



Original Article

Medical surgical nurses describe missed nursing care tasks—Evaluating our work environment ☆☆☆☆



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ABSTRACT

Purpose: The purpose of the study was to explore the nurse work environment by evaluating the self-report of missed nursing care and the reasons for the missed care.

Methods: A convenience sample of medical surgical nurses from four hospitals was invited to complete the survey for this descriptive study. The sample included 168 nurses. The MISSCARE survey assessed the frequency and reason of 24 routine nursing care elements.

Results: The most frequently reported missed care was ambulation as ordered, medications given within a 30 minute window, and mouth care. Moderate or significant reasons reported for the missed care were: unexpected rise in volume/acuity, heavy admissions/discharges, inadequate assistants, inadequate staff, meds not available when needed, and urgent situations.

Conclusion: Identifying missed nursing care and reasons for missed care provides an opportunity for exploring strategies to reduce interruptions, develop unit cohesiveness, improve the nurse work environment, and ultimately leading to improved patient outcomes.

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1. Introduction

The delivery of nursing care in an acute care hospital is complex requiring that individual nurses be competent in a host of areas. Medical/Surgical areas care for patients with multiple co-morbidities requiring nurses to have a broad knowledge base, be competent in a variety of skills, and capable of managing large amounts of information. Thus, nurses are valued for their knowledge and thinking skills in decision-making along with other professions such as lawyers, teachers, and physicians. Nurses join the ranks of “knowledge workers” (Cooper, 2006). The complexity of information influx sets the stage for missed care.

Another layer of complexity to executing patient care is found in the work environment. Previous research has shown that workload complexity and interruptions have a negative impact on job satisfaction, burnout, medication errors, and patient mortality (Clark & Flanders, 2012; Kowinsky et al., 2012; Pearson et al., 2006; Stimpfel, Sloane, & Aiken, 2012). As workload increases, less time is available to complete nursing care or perform care in full (Bogossian, Winters-Chang, &

Tuckett, 2014; Lopez, Gerling, Cary, & Kanak, 2010). Workload complexity may place nurses in a position to make difficult choices on which care elements take priority.

Hospitals are now charged with reducing the length of stay, decreasing hospital acquired infections and preventing readmissions; additional forces impacting the delivery of care (Centers for Medicare & Medicaid Services, 2015). Balancing quality of care with cost reduction also impacts the complexity of delivering nursing care. The hospital quality department tracks many disease related patient processes and outcomes to assess and compare patient outcomes with national benchmarks. In addition, many nursing sensitive indicators are audited at the nursing unit level so that individual units are able to evaluate unit specific processes and outcomes, and address improvements in nursing care. Common examples of nursing sensitive indicators include falls with and without injury, pressure ulcers by stage and hospital acquisition, and medication errors. What is difficult to gather, and in many cases not documented in a way that can be captured, are those nursing care elements that may precede a larger event (Committee on the Work Environment for Nurses and Patient Safety & Board on Health Care Services, 2004; Kalisch & Lee, 2012; Kalisch, Tschannen, & Lee, 2012). Each care element may have a downstream effect if not completed. For example, ambulation as ordered may help a patient maintain balance or regain muscle strength, which if not completed, could increase the fall risk. Lack of attention to mouth care may impact appetite or

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create a higher risk for infection (Quinn et al., 2014). It is these missed nursing care elements, collectively or independently, that may precede a nursing error or a patient event.

The purpose of this study was to examine the nurse work environment by evaluating the self-reported missed nursing care elements and reasons for missed care from nurses on medical surgical units. This information provides additional support to develop and test strategies in the nurse work environment that can contribute to reducing errors and improving hospital and nursing quality indicators.

2. Background

2.1. Missed nursing care

Missed nursing care is defined as elements of nursing care that are not completed (acts of omission) rather than nursing care performed incorrectly (acts of commission) (Kalisch, Landstrom, & Williams, 2009) and according to the Agency for Healthcare Research and Quality is an under recognized factor in patient outcomes (Agency for Healthcare Research and Quality, 2015).

Kalisch et al. (2012) found patient fall rates to be associated with reported missed care ($r = .30$; $p < .01$), ambulation as ordered ($r = .22$; $p < .05$), patient assessment performed with each shift ($r = .09$; $p < .05$), call light response ($r = .22$; $p < .05$), and toilet assistance ($r = .30$, $p < .01$) (Kalisch et al., 2012). These were important findings as this was the first identified connection between a patient event and specific elements of nursing care.

However, consequences of missed care go beyond the immediate and potentially long-term detrimental effect on patients. Higher levels of missed care were found to be positively correlated ($r = .4$; $p < .05$) and the strongest predictor ($\beta = .302$; $p = .000$) of nurses' intention to leave along with self-reported missed work ($\beta = .247$; $p = .034$), age > 35 years, and overtime, which collectively explained 58.4% of the variance in the model (Tschannen, Kalisch, & Lee, 2010). Likewise, missed nursing care, staffing adequacy and the type of unit were found to explain 22.4% of the variance in the model testing for job satisfaction, (Kalisch, Tschannen & Lee, 2011a). These studies with nurses in 110 patient care units from 10 different hospitals suggest that missed care is a key factor in nursing satisfaction and intention to remain in practice.

2.2. Potential causes of missed nursing care

Interruptions and multitasking during care delivery is also known to impact patient outcomes. Kalisch and Aebersold (2010) studied 36 RNs on medical surgical units, a critical care unit, and a progressive care unit in two hospitals for four-hour periods of time (136 hours total) (Kalisch & Aebersold, 2010). They defined an interruption as an event initiated by another person or by an outside factor such as a call light or pager and multitasking as being involved in two or more tasks at one time. A total of 1354 interruptions, 46 hours of multitasking, and 200 errors were recorded with nurses interrupted 10 times per hour for a rate of 1 interruption every 6 minutes. Overlapping activities occurred 34% of the time.

Nurses were tracked in an observational study to assess the impact of an electronic medical record on nursing workflow (Cornell et al., 2010) and found that during a three hour period nurses spent less than four minutes on any one task. During 98 hours of observation on two medical surgical units, 77% of activities lasted 30 seconds or less, and 40% of activities lasted 10 seconds or less. These observations reflect the complex work processes that challenge nurses and the chaotic workflow patterns that characterize an environment where the potential for missed care exists.

The construct of missed nursing care provides a model for study whereby investigators can identify nursing workflow processes that contribute to missed care.

2.3. Research objectives

The study sought to describe: 1) the frequency and reasons for missed nursing care on medical, surgical, and combined medical/surgical units, and 2) the relationships among the unit types for frequency of missed nursing care.

3. Research design and methods

3.1. Design

A descriptive correlational design was used to collect data from four sites of three hospital systems. The study received approval from each participating hospital's institutional review board (IRB) and was granted a waiver of written informed consent.

3.1.1. Setting and sample

A convenience sample from 586 nurses was obtained from 18 medical, surgical, or combined medical/surgical units in the four nonacademic medical centers. Study site one was a 356 bed Magnet® recognized medical center that had seven study units. Study site two and three, also Magnet® recognized, was a two hospital system, one 278 bed hospital with five study units and a second 190 bed hospital with four study units. The fourth study site was a 130 bed hospital located in a small midwestern city with two study units.

Units classified as medical, surgical, or combined medical/surgical were eligible. Unit type definitions were from descriptions provided with the RN Satisfaction Survey from the National Database for Nursing Quality Indicators (NDNQI®) (Kansas City, KS). Medical, surgical, and combined medical/surgical often collectively known as med/surg units were purposefully chosen as the study group for two reasons: 1) Med/Surg units make up the largest number of hospital units and 2) using similar units would control of unknown extraneous variables in the work environment. To be eligible to participate, nurses had to work at least 50% at the bedside in one of the eligible unit types, and work at least a .5 full time equivalent (FTE). Floating nurses, staff development specialists, clinical nurse specialists and nurse managers were not eligible. Clinical supervisors were eligible if they worked at least 50% at the bedside.

3.2. Measures

3.2.1. Individual characteristics

Demographic characteristics included age, educational degree, and primary shift worked. To be able to capture work environment or work burden, respondents were asked the percent of time that staffing was adequate, usual number of hours worked per week, overtime hours and missed shifts in the previous three months, and number of patients assigned during last shift worked with number of admissions and discharges. Months or years of time as a nurse and time worked on the current unit were also captured. Race and gender were omitted from data collection to assure respondent anonymity as the four hospitals were located in an area where over 94% of the nurses were Caucasian and female.

3.2.2. Unit characteristics

Four variables were collected to describe unit types. These were total unit full time equivalents (tFTE), defined as the sum of all FTEs of persons within the unit budget; RN hours per patient day (RNHPPD), defined as the RN hours spent in patient care; Case Mix Index (CMI), defined as the average of the relative value assigned to a diagnosis-related group within the study unit; and skill mix, defined as proportion of nurses to the total number of unit staff members.

3.2.3. Missed nursing care

Missed nursing care elements were measured by part 1 of the MISSCARE Survey (Kalisch & Williams, 2009) that asks nurses to rate

the frequency of 24 elements of nursing care that are missed by staff on their unit. Response choices were never (0), rarely (1), occasionally (2), frequently (3), and always (4). A total score and 4 subscales scores were calculated. The subscales are: Assessment; individual care interventions; basic care interventions; and planning. Scores range from 0–4 with higher scores reflecting perception of more missed care. At the time of the survey development, reliability was established by test–retest evaluation ($r = .87$; $p < .001$; confidence interval, 0.76, 0.93). In the current sample, reliability was tested with Cronbach's alpha and ranged from .63–.80.

3.2.4. Reasons for missed nursing care

Part two of the MISSCARE Survey asks respondents to reflect on the missed care they just rated and select the importance of 19 statements that might be considered a reason for the missed care. Responses were: not a reason (0), minor (1), moderate (2), and significant (3). Three subscales scores are generated from this portion of the survey: communication; material resources; and labor resources. Scores range from 0–3 with higher scores reflecting the perception of greater importance as a reason for missed care. At the time of the survey development, internal reliability as measured by Cronbach's alpha ranged from .693 to .851 for the subscales. In the current sample, reliability was tested with Cronbach's alpha and ranged from .632 to .789 with an overall Cronbach's alpha of .852.

3.2.4.1. Data Collection. Survey data were collected using Qualtrics online survey software (Provo, Utah). A notification card with the Internet address to the survey was placed on each nurse's locker or in their mailbox. A link to the survey was also placed on each hospital's intranet for easy access. The study was advertised with flyers and notices on hospital intranet sites. A short video was made to explain the importance of the study and request participation. Prior to the study, an information session was held with the nursing management to review the study purpose and procedure. Unit management was asked to support the nurses as they completed the survey, but was not responsible for recruitment. Each hospital had a principal study lead that was responsible for the recruitment activities.

3.2.4.2. Procedure. The survey went live on Qualtrics August 11, 2014 and remained open until the end of October. Completion of the survey took 12–30 minutes with an average of 20 minutes.

3.2.4.3. Data Analysis. IBM SPSS Statistics 22 (Chicago IL) was used for analysis. Initial analyses were conducted to determine differences among the demographic and MISSEDCARE scores using chi square for categorical variables and analysis of variance for continuous variables. Finding no differences by hospital or unit type, the total group was used for further analyses. The first level of analysis determined percent of responses to each element of missed care and each reason for missed care. The second level used Likert scale scores to calculate means and standard deviations. Subscale scores were used to perform Pearson's correlation coefficients to determine statistically significant correlations among demographic and survey scores. Effect size was determined by Cramer's V or when appropriate, calculated from eta squared.

4. Results

4.1. Individual characteristics

The sample included 168 nurses, a 29% response rate. Respondents were on average 36 ± 12.6 years of age. Work and professional characteristics of the sample are shown in Table 1. Nurses on medical units reported working significantly less overtime than nurses on surgical or combined medical surgical units [8.79 (10.3) vs. 36 (26.2) vs. 19.4 (18.2); $p .022$]. Except for overtime use, no statistically significant differences were detected among hospitals or among unit types.

Table 1
Individual characteristics of sample.

| Sample characteristics (n = 168) | | |
|----------------------------------|-----------------|------------|
| Variable | Mean score (SD) | n (%) |
| Age | 36.17 (12.6) | |
| Hours worked/week | 35.2 (5.0) | |
| Overtime hours* | 14.1 (15.3) | |
| Percent adequate staffing | 65.2 (23.5) | |
| Patients assigned | 5 (1.3) | |
| Admissions | 1.74 (1.6) | |
| Discharges | 1.5 (1.6) | |
| Degree | | |
| Diploma | | 12 (7.1) |
| ASN | | 81 (48.2) |
| BSN | | 68 (40.5) |
| MSN | | 7 (4.2) |
| Primary Shift | | |
| Days 8 hours | | 15 (8.9) |
| Days 12 hours | | 75 (44.6) |
| Evenings 8 hours | | 8 (4.8) |
| Nights 8 hours | | 7 (4.2) |
| Nights 12 hours | | 56 (33.3) |
| Split days/evening | | 2 (1.2) |
| Split days/nights | | 5 (3.0) |
| Plans to leave | | |
| Next 6 months | | 13 (7.7) |
| Next year | | 31 (18.5) |
| No plans | | 124 (73.8) |
| Missed work | | |
| None | | 129 (76.8) |
| 1 day or shift | | 23 (13.7) |
| Experience as a RN | | |
| 6 mo–2 years | | 48 (28.6) |
| 3–9 years | | 64 (38.0) |
| 10+ years | | 55 (33.4) |
| Experience on the current unit | | |
| 6 mo–2 years | | 57 (34.0) |
| 3–9 years | | 74 (44.0) |
| 10+ years | | 37 (22.0) |

No statistically significant differences were found among hospitals or units for individual characteristics except for the variable overtime hours.

* Overtime hours were found to be higher on surgical and combined medical/surgical.

4.2. Unit characteristics

Analysis of variance did not detect differences for tFTEs, RNHPPD, or skill mix among hospitals or unit types. There was a statistically significant difference for CMI among unit types ($F(2, 9) = 4.07$; $p = .055$), an expected finding. The calculated effect size was .475, a large effect. Post hoc comparisons indicated that differences were between the medical and surgical units (1.19, SD.11 vs. 1.75, SD .49; $p = .052$). Results are shown in Table 2. Finding no differences for nursing hours or skill mix, the data were pooled for the descriptive analysis.

4.3. Missed nursing care

The percent of responses for each nursing care element from the MISSCARE survey (MNC) is shown in Table 3. Ambulation three times per day or as ordered (53%), mouth care (35.7%), and delivering medications within 30 minutes of scheduled time (31.6%) were reported as

Table 2
Unit characteristics.

| Unit characteristic | Mean (SD) | F | Sig. |
|---------------------|-------------|-------|------|
| tFTEs | 42.9 (13.5) | 2.132 | .175 |
| RNHPPD | 6.39 (1.09) | 2.143 | .173 |
| Skill mix (%) | 56.4 (10.6) | .397 | .683 |
| CMI | 1.48 (.33) | 4.074 | .055 |

SD = standard deviation; tFTE = total full time equivalents on nursing unit; RNHPPD = nurse hours per patient day; skill mix = proportion of staff that are RNs; CMI = case mix index.

Table 3
Frequency of missing nursing care tasks by category.

| Care tasks | Rarely missed (scored <1) (%) | Occasionally missed (>1 < 2) (%) | Frequently missed (>2 < 3) (%) |
|--------------------------------------|-------------------------------|----------------------------------|--------------------------------|
| BG as ordered | 81.6 | | |
| Assessment each shift | 67.9 | | |
| Focused reassessments | 53.6 | | |
| Discharge planning & teaching | | 52.4 | |
| IV site care | | 48.8 | |
| Bath/Skin care | | 48.8 | |
| Turning Q2 hr. | | 47 | |
| Skin/Wound care | | 45.2 | |
| Hand washing | | 44.6 | |
| Emotional support | | 38.1 | |
| PRN meds within 15 minutes | | 36.3 | |
| Feed while food is warm | | 33.9 | |
| Intake and output documented | | 33.9 | |
| Call light response within 5 minutes | | 31 | |
| Full documentation | | 29.2 | |
| Toilet within 5 minutes | | 28 | |
| Attend care conferences | | 27.4 | |
| Medication effectiveness | | 27.4 | |
| VS as ordered | | 24.4 | |
| Patient teaching | | 23.2 | |
| Setting up food | | 22 | |
| Ambulation 3×/day or as ordered | | | 53 |
| Mouth care | | | 35.7 |
| Meds given within 30 minute window | | | 31.6 |

the most commonly missed care elements. The missed care elements reported as rarely missed were blood glucose as ordered (81.6%), patient assessment each shift (67.9%), and focused reassessment (53.6%).

The overall MNC score was $1.6 \pm .47$. Subscale scores were: assessment $1.31 \pm .50$; individual need interventions $1.84 \pm .60$; basic need interventions $1.76 \pm .55$; and planning $1.64 \pm .56$. Individual need and basic need intervention subscale scores initially showed statistical differences, but the post hoc analyses found no differences by hospital or unit type. These mean scores fell within the rarely to occasionally missed continuum. Individual item and subscale scores are shown in Table 4.

4.4. Reasons for missed care

The percent of responses for each reason for missed care from the MISSCARE survey is shown in Table 5. Six reasons were found to be moderate/significant reasons for missed care: unexpected rise in volume/acuity (76.2%), heavy admissions/discharges (72%), inadequate assistants (59.5%), inadequate staff (58.9%), meds not available when needed (56.5%), and urgent situations (53.0%). The remaining 14 reasons reported were identified as minor reasons for missed care. Individual item and subscale scores are shown in Table 6. All scores fell along the continuum of minor to moderate reasons for missed care. Initial analysis of variance showed statistical significance, but the post hoc analysis found no differences for hospital or unit type.

4.5. Correlations

Staffing adequacy was found to have an inverse relationship with the three Reasons for Missed Care Survey subscales. As perception of staff adequacy declined, reasons for missed care increased in importance: communication ($r = -.272$; $p = .006$); material resource ($r = -.240$; $p = .006$); and the labor resource ($r = -.345$; $p = .000$). Similarly, reports of overtime hours increased as staffing adequacy declined ($r = -.255$; $p = .001$). It is of note that only 65% of staff responded that staffing was adequate for the previous shift worked.

Table 4
Item and subscale scores of missed nursing care tasks.

| Subscale | Nursing task | Mean | SD | F | Sig | | | |
|--------------------------------------|-------------------------------|------------------------------------|------|------|-------|-------|-------|-------|
| Assessment | Overall | 1.31 | 0.5 | .654 | .625 | | | |
| | VS as ordered | 1.37 | 0.76 | | | | | |
| | Intake and output documented | 1.78 | 0.94 | | | | | |
| | Full documentation | 1.97 | 0.86 | | | | | |
| | Hand washing | 1.31 | 0.79 | | | | | |
| | BG as ordered | 0.84 | 0.63 | | | | | |
| | Assessment each shift | 0.62 | 0.61 | | | | | |
| | Focused reassessments | 1.18 | 0.77 | | | | | |
| | IV site care | 1.32 | 0.76 | | | | | |
| | Individual need interventions | Overall | 1.84 | | | | 2.468 | .047* |
| | | Meds given within 30 minute window | 2.1 | | | 0.6 | | |
| | | Emotional support | 1.64 | | | 0.81 | | |
| Call light response within 5 minutes | | 1.78 | 0.94 | | | | | |
| PRN meds within 15 minutes | | 1.68 | 0.8 | | | | | |
| Medication effectiveness | | 1.9 | 0.79 | | | | | |
| Toilet within 5 minutes | | 1.85 | 0.84 | | | | | |
| Basic need interventions | | Overall | 1.76 | 0.55 | 3.078 | .018* | | |
| | | Ambulation 3×/day or as ordered | 2.47 | 0.82 | | | | |
| | | Turning Q2 hr. | 1.86 | 0.82 | | | | |
| | | Feed while food is warm | 1.62 | 0.89 | | | | |
| | | Setting up food | 1.18 | 0.9 | | | | |
| | Bath/Skin care | 1.47 | 0.71 | | | | | |
| | Mouth care | 2.2 | 0.83 | | | | | |
| | Skin/Wound care | 1.47 | 0.7 | | | | | |
| | Planning | Overall | 1.64 | 0.56 | | | 1.406 | .235 |
| | | Patient teaching | 1.91 | 0.73 | | | | |
| | | Discharge planning & teaching | 1.1 | 0.7 | | | | |
| | | Attend care conferences | 1.89 | 1.1 | | | | |

SD = standard deviation.

* Post hoc analyses found no statistical significance for subscale scores among unit types.

5. Discussion

Ambulation as ordered, medications given within a 30 minute window, and mouth care were the top three frequently reported missed care elements. These elements were comparable to previous studies (Kalisch, Tschannen & Lee, 2011b; Kalisch & Williams, 2009), and show that this is a common challenge among nurses. This opens the opportunity for investigators to address workflow issues that can support nurses in completing this care. Using the example of incomplete ambulation, there may be several consequences when patients are not ambulated. Inadequate or missed ambulation leads to decreased muscle strength, may alter balance, and conceivably reduce pain control. Incomplete ambulation could also potentially lead to a fall. There is a question of whether these missed care elements are a result of an individual's workload/performance or a result of the lack of coordination among the unit care team.

We found that blood glucose as ordered, shift assessment, and focused reassessment were the least frequently missed care elements and comparable to previous studies. The hospitals in our study make use of prompts and required computer fields and this may have contributed to the perception these care elements are least likely to be missed.

Volume/Acuity, heavy admission/discharge activity, inadequate number of staff and assistive personnel, and worsening of patient situations were rated as moderate or significant reasons for missed care. In medical/surgical units, where admissions and discharges and acuity fluctuations are the regular ebb and flow of the unit work, these data suggest that the underlying system of care is not responsive to workload

Table 5
Frequency of reasons by category.

| | Not a reason (scored < 1) (%) | Minor reason (>1 < 2) (%) | Moderate/ Significant reason (>2 ≤ 4) (%) |
|--|----------------------------------|------------------------------|--|
| Inadequate handoff | | 55.4 | |
| Other departments did not provide care | | 53.0 | |
| Lack of backup support | | 50.6 | |
| Caregiver off unit/unavailable | | 50.0 | |
| Supplies/Equipment not working | | 47.0 | |
| Supplies/Equipment not available | | 44.6 | |
| Tension among team | | 44.0 | |
| Tension with ancillary departments | | 44.0 | |
| Tension with medical staff | | 36.3 | |
| Unbalanced assignments | | 35.1 | |
| Assistants not communicating unmet needs | | 33.3 | |
| Unexpected rise in volume/acuity | | | 76.2 |
| Heavy admission/discharge activity | | | 72.0 |
| Inadequate number of assistive personnel | | | 59.5 |
| Inadequate number of staff | | | 58.9 |
| Medications not available | | | 56.5 |
| Urgent patient situations | | | 53.0 |

volume. Nearly 50% reported that equipment and supplies were unavailable when needed or not working as a minor reason for missed care. Additional minor reasons point to poor communication among team, ancillary departments, and medical staff. So if the system of care is not responsive to the workload of the unit and communication an underlying difficulty, the stage is set for care to be delayed or missed. The nursing unit is a complex work environment with multiple layers of information coming to bedside nurses for processing and action. The ability of the nurses to react to these demands influences the overall unit performance. Because of the potential consequences of missed care, systematic assessment of work environment factors that contribute to missed care and development of strategies to address these factors is warranted. This study supports the conclusions of the Institute of Medicine's 2004 report *Keeping Patients Safe: Transforming the Work Environment of Nurses* (Committee on the Work Environment for Nurses and Patient Safety & Board on Health Care Services, 2004).

Three areas of the nurse work environment were well documented to impact patient safety: nurse's knowledge and skill, staffing levels,

Table 6
Item and subscale scores for reasons for missed care.

| Subscale | Reason | Mean | SD | F | Sig. |
|--------------------|--|------|------|-------|------|
| Communication | Overall | 1.23 | 0.45 | 1.046 | .387 |
| | Tension among team | | | | |
| | Lack of backup support | 1.04 | 0.7 | | |
| | Assistants did not communicate care was not done | 1.63 | 0.87 | | |
| | Tension with medical staff | 1.29 | 0.78 | | |
| | Tension with ancillary departments | 1.14 | 0.76 | | |
| | Other departments did not provide care | 1.18 | 0.66 | | |
| | Inadequate handoff | 1.23 | 0.64 | | |
| | Unbalanced assignments | 1.64 | 0.81 | | |
| | caregiver off unit/unavailable | 0.98 | 0.77 | | |
| Material resources | Overall | 1.48 | 0.57 | 2.602 | .039 |
| | Supplies/Equipment not available | 1.48 | 0.78 | | |
| | Supplies/Equipment not working | 1.31 | 0.75 | | |
| | Medications not available | 1.9 | 0.79 | | |
| | | | | | |
| Labor resources | Overall | 1.87 | 0.46 | .654 | .625 |
| | Unexpected rise in volume/acuity | 2.24 | 0.73 | | |
| | Urgent patient situations | 1.7 | 0.7 | | |
| | Heavy admission/discharge activity | 2.22 | 0.81 | | |
| | Inadequate number of staff | 1.89 | 0.84 | | |
| | Inadequate number of assistive personnel | 1.95 | 0.83 | | |
| | | | | | |

SD = standard deviation.

and collaboration among unit team members (Committee on the Work Environment for Nurses and Patient Safety & Board on Health Care Services, 2004). Two factors found in this study that influenced missed care were changes in patient volume/acuity and adequacy of staffing.

Nursing skill and knowledge in response to changes in volume/acuity of patients are individual competences that can be addressed. Identifying unit based or system strategies for sufficient supplies and equipment, balancing assignments, and improving team performance are methods to address so that response to volume/acuity does not lead to missed care.

The perception of having adequate staff was inversely associated with the three missed care subscale scores: less adequate staffing was associated with higher (more of a reason for missing the care) score. In this day of cost containment, adding additional staff may not always be feasible; but rethinking approaches to the nursing care delivery system, using the current staff in more efficient ways is certainly within reach.

Patient safety within this complex nurse environment requires a multi-modal approach and strategies would be part of a larger approach to focusing on group performance rather than compartmentalized individual performance. Strengthening unit teamwork performance is one area that would increase performance, job satisfaction, and reduce missed care. This study reinforced that missed nursing care is interconnected with work environment.

6. Limitations

Frequency, type, and reasons of missed nursing care were collected as self-reports from medical surgical nurses using online surveys, thus this may limit generalization of study findings. Although chart reviews would provide additional external validity, these were not conducted due to inconsistencies in or lack of documentation of the nursing care elements under study. Direct observation for this study was not feasible. It is important to note that while self-reports only reflect the respondents' perceptions, it is their perception that influences their behavior and thus a critical element to understanding a concept such as missed care. The sample size was small in comparison to previous studies, thus interpretation of study results should take this into consideration; however, we found no differences among the study variables by hospital or unit type, thus allowing us to pool the sample. Despite these limitations, the results of this study reflect the need for interventions to improve the nurse work environment.

7. Conclusion and implications

This descriptive study supports previous research and shows that missed care is a common challenge and worthy of addressing. To address this we need to look beyond individual nurse performance and gain perspective on the human factors that guide unit or team performance. There is evidence that teamwork development can improve knowledge and team behaviors resulting in decreased reported missed nursing care (Kalisch, Xie, & Ronis, 2013).

The information found in this study suggests that there is a disjointed approach to patient care and strategies to a different approach are worthy to explore. Nurses do not come to work planning to miss nursing care or to execute poor care. Solving work environment issues is complex. One approach suggests that the model from Kalisch's work on developing a team approach to patient care can have immediate impact on unit performance in the face of current work day stressors.

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