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Poor Work Environments and Nurse Inexperience Are Associated with Burnout, Job Dissatisfaction, and Quality Deficits in Japanese Hospitals

Abstract

Aims—To describe nurse burnout, job dissatisfaction, and quality of care in Japanese hospitals, and to determine how these outcomes are associated with work environment factors.

Background—Nurse burnout and job dissatisfaction are associated with poor nurse retention and uneven quality of care in other countries but comprehensive data have been lacking on Japan.

Design—Cross-sectional survey of 5,956 staff nurses on 302 units in 19 acute hospitals in Japan.

Methods—Nurses provided information about years of experience, completed the Maslach Burnout Inventory, and reported on resource adequacy and working relations with doctors using the Nursing Work Index-Revised.

Results—56% of nurses scored high on burnout, 60% were dissatisfied with their jobs, and 59% ranked quality of care as only fair or poor. About one-third had fewer than 4 years of experience, and more than two-thirds had less than 10. Only one in five nurses reported there were enough RNs to provide quality care and more than half reported that teamwork between nurses and physicians was lacking. The odds on high burnout, job dissatisfaction and poor-fair quality of care were twice as high in hospitals with 50% inexperienced nurses than with 20% inexperienced nurses, and 40% higher in hospitals where nurses had less satisfactory relations with physicians. Nurses in poorly staffed hospitals were 50% more likely to exhibit burnout, twice as likely to be dissatisfied, and 75% more likely to report poor or fair quality care than nurses in better staffed hospitals.

Conclusions—Improved nurse staffing and working relationships with physicians may reduce nurse burnout, job dissatisfaction, and low nurse-assessed quality of care.

Relevance to clinical practice—Staff nurses should engage supervisors and medical staff in discussions about retaining more experienced nurses at the bedside, implementing strategies to enhance clinical staffing, and identifying ways to improve nurse-physician working relations.

Keywords

Nursing Research; Burnout; Nursing Practice; Quality of Care

Nurse burnout and job dissatisfaction have received increasing attention because of the widespread shortage of nurses (WHO, 2006). Japan, like many other countries, is experiencing a shortage of nurses, yet there are some 500,000 inactive nurses (JNA, 2007). Gaining a better understanding of the possible explanations for nurse burnout and job dissatisfaction among hospital nurses could help identify promising strategies for improving retention of nurses in hospital practice and possibly attracting back some of the inactive nurses. The aims of this paper are 1) to describe staff nurse burnout, job dissatisfaction, and nurses' assessments of quality of care in Japanese hospitals; and 2) to identify factors in the hospital work environment associated with these negative outcomes.

BACKGROUND AND SIGNIFICANCE

The concept of burnout was first introduced by Freudenberger (1974) to describe a state of fatigue and frustration among human service professionals. Empirical research on burnout was first reported in the early 1980s (Maslach & Jackson, 1981; Iwanicki & Schwab, 1981; Maslach, 1982). The International Hospital Outcomes Study (IHOS) determined in an initial group of five countries (U.S., Canada, England, Scotland, and Germany) that nurse burnout and job dissatisfaction was common among nurses working in direct care in hospitals (Aiken, Clarke, Sloane et al, 2001). Nurse burnout in these countries (Aiken, Clarke, Sloane, 2002), and in other studies (Aiken and Sloane, 1997; Leiter & Laschinger, 2006), has been found to be associated with the deficiencies in the quality of the nurse practice environment including the inadequate nurse staffing. For example, Aiken, Clarke, Sloane et al (2002) reported in a study of nurses in U.S. hospitals that each additional patient added to the average work load of a nurse was associated with a 23% increase in the odds of high nurse burnout and a 15% increase in the likelihood of job dissatisfaction.

Nurse burnout has been associated with cost containment strategies that lead to shortened length of stay for patients and greater intensity of nursing care. Among the initial group of countries studied in the IHOS, Germany had significantly lower nurse burnout, job dissatisfaction, and intent to leave as well as significantly longer average length of stay in hospitals than the other countries (Aiken, Clarke, Sloane et al., 2001). Investigators speculated that deficiencies in the work environment of hospital nurses were exaggerated in contexts where the average length of stay was short thus offering a possible explanation for high burnout rates in North America and relatively low burnout rates among German hospital nurses.

Nurse burnout is of interest in Japan because of its nursing shortage and also because it is a country with long average length of hospital stay in comparison to North America and some European countries. Additionally, the majority of the hospitals in Japan require nurses to work three rotating 8 hour shifts, and the work week can extend to 5.5 days week. Rotating night and day shifts is a difficult physiological accommodation that results in fatigue, and makes personal and family arrangements difficult which could be a source of stress and associated fatigue (Rogers et al., 2004). Additionally, part-time work is uncommon in Japan. Previous research on nurse burnout in Japan suggests an association between higher nurse burnout and nurses' perceptions of inadequate staffing (Shirai, Nimura, Abe, et al, 2002) and longer hours worked (Sato & Amano, 2000). A related single site study in Japan reported that high demands and responsibilities were the greatest stressors for nurses (Matsumoto, Ikeda, & Mori, 20001).

This paper examines the extent of emotional exhaustion and associated job dissatisfaction and nurse ratings of poorer quality of care in a sample of Japanese hospitals. Additionally we explore the factors that are strongly related to these poor outcomes.

METHODS

Study design

The study utilized cross-sectional survey data collected from nurses who provided direct patient care in 19 Japanese hospitals. The survey instrument was adapted from the broader instrument used in the International Hospital Outcomes Study (Aiken, Clarke, Sloane, 2002). Respondents provided limited information on their demographic characteristics (including their age and experience), detailed information on their work environments, and additional information related to their level of burnout, job satisfaction, and the quality of care provided on their unit. In the multivariate analyses reported at the end of the results section below, our primary interest is in how nurse inexperience and the nurse work environment, measured at the hospital level,

affect the burnout and dissatisfaction of nurses and the quality of care they report to be present on their unit.

Hospital sample—The hospital sample is a convenience sample of acute care hospitals. Nineteen hospital Directors of Nursing were asked to permit the study to take place in their institutions and all gave their permission. Fifteen of the 19 hospitals were university hospitals. The majority of the participating hospitals were located in the Kanto area, though the sample also included hospitals from Hokkaido, Kyushu, and west Japan.

Nurse sample—The Directors of Nursing selected the specific units within their hospital to participate, excluding obstetrics and psychiatry. All staff nurses working in the designated units were invited to participate. Questionnaires were distributed to staff nurses at each participating unit with a cover letter explaining the study and assuring their anonymity. Nurses completed the questionnaires in private and returned their completed questionnaires in sealed envelopes to a designated box in their unit. The survey questionnaires were distributed to 7,098 nurses working in 302 different units in the 19 acute care hospitals, and 5,956 nurses completed and returned the questionnaires, for an 84 percent response rate. The data were collected from March 2005 to October 2005. This study was approved by the Institutional Review Board (IRB) at Tokyo Women's Medical University.

Measures—The questionnaires requested demographic information from each nurse, including their age and years of experience, and included measures of job-related burnout, job satisfaction, quality of care, and the nurse work environment. The original International Hospital Outcomes Study questionnaires were translated from English into Japanese and were then back translated by a different person into English. There were no significant differences between the two versions.

Burnout, Satisfaction, and Quality of Care: Burnout was measured using the Emotional Exhaustion Scale of the Maslach Burnout Inventory (MBI), a standardized instrument with published norms for medical personnel that has been used previously in international research (Maslach, 1982). The emotional exhaustion subscale of the MBI is a summated scale comprised of 9 items that previous research has shown to be closely related to nurse and patient outcomes (Aiken, Clarke, Sloane et al., 2002). Nurse respondents indicated, for each of the items (e.g. 'I feel emotionally drained by my work'), how frequently they experienced the feelings in question. Each item was scored from 0 (for "Never") to 6 (for "every day") and scores were summed across the 9 items. According to norms published in the manual, scores of 27 and above on the scale are considered "high burnout" for medical personnel. Maslach does not recommend that the 3 subscales of the MBI be combined. While 19 hospitals is a large study, a sample size of 19 does not permit us the degrees of freedom in a predictive model to include all three along with the other variables of interest. We chose emotional exhaustion because it most reflects the nature of the phenomenon we want to study and because many studies including our have found the emotional exhaustion subscale to have the best psychometric properties and be the best predictor (Aiken and Sloane, 1997).

Nursing Work Index-Revised—The Nursing Work Index-Revised (Aiken and Patrician, 2000; Lake, 2002) asks nurses to rate the extent to which a set of 49 organizational attributes are present in their current job. While there are 3 subscales in the NWI-R and 5 in the related Practice Environment Scale of the Nursing Work Index (Lake, 2002), the size of our sample of hospitals (n=19) makes it impossible to include them all in a single predictive model because there are not sufficient degrees of freedom, as noted above with burnout. In the past, we have used a composite index of NWI-R items to solve this analytic challenge (Aiken, et al., 2008). We chose not to use that method here because the composite index is less "actionable" in terms

of implications for practice in that nurses and managers do not know what to concentrate on if they choose to make changes. Instead we used the NWI-R subscales that exhibited the greatest variability across hospitals and seemed most likely to be related to the nurse outcomes of interest to us; namely: staffing-resource adequacy (4 items) and nurse-physician relations (3 items). The nurse respondents were asked to indicate on a 4-point Likert scale (strongly agree, agree, disagree, and strongly disagree) whether these attributes were present in their work environments. Details on item wordings and nurse responses are shown in the results below.

RESULTS

Table 1 provides information on the age and experience of the nurses in our sample, as well as their level of burnout, measured with MBI emotional exhaustion scale, and job satisfaction and the quality of care they report on their unit. The nurses in these hospitals tend to be young and inexperienced. Thirty percent of the nurses are under the age of 25, and nearly two-thirds of them are under the age of 30. One-third of the nurses have less than 4 years of experience working as a nurse, and more than 70 percent of the nurses have less than 10 years of experience. In spite of their youth, levels of burnout are quite high, and 56 percent of the nurses have emotional exhaustion subscale scores that exceed the normal level for health care workers. Job dissatisfaction is also high, with 6 in 10 of the nurses in these Japanese hospitals expressing dissatisfaction with their jobs. Similarly, 59% report that the quality of care being provided on their unit is only fair or poor.

Table 2 provides information related to the two work environments subscales involving staffing-resource adequacy and nurse-physician relations, and shows the percentage of nurses who indicated that the organizational attributes comprising each subscale were present in their jobs. With respect to staffing-resource adequacy, fewer than 1 in 5 nurses in these Japanese hospitals indicated that there were enough nurses on staff to provide quality patient care, and to get the work done; and fewer than 4 in 10 indicated that there were adequate support services to allow them to spend time with their patients and enough time and opportunity to discuss patient care problems with other nurses. With respect to nurse-physician relations, only slightly more than 4 in 10 nurses reported that there was a lot of teamwork between nurses and physicians, and just under two thirds reported that physicians and nurses have good working relationships and that there is collaboration or joint practice between nurses and physicians.

As noted in the Study Design section above, our principal interest involves the extent to which nurse inexperience and the nurse work environment, measured at the hospital level, affect nurse burnout, nurse job dissatisfaction and, ultimately, the quality of care that nurses report to be present on their unit. To determine this, we aggregate individual nurse responses to the hospital level to obtain the percentage of inexperienced nurses in each hospital and overall averages or hospital-level measures of the levels of staffing-resource adequacy and nurse-physician relations. These are given in Table 3, where we can see that, on average, Japanese hospitals have a nursing staff in which 32% of nurses have less than 4 years experience, and across hospitals the percent of inexperienced nurses ranges from 13% to 54%. The average staffing-resource adequacy and nurse-physician relations scores are not amenable to the same simple interpretation, but it should be noted that, as we have constructed them, higher scores represented poorer staffing and poorer relations, and the range in these score across hospitals involves 2 points (or units) in the case of the first measure, and just over 1 point (or unit) in the case of the second.

Table 4 shows the results of estimating unadjusted (or bivariate) and adjusted (or multivariate) logistic regression models to determine the gross and net effects of nurse inexperience, staffing-resource adequacy, and nurse-physician relations on the likelihood of high nurse burnout, job

dissatisfaction, and reporting only poor or fair quality of care (as opposed to good or excellent). All of the coefficients in the table are odds ratios, which tell us how much each 10% increase in inexperienced nurses and each unit decrease in staffing-resource adequacy and nurse-physician relations increases the odds on nurses exhibiting high nurse burnout and job dissatisfaction and the odds of their reporting only poor or fair quality of care.

The unadjusted effects of nurse inexperience and staffing-resource adequacy are significant on all three outcomes at the .05 level, while the unadjusted effect of nurse-physician relations is not significant on any of the outcomes. More importantly, however, when all of the factors are considered simultaneously in a multivariate or adjusted model, all of them are significant, in most cases at the .05 and in all cases at the .10 level. Each 10 percent increase in inexperienced nurses increases the odds on burnout, job dissatisfaction, and reporting only poor or fair quality care, in all cases by a factor of roughly 1.24.

Recognizing that these odds ratios are multiplicative coefficients and that the range in inexperience nurses involves a 40% difference from the highest to the lowest hospitals, this implies that the odds on high burnout, job dissatisfaction and poor-fair quality of care would be twice as high in a hospital with 50% inexperienced nurses than one with 20% inexperience nurses, or greater by a factor of $1.24 \times 1.24 \times 1.24 = 1.9$. The effects of a one unit decrease in staffing resource adequacy and in nurse-physician relations are also sizable, with odds ratios ranging from roughly 1.2 to 1.4 across the different outcomes. Because the difference in nurse-physician relations scores across hospitals is only slightly larger than 1 ($8.0 - 6.8 = 1.2$, from Table 3), the adjusted odds ratios of roughly 1.4 estimating the effect of that factor on the three outcomes tells us rather directly how much the best and worst hospitals differ with respect to nurse-physician relations, even after taking account of the other factors (i.e., the former have higher odds on each outcome, by a factor of 1.4, or by 40%). Hospitals range across 2 units on staffing-resource adequacy, however, so nurses in the worst staffed hospitals are about 50% more likely to be burned out ($1.22 \times 1.22 = 1.48$), about twice as likely to be dissatisfied ($1.44 \times 1.44 = 2.07$), and about 75% more likely to report poor or fair quality care ($1.32 \times 1.32 = 1.74$) as nurses in best staffed hospitals.

CONCLUSIONS

The Japanese nurses practicing in the participating hospitals and surveyed for this report were predominately young (6 in 10 were under 30) and inexperienced (7 in 10 had been working as a nurse for less than 10 years, and 1 in 3 had worked for less than 4 years), sizable percentages of them scored high on emotional exhaustion (56%), job dissatisfaction (60%), and reported that the quality of care in their hospitals was poor or only fair (59%). Our results suggest that individual nurse burnout and dissatisfaction and poorer quality of care are associated with workplaces that have larger percentages of inexperienced nurses. That is, being inexperienced oneself is exaggerated in environments where the majority of your co-workers are also inexperienced.

Japanese nurses participating in this study do not rate the quality of their work environment very favorably. As noted above, most report that staffing resources are inadequate to provide care of high quality and collaborative relationships with physicians are lacking in many hospitals. We have demonstrated that inadequate staffing and relationships with physicians are significantly associated with burnout, as measured by emotional exhaustion, and dissatisfaction, both precursors to voluntary resignations. These factors are also associated with nurses' tendency to rate the quality of care only fair or poor in Japanese hospitals.

Moreover, and of equal or greater importance, each of these outcomes are strongly affected by the work environment experienced by nurses in their hospitals. Hospitals with poorer staffing,

less adequate resources and less favorable relations, communication and teamwork between physicians and nurses are more apt to be beset with higher levels of burnout and dissatisfaction and poorer quality patient care.

IMPLICATIONS FOR PRACTICE

The high rate of nurse inexperience in Japanese hospitals suggests a failure to retain experienced nurses. Benner (1984) in her classic book *From Novice to Expert* provides a compelling case for why the presence of expert, experienced nurses are necessary to help new nurses progress through the learning stages to becoming expert, and why expert nurses are essential to care of high quality. The individual items in the NWI-R collected in this study are very revealing and will be the topic of another paper. However one item is worth noting: only 27% of Japanese staff nurses agreed with the statement “Flexible or modified work schedules are available in my unit”. This finding in the context of reports that shift rotations and full time work are required in all Japanese hospitals suggest that it might be possible to retain experienced nurses in bedside practice if staff nurses had a wider range of scheduling options including part time work. Features common to Magnet hospitals that help them retain the most highly qualified and experienced nurses include decentralized decision making to the unit level and self scheduling opportunities that involve all the nurses on a given unit agreeing to adapt to each others’ working hour preferences (McClure and Hinshaw, 2002).

There is evidence from abroad in the evaluation of Magnet Hospitals that these factors can be modified by a targeted collaboration between top hospital management, senior physicians, and nurses (McClure and Hinshaw, 2002). Magnet hospitals have implemented a set of evidence-based guidelines to improve the quality of the nurse work environment with substantial success in reducing nurse burnout, job dissatisfaction, and improving nurses’ assessments of quality of care (Aiken, 2002; Lake and Friese, 2006).

This paper points to the importance of major reform of the nurse work environment in Japanese hospitals to reduce nurse burnout and dissatisfaction, to improve the retention of qualified nurses, and to improve quality of care. Clinical nurses can lead these reforms by presenting evidence from this research and the very large literature on the benefits to staff, patients, and the financial health of hospitals of reforming the nurse work environment (IOM, 2004).

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Table 1
 Characteristics of the Nurse Sample, and Nurse Reports of Quality of Care

Characteristic	Percent	Number
Age		
<25	30	1787
25-29	32	1929
30-39	24	1442
40+	10	601
Missing	3	197
Total	100	5956
Experience		
<4	33	1932
4-9	38	2236
10-19	18	1061
20+	8	463
Missing	4	264
Total	100	5956
Burnout		
High Burnout	56	3233
Normal Burnout or Below	41	2417
Missing	4	216
Total	101	5956
Job Satisfaction		
Dissatisfied	60	3550
Satisfied	40	2359
Missing	1	47
Total	101	5956
Quality of Care		
Poor or Fair	59	3530
Good or Excellent	40	2363
Excellent	1	63
Total	100	5956

Table 2

Items Related to the Staffing-Resource Adequacy and Nurse-Physician Relations Subscales, and the Percent of Nurses That Agree That They Are Present in Their Jobs (N=5,956)

Staffing-Resource Adequacy	Percent Agreeing
Enough registered nurses on staff to provide quality patient care	17.7
Enough staff to get the work done	19.9
Adequate support services allow me to spend time with my patients	38.9
Enough time and opportunity to discuss patient care problems with other nurses	38.9
Nurse-Physician Relations	
A lot of teamwork between nurses and physicians	42.7
Physicians and nurses have good working relationships	62.6
Collaboration (joint practice) between nurses and physicians.	66.2

Table 3

Nurse Experience, Staffing-Resource Adequacy, Nurse-Physician Relations Across Hospitals (N=19)

Hospital Level Measure of -	Mean	Standard Deviation	Range (Low – High)
Percentage of Inexperienced Nurses	31.9%	12.3%	13.4% – 54.2%
Staffing-Resource Adequacy	11.6	0.5	10.8 – 12.8
Nurse-Physician Relations	7.4	0.4	6.8 – 8.0

Table 4
 Unadjusted and Adjusted Effects of Inexperienced Nurses, Staffing-Resource Adequacy, and Nurse-Physician Relations on Burnout, Job Dissatisfaction, and Quality of Care

Factor	Model	Outcome		
		Burnout	Job Dissatisfaction	Poor or Fair Quality of Care
10% Increase in Inexperienced Nurses	Unadjusted	1.20**	1.20**	1.19**
	Adjusted	1.24**	1.24**	1.23**
One unit Decrease in Staffing-Resource Adequacy	Unadjusted	1.33**	1.59**	1.45**
	Adjusted	1.22**	1.44**	1.32*
One unit Decrease in Nurse-Physician Relations	Unadjusted	1.20	1.31	1.29
	Adjusted	1.35**	1.39**	1.40*

Note: Single asterisks denote odds ratios which are significant at the .10 level. Double asterisks denote odds ratios which are significant at the .05 level.