78 (12.6)		
>10 years	2 (0.4)	89 (14.4)		

TABLE 1 Comparison of nurses' demographics between South Korea and the United States

TABLE 2 Elements of missed nursing care: comparison between South Korea and the United States

Variables	South Korea (n = 555) Mean ± SD	Median (Q1-Q3;IQR)	United States (n = 633) Mean ±SD	Median (Q1-Q3;IQR)	Z	p
1. Ambulation three times daily or as ordered	2.01 ± 1.01	2(1-3;2)	2.29 ± 0.68	2(2-3;1)	-6.51	<.001
1. Turning patients every 2 h	2.10 ± 0.95	2(1-3;2)	1.81 ± 0.65	2(1-2;1)	4.75	<.001
1. Feeding patients while food is still warm	1.66 ± 0.95	1(1-2;1)	2.07 ± 0.72	2(2-3;1)	-9.99	<.001
1. Setting up meals for patients who feed themselves	1.85 ± 1.10	1(1-3;2)	1.65 ± 0.74	2(1-2;1)	1.10	0.270
1. Medications administered within 30 min of the scheduled time	1.28 ± 0.61	1(1-1;0)	1.82 ± 0.69	2(1-2;1)	-14.80	<.001
1. Vital signs assessed as ordered	1.11 ± 0.45	1(1-1;0)	1.30 ± 0.49	1(1-2;1)	-8.91	<.001
1. Monitoring intake/output	1.11 ± 0.43	1(1-1;0)	1.70 ± 0.72	2(1-2;1)	-17.01	<.001
1. Full documentation of all necessary data	1.33 ± 0.59	1(1-2;1)	1.91 ± 0.67	2(2-2;0)	-15.65	<.001
1. Teaching patients about procedures, tests and other diagnostic studies	1.42 ± 0.68	1(1-2;1)	1.87 ± 0.70	2(1-2;0)	-12.09	<.001
1. Emotional support for patients and/or family members	1.61 ± 0.74	1(12;1)	1.75 ± 0.72	2(1-2;1)	3.85	<.001
1. Patient bathing/skin care	2.02 ± 0.97	2(13;2)	1.67 ± 0.64	2(1-2;1)	5.66	<.001
1. Mouth care	1.98 ± 0.99	2(1-3;2)	2.24 ± 0.78	2(2-3;1)	-6.21	<.001
1. Handwashing	1.34 ± 0.60	1(1-2;1)	1.58 ± 0.66	2(1-2;1)	-7.01	<.001
1. Patient discharge planning and teaching	1.22 ± 0.57	1(1-1;0)	1.31 ± 0.53	1(1-2;1)	-4.71	<.001
1. Bedside glucose monitoring as ordered	1.12 ± 0.50	1(1-1;0)	1.26 ± 0.47	1(1-1;0)	-7.94	<.001
1. Patient assessments performed during each shift	1.14 ± 0.47	1(1-1;0)	1.13 ± 0.35	1(1-1;0)	-0.97	0.332
1. Focussed reassessments according to patient condition	1.21 ± 0.53	1(1-1;0)	1.34 ± 0.54	1(1-2;1)	-5.50	<.001
1. IV/central line site care and assessment according to hospital policy	1.16 ± 0.46	1(1-1;0)	1.63 ± 0.65	2(1-2;1)	-14.48	<.001
1. Response to call light initiated within 5 min	1.24 ± 0.66	1(1-1;0)	1.88 ± 0.70	2(2-2;0)	-17.69	<.001
1. PRN medication requests acted on within 15 min	1.20 ± 0.53	1(1-1;0)	1.61 ± 0.61	2(1-2;1)	-13.43	<.001
1. Assessing the effectiveness of medications	1.28 ± 0.58	1(1-1;0)	1.77 ± 0.64	2(1-2;1)	-14.46	<.001
1. Attending all available interdisciplinary care conferences	1.81 ± 0.89	2(1-2;1)	2.80 ± 0.89	3(2-3;1)	-15.75	<.001
1. Assisting with toileting needs within 5 min of request	1.56 ± 0.81	1(1-2;1)	1.78 ± 0.66	2(1-2;1)	-7.20	<.001
1. Skin/wound care	1.48 ± 0.75	1(1-2;1)	1.41 ± 0.52	1(1-2;1)	-0.30	0.766
Total	1.40 ± 0.39	1.34(1.16-1.58;0.42)	1.70 ± 0.33	1.71(1.50-1.92;0.42)	-12.64	<.001

SD, standard deviation; Q1, first quartile; Q3, third quartile; IQR, interquartile range

bedside glucose monitoring, patient assessment performed during each shift, and IV/central line site care and assessment according to the hospital policy. Conversely, the five least frequently missed types of care in the USA were patient assessments performed

during each shift, bedside glucose monitoring as ordered, vital signs assessed as ordered, patient discharge planning and teaching, and focussed reassessments according to patient condition (Table 3).

TABLE 3 Reasons for missed nursing care: comparison between South Korea ($n = 555$) and the United States ($n = 633$)

Items	South Korea ($n = 555$)		United States ($n = 633$)		Z(<i>p</i>)
	Mean \pm SD	Median (Q1-Q3;IQR)	Mean \pm SD	Median (Q1-Q3;IQR)	
1. Overall communication	2.38 \pm 0.61	2.33 (2.00–2.78;0.78)	2.38 \pm 0.59	2.44 (2.11–2.89;0.78)	–0.27 (0.791)
Unbalanced patient assignments	2.68 \pm 0.92	3(2–3;1)	2.73 \pm 0.86	3(2–3;1)	–0.71 (0.480)
Inadequate handoff from previous shift or sending unit	2.32 \pm 0.80	2(2–3;1)	2.43 \pm 0.74	2(2–3;1)	–2.41 (0.016)
Other departments did not provide the care that was needed	2.44 \pm 0.82	2(2–3;1)	2.28 \pm 0.81	2(2–3;1)	3.47 (0.001)
Lack of backup support from the team members	2.41 \pm 0.84	2(2–3;1)	2.33 \pm 0.92	2(2–3;1)	1.82 (0.069)
Tension or communication breakdown with other ancillary/support department	2.33 \pm 0.84	2(2–3;1)	2.41 \pm 0.86	2.5(2–3;1)	–1.31 (0.190)
Tension or communication breakdown within the nursing team	2.08 \pm 0.83	2(2–3;1)	2.23 \pm 0.89	2(2–3;1)	–2.81 (0.005)
Tension or communication breakdown with the medical staff	2.62 \pm 0.91	3(2–3;1)	2.46 \pm 0.85	3(2–3;1)	2.90 (0.004)
Nursing assistant did not communicate that care was incomplete	1.90 \pm 0.91	2(1–2;1)	2.56 \pm 0.94	3(2–3;1)	–11.84(<.001)
Caregiver off unit or unavailable	2.64 \pm 0.94	3(2–3;1)	2.01 \pm 0.87	2(2–3;1)	11.45 (<.001)
2. Overall material resources	2.60 \pm 0.69	2.67 (2.00–3.00;1)	2.64 \pm 0.65	2.67 (2.33–3.00;0.67)	–0.63 (0.532)
Medications unavailable when needed	2.84 \pm 0.85	3(2–3;1)	3.07 \pm 0.77	3(3–4;1)	–4.53 (<.001)
Supplies/equipment unavailable when needed	2.55 \pm 0.83	3(2–3;1)	2.54 \pm 0.81	3(2–3;1)	0.39 (0.699)
Supplies/equipment not functioning properly when needed	2.40 \pm 0.85	2(2–3;1)	2.32 \pm 0.87	2(2–3;1)	2.17 (0.030)
3. Overall labour resources	3.31 \pm 0.57	3.4 (3.00–3.80;0.80)	3.20 \pm 0.56	3.40 (3.00–3.65;0.65)	3.99 (<.001)
Inadequate number of staff members	3.46 \pm 0.76	4(3–4;1)	3.00 \pm 0.94	3(3–4;1)	8.95 (<.001)
Urgent patient situations (e.g. a patient's condition worsening)	3.34 \pm 0.81	4(3–4;1)	3.22 \pm 0.86	3(3–4;1)	2.30 (0.022)
Unexpected increase in patient volume and/or acuity on the unit	3.44 \pm 0.73	4(3–4;1)	3.37 \pm 0.76	4(3–4;1)	1.66 (0.096)
Inadequate number of assistive and/or clerical personnel (e.g. nursing assistants, technicians and unit secretaries)	3.20 \pm 0.84	3(3–4;4)	3.29 \pm 0.83	4(3–4;1)	–2.07 (0.039)
Heavy admission and discharge activity	3.13 \pm 0.89	3(3–4;1)	3.11 \pm 0.87	3(3–4;1)	0.51 (0.610)

SD, standard deviation; Q1, first quartile; Q3, third quartile; IQR, interquartile range

4.3 | Reasons for missed nursing care in Korean and US hospitals

Table 3 shows the reasons for missed nursing care in Korea and the USA. The most highly ranked reasons for missed nursing care in Korea were the inadequate number of staff, unexpected rise in patient volume and/or acuity on the unit, urgent patient situations, inadequate number of assistive and/or clerical personnel (e.g. nursing assistants, technicians and unit secretaries), and heavy admission and discharge activity. Similarly, the highly ranked reasons for missed nursing care in the USA were the unexpected rise in patient volume and/or acuity on

the unit, an inadequate number of assistive and/or clerical personnel (e.g. nursing assistants, technicians and unit secretaries), urgent patient situations (e.g. a patient's condition worsening), heavy admission and discharge activity and medications unavailable when needed.

4.4 | Comparison of the levels of missed nursing care between Korean and US hospitals

Table 2 shows the results of the comparison of the levels of missed nursing care between the USA and Korea. In general, Korean nurses

TABLE 4 Results of Spearman's correlation analysis for nurses in South Korea ($n = 555$) and the United States ($n = 633$)

Variables	$r(p)$
Levels of missed nursing care	.617 (.001)
Reasons for missed nursing care	.713 (.001)

reported lower levels of missed nursing care compared with US nurses. Korean nurses missed two interventions more frequently than US nurses (turning patient every 2 hr and patient bathing/skin care.). Only three missed nursing care items did not significantly differ between the two countries (setting up meals for patients who feed themselves, patient assessments performed during each shift and skin/wound care). In addition, US nurses were significantly more likely to miss the other 19 elements of missed nursing care than Korean nurses.

The most frequently missed nursing care elements in both countries were ambulation three times daily, mouth care and attending all available interdisciplinary care conferences. The least frequently missed elements in both countries: vital signs assessed as ordered, bedside glucose monitoring as ordered and patient assessments performed during each shift. A Spearman's correlation was used to determine the relationship between the amount of missed care between two countries. The Korean and US rankings for missed nursing care types had a strong, positive monotonic correlation ($r = 0.617, p = .001$; Table 4).

4.5 | Comparison of the reasons for missed nursing care between Korean and US hospitals

The comparative results of the reasons for missed nursing care between the USA and Korea are shown in Table 3. The reasons for missed nursing care differed between the two countries. However, both Korean and US nurses generally reported labour resource problems. In addition, relative to that reported by US nurses, Korean nurses reported a problem with supplies/equipment not functioning properly when needed (an item in material resources), inadequate number of staff members and urgent patient situations in labour resources. In the communication area, Korean nurses reported more problems in other departments where care needed was not provided, tension or communication breakdown within the nursing team, and the absence of unavailability of caregivers compared with US nurses. A Spearman's correlation was used to determine the relationship of reasons for missed care between the two countries. The reasons for missed nursing care reported by Korean and US nurses had a strong, positive monotonic correlation ($r = 0.713, p = .001$; Table 4).

5 | DISCUSSION

Missed nursing care types and reasons should be traced to align with the current patient safety trends in healthcare organisations

worldwide. The types of missed nursing care generally differed between countries, with Korean nurses reporting lower levels of missed nursing care compared with US nurses. However, Korean nurses reported missing some types of care with a higher or lower frequency than US nurses. Ambulation three times daily, mouth care, feeding patients when the food is still warm, and attending all available interdisciplinary care conferences were the types of missed nursing care frequently reported in both countries.

Monitoring of bedside glucose, assessing vital signs ordered and assessing patients during each shift were types of care typically not missed in both countries. However, turning patients every 2 hr and patient bathing/skin care were two interventions missed more frequently by Korean nurses than US nurses. Another study performed in South Korea reported similar results. Cho et al. (2015) reported that patient bathing/skin care was the second most frequently missed care in both high- and low-staffing units. In addition, turning patients every 2 hr was ranked the third most frequently missed care in a low-staffing unit.

Ambulation as ordered, mouth care and turning patients every 2 hr were commonly missed in various countries (Cho et al., 2015; Kalisch, Doumit, et al., 2013; Kalisch et al., 2012). Therefore, certain types of nursing care were missed more frequently than others. Consequently, the reason why this occurs when resources and time are limited requires investigation. In congruence with the results of the current study, nurses in Turkey and Lebanon reported lower levels of missed nursing care compared with US nurses who reported better staffing levels. The staffing ratio in the USA was 11.1, which is far higher than the average number of nurses reported in the OECD countries (9.3) and Korea (4.8) (OECD, 2014). Further investigation is required to determine why nurses in Western and Eastern Asian countries report lower levels of missed nursing care compared with nurses in North America. One possible reason for less missed nursing care could be the differences in levels of family involvement in patient care between these countries. Strong family ties are a feature of Asian culture, and a family member remains with patient to provide a substantial amount of basic physical care (e.g. feeding, mobilising and turning the patient) and emotional support during almost entire hospital stay.

Traditionally, family involvement in physiological patient care is very popular (Cho et al., 2015, 2020; Rhee et al., 2008; Song et al., 2011) in Korea, and most Korean hospitals used to provide an extra bed for a family member, called as a *patient attendant*, in the patient's room. The role of patient attendant, as a family caregiver, is to make patients feel as if they are at home. Perhaps, nurses in Korea and Turkey considered some of the basic nursing care that was delegated to the family caregivers with nurses' supervision as performed by them when responding to the study surveys.

A second possible reason for less missed nursing care could be caused by the different lengths of stay in hospitals. The average durations of hospital stays were 9.11 and 8.19 days in the two Korean hospitals in this study. Therefore, the duration of hospitalisation in Korea is much longer compared with the average of 5.4 days reported in the USA (Kalisch et al., 2012). Patients with the same

medical diagnoses are discharged much earlier in the USA than in Korea. This suggests higher workloads with shorter hospital stays for US nurses. Therefore, US nurses considered that they missed nursing care more frequently than Korean nurses.

Setting up meals for patients who feed themselves and skin/wound care were the only two nursing interventions that did not differ significantly between these two countries. This may be that skin/wound care is a critical indicator for nurses in every Korean hospital (Yang & Moon, 2009). Since 2004, all hospitals have been required to report quarterly patient safety indicators, such as pressure ulcer prevalence (Jeong et al., 2014), to achieve hospital accreditation from the Korea Institute for Healthcare Accreditation (Lee, 2012; Park, 2011). This could have influenced nurses' activity levels for skin/wound care.

Patient assessments have become the first action performed following the shift report in every shift worked in Korean healthcare settings since the introduction of Western medicine in Korea. Previous studies found no differences in the numbers of patient assessments performed during each shift among Turkish, Lebanese and US nurses (Kalisch, Doumit, et al., 2013; Kalisch Terzioglu, & Duygulu, 2012). Therefore, nurses are likely to perceive *patient assessments performed during each shift* as an essential aspect of nursing care that cannot be omitted regardless of time or staff shortages.

Previous studies examining missed nursing care have suggested that it is associated with nursing work environment factors such as staffing ratio, teamwork, workload and management and leadership (Kalisch & Lee, 2010; Kalisch Tschannen, & Lee, 2011a, 2011b; Kalisch et al., 2011; Kalisch & Xie, 2014; Wakefield, 2014). Furthermore, missed nursing care has been shown to predict nurses' job satisfaction (Cho et al., 2020; Kalisch et al., 2011a), turnover intention (Cho et al., 2020; Tschannen et al., 2010) and the prevalence of adverse events for patients (Kalisch, Xie, et al., 2014). In previous studies, nurses were more satisfied with their jobs when they believed they were providing high-quality care. However, their satisfaction levels decreased when they were unable to provide such care (Cho et al., 2020; Kalisch et al., 2011a).

The reasons for missed nursing care also differed between the two countries in some aspects. Six reasons (e.g. other departments did not provide the care needed, tension or communication breakdown with the medical staff, caregiver off unit or unavailable) were significantly higher in Korea. However, five reasons (e.g. inadequate handoff from previous shift or sending unit, medication unavailable when needed, nursing assistant did not communicate that care was not completed, were significantly higher in the USA. Consequently, both Korean and US nurses reported labour resources as the main reason for missed nursing care. Iranian nurses also reported labour resources as the most important reasons for missed care, followed by material resources and communication issues (Chegini et al., 2020).

However, Turkish nurses who experienced lower staffing ratios compared with US nurses required an increase in material and labour resources and reported a higher number of communication problems compared with US nurses. In addition, Lebanese nurses

reported communication problems and lack of material resources as stronger reasons for missed nursing care similar to US nurses (Kalisch, Doumit, et al., 2013).

Even communication issues were not the main reason for missed nursing care in Korean nurses, and nurse managers continuously attempt to redesign the system to facilitate communication between staff members. In addition, nurses who are dissatisfied with teamwork are more likely to report communication problems as the reason for missed nursing care (Blackman et al., 2015). Moreover, communication issues are the most common factors for the occurrence of adverse events in every healthcare setting. Thus, managers and administrators in Korean hospitals should develop open communication channels between staff nurses and provide adequate practical opportunities for them to express their concerns and issues to enhance teamwork and communication between nurses.

This study has several limitations. First, the demographic variables differed between the two countries because of workforce differences. Therefore, the external validity of the comparisons in this study could be limited. Additional studies involving controlled data collection methods are required in both countries to improve the current understanding of missed nursing care types and reasons. Second, this study used self-report questionnaires, and nurses in both countries could have been afraid to be honest regarding missed nursing care. Kalisch (2006) reported that nurses were afraid to discuss missed nursing care openly because of fear of repercussion, retribution and blame. Third, the study involved convenience sampling, and the data were collected within a particular geographical region, which limited the generalisability of the results. Therefore, future studies examining missed nursing care types and reasons should be implemented including nurses from various healthcare settings and geographical regions to ensure that the results are generalisable. Moreover, with prevention strategies developed by the Korean Centers for Disease Control and Prevention, a patient attendant in a hospital is strongly prohibited as an approach to prevent COVID-19 spread. Therefore, the types of and reasons for missed care could be changed significantly and require further study as well.

Nevertheless, this study could provide some insights to nurse managers for improving patient outcomes and safety. More often, missed care interventions, such as ambulation, feeding patients and mouth care, are relatively more basic nursing care types than other nursing care activities. Therefore, effective use of personnel, such as a nurse assistant or a nurse aide by training and education, could be a strategy to decrease the shortage of RNs and the workload of nurses for patient care practice in Korea. Appropriate staffing and skill mix could be an extremely critical factor for decreasing the extent of missed nursing care.

6 | CONCLUSION

This study compared missed nursing care types and reasons between Korea and the USA. The results showed significant differences in missed nursing care levels between these countries, with US nurses reporting higher levels of missed nursing care than Korean nurses.

Both Korean and US nurses reported labour resources as reasons for missed nursing care. However, personal and environmental factors that influence the types and levels of missed nursing care in both countries require further investigation because a low-staffing ratio would not be the only reason for missed care considering the much lower staffing ratios in Korea than in the USA.

7 | RELEVANCE TO CLINICAL PRACTICE

Nursing managers and administrators in hospitals should develop operational plans that could minimise the likelihood of missed nursing care in their units and hospitals because this would improve nurses' job satisfaction, care quality and patient safety. Missed care is a critical element in both nursing and patient outcomes. Appropriate skill mix and staffing level are needed to decrease extent of missed care internationally.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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