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Résumé

Relations infirmière-médecin et qualité des soins : constats découlant d'une enquête nationale auprès des infirmières

Chris Kenaszchuk, Kathryn Wilkins, Scott Reeves, Merrick Zwarenstein, Ann Russell

L'article s'intéresse au rapport entre les relations professionnelles infirmière-médecin et l'évaluation par les infirmières des soins que prodigue l'équipe des soins infirmiers. Le projet se fonde sur un échantillon représentatif d'infirmières autorisées travaillant dans des hôpitaux au Canada. On a eu recours à une analyse de régression logistique multiple pour examiner le lien entre les interactions interprofessionnelles et les rapports des infirmières concernant une prestation moyenne ou médiocre des soins par l'équipe pendant le dernier quart de travail effectué. On a constaté un lien significatif entre la qualité des relations infirmière-médecin et la qualité des soins prodigués par l'équipe d'infirmières, après avoir neutralisé les autres facteurs potentiels. Ces facteurs, qui ont tous une incidence sur la qualité des soins, comprennent : un faible degré de collaboration entre infirmières, l'insatisfaction au travail et un mauvais état de santé signalé par les intéressées. L'analyse met en lumière le rôle important que jouent les relations interprofessionnelles dans l'évaluation par les infirmières de la qualité des soins dans les hôpitaux canadiens.

Mots clés : relations interprofessionnelles, qualité des soins, relations infirmière-médecin

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Nurse-Physician Relations and Quality of Nursing Care: Findings From a National Survey of Nurses

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This article investigates the association between nurse-physician working relations and nurse-rated quality of nursing team care. The analysis is based on a nationally representative sample of registered nurses working in Canadian hospitals. Multiple logistic regression was used to examine the association between the quality of nurse-physician working relations and nurses' reports of fair or poor nursing team care on the last shift worked. Unfavourable quality of nurse-physician working relations was significantly related to lower quality of nursing team care, controlling for other potential influences. These influences included low nurse co-worker support, job dissatisfaction, and self-rated poor general health, each of which was also related to lower care quality. The analysis highlights the importance of interprofessional working relations to nurse-perceived quality of patient care in Canadian hospitals.

Keywords: nurse relationships/professional issues, interprofessional care, nursing roles, care delivery, quality of patient care, nurse-physician collaboration, National Survey of the Work and Health of Nurses

Introduction

The Institute of Medicine's (2001) finding of "abundant evidence of poor quality" health care (p. 226) and the recent nursing shortage have motivated re-examinations of health-care quality. Novel approaches to nursing quality-of-care measurement are emerging, including at least one psychometric survey instrument (Lynn, McMillen, & Sidani, 2007) and the National Database of Nursing Quality Indicators (Gallagher & Rowell, 2003). In spite of these efforts, a gap still exists, because until recently nurses' views on quality of care have largely been missing.

A relatively new source of survey data on nursing care quality is a self-perceived evaluation scale that uses qualitative, ordered-categorical rating scales. Results from several surveys have been reported, and the majority view of nurses has been that the quality of care on their units and wards is frequently good, very good, or excellent (American Nurses Association, 2005; Gunnarsdóttir, Clarke, Rafferty, & Nutbeam, 2007; Rafferty, Ball, & Aiken, 2001; Rafferty et al., 2007; Shindul-Rothschild,

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Long-Middleton, & Berry, 1997; Ulrich, Buerhaus, Donelan, Norman, & Dittus, 2005; Van Bogaert, Clarke, Vermeyen, Meulemans, & Van de Heyning, 2009; West, Barron, & Reeves, 2005). For example, the American Nurses Association (2005) reports that the 76,000 nurse respondents to its RN Satisfaction Report typically rated the quality of care provided on their unit as good to excellent. In every survey, however, a sizeable number of respondents have judged some aspects of quality of care to be at the lower end of these scales. For instance, data from the *American Journal of Nursing*'s 1996 Patient Care Survey (Shindul-Rothschild et al., 1997) showed that 14% of nurses rated quality of care as poor or very poor. Data from the International Hospital Outcomes Study (Rafferty et al., 2001) showed that quality of care was judged as fair or poor by between 10% and 20% of nurses. Recent studies from European nations report nurse-assessed rates of fair or poor care quality of 5.8% (Gunnarsdóttir et al., 2007), 16.0% (Rafferty et al., 2007), and 29.0% (Van Bogaert et al., 2009). We believe there is cause for concern when nurses are unable to reach unanimity on whether care quality is very good or excellent as opposed to fair or poor.

Studies of the nursing work environment (e.g., Aiken & Patrician, 2000; Lake, 2002) — stemming in part from the nursing shortage — have dominated recent nursing research. Much empirical work has attempted to identify the impact of the nursing work environment on nurses' job satisfaction and implications for quality of nursing care. The objective of this article is to examine the association between an important aspect of the nursing work environment — nurses' self-reported working relations with physicians — and nurse-reported quality of nursing team care. We use recent data from a nationally representative survey of Canadian nurses.

Literature Review

Physicians and nurses frequently have difficulty working together, partly because the power relationship between the professions has not been symmetrical (Becker, Geer, Hughes, & Strauss, 1961; Reeves, Nelson, & Zwarenstein, 2008; Stein, 1967). Medical knowledge and authority have been found to dominate clinical decision-making over nursing knowledge, with a result that — from the nursing perspective — the nursing role becomes under-valued (Coombs & Ersser, 2004).

Observational evidence has linked nurse-physician relations with patient outcomes. Nurse perceptions of good nurse-physician collaboration were correlated with reduced mortality risk and readmission to intensive care units (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992). Several reports have linked favourable nurse-physician relations with

higher nurse-perceived quality of care among, for example, oncology nurses (Friese, 2005), US magnet hospital nurses (Kramer & Schmalenberg, 2003, 2005), UK nurses participating in the International Hospital Outcomes Study (Rafferty et al., 2001), and Icelandic (Gunnarsdóttir et al., 2007) and Belgian (Van Bogaert et al., 2009) nurses. In a study involving intensive care nurses, quality of nurse-physician communication was related to the perceived frequency of medication errors as reported by nurses, but was not related to reports of ventilator-associated pneumonia or catheter-related sepsis (Manojlovich & DeCicco, 2007).

This article contributes to the body of evidence on nurse-physician relations and quality of nursing team care. First, it enlarges the time periods covered by most research to date — the magnet hospitals studies (the 1980s) and the International Hospital Outcomes Study (IHOS; 1998–99). It expands the investigation into the current decade, through 2005, to supplement other reports (Gunnarsdóttir et al., 2007; Van Bongaert et al., 2009). Second, we extend results on perceived quality of nursing team care in Canada to a nationally representative sample of nurses; previous Canadian results associated with the IHOS were based on samples of hospital nurses from three targeted provinces (Sochalski & Aiken, 1999). Third, the article estimates the specific association between nurse-physician relations and nurse-reported quality of nursing team care, while controlling for potential confounders. This is important because only a few investigations have subjected the nurse-physician relations construct to explanatory challenges in a multiple regression framework (e.g., Gunnarsdóttir et al., 2007; Van Bogaert et al., 2009). These investigations found some associations between facets of the nursing work environment and perceived quality of nursing care to be statistically significant and others not. Nurse-physician relations were significantly associated with nurse-rated quality of patient care in both, however.

Two other reports include nurse-physician relations as predictors of nurse-assessed care quality (Aiken, Clarke, & Sloane, 2002; Laschinger, Shamian, & Thomson, 2001). Both report statistically significant mediated or direct relationships in expected directions between nurse-physician relations and nursing care quality. The difficulty with these studies, however, is that the measure of nurse-physician relations was aggregated into higher-order constructs of "organizational characteristics" and "organizational supports." The coefficients reported by these studies are not purely estimates of the effects of nurse-physician relations; rather, they are estimates of the effects of an amalgam of multiple indicators of the nursing work environment, and they do not disentangle specific effects of nurse-physician relations on nurse-reported care quality from effects of other nursing work environment factors. In the report by Laschinger

et al. (2001), it is difficult to discern whether the multiple indicators of organizational characteristics are formulated as the measurement side of the structural equation model or are constructs calculated in some other way.

Past reports suggest the existence of a constellation of nursing practice factors and related individual outcomes. These relationships are correlational and have been tested as directional associations flowing from nursing work environment factors such as nurse-physician collaboration to negative outcomes, including job dissatisfaction, job stress, and low reported quality of care. Hence, investigations of perceived nursing care quality likely can be focused and expanded to good effect: focused around effects of nurse-physician relations and expanded to include effects of explanatory variables that have heretofore been viewed as endogenous to the nursing work environment. This article reconceives these associations by casting several nurses' outcomes as explanatory factors for perceived quality of nursing care and pits them against one another in a logistic regression model.

Methods

Design and Data Source

The 2005 National Survey of the Work and Health of Nurses (NSWHN) was conducted by Statistics Canada in collaboration with the Canadian Institute for Health Information and Health Canada (Shields & Wilkins, 2006). This was a nationally representative survey that collected cross-sectional information from regulated nurses in Canada. It included questions on nurses' physical and mental health, job functions, work environments, and perceived quality of care given to patients.

The NSWHN sample was drawn using a stratified design to ensure adequate sample sizes for each of the 10 Canadian provinces and the combined northern territories and for each of three types of nurses. For the defined strata, the sample was selected at random from membership lists provided to Statistics Canada by the 26 provincial and territorial nursing organizations and regulating bodies representing all registered nurses (RNs), licensed practical nurses, and registered psychiatric nurses in Canada. Data collection took place between October 2005 and January 2006. The survey was administered by telephone; the duration of a typical interview was 30 minutes. Of the 24,443 nurses initially selected for the sample, 21,307 were successfully contacted; of these, 1,015 (4.8%) were not employed in nursing at the time of the survey and were deemed out of scope and another 1,616 (7.6%) declined to participate. Complete responses were obtained from 18,676 of the 23,428 sample members who were within scope (79.8%). To compensate for differences

in the probability of inclusion in the sample as well as for non-response, weights developed for the NSWHN by Statistics Canada were applied to the data. Thus each nurse in the sample "represents" a certain number of nurses not in the sample as well as herself or himself, and weighted estimates are then representative of the population of Canadian nurses. The weighting procedures used for the NSWHN were similar to those used for the Labour Force Survey (Statistics Canada, 2008). To limit heterogeneity of influences on nurse-physician relations, the analysis is based on weighted data from the 4,379 RN respondents who were employed in hospitals and giving direct patient care at the time of the survey.

Outcome Measure: Quality of Nursing Team Care

The survey question was, "Overall, how would you describe the quality of nursing care delivered by your nursing team during your last shift?" Response options were *excellent, good, fair,* and *poor.* Responses were aggregated into two categories for the analysis by combining *excellent* and *good* responses into one category and *fair* and *poor* into another. We modelled the fair/poor combination as the outcome event.

Nurse-Physician Relations Predictor Variable

Nurses' working relations with physicians were measured with the nurse-physician relations subscale items of the Revised Nursing Work Index (NWI-R) (Aiken & Patrician, 2000). In the NSWHN data, Cronbach's coefficient alpha for the nurse-physician relations subscale was 0.82; this is consistent with alpha coefficients reported previously (Aiken & Patrician, 2000; Lake, 2002; Li et al., 2007). Nurse respondents reported the degree to which they agreed with three statements: (1) physicians and nurses have good working relations, (2) there is a lot of team work between nurses and physicians, and (3) there is collaboration between nurses and physicians. Judgements were made on a four-point ordered scale: *strongly agree, somewhat agree, somewhat disagree,* and *strongly disagree.* Numeric values between 0 and 3 were assigned to the categories such that higher numeric scores would correspond with qualitatively poorer working relations. Values were summed on the three questions; sum scores could range between 0 and 9. For bivariate analysis, the weighted distribution of scores was divided into quartiles; the lower three quartiles were combined into one group and the highest quartile into another. In regression analysis, the variable was used as a continuous variable.

Control Variables

Job dissatisfaction and low co-worker support were included as covariates. *Job dissatisfaction* was coded as present if a respondent answered *somewhat* or *very dissatisfied* to the question, "On the whole, how satisfied are

you with this job?" Two survey items that tapped *low co-worker support* were, "You were exposed to hostility or conflict from the people you work with" and "The people you work with were helpful in getting the job done." Identical Likert-type response options were available for both items: *strongly agree, agree, neither agree nor disagree, disagree,* and *strongly disagree.* Low co-worker support was defined as a response of either *strongly agree* or *agree* to the first item or *strongly disagree* or *disagree* to the second item.

Three other covariates were retained in the final regression model. Nurses were asked about their overall level of *general health*. Two groups were formed from five ordered categorical response options. The reference group included respondents reporting *excellent, very good,* or *good*. The effect group included those answering *fair* or *poor.* Variables for *clinical work area (medical/surgical, critical, ambulatory, other)* and years of *nursing experience* (a continuous quantitative variable) were also retained.

Statistical Analysis

Frequencies and cross-tabulations were used to produce descriptive statistics and to examine associations between fair or poor quality of nursing team care, nurse-physician working relations, and covariates. Multiple logistic regression was used to estimate the impact of nurse-physician working relations on quality of nursing team care while controlling for individual characteristics and conditions of the nursing practice setting described above. To account for stratification in the NSWHN design, the bootstrap method was used to produce coefficient estimates, standard errors, odds ratios, and confidence intervals (Kleim & Bélanger, 2007; Rust & Rao, 1996).

Selection of covariates investigated for inclusion in the model was guided by the literature review, examination of bivariate relationships, and a method of regression model-building known as "best subsets." This entailed fitting all regression models possible with the variable pool and then selecting candidate models with assistance from statistical tests and stopping criteria (Hosmer & Lemeshow, 2000; King, 2003). Substantive knowledge and clinical experience guided the selection of nominated models to submit to further logistic regression analysis. Most covariates retained in the final regression model were statistically significant at a level of $p < 0.05$. Model goodness-of-fit was assessed with the Hosmer-Lemeshow test (Hosmer & Lemeshow, 2000) and was judged to be acceptable ($\chi^2 = 7.11, 8$ *df,* $p = 0.52$). The concordance index *c* is an estimate of the area under the receiver operating characteristic curve (AUC) for binary responses (Hanley & McNeil, 1982) that ranges between 0.5 and 1.0. The *c* value for the model was 0.71. There are no apparent guidelines indicating the adequacy of AUC values for nursing care quality pre-

diction models; however, among other types of behavioural models this value would not be termed "high." For example, an AUC value of .82 for violent behaviour predictions is termed "relatively high" by Swets, Dawes, and Monahan (2000, p. 11). But the value of 0.71 is not exceptionally low, for a recent clinical health study reports average AUC values of .82 ($N = 5$ studies) and .74 ($N = 6$ studies) for physician- and scoring-based predictions, respectively, of patient mortality in intensive care units (Walter & Sinuff, 2007). Analyses were performed using SAS 9.1.

Results

Among hospital-employed RNs whose job involved giving direct care, 12% reported that the nursing care given by their nursing team on the last shift was no better than fair or poor (Table 1). Nearly half (46%) reported receiving a low level of support from their co-workers, and 13% reported that they were dissatisfied with their job. About 7% reported that their general health was fair or poor.

Table 1 ***Descriptive Statistics***

Factor	Sample *N*	Weight Estimate	Weighted %
RNs employed in hospitals, giving direct care	4,379	143,000	100.0
Report *fair* or *poor* quality of team care	472	16,700	11.9
Nurse-physician working relations scale score *(mean, SD)*	4,352 (2.4, 2.0)		
Low co-worker support	1,976	65,800	46.3
Job dissatisfaction	496	18,500	12.9
Fair/poor overall health	263	9,300	6.5
Works in medical/surgical unit	968	32,700	22.9
Works in critical care/ operating/recovery/emergency	1,362	44,600	31.2
Works in ambulatory care	188	5,900	4.2
Works in other care areas	1,792	58,000	40.6
Years employed in nursing *(mean, SD)*	4,375 (17.0, 10.7)		

Source: 2005 National Survey of the Work and Health of Nurses.

Table 2 *Percentage of Nurses Reporting* **Fair** *or* **Poor** *Quality of Nursing Care Delivered by Team on Last Shift, by Level of Nurse-Physician Working Relations and Other Selected Variables*

	***Fair* or *Poor* Care Given by Team (%)**
Total	**11.9**
Level of nurse-physician working relations	
Higher (worse)	21.0*
Lower[a] (better)	9.3
Years employed in nursing	
0–7[a]	15.0
8–16	12.9
17–26	11.7
27–46	7.7*
General health	
Fair/poor[a]	26.4
Excellent/very good/good	10.9*
Support from co-workers	
Low[a]	15.5
High	8.6*
Dissatisfied with current job	
Yes[a]	30.6
No	9.1*
Hospital unit of employment	
Medical/surgical care[a]	15.0
Critical care/operating/recovery/ emergency	10.5*
Ambulatory	F
Other care areas	12.0

Source: 2005 National Survey of the Work and Health of Nurses.

[a] Reference category. For level of nurse-physician working relations, "higher" refers to the highest quartile of weighted distribution of nurse-physician working relations scale and indicates relatively poor working relations; "lower" refers to the three lower quartiles and indicates better working relations.

* Differs significantly from estimate for reference category ($p < 0.05$).

F Coefficient of variation exceeds 33.3%; estimate too unreliable to be reported.

Bivariate analyses indicated that nurses whose scores on the nurse-physician working relations index fell into the highest (most unfavourable) quartile of the weighted distribution were twice as likely (21% vs. 9%) to report that their nursing team had given fair or poor care, compared with nurses in the lower three quartiles (Table 2).

The number of years employed in nursing was inversely related to the likelihood of reporting fair or poor care by the nursing team; 8% of nurses with at least 27 years' experience reported fair or poor care, compared with 15% of those who had been in nursing for fewer than 8 years. Nurses' self-rated level of health was strongly related to reported quality of nursing team care. Over one quarter (26%) of those claiming fair or poor health reported that their nursing team had delivered only fair or poor care, compared with 11% of those reporting better health.

Perceived level of co-worker support was also related to reported quality of nursing team care; 9% of nurses with high levels of support reported that fair or poor care had been delivered by their team, compared with 16% of nurses with lower levels of support. As expected, job

Table 3 ***Adjusted Odds Ratios for* Fair *or* Poor *Nursing Team Care Given on Last Shift***

Factor	Adjusted Odds Ratio (95% CI)	*p* value
Nurse-physician relations[a]	1.21 (1.15–1.29)	0.00
Low co-worker support	1.54 (1.19–1.99)	0.00
High co-worker support[b]	1.0 (NA)	—
Dissatisfied with job	3.16 (2.28–4.38)	0.00
Not dissatisfied with job[b]	1.0 (NA)	—
Fair/poor overall health	2.12 (1.35–3.33)	0.00
Excellent, very good, good overall health[b]	1.0 (NA)	—
Clinical unit		
Critical care	0.86 (0.66–1.14)	0.29
All other units[b]	1.0 (NA)	—
Years employed in nursing[a]	0.98 (0.96–0.99)	0.00

Source: 2005 National Survey of the Work and Health of Nurses.
[a] Used as a continuous variable. "Nurse-physician relations" was coded so that higher scores indicate qualitatively worse (more negative) working relationships.
[b] Reference category.

dissatisfaction was related to quality of care. Nurses who expressed dissatisfaction with their current job were more than three times as likely to report fair or poor nursing team care as those who were satisfied with their job. Finally, nurses working in critical care units, operating rooms, recovery rooms, or emergency departments were slightly but significantly less likely to report fair or poor team care, compared with nurses working in medical and surgical care units (10.5% vs. 15.0%).

In multiple logistic regression analyses, nurse-reported working relations with physicians were significantly associated with nurse-assessed quality of nursing team care given on the last shift (Table 3). Even in the presence of other independent variables, qualitative decreases in nurse-physician relations — indicated by increasing scale scores — modestly increased the probability of reported fair and poor team care over excellent and good care (OR 1.21, 95% CI 1.15–1.29).

Control variables significantly associated with reported fair or poor team care included low support from co-workers (OR 1.54, 95% CI 1.19–1.99), being in fair or poor overall health (OR 2.12, 95% CI 1.35–3.33), and job dissatisfaction (OR 3.16, 95% CI 2.28–4.38). Greater nursing experience was significantly associated with decreased probability of fair and poor care (OR 0.98, 95% CI 0.96–0.99). Working in a critical care unit was not significantly associated with reported nursing care quality in the full regression model.

Discussion

When asked to evaluate quality of nursing team care on the most recent shift, about 12% of Canadian RNs working in hospitals rated it as fair or poor; this is similar to levels reported elsewhere (e.g., Rafferty et al., 2001). Findings like these may cause concern for hospital nursing managers because they are nurses' self-reported assessments of recent nursing care given by themselves and/or their nursing team colleagues.

At the outset we noted an increasing use of qualitative, ordered-categorical survey items for measuring nurse-rated quality of nursing care. The data collected using such measures have infrequently been analyzed using multiple regression methods. In the few studies that have incorporated data into a linear model framework, the nurse-physician relations construct was subsumed into higher-order constructs such as organizational support (Aiken et al., 2002; Laschinger et al., 2001). It was argued that the nurse-physician relations construct could usefully be disaggregated from higher-order constructs and tested against other factors in a model of nursing care quality. The argument was supported by reported results. Our logistic regression model shows that factors rooted in both classic and contemporary research on health-care processes have inde-

pendent associations with nurse-reported quality of nursing team care. These include nurse-physician relations, co-worker support, job satisfaction, personal health, and years of nursing experience.

Our analysis of perceived nursing care quality and nurse-physician relationships diverges from other models by its differential placement of substantive predictors in the explanatory path. Recent research (Aiken et al., 2002; Gunnarsdóttir et al., 2007; Van Bogaert et al., 2009) has conceived the nursing practice environment as predictive of job satisfaction and emotional exhaustion outcomes. In contrast, our model fitted job satisfaction and general health as independent variables and demonstrated their influence on perceived nursing care quality. We presented an additional predictor of care quality that does not have an apparent corollary in the Nursing Work Index's measurement of the nursing practice environment: co-worker support.

Nurse-Physician Relations

The difficult work relations between nurses and physicians have been known for decades. However, few studies have demonstrated a connection between quality of working relations and quality of care. We find that an association between nurse-physician relations and quality of nursing team care is present in a nationally representative sample of hospital-based nurses, and persists when effects of other important factors are held constant. These findings support conclusions by other researchers regarding the importance of improving nurse-physician relationships (Ulrich et al., 2005).

There is an abundance of research on nurse staffing levels, some of it addressing the effects of nursing shortages on quality of care (Clark, Leddy, Drain, & Kaldenberg, 2007; Sochalski, 2004). Nurses believe the shortage has reduced the time available to collaborate with team members (Buerhaus, Donelan, Ulrich, Norman, & Dittus, 2006). Inadequate staffing may negatively impact the humanistic aspects of patient care that nurses value (Gunther & Alligood, 2002). Nurse staffing levels are important considerations for analyses of quality of care; accordingly, we included a variable to control for nurse-assessed adequacy of nurse staffing in a preliminary regression analysis. Coefficient estimates for the presented model were similar with and without a measure of staffing adequacy but model fit declined considerably when it was included. We excluded it from the final model for this reason.

Other Independent Variables

Co-worker support is a form of lateral social relations that could have a protective function in the workplace by acting as a stress buffer. To our knowledge, the significant association between low co-worker support

and fair or poor care quality that we found has not been demonstrated previously. Intraprofessional nurse relations that are so unsupportive as to be characterized by hostility, conflict, and lack of help-giving behaviour in performing nursing work independently contribute to nurse perceptions that quality of team care is suboptimal.

The significant association between job dissatisfaction and fair or poor care was expected. Job satisfaction is a de facto criterion in quality of care assessment, as explained by Kramer and Schmalenberg (2005).

We reported a negative effect of nurses' general health on perceived quality of nursing care. This finding may be reflective of results reported by Laschinger et al. (2001). Their research showed a negative direct effect of job burnout on care quality when job burnout was an endogenous variable. Our health measure was not analogous with job burnout because it was not a pure affective construct; however, job burnout could be construed as one facet of general health. Because the Laschinger et al. (2001) model tested a mediated and amalgamated effect of nurse-physician collaboration on care quality, a direct effect of nurse-physician collaboration net of job burnout was not estimated. In this respect our model contributes some evidence for a negative relationship from nurses' self-reported health to perceived quality of care independent of nurse-physician collaboration effects.

Our finding of an inverse effect of nursing experience on nursing care quality is consistent with the findings of other research. Increased nursing experience is related to several better nurse outcomes: Older RNs are reported to have better relationships with nursing management and hospital administration than younger RNs (Buerhaus et al., 2006). Greater job satisfaction has been found among nurses with more seniority (Tabak & Koprak, 2007) and among older RNs (Buerhaus et al., 2006). More seniority has also been associated with lower stress (Tabak & Koprak, 2007).

Limitations

The study has several limitations. The cross-sectional nature of the data does not support causal inferences. Research on nurse-physician relations and nursing care quality should capitalize on research designs that are suitable for causal attributions, such as natural experiments and randomized intervention trials (Zwarenstein et al., 2007).

The NSWHN data were based on nurses' self-reports, which were subjective. No validation of the data against objective sources was undertaken, and perceptions may differ among individuals. Validity of perceived quality of care data should be investigated with reference to other quality measures such as clinical practice indicators and patient satisfaction. It is not known what standards nurses used to assess quality of nursing team

care, and assessments of interprofessional working relations may vary according to personality traits and other individual differences. Nor is it known whether nurses reporting fair or poor nursing care quality believed that care was continuously fair/poor on the shift or whether there was one memorable, specific instance of poor care.

Other factors that may influence quality of team care could not be considered because the data were not available from the NSWHN. For example, there was no information on the constitution of the "nursing care team" that nurses reported on. This is important because aspects of team composition like staff-to-patient ratios and professional staffing mix — the ratio of RNs to licensed practical nurses and auxiliary staff — have been associated with care outcomes (McGillis Hall, Doran, & Pink, 2004) and may be associated with nurse-perceived quality of care. They could not be considered in this analysis. No adjustment could be made for hospital size or administrative system, and information on patient characteristics that may have influenced perceptions of quality of nursing team care was not available.

Conclusion

This study provides new findings on factors reflecting the workplace climate that may influence the quality of patient care. Based on data from a large, nationally representative sample of Canadian nurses, the analysis indicates that the probability of delivering fair or poor patient care is higher in a workplace environment where working relations between nurses and physicians are less favourable. A portion of perceived lower-quality care can be explained by poor nurse-physician relationships and perhaps eliminated or reduced by improving those relationships.

It is important to keep the results of this analysis in perspective. Only one in eight nurses reported that the quality of care delivered by their team in the last shift was fair or poor. Nonetheless, fair or poor care could be persistent in some settings and could be a precursor to significant problems. First-hand reports of such care from the caregivers involved in its delivery should be considered seriously, as should their association with nurse-physician working relations.

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