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The Influence of Nursing Unit Empowerment and Social Capital on Unit Effectiveness and Nurse Perceptions of Patient Care Quality

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ABSTRACT

OBJECTIVE: This study tested a multilevel model examining the effects of work-unit structural empowerment and social capital on perceptions of unit effectiveness and nurses’ ratings of patient care quality.

BACKGROUND: Structural empowerment and social capital are valuable resources for staff nurses that promote work effectiveness and high-quality patient care. No studies have examined social capital in nursing at the group level.

METHODS: A cross-sectional survey of 525 nurses in 49 nursing units in 25 acute care hospitals in Ontario was conducted to test the hypothesized multilevel model using structural equation modeling.

RESULTS: Both unit-level structural empowerment and social capital had significant effects on unit effectiveness ($r = .05$ and $r = .29$, $P < .05$, respectively). Unit-level predictors explained 87.5% of level 2 variance in individual nurses’ ratings of patient care quality.

CONCLUSIONS: This study provides a better understanding of how unit-level structural empowerment and social capital affect both unit- and individual-level outcomes.

BACKGROUND

Positive working relationships in nursing environments are important for both nurse and patient outcomes (1-4). Numerous studies have shown that when nurses work in empowering work environments that foster high-quality interpersonal relationships, they feel more effective in their work, (5,6) report higher levels of patient safety on their units (7), and are more satisfied with their work (8-10). The ability to provide high-quality care is critical to nurses’ satisfaction with their jobs (11); therefore, working conditions that promote nurses’ ability to deliver high-quality care are important to identify. Access to empowering work structures (structural empowerment [SE]) and working in a network of supportive colleagues that leverage available resources (social capital) are logical precursors of nurses’ ability to provide high-quality care.

Structural empowerment, that is, the extent to which a work environment (WE) provides access to support, resources, information, and opportunities to learn and grow, has been shown to be an important work-unit characteristic that has positive effects on nurses’ job satisfaction (JS) and their ratings of the quality of care they are able to deliver (12). Similarly, the quality of social relationships in a work unit has also been posited to be important to work-life quality and effectiveness, although this has not received a lot of attention in the literature. Recently, the impact of positive social relationships at work has been studied from a social capital perspective, defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships between individuals and in a social unit” (p4) (13). In organizational settings, social capital has been studied primarily at the individual employee level, yet it makes sense that work units may themselves have different levels of social capital, which should contribute to greater work effectiveness. Unit-level social capital has not been studied extensively in the literature and not at all in the nursing literature to our
knowledge. The purpose of this study was to test a multilevel model examining the effects of work-unit SE and social capital on perceptions of unit effectiveness and individual nurses’ perceptions of patient care quality on their units.

**Theoretical Framework**
We developed a theoretical model integrating Kanter’s theory of SE and Nahapiet and Goshal’s (13) model of social capital to predict perceptions of patient care quality at both the unit and individual level. The model is presented in Figure 1, and the theory and related research are described in the upcoming paragraphs.

**Structural Empowerment**
Kanter’s (14, 15) model of workplace empowerment describes organizational structures that empower employees to accomplish their work in meaningful ways: access to information, access to support, access to resources necessary to do the job, and access to opportunities to learn and grow. Access to information refers to the availability of knowledge of organizational values, goals and policies, and employees’ possession of knowledge and expertise required to work effectively. Access to support refers to the availability of feedback and guidance from supervisors, peers, and subordinates. Access to resources represents access to funds, supplies, and time required to accomplish organizational goals. Access to opportunity refers to the availability of challenges, rewards, and professional development opportunities to increase job-related knowledge and skills. Access to these structures is facilitated through formal and informal power systems in the organization. There is considerable empirical support linking SE to important organizational outcomes such as JS (16), work productivity and effectiveness (17, 18), and perceived quality of care (6). However, there are few studies of the contextual effects of SE, that is, the shared experience of empowerment on particular units, on individual team members’ work-life experiences. Seibert et al (19) found that psychological empowerment mediated the relationship between unit-level SE and individual-level JS in a business setting. More recently, Laschinger et al (12) found that higher shared perceptions of SE on their work unit were related to greater nurse JS among individual nurses on these units. These studies demonstrate the importance of studying contextual effects of SE on individual nurses’ job-related outcomes.

**Social Capital Theory**
Social capital is an organizational concept emerging from the Positive Organizational Behaviour movement in the management and psychology literature (20, 21). This movement emphasizes the need to focus on positive rather than negative organizational conditions, processes, and outcomes in order to advance the understanding of and capacity to create WEs that foster satisfied and productive employees. Nahapiet and Goshal (13) describe 3 dimensions of social capital. *Structural social capital* refers to the pattern of relationships among individuals in a group or work setting, that is, the extent to which group members are in contact with each other. *Relational social capital* refers to the affective quality of the relationships among group members and involves the elements of trust and reciprocal interaction. Finally, *cognitive social capital* refers to the extent to which group members have shared understandings about the nature and goals of the work to be accomplished. Although the notion of social capital has been discussed in the nursing literature, few empirical studies have examined its relationships with nursing work-life outcomes. Recently, Sheingold and Sheingold (22) found that structural social capital was a significant predictor of nurses’ intent to leave their positions. In another study, Kowalski et
al (23) found that nurses with lower social capital were less likely to have high levels of burnout. These studies point to the value of creating conditions that foster the development of social capital. However, we could not find any studies that examined social capital as a unit- or group-level concept in nursing. Understanding how working on a unit with strong social capital influences work outcomes among nurses is important in guiding efforts to build effective work-places that foster high-quality patient care.

![Figure 1. Hypothesized model.](image)

**WorkEffectivenessandQualityofPatientCare**
Effective WEs in nursing are important to the quality of care that nurses are able to provide and thus the quality of care patients receive (1,2,6,24,25). High-quality care is an important determinant of nurses’ satisfaction with their work and their jobs and, when compromised, often leads to nurses leaving their positions to find more suitable working conditions that support their standards of professional practice (26). Effective work units are able to accomplish high-quality care, which results in better patient outcomes and greater satisfaction with care (1,26,28). A recent study showed that nurses’ assessments of high-quality care are accurate predictors of patient outcomes and are therefore important to consider in addition to “objective measures” of patient care quality when monitoring patient care quality in hospitals (29).

**Rationale for Hypothesized Model**
Based on Kanter’s (14,15) theory of SE and Nahapiet and Goshal’s (13) model of social capital, we argue that SE and social capital at the work-unit level are predictive of nurses’ perceptions of their units’ effectiveness in meeting patient goals. Working on units that provide the necessary tools for accomplishing their work, that is, access to support, resources, information, and professional development opportunities, in combination with high levels of collective social capital at the unit level should result in the necessary resources to be effective in accomplishing work goals and ultimately high-quality patient care.

**Methods**

**Sample and Design**
Data from nurses in a larger study of nursing work life were used to test the model. A cluster sampling design was used in the study to survey 525 nurses in 49 nursing units in 25 acute care hospitals across all regions of Ontario. Following ethical approval,
questionnaires were distributed by mail using a modified version of Dillman’s (30) Tailored Design Methodology to improve return rates. A reminder letter was sent 3 weeks after the initial mailing followed by another questionnaire package 3 weeks later. Nurses returned questionnaires to the nursing research unit. The response rate was 40%. Nurses averaged 42 years of age, with 17 years of nursing experience. Most (75.5%) worked in medical-surgical areas or critical care and were diploma prepared (72.8%).

**Instruments**

Standardized questionnaires were used to measure study variables. Scale items were summed and averaged to yield scores reflecting a high level of each construct. Measures of SE, social capital, and unit effectiveness were aggregated to the unit level as specified in the hypothesized model, and perceptions of patient care quality were modeled as an individual-level outcome. The Conditions for Work Effectiveness Questionnaire II (31) was used to measure the 6 dimensions of SE: access to opportunity, resources, information, support, and formal and informal power. This scale consists of 19 items rated on a 5-point scale ranging from 1 (none) to 5 (a lot). Subscale scores are summed and averaged to create an overall SE score ranging from 6 to 30 (31). In this study, Cronbach’s alphas for the subscales ranged from .70 to .89, consistent with previous research.

*Social capital* was measured by items from the Shortell Organizational Culture Scale (32). This scale contains 9 items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items measure aspects characteristic of the 3 components of social capital: structural, relational, and cognitive, which we summed and averaged to create an overall social capital scale. The Cronbach’s alpha of the aggregated scale was .93.

*Unit effectiveness* was measured using items from the Shortell Organizational Culture Scale (32), used to measure nurses’ judgments of the ability of the unit to accomplish patient care in a timely manner. Six items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach’s alpha in this study was .83.

*Perception of patient care quality* was measured by a single item developed by Aiken et al (26) in the Magnet hospital studies. Nurses are asked to rate the quality of care of their unit 1 (poor) to 4 (excellent). This scale has been widely used in studies of Magnet hospitals in the United States and Canada and shown to be a valid indicator of nurse-assessed quality of care (29,33,34).

**Data Analysis**

We tested our model using multilevel structural equation modeling techniques within MPlus (35). This analysis allowed for a simultaneous test of the effects of unit-level predictors of unit effectiveness, as well as cross-level effects of unit-level variables on individual nurses’ ratings of patient care quality. Multilevel modeling represents the nonindependence of observations due to cluster sampling (35). To ensure that we could in fact aggregate nurses’ perceptions of patient care quality were significantly correlated with all unit-level variables. Both unit-level empowerment and social capital were significantly correlated with unit effectiveness. The empowerment/social capital relationship was not significant.

Testing the Hypothesized Model

The results revealed a good fit of the hypothesized multilevel model to the observed covariance structures of unit-level social capital, unit effectiveness, and $\chi^2 = 1.18,$
comparative fit index = 0.99, Tucker-SE, we calculated 3 indices of acceptable aggregation recommended by Bliese et al (36). The intraclass correlation coefficient (ICC) (1), a measure of the amount of variance explained by between-units differences, was acceptable for these measures (above the .12 cutoff point), as was the ICC (2), a measure of intrarater reliability within groups (above the .60 cutoff point). Finally, the average rWG, a measure of the average within-group intrarater agreement across groups (37), for all level 2 variables exceeded the .60 cutoff point, providing justification for the aggregation of these measures to the unit level. A preliminary analysis revealed that the between-group variability of level 1 (individual) perceptions of patient care quality hypothesized to be influenced by the unit-level variables was substantial (ICC = 0.14), justifying cross-level analysis. We then ran an intercepts-as-outcomes model to test relationships among unit-level variables and to assess whether these predictors could account for the variance in nurses’ perceptions of patient care quality at level 1.

Results
Descriptive statistics are provided in the Table 1. Nurses rated their units as moderately empowering with a moderate amount of social capital. Unit effectiveness, on average, was quite high, as were individual nurses’ ratings of patient care quality in their unit. Individual nurses’ perceptions of patient care quality were significantly correlated with all unit-level variables. Both unit-level empowerment and social capital were significantly correlated with unit effectiveness. The empowerment/social capital relationship was not significant.

Testing the Hypothesized Model The results revealed a good fit of the hypothesized multilevel model to the observed covariance structure (χ² = 1.18, comparative fit index = 0.99, Tucker-Lewis Index = 0.78, root mean squared error of approximation = 0.02) (Figure 2). At the unit level (level 2), both SE and social capital had significant effects on unit-level effectiveness (β = .05 and β = .29, P < .05, respectively). However, the hypothesized indirect effect of empowerment through social capital on unit effectiveness was not significant. Instead, both empowerment and social capital had direct effects on unit effectiveness. In terms of cross-level effects, both social capital and unit effectiveness had direct effects on individual-level nurses’ ratings of patient care quality (β = .21 and .51, P < .05, respectively). Unit-level predictors explained 87.5% of level 2 variance in individual nurses’ ratings of patient care quality.

Discussion
The results supported a model in which contextual effects at the nursing unit level predicted both unit-level effectiveness and individual nurses’ perceptions of the quality of patient care in their unit. At the unit level, higher levels of SE and social capital were associated with higher ratings of unit effectiveness. These findings support previous cross-sectional results linking SE to work effectiveness at the individual level of analysis (5). Contrary to expectations, access to SE at the unit level did not directly affect the quality of relationships among nurses on the unit (social capital). Instead, consistent with Laschinger and colleagues’ 2009 study (9) at the individual level, it had a direct effect on unit effectiveness, although not as strongly as the effect of social capital. Indeed social capital not only had a positive direct effect on unit work effectiveness, but it also indirectly influenced individual nurses’ perceptions of quality on their units, consistent to findings of Siddiqui (4). This is not surprising and highlights the importance of the conditions or climate of the immediate WE on individual nurses’ ratings of patient care quality.

These findings are consistent with previous work linking social cohesion at the unit level to patient outcomes on the unit, such as falls rate and adverse events (38). Our
study is the 1st we know of to link social capital at the nursing unit level to nurses’ assessments of patient care quality on their units. Given McHugh and Stimpfel’s (29) finding that nurses’ assessments of patient care quality are accurate indicators of actual quality in healthcare organizations, our results provide valuable information about nursing work-life factors within units, such as social capital and empowerment that play a role in the quality process in those units. Furthermore, the link between social capital and both unit- and individual-level perceptions of effectiveness and quality is important because a critical component of nurses’ JS has been shown to be related to their perceived ability to provide high-quality care (4, 11). Although not explored explicitly in this study, it is reasonable to speculate that nurses who feel that their workplace is empowering and has the necessary social capital to support high-quality patient care are more likely to feel fulfilled and therefore less likely to leave their positions (4,6). These findings suggest that the contextual characteristics of nursing units play an important role in shaping how nurses on those units experience their work in terms of the quality of care they feel they are able to provide. The results suggest that efforts to increase access to empowering work structures and promote the development of strong networks of relationships characterized by frequent contact, trusting, and positive reciprocal interactions and a sense of shared understandings about care in nursing work settings are important for ensuring high-quality patient care.

**Limitations and Future Research**

Limitations to the design of this study reflect common issues arising from multilevel approaches to examining organizational behavior, including convenience sampling, response rate, and sample size (number of groups). That said, the sample included nurses from hospitals in 11 of the 14 health regions of the province of Ontario, and nurse demographic characteristics were similar to those reported by the provincial licensing board (39). Future research with a larger sample number of groups is needed to replicate our results.

In conclusion, our findings demonstrate the utility in considering contextual factors that influence nurses’ perceptions of work-unit effectiveness and quality. To date, very few studies have used multilevel designs in nursing settings. This study provides a more comprehensive theoretical understanding of how unit-level SE and social capital affect both unit- and individual-level outcomes. Our findings suggest that the quality of the WE at the unit level is not only important in improving quality of patient care at the unit level, but also influences nurses’ individual sense of patient care quality in their organization. Given the well-documented relationship between nurses’ JS and the quality of nursing care they feel they are able to provide, our results suggest creating empowering work units that foster strong social capital is a value-added investment in patient care quality and nursing work-force sustainability.
Table 1. Means, SDs, Cronbach's "s, and Correlations of Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>&quot;</th>
<th>Level 1 (Nurses)</th>
<th>Level 2 (Unit)</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Level 1</td>
<td>Level 2</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
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<td>.12</td>
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<td>.28</td>
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</tr>
</tbody>
</table>

LEVEL 2 (Unit)

LEVEL 1 (Nurses)

NS: Not Significant at p < .05

Figure 2. Final model results.
References