

Registered Nurse Perception of Patient Assignment Linking to Working Conditions and Outcomes

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Abstract

Purpose: To examine nurse working conditions and outcomes (job satisfaction, intent to stay, and RN-rated quality of care) among registered nurses (RNs) with different perceptions of patient assignments.

Design and Methods: A descriptive study was conducted using data from 106,439 RNs in 751 acute care hospitals that participated in the National Database of Nursing Quality Indicators® (NDNQI®) RN Survey. To compare the nurse working conditions and three outcomes by the two RN groups on perceptions of patient assignment, chi-square and *t* tests were performed with Stata version 14.

Findings: All comparisons of nurse working conditions and outcomes examined in this study were significantly different between the two RN groups on perceptions of patient assignment. RNs who rated their patient assignments to be appropriate were significantly more likely to report positive working conditions (e.g., fewer assigned patients and appropriate meal break) than those who rated their patient assignments to be inappropriate. RNs who rated their patient assignments as appropriate also reported higher job satisfaction, intent to stay in current positions, and quality of care compared with their counterparts of patient assignment perception.

Conclusions: Positive perceptions of patient assignments among RNs were significantly related to better nurse working conditions as well as positive outcomes.

Clinical Relevance: To create nursing work environments that significantly affect nurse and patient outcomes, nursing administrators or managers should pay attention to ensure not only adequate nurse staffing levels, but also optimal nurse-to-patient assignments.

In recent years, the importance of working conditions for nurses has been re-highlighted, with a growing body of evidence that poor working conditions, including inadequate nurse staffing levels, heavy workloads, inadequate work breaks, and frequent overtime, have been found to be significantly associated with poor registered nurse (RN) and patient outcomes (Bae & Fabry, 2014; Griffiths et al., 2014; Institute of Medicine, 2004; Smith-Miller, Shaw-Kokot, Curro, & Jones, 2014; Swiger, Vance, & Patrician, 2016). Numerous quality improvement programs and initiatives at local, state, and federal levels have been developed and implemented to improve RN work conditions. These efforts

have focused largely on administrative nurse staffing data such as nurse-to-patient ratio and skill mix, both of which have been found to be crucial for better patient outcomes (Brennan, Daly, & Jones, 2013; Butler et al., 2011; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007; Needleman, 2015). Fewer researchers have focused on other aspects of nurse staffing, such as RN ratings of how appropriate they feel their patient assignment was (Allen, 2015; Choi & Cramer, 2016).

In most nursing units, charge nurses making RN-to-patient assignments match available RNs with patients on each unit each shift. Thus, RN-to-patient assignments are an integral part of the patient care delivery

process. Optimal matching of unit RNs and patients each shift is likely a key factor in nursing care quality and RN job satisfaction, although few studies have investigated whether RN-to-patient assignments are associated with outcomes for nurses and patients. In one such study, an alternative approach to RN-to-patient assignments was found to be associated with increased RN time spent in direct patient care and patient satisfaction (Donahue, 2009). This alternative approach was developed for a nursing unit laid out in a pod design. The study unit was divided by four pods with 9 or 10 patients each and two RNs assigned to each pod. This finding indicated a significant and positive relationship between RN-to-patient assignment and patient outcome.

Moreover, an RN's patient assignment largely determines the RN's workload for the shift (Allen, 2015; Sir, Dundar, Steege, & Pasupathy, 2015). Both RN-to-patient assignment and RN workload reflect much more than number of assigned patients. Aspects of RN workload identified in studies include amount of direct and indirect nursing care; amount of physical exertion required; level of patient acuity and care complexity; RN qualifications, experience, and competencies; as well as RN perceptions of the fairness of the distribution of unit patients among available RNs (Alghamdi, 2016; Kidd, Grove, Kaiser, Swoboda, & Taylor, 2014; Swiger et al., 2016).

Researchers have found RN perceptions of their workload to be an important predictor of RN outcomes, such as job satisfaction and turnover (Hayes et al., 2012; Lu, Barriball, Zhang, & While, 2012). In the past, negative RN ratings of their patient assignments were found to be associated with job dissatisfaction (Shermont & Russell, 1996). More recently, experts have reported RN frustration with their patient assignments (Cathro, 2013), although current studies are sparse that explore the relationships of RN perceptions of their patient assignments with work conditions and outcomes.

Allen (2015) identified factors that were considered by charge nurses when matching available RNs with unit patients, including patient demographics and acuity, nurse demographics and competencies, workload, work shift, and staffing levels. These factors were related to not only patient and nurse characteristics, but also aspects of the work environment. Of work environment factors, some factors (e.g., the type of unit, numbers of patients and RNs, shift rotation, or whether assignments are adjusted shift-to-shift based on changing acuity levels) could guide or constrain RN-to-patient assignment decisions, while other factors (e.g., RN workload and ability to have an

appropriate meal break) could be affected by RN-to-patient assignments. When considering such relationships, the RN-to-patient assignment might also be an important predictor of nurse working conditions (e.g., working hours or overtime and meal breaks) that were found to be associated with nurse outcomes (Kullberg, Bergenmar, & Sharp, 2016; Smith-Miller et al., 2014; Witkoski & Dickson, 2010). There is a need to better understand the RN-to-patient assignment in relation to nurse working conditions and outcomes.

To date, the majority of previous studies on patient assignment have been focused on the development of decision support models or tools for RN-to-patient assignment based on various methods, such as integer programming, stochastic programming, and Markov decision theory (Sir et al., 2015; Sundaramoorthi, Rosenberger, Chen, Buckley-Behan, & Kim, 2010; van Oostveen, Braaksma, & Vermeulen, 2014). Few efforts have been made to investigate the RN-to-patient assignment in nursing research, although optimizing the RN-to-patient assignment is assumed to be crucial to achieving fair and best patient care as well as psychological well-being of the nursing staff (Allen, 2015).

In this study, therefore, we explored the relationships of RN-to-patient assignment to nurse working conditions and outcomes in acute care hospitals in the United States. The purpose of the study was to compare nurse working conditions, including number of assigned patients, overtime, and meal/other breaks, as well as three outcomes (job satisfaction, intent to stay, and RN-rated quality of care) between RNs who reported their patient assignments as appropriate and inappropriate.

Methods

Data Source and Sample

This descriptive study was a secondary analysis using data from the 2012 National Database of Nursing Quality Indicators® (NDNQI®) RN Survey. The study was reviewed by the institutional review board at the University of Kansas Medical Center. The NDNQI RN Survey was conducted annually by using a secure web-based survey system in which data on nurse outcomes (e.g., job satisfaction and intent to stay), working conditions (e.g., shift works, breaks, floating, and overtime), and individual RN characteristics (e.g., age, education, and tenure) were collected from RNs working in voluntarily participating NDNQI member hospitals. Only RNs who had a minimum of 3 months' employment on the current unit and spent at least 50% of

their time providing direct patient care were eligible to participate.

In 2012, over 327,000 RNs in 927 hospitals participated in the survey, with a response rate of 71.5%. For this study, we limited the sample to RNs working in a staff nurse or charge nurse role in critical care, step-down, medical, surgical, or combined medical-surgical units. The final analytical sample comprised 106,439 RNs in 751 U.S. acute care hospitals.

Variables

RN-to-patient assignment

RNs were asked to rate their patient assignment on the last shift they worked as appropriate or not appropriate using a single item: "My patient care assignment was appropriate, considering both the number of patients and the care they required." The item was scored using a 6-point Likert-type scale, ranging from strongly disagrees to strongly agree. For this study, responses were dichotomized, allowing the identification of two groups, RNs who rated their patient assignment as appropriate and those who rated their patient assignment as inappropriate.

Work conditions

Several work conditions were included in this study, such as number of assigned patients, meal breaks and other breaks, shift, floating, and overtime. In the NDNQI RN Survey, RNs were asked for the maximum number of patients assigned at any one time during the last shift they worked. Two items about meal breaks were modified and used with the permission of Dr. Rogers (Rogers, Hwang, & Scott, 2004). RNs were asked for the total duration of their meal break, with response options rating from did not have a break, ≤ 5 min, 6 min, followed by single-minute increments to a maximum of 75 min, and finally >75 min. RNs also were asked to select the most appropriate description of their meal break from the following options: "I was not able to sit down for a break during my shift," "I was able to sit down but was not free of patient responsibilities," and "I was able to sit down and was completely free of patient responsibilities."

For this study, a three-categorical variable was created based on RN responses to both items: no break, partial meal break, and complete meal break. A complete meal break is defined as a minimum of a 30-min meal break fully relieved of job responsibilities (Rogers et al., 2004). RNs who indicated they had no meal break were included in the "no break" category. RNs who had a minimum of a 30-min meal break and reported being able to sit down completely free of

patient responsibilities were included in the "complete meal break" category, and all other responses were included in the "partial meal break" category. RNs were asked two similar questions about their other breaks. Their responses to both items were also recoded into the following three categories: no other break, partial other break, and complete other break. Complete other breaks were defined as a minimum of a 10-min break fully relieved of job responsibilities for every 4 hr of work (Rogers et al., 2004; U.S. Department of Labor: Wage and Hour Division, 2017).

The remaining work condition items were documented in reference to time frames relevant to the context of the item. RNs were asked their usual shift with the response options day shift, evening shift, night shift, and no usual shift. RNs were also asked to rate their level of influence over their work hours or schedule with a 5-point Likert type scale, ranging from *very little* to *very much*. In this study, this variable was recoded into a categorical variable (*little*, *moderate*, *much*). Other work context items asked if RNs worked extra hours or overtime, if their staffing levels were adjusted from shift to shift, and if they floated or worked on a different unit or work team in past 2 weeks. In this study, these items were dichotomized (*yes* or *no*).

Outcomes

Outcomes included job satisfaction, intent to stay, and RN-rated quality of care. Job satisfaction was measured using the NDNQI-adapted Job Enjoyment (JE) scale (Taunton et al., 2004). The JE scale consisted of 7 items with a 6-point Likert-type response option of strongly disagree to strongly agree. The possible scores ranged from 1 to 6, with a higher score reflecting a higher RN job satisfaction. Reliability and validity for the JE scale have been well established (Boyle, Miller, Gajewski, Hart, & Dunton, 2006; Choi & Boyle, 2013; Taunton et al., 2004). For the current sample, the Cronbach's α coefficient was .92, indicating high internal consistency reliability. Intent to stay was measured using a single item, "what are your job plans for the next year?" The six response options included "stay in my current position," "stay in direct patient care but in another unit in this hospital," "stay in direct patient care but outside this hospital," "leave direct patient care but stay in the nursing profession," "leave the nursing profession for another career," and "retire." In this study, the responses were combined into two categories (stay in my current position = yes, all others = no). RN-rated quality of care was also measured using a single item that asked RNs to rate the overall quality of nursing care delivered to

patients on their units. The item was scored with a 4-point Likert-type scale from poor to excellent.

Demographic variables

Demographic variables included in this study were age, gender, race/ethnicity (White/non-Hispanic, African American, Hispanic/Latino, and other), education level collapsed into associate/diploma degree and bachelor's degree or higher, employment status (full-time, part-time, and PRN or Per-Diem). Unit tenure was measured by the number of years the RN had been employed on

the current unit. In this study, unit tenure was recoded as a categorical variable (<1 year, 1–2 years, 3–5 years, and >5 years). Three hospital characteristics were included: hospital staffed bed size collapsed into <300 beds and ≥300 beds, teaching status collapsed into teaching hospital and nonteaching hospital, and Magnet status.

Analysis

Descriptive statistics were used to summarize sample characteristics and study variables, including working

Table 1. Sample Characteristics by Registered Nurse (RN) Perception of Patient Assignment

Characteristic	RN perception of patient assignment			t/χ^2	p
	Total sample ($N = 106,439$)	Appropriate ($n = 82,925$)	Inappropriate ($n = 23,514$)		
	n (%)				
Individual RN					
Age (years), mean (<i>SD</i>)	38.04 (11.17)	38.04 (11.21)	38.05 (11.03)	0.05	.957
Gender					
Male	10,514 (10.05)	8,557 (10.48)	1,957 (8.53)	75.15	<.001
Female	94,087 (89.95)	73,104 (89.52)	20,983 (91.47)		
Race/ethnicity					
White/non-Hispanic	71,018 (68.20)	55,245 (67.90)	15,773 (69.29)	19.35	<.001
African American	8,078 (7.76)	6,315 (7.76)	1,763 (7.74)		
Hispanic/Latino	4,441 (4.26)	3,501 (4.30)	940 (4.13)		
Other ^a	20,594 (19.78)	16,306 (20.04)	4,288 (18.84)		
Education level					
Associate/diploma	41,445 (39.11)	31,861 (38.56)	9,584 (41.04)	47.13	<.001
BSN or higher	64,537 (60.89)	50,769 (61.44)	13,768 (58.96)		
Role					
Staff nurse	89,628 (84.21)	69,386 (83.67)	20,242 (86.08)	21.18	<.001
Charge nurse	16,811 (15.79)	13,539 (16.33)	3,272 (13.92)		
Employment status					
Regular full-time	87,551 (82.78)	68,130 (82.62)	19,421 (83.34)	25.88	<.001
Regular part-time	14,010 (13.25)	10,922 (13.24)	3,088 (13.25)		
PRN or per-diem	4,206 (3.98)	3,413 (4.14)	793 (3.40)		
Unit tenure (years)					
<1	14,064 (13.90)	2,857 (12.97)	11,207 (14.16)	79.25	<.001
1–2	25,073 (24.78)	5,740 (26.05)	19,333 (24.42)		
3–5	27,177 (26.86)	6,219 (28.22)	20,958 (26.48)		
>5	34,878 (34.47)	7,220 (32.76)	27,658 (34.94)		
Hospital					
Staffed bed size					
<300 beds	44,869 (42.15)	34,606 (41.73)	10,263 (43.65)	27.54	<.001
≥300 beds	61,570 (57.85)	48,319 (58.27)	13,251 (56.35)		
Teaching status					
Teaching	64,973 (61.04)	50,859 (61.33)	14,114 (60.02)	13.17	<.001
Nonteaching	41,466 (38.96)	32,066 (38.67)	9,400 (39.98)		
Magnet status					
Magnet	51,926 (48.78)	41,421 (49.95)	10,505 (44.68)	203.98	<.001
Non-Magnet	54,513 (51.22)	41,504 (50.05)	13,009 (55.32)		

Note. There are some variations in the sample size due to missing data for individual RN characteristics. BSN, bachelor of science in nursing; PRN, as needed.

^aIncludes American Indian, Asian/Pacific Islander, and mixed.

conditions and outcomes (job satisfaction, intent to stay, and RN-rated quality of care). To compare the nurse working conditions and outcomes of the two groups of RNs (RNs who rated their patient assignments as appropriate and RNs who rated their patient assignments as inappropriate), the *t*-test for continuous variables and chi-square (χ^2) test for categorical variables were performed with Stata version 14 (StataCorp LP, College Station, TX, USA). Because data used for this study were collected from individual RNs each belonging to a specific unit, all analyses were adjusted for clustering of RNs within a unit using the "cldtest" Stata module that is a pair of programs for performing cluster-adjusted chi-square or *t* tests (Herrin, 2012).

Results

Table 1 presents sample characteristics for both RNs (age, gender, race or ethnicity, education level, role, employment status, and unit tenure) and hospitals (staffed bed size, teaching status, and Magnet status). The average age was 38 years, and the average tenure on the current unit was 5.8 years. The majority of RNs were female (90%), White or non-Hispanic (68%), staff nurses (84%), and regular full-time employees (83%), and held a bachelor's or higher degree in nursing (61%). Across all hospitals, 58% had 300 staffed beds or more, 61% were teaching hospitals, and 49% were Magnet hospitals.

In addition, 78% of RN respondents rated their patient assignments as appropriate. RNs who rated their assignments as appropriate were compared with those who rated their assignments as inappropriate (see Table 1). The two RN groups were significantly different in all RN characteristics except for age. The proportions of male RNs and RNs with a bachelor's or higher degree in nursing were slightly higher in the appropriate assignment RN group compared with those in the inappropriate assignment RN group. The proportions of RNs with less than 1 year of tenure and RNs with greater than 5 years of tenure were slightly lower in the appropriate assignment RN group than the counterparts in the inappropriate assignment RN group. With regard to hospital characteristics, the proportions of appropriate assignment RNs working in hospitals with more than 300 staffed beds, teaching hospitals, and Magnet hospitals were 58%, 61%, and 50%, respectively. These percentages of RNs were slightly higher compared with those rating their assignment as inappropriate.

As shown in Table 2, there were significant differences between the two RN groups in all working conditions examined. The appropriate assignment RNs had

Table 2. Differences in Working Conditions by Registered Nurse (RN) Perception of Patient Assignment (N = 106,439)

	Appropriate (n = 82,925)		Inappropriate (n = 23,514)			
	n (%)	n (%)	t/ χ^2	p		
Unit type						
Critical care	25,020 (30.17)	3,934 (16.73)	455.27	<.001		
Step-down	13,719 (16.56)	4,179 (17.77)				
Medical-surgical	44,176 (53.27)	15,401 (65.50)				
Usual shift						
Day shift	42,315 (51.49)	12,611 (54.58)	34.01	<.001		
Evening shift	4,378 (5.33)	1,269 (5.49)				
Night shift	30,777 (37.45)	7,736 (33.48)				
No usual shift	4,705 (5.73)	1,488 (6.44)				
No. of assigned patients, mean (SD)						
Critical care	2.13 (0.79)	2.47 (0.93)	10.03	<.001		
Step-down	4.15 (1.37)	4.55 (1.17)	5.06	<.001		
Medical-surgical	5.12 (1.39)	5.69 (1.50)	38.82	<.001		
Adjusted staffing levels shift to shift						
Yes	61,262 (75.01)	8,994 (38.93)	2832.85	<.001		
No	20,411 (24.99)	14,109 (61.07)				
Work extra hours or overtime						
Yes	52,931 (63.95)	15,468 (65.95)	8.43	<.001		
No	29,834 (36.05)	7,985 (34.05)				
Float or work on a different unit						
Yes	25,269 (30.53)	7,994 (34.10)	28.66	<.001		
No	57,504 (69.47)	15,452 (65.90)				
Influence over the work hours or schedule						
Little	12,177 (14.73)	5,788 (24.74)	511.82	<.001		
Moderate	27,922 (33.78)	8,884 (37.98)				
Much	42,553 (51.48)	8,722 (37.28)				
Meal break						
No meal break	4,748 (5.88)	3,524 (15.33)	1194.64	<.001		
Partial meal break	48,755 (60.34)	16,069 (69.92)				
Complete meal break	27,302 (33.79)	3,389 (14.75)				
Other break						
No other break	33,856 (41.46)	13,386 (57.77)	544.19	<.001		
Partial other break	44,540 (54.55)	9,416 (40.64)				
Complete other break	3,258 (3.99)	368 (1.59)				

Note. Medical-surgical units include medical units, surgical units, and combined medical-surgical units. There are some variations in the sample size due to missing data. All analyses were performed while adjusting data clustering. BSN, bachelor of science in nursing; PRN, as needed.

Table 3. Differences in Nurse Outcomes by Registered Nurse (RN) Perception of Patient Assignment (N = 106,439)

	Appropriate (n = 82,925)	Inappropriate (n = 23,514)		
	n (%)	n (%)	t/ χ^2	p
Job satisfaction, mean (SD)	3.94 (0.94)	2.98 (1.00)	-41.59	<.001
Intent to stay				
Yes	65,432 (79.23)	12,677 (54.41)	1536.61	<.001
No	17,155 (20.77)	10,620 (45.59)		
RN-rated quality of care				
Poor	203 (.25)	979 (4.17)	4001.83	<.001
Fair	3,696 (4.47)	5,667 (24.17)		
Good	34,761 (42.01)	11,950 (50.96)		
Excellent	44,092 (53.28)	4,855 (20.70)		

Note. Medical-surgical units include medical units, surgical units, and combined medical-surgical units. All analyses were performed while adjusting data clustering.

nearly twice the proportion of RNs who worked in critical care units as did the inappropriate assignment RNs. We compared the average numbers of assigned patients separately by unit type. As expected, RNs in both groups reported the lowest number of assigned patients in critical care units and the highest number in medical-surgical units. Also, appropriate assignment RNs reported lower numbers of assigned patients in all unit types than did the inappropriate assignment RNs. Higher proportions of appropriate assignment RNs reported that staffing levels on their units were adjusted shift to shift and they had much influence over their work hours or schedule, while a higher proportion of inappropriate assignment RNs worked extra hours and floated to work on a unit other than their own. Also, a higher proportion of appropriate assignment RNs reported having at least a 30-min meal break without patient responsibilities, while a higher proportion of inappropriate assignment RNs reported having no meal break or a partial meal break.

Table 3 presents results showing statistically significant differences in outcomes (job satisfaction, intent to stay, and RN-rated quality of care) between RNs who rated their assignments as appropriate and those who rated their assignments as inappropriate. Appropriate assignment RNs reported a higher level of job satisfaction. Higher proportions of appropriate assignment RNs than their counterparts reported that they were likely to stay on their current units and that the quality of care delivered to patients on their units was excellent.

Discussion

Using a large sample of RNs working in U.S. acute care hospitals, we investigated RNs' perceptions of their

patient assignments by comparing nurse working conditions and outcomes (job satisfaction, intent to stay, and RN-rated quality of care). In this study, RNs were asked to rate whether they felt their assignments were appropriate or not by considering not only the number of assigned patients, but also the care their patients needed.

The results showed that a majority of the RNs included in our study (78%) reported that their assignments were appropriate on the last shift that they worked. In a previous study, researchers identified factors that should be considered in the RN-to-patient assignment process, which included staffing levels, workload, patient demographics and acuity, nurse competencies and experience, and location (Allen, 2015). It is likely that taking all of these factors into account in order to make an adequate RN-to-patient assignment for each shift is not always practical. Considering such a complex RN-to-patient assignment process in the context of an actual nursing practice environment, our findings might be unexpected. One possible explanation is that higher nurse staffing levels could be essential to achieve a better RN-to-patient assignment (Allen, 2015). The overall positive perception of RN assignments reported here may be influenced by recent trends of steadily increased total nurse and RN staffing levels in U.S. acute hospitals, even with the 2007–2012 recession-related economic constraints (Staggs & He, 2013).

While this study found that a high percentage of sample RNs had appropriate patient assignments overall, we found significant differences in RNs' perceptions of their patient assignments between each of the three unit types (critical care, step-down, and medical-surgical units). RNs working in critical care units were more likely to report appropriate assignments, whereas RNs

working in medical-surgical units were more likely to report inappropriate assignments. This finding is aligned with those in previous studies using data from RNs in NDNQI hospitals, which found that RNs working in combined medical-surgical units reported the least favorable nursing practice environments and job satisfaction among unit types included in the study, such as critical care and step-down units (Boyle et al., 2006; Choi & Boyle, 2013, 2014). Further study is needed to explore relevant factors to improve the perceptions of patient assignments among RNs working in medical-surgical units. In these unit types, more importantly, unit managers or charge nurses need to pay more attention to the RN-to-patient assignment process and develop unit-specific guidelines to improve assignment decisions.

With regard to the number of assigned patients reported by participants in this study, the RN-reported numbers of assigned patients for each of three unit types were statistically different between RNs who rated their assignments as appropriate and those who rated their assignments as inappropriate, although the differences in those numbers were not substantial. For all three unit types, slightly higher average numbers of assigned patients were reported by RNs who rated their assignments as inappropriate compared with those who rated their assignments as appropriate. While the nurse-to-patient ratio is one of the integral factors used in making a fair RN-to-patient assignment (Allen, 2015), our finding provides empirical evidence that RNs' perceptions about the appropriateness of their patient assignments account for more than the number of assigned patients. To make a good RN-to-patient assignment, it should not be effective to focus only on nurse-to-patient ratio, but other aspects of the patient assignment in relation to care process, such as patient and nurse characteristics, should also be considered.

Our findings showed that RNs who rated their assignments as appropriate were more likely to report supportive working conditions, such as having influence over their work hours or schedule, staffing levels adjusted shift to shift as needs of patients change, as well as not working longer than scheduled hours or not floating to a different unit. Among various factors that should be considered to make an appropriate RN-to-patient assignment, the work environment factors, such as current nursing staff and collegiality among nursing staff, were found to be a key element in the RN-to-patient assignment process (Allen, 2015). In reality, however, nurse working conditions might not always be supportive in making a fair and effective RN-to-patient assignment to provide the best patient

care for each shift in each unit. In our study, moreover, charge nurses were found to be more likely to report that their RN-to-patient assignments were appropriate than were staff nurses. Thus, charge nurses might need to be more sensitive to feedback from staff nurses in the patient assignment decision-making process, as well as the development of supportive working conditions tailored to unit-specific situations.

We also found that a majority of the RNs included in our study had a partial or complete meal break during their shifts. Compared with findings from previous studies that hospital nurses were likely to skip their regular breaks or meal breaks to provide patient care because of heavy workloads and short-staffed conditions (Rogers et al., 2004), it appears that most RNs in our sample tended to have their meal breaks during their shifts regardless of the perceptions of their patient assignments. This may be due to increased nurse staffing levels and ongoing efforts to improve compliance with state meal and break regulations in U.S. acute hospital settings (Staggs & He, 2013; Stimpfel & Aiken, 2013). However, RNs who rated their assignments as inappropriate were significantly less likely to report that they had complete meal or other breaks than their counterparts. These findings indicate that making an RN-to-patient assignment might significantly affect the RN's workload during a given shift (Allen, 2015), which in turn is directly related to the RN's ability to have a valid meal or other breaks during the shift. There is great potential for facilitating the provision of adequate length and timing for meal or other breaks, as suggested in some state regulations (U.S. Department of Labor: Wage and Hour Division, 2017).

In addition to the relationship of patient assignment to perceived working conditions, our findings showed that the RN-to-patient assignment was significantly related to all three outcomes (job satisfaction, intent to stay, and RN-rated quality of care) examined in this study. Overall, RNs who rated their assignments as appropriate were more likely to be satisfied with their jobs, intend to stay on their current units, and deliver quality care to patients than those who rated their assignments as inappropriate. These findings provide empirical evidence that RN ratings of their patient assignment can be a strong contributor to positive nurse outcomes.

To enhance positive nursing work environments and outcomes, strategies to make a well-balanced and effective RN-to-patient assignment should be considered in unit nursing staffing plans that have focused primarily on nurse staffing levels and skill mix. With lack of a practical guideline for making a good RN-to-patient

assignment decision (Cathro, 2013), it would be a challenging task for charge nurses in most nursing units. Thus, efforts made by unit managers and/or charge nurses would be crucial in successfully developing unit-specific strategies regarding the RN-to-patient assignment.

Limitations

Although we used data from a large sample of RNs working in U.S. acute hospitals, our results could not be generalizable. The sample RNs included in our study were from the NDNQI hospitals that voluntarily participated in the annual NDNQI RN Survey, and were likely to be employed in large or teaching hospitals (Choi & Boyle, 2014). Moreover, we used a single item that asked RNs to rate the appropriateness of their patient assignments. To measure overall perceptions of patient assignments among RNs, however, the single item used in this study might be more acceptable than a multi-item scale that might not be able to include all aspects of adequate RN-to-patient assignments. Findings from a study on single-item indicators in nursing research demonstrated that a global single item was a reliable and valid measure when rating overall perception of the concept (Youngblut & Casper, 1993). Finally, it is noted that quality of care was also used a single-item measure from RNs' perspectives, which has been demonstrated to be a reliable and valid indicator of care quality (McHugh & Stimpfel, 2012).

Conclusions

Our study is among the first to explore the perceptions of RN-to-patient assignments and its relationships with nurse working conditions and outcomes (job satisfaction, intent to stay, and RN-rated quality of care). Findings indicate that RNs' perceptions of their patient assignments are significantly related to nurse working conditions and outcomes. More importantly, findings suggest that appropriate matching of RNs and patients should be tailored to particular unit situations and consider both quantity and quality of nurse staffing in relation to patient assignment. More research is needed to have a better insight into RN-to-patient assignment that could be a reliable indicator for quality nursing care as well as positive nurse working conditions.

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Clinical Resources

- American Nurses Association. Nurse staffing resources. <http://www.nursingworld.org/nursestaffing>
- Press Ganey. The National Database of Nursing Quality Indicators® (NDNQI®) RN Survey. <http://www.pressganey.com/solutions/clinical-quality/nursing-quality>

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