

Association of the Nurse Work Environment, Collective Efficacy, and Missed Care

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Abstract

Missed nursing care is a significant threat to quality patient care. Promoting collective efficacy within nurse work environments could decrease missed care. The purpose was to understand how missed care is associated with nurse work environments and collective efficacy of hospital staff nurses. A cross-sectional, convenience sample was obtained through online surveys from registered nurses working at five southwestern U.S. hospitals. Descriptive, correlational, regression, and path analyses were conducted ($N = 233$). The percentage of nurses who reported that at least one care activity was missed frequently or always was 94%. Mouth care (36.0% of nurses) and ambulation (35.3%) were missed frequently or always. Nurse work environments and collective efficacy were moderately, positively correlated. Nurse work environments and collective efficacy were associated with less missed care ($\chi^2 = 10.714$, $p = .0054$). Fostering collective efficacy in the nurse work environment could reduce missed care and improve patient outcomes.

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Keywords

health care, registered nurses, hospitals, organizational culture, surveys and questionnaires

Nurses miss required patient care in hospitals around the world (Jones, Hamilton, & Murry, 2015). Missed nursing care is “any aspect of required patient care that is omitted either in part or in whole or delayed” (Kalisch & Williams, 2009, p. 211). Missed nursing care is a significant global problem in hospitals (Jones et al., 2015). A recent review of 54 studies identified the nurse work environment and insufficient or poorly allocated nursing resources as principal organizational factors influencing missed care (Jones et al., 2015). Missed nursing care is associated with increased adverse events (Sochalski, 2004), decreased nurse-reported care quality (Schubert et al., 2008), decreased patient satisfaction (Lake, Germack, & Viscardi, 2016), increased readmissions among heart failure patients (Brooks, Carthon, Lasater, Sloane, & Kutney-Lee, 2015), decreased job satisfaction (Kalisch, Tschannen, & Lee, 2011a), and increased intention to leave (Tschannen, Kalisch, & Lee, 2010).

Reasons to explain missed care include staffing (Kalisch, Tschannen, & Lee, 2011b), the practice environment (Brooks Carthon et al., 2015), and teamwork (Kalisch, Xie, & Ronis, 2013). Although teamwork has been found to be an effective intervention to decrease missed care (Kalisch & Lee, 2010; Kalisch et al., 2013), the capacity of a group of nurses to solve problems is not discussed in the missed care literature. Collective efficacy, the capacity of a group of nurses to solve patient care problems, is an understudied phenomenon that might explain missed nursing care even in the presence of teamwork interventions. Researchers have defined collective efficacy broadly as the ability of a work group to function effectively (Egenberg, Oian, Eggebo, Arsenovic, & Bru, 2016).

Missed care would occur less frequently if nurses work together to handle a high workload. Without strong group identity and motivation, nurses may disregard the unmet needs of other nurses' patients and not feel a responsibility to their unit. Better practice environments may foster collective efficacy and thereby reduce missed care. Empirical evidence about these relationships would have practice, policy, and research implications. In the practice context, managers are challenged to address missed nursing care and the poorer nursing care quality that might result. From a policy perspective, discerning the aspect of the practice environment most relevant to collective efficacy may guide manager efforts. Research should move toward examining how nurse processes affect the outcome of missed nursing care. To address this

gap in the literature, the purpose of this study was to describe the relationships among the practice environment, collective efficacy, and missed nursing care. The specific aims of this study were to (a) describe the frequency of missed nursing care in a multihospital U.S. sample, (b) determine the relationship between the nurse work environments and missed care, and (c) explore the association of the nurse work environment and collective efficacy with missed nursing care.

Nurse Work Environments, Collective Efficacy, and Missed Nursing Care

For decades, theorists and researchers have examined the effectiveness of health care service in hospital systems through Donabedian's Structure–Process–Outcome model (Ayanian & Markel, 2016; Berwick & Fox, 2016). We apply this framework to the major concepts in this study and their hypothesized relationships. In Donabedian's model, hospital structures are defined as “. . . the physical and organizational settings in which they work” (Donabedian, 1980, p. 81). One nurse-related structure that has been associated with missed nursing care is the nurse work environment, which is defined as “the organizational characteristics of a work setting that facilitate or constrain professional nursing practice” (Lake, 2002, p. 178). The nurse work environment has been associated with patient care quality and outcomes across countries (Warshawsky & Havens, 2011).

One interpersonal structural characteristic that may be influenced by the nurse work environment is collective efficacy, defined as “a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment” (Bandura, 1997, p. 477). According to Bandura (1982), collective efficacy reveals “the strength of groups, organizations, and even nations lies partly in people's sense of belief that they can solve their problems . . .” (p. 143). In a correlational study, Lee and Ko (2010) found that collective efficacy had a small but significant association with reduced error in nursing performance among a sample of Korean hospital nurses. One collective efficacy intervention among hospital staff was associated with better patient outcomes (Egenberg et al., 2016). Among nursing students, an interprofessional education intervention was associated with greater perceptions of collective efficacy (Wong et al., 2017). There is, however, a limited amount of research about the role of collective efficacy. Collective efficacy represents a previously unexplored structural element within Donabedian's framework.

According to Donabedian, hospital processes are defined as the care delivered to patients (Donabedian, 1980). The process we examine in this study is missed nursing care. There are four different terms used to describe the phenomenon of missed care: (a) “tasks left undone” (Sochalski, 2004), (b) “rationed care” (Schubert et al., 2008), (c) “missed nursing care” (Kalisch, Landstrom, & Hinshaw, 2009), and (d) “unfinished care” (Jones et al., 2015). These terms are synonymous to missed care. For clarity, we will refer to the phenomenon as missed nursing care throughout this article. Missed nursing care has been linked empirically to the second concept in Donabedian’s framework, hospital processes. Outcomes, the third concept in Donabedian’s framework, are not addressed in this study.

Qualitative research has documented the association of shared work group expectations with how nurses perceive the prioritization of required care (Chan, Jones, & Wong, 2013). However, no quantitative studies have explored how the nurse work environment and collective efficacy are associated with missed nursing care. It is appropriate to explore how the capacity of nurses to solve problems influences missed nursing care.

Purpose

This study addresses the knowledge gap about how the nurse work environment relates to collective efficacy and missed nursing care. Based on Donabedian’s conceptual framework, the three hypotheses for this study were as follows:

Hypothesis 1: The nurse work environment, the overarching structural context, is related to the interpersonal structural concept collective efficacy.

Hypothesis 2: The nurse work environment is related to the process of missed nursing care.

Hypothesis 3: Collective efficacy is related to the process of missed nursing care.

Method

Design

This study featured a quantitative, cross-sectional design to assess registered nurses’ ratings of the nurse work environment, collective efficacy within their patient care unit, and missed nursing care. A convenience sample of registered nurses from three Magnet® and two Pathway to Excellence® (American

Nurses Credentialing Center [ANCC], 2017) hospitals within one U.S. Southwestern health system were asked to answer questions based on their perceptions of the study variables in their patient care unit for the last month. Our sample was selected from hospitals in the health system that were willing to accommodate an additional survey opportunity, as data collection for other studies was underway within other facilities of this health system. The health system from which these five hospitals were derived includes about 50 hospitals, more than 5,600 licensed beds, and is not-for-profit. Inclusion criteria included being a staff registered nurse who provided direct patient care. Exclusion criteria included holding a leadership or managerial position.

The necessary sample size was calculated using estimates of power for two predictors in multiple regression (Soper, 2015). With a small anticipated effect size of 0.05, the target sample size was at least 194 to achieve a power level of 0.80. The estimated effect size was anticipated to be small to serve as a conservative way to achieve a large enough sample size.

Measures

Nurse work environment. Nurse work environment characteristics were measured with the Practice Environment Scale of the Nurse Work Index (PES-NWI). The PES-NWI is a reliable 31-item survey that has been validated numerous times for the purpose of identifying the presence or absence of desired organizational characteristics (Warshawsky & Havens, 2011). The previously established Cronbach's alpha score for the composite PES-NWI is .82 (Lake, 2002); for this study, the Cronbach's alpha score was comparable at .94. The item stem for each question was "Please indicate the extent to which you agree that the following items are present in your current job." Response options were "strongly disagree" (1), "disagree" (2), "agree" (3), and "strongly agree" (4) (Lake, 2002). Mean scores for the PES-NWI composite and subscales were calculated for each respondent. Scores higher than the scale midpoint (2.5) indicate agreement that desirable organizational characteristics are present (Lake, 2002).

The PES-NWI includes five reliable and valid subscales: (a) Nurse Manager Ability, Leadership, and Support of Nurses (Cronbach's $\alpha = .84$); (b) Nurse Staffing and Resource Adequacy (Cronbach's $\alpha = .80$); (c) Nursing Foundations for Quality of Care (Cronbach's $\alpha = .80$); (d) Nurse Participation in Hospital Affairs (Cronbach's $\alpha = .83$); and (e) Collegial Nurse-Physician Relations (Cronbach's $\alpha = .71$) (Lake, 2002).

Missed nursing care. Missed nursing care was measured with The Missed Nursing Care Survey (MISSCARE) Survey Part A (Kalisch & Williams,

2009). This measure was selected because it addresses how much care a nursing work group missed as compared with how much an individual nurse missed. This measurement perspective matches the collective efficacy construct, which is a group phenomenon. The MISSCARE Survey Part A is a valid and reliable 22-item survey. Survey instructions for missed nursing care questions were "Indicate the amount of time care is missed on your unit by all of the staff, including yourself, by using the scales provided." The item stem for questions about missed nursing care was "How often is this nursing care missed?" Response options were "rarely" (1), "occasionally" (2), "frequently" (3), "always" (4), and nonapplicable. The nonapplicable option was included to account for nurses who work on different units and shifts, which may not provide certain care activities (Kalisch & Williams, 2009). The MISSCARE Survey Part A has been found to be valid and reliable as supported by a test-retest coefficient of .87 (Kalisch & Williams, 2009). Reliability measured by Cronbach's alpha for this study was very high at .96. Mean scores were calculated for the MISSCARE Survey Part A for each respondent after omitting "not applicable" categories from computations. This was performed to ensure that missed care mean scores did not reflect non-applicable care. Higher mean scores indicate a greater frequency of missed nursing care on the patient care unit. The percentage of nurses who reported care was missed "frequently" or "always" was calculated for each item to focus on variation in missed care prevalence across types of missed care. The percentage of nurses who reported any item was missed frequently or always was calculated.

Collective efficacy. The Collective Efficacy Beliefs Scale (CEBS) is a seven-item measure that is valid and reliable (Riggs & Knight, 1994). The item stem for questions about collective efficacy was "When responding, answer in reference to this group's work-related ability." Response options were "strongly disagree" (1), "disagree" (2), "disagree somewhat" (3), "agree somewhat" (4), "agree" (5), and "strongly agree" (6) (Riggs & Knight, 1994). Previous use of this scale has been reliable with a Cronbach's alpha above .80 and has also been associated with predictive validity (Riggs & Knight, 1994). In this study, the Cronbach's alpha was .82. Collective efficacy scores were computed for each participant from a mean of the seven-item measure. Scores higher than the scale midpoint (3.5) indicate agreement that collective efficacy is present on participant's patient care unit.

Demographics. In addition, nurses were asked to provide demographic data such as age, years of experience on the unit, and unit specialty. Participants were able to indicate their age, years of experience, and unit specialty using a free text entry option on the electronic survey.

Data Collection

Procedures. Institutional Review Board approval was obtained from the hospital system from which data were collected and the first author's university. Recruitment emails were sent through a listserv, previously compiled at the hospital administration level, from a secretary of the health system to ensure that participants were not approached by a managerial figure to reduce the potential for a power-differential problem in data collection. The estimated total number of nurses within the five hospital sample frame was about 3,500. The hospital where a nurse worked was not recorded on the form, which precluded hospital-level comparative analyses. Data were collected through an electronic survey using Qualtrics software from November to December, 2015, after which time the survey link was disabled. There were 67 items used for analysis from this 116-item survey. Email reminders were sent weekly (3 times) following the initial invitation. Participation in the survey was indication of informed consent, as was communicated in the study invitation. Participants who completed the survey were given the opportunity to provide their addresses, on a secondary form, for a \$20.00 gift card as a small token of appreciation for their time. The sole purpose of a secondary form was to collect addresses unassociated with survey answers to ensure participant anonymity.

Data Management and Analysis

Data were cleaned, recoded for reverse coded questions, and checked carefully to account for missing data. The extent of missing data for key variables was minimal: at most 2.2%. We replaced missing values with the mean score. Five of the seven questions about collective efficacy were reverse coded. These items are indicated by a superscript letter and accompanying table note in Table 3.

Analyses included computation of descriptive, correlation, regression, and path analysis statistics. Data were analyzed using Stata 14.2 and Mplus (Muthén & Muthén, 2012). To address our first aim, we used descriptive statistics to describe the frequency of missed care in a multihospital U.S. sample. For Aim 2, we used correlation and regression analyses to determine the relationship between the nurse work environment and collective efficacy with missed nursing care. For Aim 3, we used path analysis to explore the association of the nurse work environment and collective efficacy with missed nursing care.

Results

Sample Characteristics

The total number of nurse respondents was 283; however, 43 were excluded due to incomplete PES-NWI variables, which was the last survey section

Table 1. Nurse Characteristics.

Characteristics	<i>n</i> (%)
Age (<i>n</i> = 173)	
20-25	22 (13)
26-30	38 (22)
31-40	44 (25)
41-50	35 (20)
51-75	34 (20)
Gender (<i>n</i> = 233)	
Male	17 (7)
Female	216 (93)
Unit specialty (<i>n</i> = 233)	
Critical/progressive care	64 (27)
Medical-surgical	58 (25)
Mother-baby	33 (14)
Perioperative	27 (12)
Emergency	15 (6)
Oncology	15 (6)
Other, unspecified	13 (6)
Transplant	8 (3)
Education level (<i>n</i> = 233)	
Diploma	3 (1)
Associate	43 (18)
Bachelor's	173 (74)
Master's	14 (6)
Employment status (<i>n</i> = 233)	
Full-time	217 (93)
Part-time	10 (4)
Per diem	6 (3)
Years of experience (<i>n</i> = 218)	
<1	26 (12)
1-2	68 (31)
3-5	39 (18)
6-10	40 (18)
11-15	22 (10)
16-20	12 (6)
>20	11 (5)

before demographic items. The response rate was approximately 8.1%. The final analytic sample was 233. The majority of registered nurses in this convenience sample held a bachelor's degree (74%). Most were young (i.e., 35%

were 30 years of age or younger) and relatively inexperienced, that is, less than 1 year of unit tenure (Table 1). Nurse respondents worked in a range of settings, including medical–surgical, progressive-critical care, emergency, mother–baby, and perioperative.

Missed Nursing Care

The percentage of nurses who reported that at least one care activity was missed frequently or always was 94%. The five most frequently missed nursing care activities were mouth care (36.0%), ambulation 3 times per day or as ordered (35.3%), turning patient every 2 hr (29.6%), assisting with toileting needs within 5 min (29.6%), and full documentation (26.6%) (Figure 1). The items missed least frequently were bedside glucose monitoring (9.1%), hand washing (9.2%), vital signs (9.4%), and patient assessments each shift (9.6%) (Figure 1). Figure 1 displays the percentage of nurses who missed each for a complete list of missed nursing care percentages for care missed frequently to always. The mean score of all missed care activities for this sample was 1.74 ($SD = 0.68$), of a possible maximum score of 4. The value of 1.74 approaches the value of 2 assigned to the frequency category “occasionally.”

Nurse Work Environment

The mean score for the PES-NWI composite was 3.10 ($SD = 0.42$); nurses on average agreed (response = 3) that desirable organizational characteristics were present. Mean scores for each PES-NWI subscale ranged from 2.92 to 3.23. The PES-NWI subscales that were significantly associated with missed care were Nurse Staffing and Resource Adequacy ($r = -.17, p = .01$) and Nursing Foundations for Quality of Care ($r = -.22, p = .00$). The PES-NWI composite score was significantly associated with missed care ($r = -.20, p = .00$). Table 2 includes complete descriptive statistics.

Collective Efficacy

The mean score for collective efficacy was 4.95 ($SD = 0.78$), of a possible maximum score of 6 (Table 3). The mean score was equivalent to the response “agree.” For each item in the Collective Efficacy Beliefs Scale, mean scores ranged from 4.32 ($SD = 1.46$) to 5.36 ($SD = 0.89$). Refer to Table 3 for a complete listing of descriptive statistics for each item of the Collective Efficacy Beliefs Scale. The Collective Efficacy Beliefs Scale was significantly associated with missed care ($r = -.17, p = .00$).

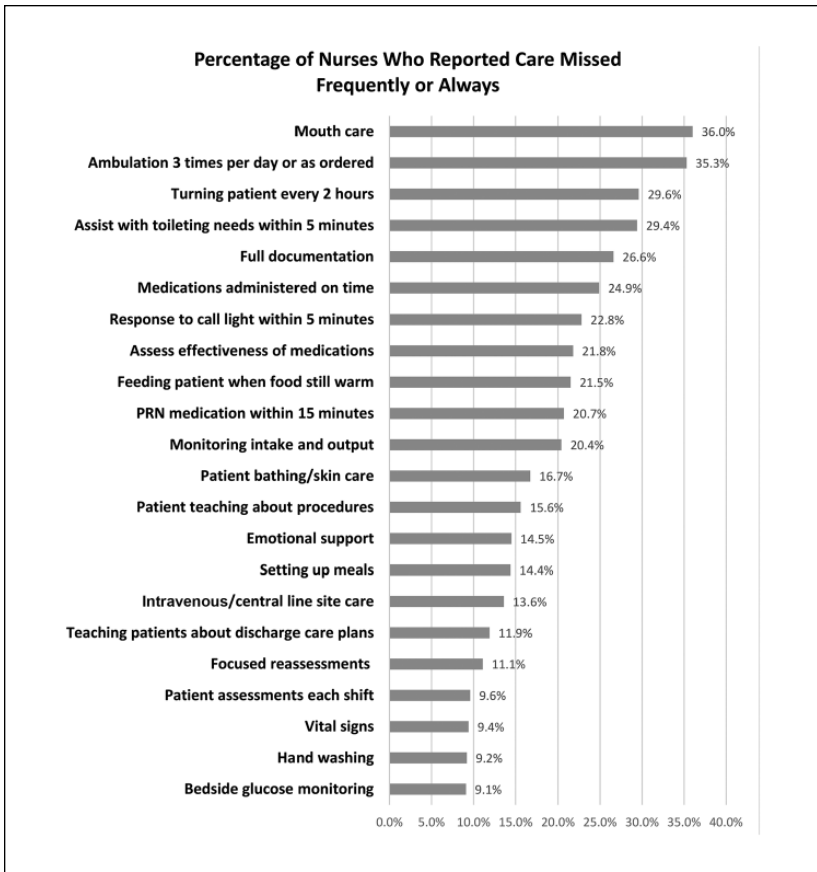


Figure 1. Percentage of nursing care missed frequently or always.

Relationship Between Nurse Work Environment and Collective Efficacy

The nurse work environment and collective efficacy had a moderate positive correlation, which supports Hypothesis 1 ($r = .58, p = .00$; Table 2). The nurse work environment subscales most related to collective efficacy were Nursing Foundations for Quality of Care ($r = .53, p < .00$; Table 2) and Nurse Staffing and Resource Adequacy ($r = .52, p = .00$; Table 2). The nurse work environment subscale least associated with collective efficacy was Collegial Nurse–Physician Relations ($r = .33, p < .00$; Table 2).

Table 2. Relationships of Nurse Work Environment, Collective Efficacy, and Missed Nursing Care.

Nurse Work Environment	n	M	SD	Minimum	Maximum	Number of Items	Cronbach's		r
							Alpha	Collective Efficacy	
PES-NWI Composite	233	3.10	0.42	1.78	4	31	.94	.58**	-.20** (p = .00)
Nurse Manager Ability, Leadership, and Support	232	3.12	0.58	1	4	5	.85	.47**	-.12 (p = .08)
Nurse Staffing and Resource Adequacy	233	2.92	0.57	1.25	4	4	.83	.52**	-.17** (p = .01)
Nurse Participation in Hospital Affairs	233	3.07	0.50	1.33	4	9	.86	.50**	-.20 (p = .00)
Nursing Foundations for Quality of Care	233	3.23	0.40	2.1	4	10	.84	.53**	-.22** (p = .00)
Collegial Nurse-Physician Relations	233	3.14	0.53	1	4	3	.85	.33**	-.12 (p = .06)

Note. r refers to the correlation coefficient for the relationship between missed nursing care and PES-NWI mean scores. Missed care data in this table were summarized after recoding "not applicable" as "missing" to calculate accurate mean scores for each participant for analysis. PES-NWI = Practice Environment Scale of the Nurse Work Index.
**p < .01.

Table 3. Relationships Between Collective Efficacy Items and Missed Nursing Care Mean.

Collective Efficacy Items	n	M	SD	Minimum	Maximum	r	p
The department I work with has above-average ability	231	5.10	0.95	1	6	-.16	.02
This department is poor compared with other departments doing similar work ^a	233	5.35	0.83	1	6	-.20**	.00
This department is not able to perform as well as it should ^a	233	4.78	1.33	1	6	-.16	.01
The members of this department have excellent job skills	230	5.13	0.93	1	6	-.17**	.01
Some members of this department should be fired due to lack of ability ^a	233	4.62	1.39	1	6	.00	.94
This department is not very effective ^a	233	5.36	0.89	1	6	-.20**	.00
Some members of this department cannot do their jobs well ^a	231	4.32	1.46	1	6	-.04	.50
Collective efficacy mean score	233	4.95	0.78	2.57	6	-.17**	.01

Note. r refers to the correlation coefficient for the relationship between missed nursing care and PES-NWI mean scores. Missed care data in this table were summarized after recoding "not applicable" as "missing" to calculate accurate mean scores for each participant for analysis. PES-NWI = Practice Environment Scale of the Nurse Work Index.

a. Items were reverse coded.

**p < .01.

Relationships Among Missed Care, Nurse Work Environment, and Collective Efficacy

Using bivariate linear regression of standardized variables, we found that a 1 standard deviation increase of the nurse work environment was significantly associated with 0.14 less missed nursing care ($b = -0.14, p = .00$), which supports Hypothesis 2. A 1 standard deviation increase of collective efficacy was significantly associated with 0.12 less missed nursing care ($b = -0.12, p = .01$), which supports Hypothesis 3 that collective efficacy is related to missed care. We tested whether controlling for nurse professional characteristics (education and nursing unit tenure) influenced regression results; results remained stable.

Using path analysis, we found that more favorable nurse work environments were significantly correlated with greater collective efficacy ($b = 0.188, p = .00$), supporting Hypothesis 1 that there was a relationship between the nurse work environment and collective efficacy. Hypotheses 2 and 3 were further supported in the path model; the nurse work environment and collective efficacy were significantly associated with less missed care ($\chi^2 = 10.714, df = 2, p = .0047$; Figure 2). Overall path model fit indices among the nurse work environment and collective efficacy on missed nursing care were acceptable with a root mean square error of approximation (RMSEA) less than 0.01, comparative fit index (CFI) of over 0.95, and Tucker–Lewis index (TLI) of over 0.95 (Hu & Bentler, 1999; Figure 2). We tested whether controlling for nurse professional characteristics (education and nursing unit tenure) influenced the path analysis; results remained stable.

Discussion

We were motivated to better understand how the nurse work environment and the capacity of a group of nurses to solve problems might be associated with missed nursing care. Among hospital staff nurses, we found that ratings of the nurse work environment were positively correlated with individual nurses' positive outlook on group problem-solving ability. This is the first study to show an association of work group effectiveness and the nurse work environment. Our study advances theoretical foundations for nursing care by examining collective efficacy as a new structure supporting the Donabedian model. Our results support that structural factors, such as the nurse work environment and the capacity of a group of nurses to solve problems, are related to missed nursing care.

Nursing care activities missed most frequently in this study included fundamental care activities such as mouth care. This is a relevant finding because

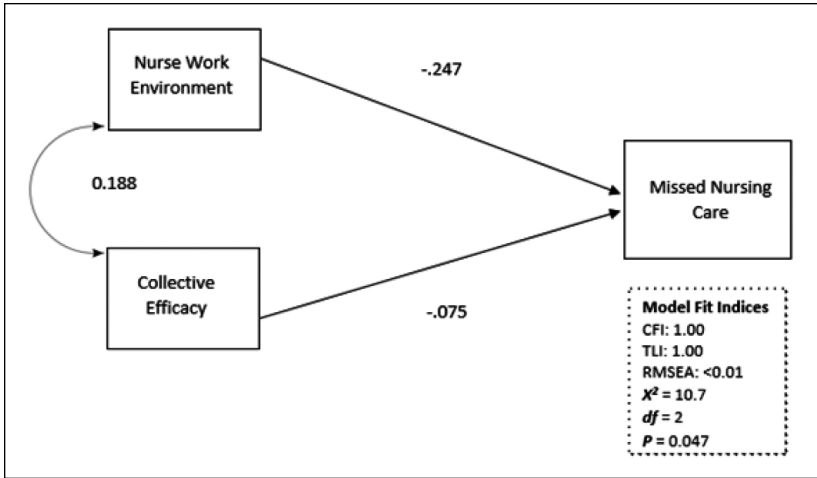


Figure 2. Path analysis model for nurse work environment, collective efficacy, and missed nursing care.

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation.

the majority of the sample was from medical-surgical or critical-progressive care units where these care activities are necessary for high-quality outcomes. For example, frequent oral care in hospital patients reduces the risk of hospital acquired pneumonia (Quinn et al., 2014). Frequently missed care activities, such as ambulation and turning, decrease the risk of health consequences of immobility. Other studies have also documented a similar trend of basic care missed such as mouth care and ambulation (Kalisch, Landstrom, & Williams, 2009; Papastavrou, Andreou, Tsangari, Schubert, & De Geest, 2014). Nurse time is required to complete ambulation and turning. Nurses often describe the reason for missed nursing care as related to time scarcity (Jones et al., 2015). Frequently missing oral care and ambulation implicates lack of adequate nurse time necessary to plan for and collaborate with other staff members to deliver high-quality patient care. It is important to consider that these frequently missed items of care are required more often during a shift (e.g., mouth care in a critical care unit), and thus will require more frequent staff nurse time. Although we included frequently or always missed nursing care in our analysis, occasional or rare care omission is not acceptable.

Our results for missed nursing care are consistent with those of other studies. In our sample, 94% of nurses reported that at least one task was missed

frequently or always. Similarly, in a systematic review of 22 primary samples, Jones and colleagues (2015) found that a high fraction of nurses (55%-98%) reported missing at least one nursing task. The frequency of missed care in our study is similar to other studies on missed care for some care activities. Our sample indicated that 36% missed mouth care, which is comparable with an average of 34.4% of care missed according to nurses in 12 European countries (Ausserhofer et al., 2014). Turning or changing the patient's position was reported as missed frequently or always by 29.6% of our sample, which is similar to a prevalence of 24.7% that Ausserhofer et al. (2014) found. Documentation was frequently or always missed by 27.5% of nurses in Europe (Ausserhofer et al., 2014) compared with 26.6% in our sample. Comforting or emotional support was missed less frequently in our sample (14.5%) as compared with samples from European countries that reported an average of 52.6% (Ausserhofer et al., 2014).

The nurse work environment was significantly associated with missed nursing care, consistent with an extensive review of missed care literature (Jones et al., 2015). Positive perceptions of the nurse work environment were associated with lower frequencies of missed nursing care. This finding is consistent with other studies about missed nursing care as being associated with antecedents such as hospital unit staffing and inadequate material resources (Jones et al., 2015). Collective efficacy, a unidimensional concept about work group effectiveness, was significantly associated with missed nursing care. This adds further evidence to what we know about collective efficacy as a factor that has been associated with reduced error in nursing performance in hospitals (Lee & Ko, 2010). Results are also consistent with previous work about missed nursing care, which showed that teamwork, a work group behavior, was associated with a decrease in missed care (Kalisch et al., 2013).

Nurses who reported more adequate staffing and resources reported less frequent missed care. This logical finding adds to other similar evidence indicating that staff require material resources, such as equipment, to perform mouth care or other basic nursing care. More human resources are also necessary to ensure that care is missed less frequently. Nurses who reported stronger Nursing Foundations for Quality of Care also reported less missed care, another practical finding to support efforts to establish a strong nursing foundation for care quality. It is also notable that the PES-NWI score in our sample was higher than scores reported from other samples about the nurse work environment. Warshawsky and Havens (2011) found that composite scores ranged from 2.48 to 3.17 on a 1 to 4 scale within 20 studies from the year 2002 to 2010. The higher mean PES score for our sample could be attributable to the fact that two hospitals in our sample were Magnet

designated and therefore might have an increased focus on creating healthy work environments.

Results of this study support practical application of improving the nurse work environment to improve nurses' capacity to solve problems and decrease incidence of missed nursing care. Nurse work environment factors such as staffing resource and nurse foundations for quality of care are core components to which nurse managers must attend to reduce missed care. Clearly, nursing care items being missed require time and resources. Nurse managers need to foster better nurse work environments among all health care staff, in addition to among nurses, to help nurses complete required care in a complex health care environment.

The overall nurse work environment, as measured by a composite score, as well as each subscale, was positively correlated with collective efficacy. The strength of correlations across subscales reveals the elements of the nurse work environment that may be instrumental to collective efficacy. The two strongest correlations were for Nurse Staffing and Resource Adequacy and Nursing Foundations for Quality of Care. These subscale correlations may indicate that collective efficacy requires a sufficient complement of nurses as well as a distinct nursing group identity. It seems logical that the subscale with the lowest correlation measures collegial nurse-physician relations, which is not a nursing-centric domain. This finding might suggest that nurses have a stronger group identity as a profession than within an interprofessional practice environment.

Our findings add depth to explain how structural mechanisms connected to nurse work environments might operate to reduce missed nursing care. The moderate positive correlation between the nurse work environment and collective efficacy is clinically significant ($r = .58$). The modest correlations between missed care and both the nurse work environment and collective efficacy ($r = -.20$ and $-.17$, respectively) may suggest that while these structural features influence care processes, they account for a small amount of the variation. Exploring other organizational bases for missed care is warranted.

It is notable to mention that the average CEBS score for our sample is higher than as found in another study about collective efficacy and nursing performance in Korean hospitals (Lee & Ko, 2010). One other study among nurses that used the CEBS calculated the total mean score for participants as 27.02, with a range from 7 to 35 (Lee & Ko, 2010). For a seven-item scale, this would equate an average of 3.86 for each question. Our mean score for collective efficacy was 4.95. This difference could be attributable to the fact that our sample was derived from hospitals that were either in the Magnet designation program or the Pathway to Excellence designation program.

Both of these programs emphasize the importance of cultivating healthy work environments (ANCC, 2017).

Results from our sample generalize best to large, multihospital health systems with shared core philosophical underpinnings, such as an emphasis on reaching Magnet designation to demonstrate nursing excellence. The proportion of our sample educated at the Bachelor of Science in Nursing level or above is greater than that of the average Registered Nurse (RN) nationally (80% vs. 55%; Health Resources and Services Administration of the U.S. Department of Health and Human Services, 2013). Our sample is comparable with other missed nursing care samples such as those from the work of Kalisch and colleagues, who report about care missed on medical–surgical and intensive care units (Kalisch & Xie, 2014).

There were limitations of this study. Data were self-reported from a convenience sample of nurses. A cross-sectional design limits causal inference. The sample frame was limited to nurses in five hospitals in one region in the Southwestern United States; response rate was low at 8.1%. The time required to answer a 116-item survey might have reduced participant willingness to participate, thus decreasing the response rate. Same source bias might have influenced correlations among variables studied. The MISSCARE instrument does not include a “never” option; applicable care that is never missed cannot be measured with this instrument.

In conclusion, the nurse work environment was correlated with collective efficacy, the perception that a group can effectively solve problems. Nurses who rate the nurse work environment and collective efficacy more highly miss less nursing care. These findings support ensuring that hospitals have enough human and material resources to promote group cohesion among staff as well as less missed nursing care. Achieving adequate human resources and materials is a modifiable nurse work environment characteristic which, if improved, can decrease missed nursing care.

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