Practice Environment Characteristics Associated With Missed Nursing Care

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Abstract

Purpose: To examine which characteristics of the practice environment were associated with missed nursing care in U.S. acute care hospital units.

Design: A descriptive, correlational study used secondary analysis of the 2015 National Database of Nursing Quality Indicators® Registered Nurse (RN) Survey data. Subscales of the Practice Environment Scale of the Nursing Work Index were used to measure practice environment characteristics. The sample included 1,583 units in 371 hospitals, containing survey responses from 31,650 RNs.

Methods: Multilevel logistic regression was performed to estimate the effects of the practice environment characteristics on missed care, controlling for hospital and unit characteristics.

Results: About 84.1% of unit RNs reported missing at least one of the 15 necessary care activities. Good environment units had 63.3% significantly lower odds of having RNs miss care activities than poor environment units. Units had 81.5% lower odds of having RNs miss any necessary activities with 1 point increase of the staffing and resource adequacy score; 21.9% lower odds for 1 point increase in the nurse–physician relations score; and approximately 2.1 times higher odds with 1 point increase in the nurse participation in hospital affairs score.

Conclusions: Good environments were significantly associated with lower levels of missed care. The impact on missed care differed by the characteristics of the practice environment.

Clinical Relevance: Hospital and nursing administrators should maintain good practice environments for nurses to reduce missed care activities and thus potentially improve patient outcomes. Specifically, their efforts should be targeted on improving staffing and resource adequacy and nurse–physician relations and on reducing workloads on hospital affairs.

Missed nursing care is an error of omission, occurring when any aspect of required patient care is omitted or significantly delayed (Kalisch, Landstrom, & Hinshaw, 2009). A systematic review study reported that 55% to 98% of nurses missed or failed to finish for at least one care activity during their last shift (Jones, Hamilton, & Murry, 2015). Frequently missed activities include ambulation of patients, oral care, comforting or talking to patients, developing or updating care plans, and educating patients and families, which are essential care for achieving patient safety and better patient outcomes (Ball, Murrells, Rafferty, Morrow, & Griffiths, 2013; Carthon, Lasater, Sloane, & Kutney-Lee, 2015; Kalisch, Tschannen, Lee, & Friese, 2011).

Missed nursing care can be considered the process of care in the structure-process-outcomes framework, which was developed by Donabedian (1988). According to this framework, organizational structure or characteristics influence process of care, which represents the transactions between providers and patients throughout the delivery of care, and then the process of care influences outcomes of care. The relation of missed

care (process of care) to patient outcomes was examined in previous studies, showing that missed nursing care was related to more readmissions and pressure injuries (formerly called ulcers) as well as poorer experience of patient care (Carthon et al., 2015; Kalisch, Xie, & Dabney, 2014; Lake, Germack, & Viscardi, 2016). Evidence on linking missed nursing care to patient outcomes remains weak to moderate (Jones et al., 2015) but is growing recently due to research efforts to accumulate data on missed care, especially nationwide U.S. comparable data at the National Database of Nursing Quality Indicators® (NDNQI®). Such evidence will provide a better understanding of missed nursing care as a promising process indicator that fills gaps in the delivery of nursing care and contributes to improving patient outcomes and quality of care (Lake et al., 2016).

Researchers have not fully answered the critical question of what factors result in missed nursing care activities. Several individual factors, including nursing personnel type (registered nurse vs. nursing assistant), shift worked, and absenteeism, have been identified as factors leading to missed nursing care (Ball et al., 2013; Kalisch et al., 2011). Other researchers have referred to factors of the nurse practice environment such as perceived adequacy of labor and material resources, communication and teamwork, and safety climate as reasons for missed care (Kalisch et al., 2011; Orique, Patty, & Woods, 2016). However, empirical evidence on these relationships is inconclusive because their findings were either descriptive or based on data derived from a single hospital site. Nurse practice environment is the context in which nurses complete patient care activities. It has been found to be associated with patient outcomes, such as mortality and pressure injuries (Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Ma & Park, 2015). According to Donabedian's structure-process-outcome model, the nurse practice environment also can influence the process of care, namely, missed nursing care in this study.

The importance of the overall quality of practice environment is supported by the finding from a past study examining missed care in Magnet® and non-Magnet U.S. hospitals (Kalisch & Lee, 2012). In the study, Magnet hospitals, known for good practice environments in general, had lower rates of missed nursing care than non-Magnet facilities. In addition, a study of medical and surgical nurses in English hospitals documented that nurses rating the practice environment as more positive in general were less likely to miss important care activities (Ball et al., 2013). Thus, it is important to question what characteristics of the practice environment have a significant impact on missed nursing care and thereby potentially improving patient outcomes and quality of care. The practice environment for nursing care is commonly characterized with five dimensions: nurse participation in hospital affairs; nursing foundations for quality of care; nurse manager ability, leadership, and support of nurses; staffing and resource adequacy; and collegial nurse–physician relations (Lake, 2002). Staffing, which represents one of the characteristics of the practice environment, has been documented in the literature on missed nursing care. Significant relationships have been found between higher staffing levels and less missed nursing care (Ball et al., 2013; Cho, Kim, Yeon, You, & Lee, 2015; Kalisch, Tschannen, & Lee, 2012). Other researchers using Australian survey data suggested that inadequate resources and communication tensions among health professionals were more likely to be related to missed care (Blackman et al., 2014).

Although findings from previous studies have shed some initial light on the impact of nurse practice environments on missed care, none of them have investigated comprehensive characteristics of the practice environment in relation to missed nursing care. Furthermore, none of them examined missed care at the unit level using data from a national database, although the nursing unit is the microsystem where nurses provide patient care. Thus, we examined missed care at the unit level, using data obtained from the NDNQI, which is a unique nationwide unit-level data repository. The purpose of this study was twofold: (a) to examine the relationship between the quality of nurse practice environment and missed nursing care; and (b) to identify which characteristics of the nurse practice environment are more likely to be associated with missed nursing care.

Methods

Data Source and Study Sample

We conducted a descriptive, correlational study with a secondary analysis of the 2015 NDNQI Registered Nurse (RN) Survey data. The NDNQI contains information on nursing-sensitive structure, process, and outcome indicators collected at the unit level (Press Ganey, 2016). About 2,000 hospitals with over 21,000 nursing units voluntarily participate in the NDNQI program for their quality improvement purposes. Of those, nearly 17,000 units from about 800 hospitals collect RN Survey data annually. RNs who provide direct patient care at least 50% of their time and have worked for at least 3 months on their current unit are eligible to take the NDNQI RN Survey (Press Ganey, 2016). More than 300,000 RNs take the Survey

every year, and nurse-level survey data are collected and aggregated at the NDNQI to measure unit-level structure, process, and outcomes of nurses. We therefore used aggregated unit-level measures to capture data on practice environments and missed care on nursing units.

This study sample included 1,583 units from 371 acute care hospitals, containing responses from 31,650 RNs. In this study, we focused on three major unit types for adult care: medical, surgical, and medical-surgical. We included the three unit types because they are general unit types found in the majority of hospitals and provide similar care activities as compared to other types of specialty units, such as intensive care, psychiatric, and obstetric. To improve the reliability of the unit-level measures aggregated from nurse surveys, we excluded units with fewer than five RN respondents or with less than a 50% response rate.

Measures

Practice environment for nurses

The NDNQI RN Survey includes the Practice Environment Scale of the Nursing Work Index (PES-NWI), which has been endorsed by the National Quality Forum (NQF) as a nursing-sensitive indicator and has been widely used in research examining the practice environment for nurses (Lake, 2002; NQF, 2004; Warshawsky & Havens, 2011). The PES-NWI contains 31 items with 4-point Likert scales ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). There are five subscales within the PES-NWI: (a) Nurse Participation in Hospital Affairs (9 items); (b) Nursing Foundations for Quality of Care (10 items); (c) Nurse Manager Ability, Leadership and Support of Nurses (5 items); (d) Staffing and Resource Adequacy (4 items); and (e) Collegial Nurse–Physician Relations (3 items; Lake, 2002). The first two subscales, Nurse Participation in Hospital Affairs and Nursing Foundations for Quality of Care, reflect the hospital-wide environment; the other three subscales (i.e., Nurse Manager Ability, Leadership, and Support of Nurses; Staffing and Resource Adequacy; and Collegial Nurse-Physician Relations) reflect the unit-level environment (Lake, 2002). The literature supports the reliability and validity of the PES-NWI for the full scale and for each subscale while presenting favorable content, construct, and criterion validity as well as high internal consistency (Lake, 2002, 2007; Swiger et al., 2017).

In this study, we measured characteristics of the practice environment on the unit by averaging item values for each PES-NWI subscale to which unit RNs responded. We also classified units into three groups: those having good practice environments (>75th percentile of the mean distribution for the full PES-NWI scale, which was greater than 3.077 of the mean PES-NWI composite score); those with moderate environments (25th to 75th percentile, ranging from 2.774 to 3.077); and those with poor environments (<25th percentile, less than 2.774).

Missed nursing care

The NDNQI RN Survey contains a question asking RNs whether or not they missed any of the 16 essential care activities because of time constraints: adequate patient surveillance; oral hygiene/mouth care; comfort/talk with patients; adequately document nursing care; administer medications on time; treatments and procedures; prepare patients and families for discharge; develop or update patient plan of care; skin care; pain management; teach/counsel patients and family; coordinate plan of care; ambulation or range of motion; administer oral feedings on time; central line assessment/care/maintenance; and help or counsel breastfeeding mothers/support or promote breastfeeding. The single question was formatted as a multiple-answer, multiple-choice question asking RNs to select all the choices that apply to them (i.e., allowing respondents to check off all the care activities that they missed during their last shift). The 16 essential care activities were determined by experts at the NDNQI in collaboration with outside researchers (Lake et al., 2016) and by the literature on missed care. Of the 16 activities, the activity "help or counsel breastfeeding mothers/support or promote breastfeeding" was eliminated in this study because we focused on medical, surgical, and medical-surgical units, not including obstetric units, and consequently we used 15 missed care activities for data analysis. RN survey data were used to determine the proportion of RNs who missed a particular activity during their last shift on the unit and to compute the proportion of RNs who missed at least 1 of the 15 essential care activities during their last shift on the unit.

Hospital and unit characteristics

The RN Survey dataset contains information on hospital and unit characteristics, which were reported by NDNQI member hospitals. Hospital size, teaching status, location, Magnet status, patient case mix, and unit type were chosen as covariates for multivariate analysis because these structure variables have been commonly used in nursing health services research (Aiken, Clarke, Slone, Sochalski, & Silber, 2002; Blegen, Goode, Spetz, Vaughn, & Park, 2011). Hospital size was categorized into small (<200 beds), medium (200–399 beds), and

large (>400 beds). Hospitals were grouped into teaching or nonteaching; and metropolitan or nonmetropolitan. Magnet hospitals are designated by the American Nurses Credentialing Center (ANCC, n.d.) and recognized for high-quality patient care and nursing excellence. Hospitals were categorized as Magnet-designated hospitals or non-Magnet hospitals. Hospital patient case mix, computed by an average relative diagnosis-related group weight of a hospital, was used to account for the level of patient acuity in the hospital and was categorized into low (below the mean), medium (mean to 1 SD above the mean), and high (greater than 1 SD above the mean) acuity. Unit types were medical, surgical, or combined medical-surgical units.

Data Analysis

Descriptive statistics were used to summarize sample characteristics and study variables of missed care and practice environment. We compared each missed care activity and any missed care by three practice environment groups (good, moderate, and poor). For this bivariate analysis, the Kruskal-Wallis rank test was used owing to non-normal distributions of missed care variables. While treating the proportion of missed care as a binary outcome response, we performed multilevel logistic regression to examine the relationship between the characteristics of the practice environment and any missed care on nursing units, after adjusting for hospital and unit characteristics. Multilevel logistic regression was also used to examine whether the quality of the practice environment was associated with any missed care. In consideration of the clustered data structure (i.e., units within the hospital), random intercepts for hospitals were added in regression models. All analyses were conducted in Stata Version 14.0 (State Corp, LP, College Station, TX, USA). The significance level for statistical tests was set at .05.

Results

On average, about 20 RN respondents on a unit completed the survey (SD = 11.47). The mean response rate on a unit was 71.4% (SD = 25.32). The study sample included medical (32.9%), surgical (25.3%), and medical-surgical combined (41.8%) units for adult care (N = 1,583 units; see Table 1). The sample also included units from hospitals that were small (<200 beds; 29.6%), medium (200–399 beds; 37.8%), and large (≥400 beds; 32.6%). The sample was predominantly from units in metropolitan areas (94.6%). Half or more were from units in teaching hospitals (56.3%),

Table 1. Descriptive Summary of Hospital and Unit Characteristics (N = 1,583 units)

Characteristics	n	%
Unit type		
Medical	521	32.9
Surgical	400	25.3
Medical-surgical combined	662	41.8
Magnet status		
Magnet	503	31.8
Non-Magnet	1,080	68.2
Hospital size		
Small (<200 beds)	468	29.6
Medium (200–399 beds)	599	37.8
Large (≥400 beds)	516	32.6
Teaching status		
Teaching	891	56.3
Nonteaching	692	43.7
Location		
Metropolitan	1,497	94.6
Nonmetropolitan	86	5.4
Patient case mix[a]		
Low acuity	251	17.2
Medium acuity	830	56.7
High acuity	382	26.1

[a]n = 1,463 units due to missing values.

those with medium patient acuity (56.7%), and in non-Magnet hospitals (68.2%).

According to the results of the PES-NWI reliability testing, our data at the individual RN level showed high reliability for internal consistency, α = 0.96 for the full scale and all α values above 0.86 for the five subscales. The intraclass correlation coefficient (ICC[1,2]) obtained from one-way analysis of variance was used to check the reliability of the unit-level PES-NWI. Using our study sample, the unit-level PEW-NWI aggregated from RN responses was reliable, presenting all ICCs[1,2] above 0.6 (Shrout, 1998). The ICC[1,2] was 0.83 for the full scale and ranged from 0.75 (collegial nurse–physician relations) to 0.87 (staffing and resource adequacy).

Descriptive statistics for the missed care and PES-NWI variables are presented in Table 2. The mean for the full PES-NWI scale was 2.92 (SD = 0.25). Means for the five PES-NWI subscales ranged from 2.54 to 3.12. On average, about 84.1% of RNs on units reported missing at least 1 of the 15 necessary nursing care activities (SD = 13.79). The most frequently missed care activities were comfort/talk with patients (51.4%), followed by ambulation or range of motion (31.9%), teach/counsel patients and family (29.6%), administer medications on time (26.2%), and oral hygiene/mouth care (22.9%).

Differences in missed care activities among the three practice environment groups are reported in Table 3.

Table 2. Descriptive Summary of Missed Nursing Care and Nursing Practice Environment (*N* = 1,583 units)

Variable	Mean (*SD*)
Missed nursing care activities	
Comfort/talk with patients	51.38 (18.29)
Ambulation or range of motion	31.91 (17.07)
Teach/counsel patients and family	29.60 (16.80)
Administer medications on time	26.20 (16.95)
Oral hygiene/mouth care	22.86 (15.99)
Develop or update patient plan of care	21.77 (16.03)
Adequately document nursing care	20.55 (14.36)
Adequate patient surveillance	19.79 (14.86)
Prepare patients and families for discharge	10.90 (10.05)
Coordinate patient care	10.16 (10.27)
Skin care	9.91 (10.30)
Treatments and procedures	6.49 (8.26)
Administer oral feedings on time	6.14 (8.71)
Pain management	4.73 (6.60)
Central line assessment/care/maintenance	3.23 (5.58)
Any missed care activities	84.06 (13.79)
Practice environment characteristics	
Nurse participation in hospital affairs	2.89 (0.28)
Nursing foundations for quality of care	3.12 (0.21)
Nurse manager ability, leadership, and support	3.04 (0.33)
Staffing and resource adequacy	2.54 (0.39)
Collegial nurse–physician relations	3.03 (0.25)
Practice environment, overall	2.92 (0.25)

Note. Missed care was measured by the percentage of registered nurses (RNs) who reported care missed for each particular activity on the unit. Any missed care activities were computed by the percentage of unit RNs who missed at least one activity among the 15 particular activities.

All missed care activities significantly differed by poor, moderate, and good practice environment groups (*p* < .001). Units with poor environments consistently showed greater means for the 15 necessary missed care activities, compared to those with moderate or good environments. On average, about 88.9% of RNs reported missing at least one care activity in poor environment units, compared to 76.9% in good environments and 85.2% in moderate environments. The differences were statistically significant, χ^2 (2, *N* = 1,583) = 190.04, *p* < .001.

Table 4 presents the results of the adjusted multilevel logistic regression analyses estimating the effect of the practice environment on any missed nursing care. A model was performed with five characteristics of the practice environment (Model 1) and another with three practice environment groups (Model 2). As shown in Model 1, units had 81.5% lower odds of having RNs missing any care activities with 1 point increase of the staffing and resource adequacy score (95% confidence interval [CI] 0.156–0.220); they also had 21.9% lower odds for having RNs missing any care activities

with 1 point increase in the nurse–physician relations score (95% CI 0.622–0.981). On the contrary, with 1 point increase in the nurse participation in hospital affairs score, units had approximately 2.1 times higher odds of having RNs missing any care activities (95% CI 1.465–2.957). Model 2 in Table 4 shows that good environment units had 63.3% lower odds of having RNs missing care activities than poor environment units (95% CI 0.335–0.425). Similarly, moderate environment units had 36.7% lower odds as compared to poor environment units (95% CI 0.568–0.705).

Discussion

We examined the relationship between practice environments and missed nursing care while analyzing large unit-level data containing 31,650 RN surveys collected from 1,583 units in 371 U.S. hospitals. Our study provides comprehensive understanding on this relationship by examining diverse dimensions of the practice environment with a valid, reliable, and widely used tool of the practice environment (i.e., PES-NWI). Findings from this study present strong evidence that good practice environments were associated with lower levels of missed care on nursing units. To be specific, we found that nurses on units with better staffing and resource adequacy and better nurse–physician relations were less likely to miss necessary care activities during their shift. Nurses were almost twice as likely to miss necessary care activities on units where nurses were more involved in hospital affairs.

Our findings strengthen evidence that missed care is common in nursing. We found that about 84% of nurses on medical and surgical units missed at least one necessary care activity. Previous studies similarly showed higher levels of missed care, in a range of 75% to 86% (Ball et al., 2013; Lake et al., 2016). Our study expands the evidence by showing that the amount of missed care differed by the quality of the practice environment on nursing units. Nurses reported significantly higher levels of any missed care when they worked on units with poor practice environments as compared to good or moderate environments, even after adjusting for hospital and unit characteristics. We also found that all the 15 necessary care activities examined in this study were more likely to be missed on units with poor practice environments, as similarly shown by Carthon et al. (2015).

We found that the most frequently missed nursing care was comforting and talking with patients. Nearly half of nurses on units reported they missed this particular activity, which is consistent with findings from previous studies (Ball et al., 2013; Carthon et al., 2015;

Table 3. Comparison of Missed Nursing Care by the Quality of Practice Environment

Missed nursing care	Practice environments			
	Poor (n = 396) Mean (SD)	Moderate (n = 791) Mean (SD)	Good (n = 396) Mean (SD)	χ^2 statistic[a]
Comfort/talk with patients	61.92 (18.17)	51.81 (16.36)	39.99 (15.25)	301.91
Ambulation or range of motion	39.50 (18.85)	32.26 (15.95)	23.61 (13.29)	179.39
Teach/counsel patients and family	39.89 (18.92)	28.62 (14.34)	21.28 (13.56)	252.66
Administer medications on time	34.44 (19.98)	25.94 (15.06)	18.50 (13.05)	165.57
Oral hygiene/mouth care	30.60 (18.79)	22.69 (14.79)	15.46 (10.86)	170.90
Develop or update patient plan of care	29.52 (19.24)	21.31 (14.25)	14.93 (12.02)	156.46
Adequately document nursing care	26.04 (16.60)	20.78 (13.20)	14.60 (11.64)	142.98
Adequate patient surveillance	29.29 (18.04)	19.06 (12.47)	11.74 (9.58)	271.96
Prepare patients and families for discharge	15.35 (12.86)	10.19 (8.72)	7.87 (7.58)	94.53
Coordinate patient care	15.70 (13.88)	9.39 (8.10)	6.17 (7.08)	164.13
Skin care	15.03 (13.65)	9.33 (8.85)	5.94 (6.23)	126.57
Treatments and procedures	10.16 (11.34)	6.01 (6.65)	3.77 (5.89)	99.52
Administer oral feedings on time	8.79 (10.20)	5.53 (7.55)	4.71 (8.73)	57.63
Pain management	6.94 (9.03)	4.51 (5.74)	2.95 (4.36)	46.23
Central line assessment/care/maintenance	5.13 (7.70)	2.96 (4.90)	1.87 (3.41)	31.46
Any missed care activities	88.92 (13.00)	85.23 (11.86)	76.85 (15.25)	190.04

Note. **N** = 1,583. All p values were less than .001.
[a]Owing to non-normal distributions, Kruskal-Wallis rank tests were used to examine the group differences.

Table 4. Effects of Practice Environment on Any Missed Nursing Care

		OR	95% CI	p value
Model 1	Staffing and resource adequacy	0.185	0.156–0.220	<.001
	Nurse participation in hospital affairs	2.081	1.465–2.957	<.001
	Collegial nurse–physician relations	0.781	0.622–0.981	.033
	Nursing foundations for quality of care	0.892	0.552–1.442	.642
	Nurse manager ability, leadership, and support	1.145	0.941–1.390	.170
Model 2	Poor practice environment (reference)			
	Moderate practice environment	0.633	0.568–0.705	<.001
	Good practice environment	0.377	0.335–0.425	<.001

Note. N = 1,463 owing to missing values on the patient case mix variable. CI = confidence interval; OR = odds ratio. Multilevel logistic regression was performed while controlling for hospital and unit characteristics (e.g., teaching status, hospital size, Magnet status, location, patient case mix, and unit type). In Model 1, we examined the effects of the characteristics of the practice environment on any missed care on nursing units. In Model 2, we examined the effects of the quality of the practice environment on any missed care on nursing units.

Lake et al., 2016). In our study, the second most frequently missed care was ambulation or range of motion, and the third most frequently missed care was teaching and counseling patients and family. They

were ranked highly in previous studies as well (Ball et al., 2013; Carthon et al., 2015; Lake et al., 2016).

Findings from our study indicate that each characteristic of the practice environment affects unit nurses' missed nursing care in different ways with regard to the significance, direction, and magnitude of the influence. Of the five practice environment characteristics, improving staffing and resource adequacy was the most influential as well as significant factor to predict lower rates of missed nursing care. To reduce missed care activities, improving nurse–physician relationships was also important in our study. Similarly, previous studies also identified inadequate staffing and resources as well as communication tension as important predictors for missed care (Ball et al., 2013; Blackman et al., 2014; Kalisch et al., 2011). The characteristics of nursing foundation for quality of care and nurse manager ability, leadership, and support were not significantly related to missed nursing care in our study.

Interestingly, we found that an increased participation in hospital affairs was related to an increase in missed nursing care. Nurses can have better work experience and have a stronger engagement with their facility when they are more involved in hospital affairs (e.g., internal governance, policy decisions, and committee work). Past studies empirically showed that the involvement of nurses in hospital affairs was associated positively with the intention to stay and job satisfaction, but negatively with burnout (Friese & Himes-Ferris, 2013; Kutney-Lee et al., 2016). However, higher

levels of participation in hospital affairs can increase the burden on nurses who should provide direct patient care. Our finding supports that it is possible that nurses who participate more actively in hospital affairs might find less time to provide necessary nursing care activities to their patients and also might have an increased nursing workload.

It is known that the process of care is hard to measure or capture in nursing health services research. Thus, researchers have focused on directly linking structure (e.g., nurse staffing or hospital characteristics) to patient outcomes, not testing the process of care, although their studies have been based on Donabedian's structure-process-outcomes framework (Kane, Shamliyan, Mueller, Duval, & Wilt, 2007). Some researchers suggest that missed nursing care may be a promising measure that enables us to capture the process of care (Kalisch & Lee, 2012; Lake et al., 2016). Our study tested and supported the relationship between practice environments (structure) and missed nursing care (process) using cross-sectional data. Past studies also showed fragmented, cross-sectional associations of missed care with either structure or outcomes (Ball et al., 2016; Carthon et al., 2015; Lake et al., 2016). Future research is needed to examine causal links among structure, missed care, and outcomes together. Moreover, missed care can be used as a mediator in the structure-outcomes relationship as noted by Lake et al. (2016). Thus, completing mediation testing in a study will be helpful to better understand how missed care functions in the structure-process-outcomes framework.

Although analyzing a large sample (1,583 units in 371 U.S. hospitals) was a study strength, our findings might not be generalizable to all types of hospital units. Our sample included more units in larger, metropolitan, teaching, and Magnet hospitals in the United States (ANCC, n.d.; Horwitz et al., 2017). We only investigated missed nursing care and practice environment characteristics in medical, surgical, and medical-surgical combined units for adult patient care. Thus, our results may not apply to other unit types in the hospital such as intensive care units, obstetrical units, or pediatric units. In our study, we examined 15 missed nursing care activities; however, there might be other care activities important but unmeasured in this study. Furthermore, missed care variables were measured based on self-reported RN survey data; therefore, there might be a potential for response bias. Specific missed care activities might be under- or over-reported because RNs may be unable to remember their activities accurately (Jones et al., 2015).

Missed nursing care is often overlooked because it has not been recognized as or resulted in an actual adverse event yet. The volume of missed care tends to be underestimated owing to data derived from nurses' self-reports (Kalisch et al., 2011; Lake et al., 2016), although a considerable amount of nursing care activities may be missed when nurses provide patient care in hospitals. Furthermore, missed care may lead to actual adverse events and negatively affect quality and safety of patient care. Our findings emphasize that hospital and nursing administrators should consider maintaining good practice environments for nurses as a strategy for reducing missed care activities and thus potentially improving patient outcomes on nursing units. In addition, our findings provide hospital and unit administrators with directional information on which characteristics of the practice environment should be modified to reduce missed care on nursing units. Based on our findings, improving staffing and resource adequacy as well as nurse–physician relations would be important to reduce missed care. The degree of participation in hospital affairs should be determined in consideration of nurses' workloads and their time needed to provide direct patient care.

Acknowledgments

Clinical Resources

- Agency for Healthcare Research and Quality. Patient Safety Network. Missed nursing care. https://psnet.ahrq.gov/primers/primer/29/missed-nursing-care
- Agency for Healthcare Research and Quality. Teams, TeamSTEPPS, and Team structures: Models for functional collaboration. https://www.ahrq.gov/teamstepps/events/webinars/feb-2017.html
- National Council of State Boards of Nursing. Error of omission: How missed nursing care imperils patients. https://www.ncsbn.org/10251.htm

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