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Impact of the Manager's Span of Control on Leadership and Performance

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Steering Committee

A steering committee has provided consultation since the planning stages of the study. The same organizations have been represented on the steering committee throughout the study, although some of the names of the representatives have changed for some organizations.

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Table of Contents

Key Implications for Decision Makers

This study examined the relationships between types of leadership, the number of staff that managers are responsible for, and patient and nurse outcomes.

- Nurse managers with positive leadership styles, who develop, stimulate, and inspire followers to exceed their own self-interests for a higher purpose and are based on a series of exchanges or interactions between leader and followers, had more-satisfied staff.

- Nurse managers with negative leadership styles, who take action only when required or when issues become serious or who avoid leadership responsibilities, had less-satisfied staff.

- Patient satisfaction was higher on units where managers used a positive leadership style.

- Patient satisfaction was lower on units where managers had a large number of staff reporting to them.

- Units with managers who had a large number of staff reporting to them had higher levels of staff turnover.

- Units with managers who used a positive leadership style had lower levels of staff turnover.

- Having a large number of staff reporting to the managers reduced the positive effect of the positive leadership styles on staff satisfaction and increased the negative effect of the negative leadership styles on staff satisfaction.

- Having a large number of staff reporting to the managers also reduced the positive effect of the positive leadership styles on patient satisfaction.

- No leadership style will overcome having a large number of staff reporting to the managers.

- Organizations should implement management training programs to develop positive leadership styles.

- Guidelines need to be developed regarding the optimum number of staff that should report to nurse managers.

Executive Summary

Background

In the last decade, precipitated by pressure from government to reduce healthcare spending and maintain access and quality services (Leatt, Lemieux Charles, & Aird, 1994), many hospitals and healthcare agencies embarked on aggressive cost-cutting initiatives. Restructuring initiatives differed from one institution to another; however, in most cases it involved downsizing the workforce by laying off front-line nurses, nurse managers, and other healthcare executives. This reduction has resulted in the remaining managers being responsible for several units, having more staff responsibility, and in some cases exceeding 100 direct reports. Therefore, the traditional mentoring, motivating, coaching, and evaluating roles played by the nurse manager were significantly reduced or became nonexistent (Ontario Ministry of Health and Long-Term Care Nursing Task Force, 1999). This vital relationship between staff nurse and nurse manager which has been found to influence nurses' job satisfaction and the retention of nurses has now been substantially reduced. Hospitals and other healthcare organizations still continue to flatten their structures with fewer management positions and wide spans of control in an ongoing effort to reduce costs (Pillai & Meindl, 1998; Spence, Laschinger, Finegan & Shamian, 2001). Due to the many healthcare organizational and structural changes, there was a need to do research and identify the leadership style(s) and span of control that contribute to optimum nurse, patient, and organizational outcomes.

Studies on leadership (House & Aditya, 1997; Bass, Waldman, Avolio & Bebb, 1987) have acknowledged the significant influence of organizational factors, such as size and culture. Several nursing studies have also provided evidence that management style influences nurse satisfaction (Decker, 1997; Loke, 2001; Mc Gillis Hall et al, 2003; McNeese Smith, 1995; Tovey & Adams, 1999) and retention of nurses (Irvine & Evans, 1995; Leveck & Jones, 1996; Medley & Larochelle, 1995).

Purpose

The purpose and objectives of this study are to 1) examine the extent to which the manager's span of control influences nurse, patient, and unit outcomes; and 2) investigate which particular leadership style contributes to optimum nurse, patient, and unit outcomes under differing spans of control.

Design, setting, participants, and framework

This study used a descriptive correlation design using a survey method to collect data from both individual and hospital units. The research was conducted at seven teaching and community-based hospitals, utilizing 51 units within these hospitals. The participants were 41 nurse managers, 680 patients, and 717 staff (registered nurses and registered practical nurses).

A theoretical framework was developed by integrating concepts drawn from three theories: transformational leadership theory; span of control theory; and contingency leadership theory. This framework proposes three specific relationships: a) the manager's leadership style has an effect on outcomes, as measured by staff satisfaction, patient satisfaction, and unit turnover; b) the manager's span of control has an effect on outcomes; and c) the manager's span of control has a moderating effect on the relationship between leadership style and outcomes.

Key findings

Leadership styles

Nurses' job satisfaction

- Transformational and transactional leadership styles *increase* nurses' job satisfaction.
- Management-by-exception and laissez-faire leadership styles *decrease* nurses' job satisfaction.

Patient satisfaction

- Transactional leadership style *increases* patient satisfaction.

Turnover

- Transformational leadership style *decreases* turnover.

Span of control

Nurses' job satisfaction

- Wide span of control *decreases* the positive effects of transformational and transactional leadership styles on nurses' job satisfaction.
- Wide span of control *increases* the negative effects of management-by-exception and laissez-faire on nurses' job satisfaction.

Patient satisfaction

- Wide span of control *decreases* patient satisfaction.
- Wide span of control *decreases* the positive effects of transformational and transactional leadership styles on patient satisfaction.

Turnover

- Span of control *increases* turnover.

No leadership style can overcome a wide span of control.

Conclusions

The results of this study support the importance of the manager's leadership style and span of control in creating a positive work environment. These findings reaffirm the need for organizations to provide mechanisms to help managers become more effective leaders. Organizations should design and implement management training and development programs that focus on effective and facilitative leadership styles, such as a transformational style of leadership.

The moderating influence of span of control on the effects of leadership on nurses' job satisfaction demonstrates that no leadership style can overcome a wide span of control. It is not humanly possible to consistently provide positive leadership to a very large number of staff, while at the same time ensuring the effective and efficient operation of a large unit on a daily basis. Thus there is a need to develop guidelines regarding the number of staff a nurse manager can effectively supervise and lead.

Background

There is abundant research on leadership but little on healthcare leadership. The hospital restructuring of the 1990s was precipitated by pressure from the government to be accountable and responsive, which meant reducing costs while maintaining access and quality of services (Leatt, Lemieux Charles & Aird, 1994; Ontario Ministry of Health and Long-Term Care Nursing Task Force, 1999). One result of the downsizing is a reduction in nursing management positions. This reduction has resulted in nurse managers being responsible for several units and for motivating and evaluating a large number of staff, sometimes more than 100 staff. Because of this, the traditional mentoring and coaching role played by the nurse manager is no longer available to the staff nurse (Ontario Ministry of Health and Long-Term Care Nursing Task Force). As well, although the relationship between staff nurses and their managers has been found to influence nurses' job satisfaction and retention of nurses, hospitals and other healthcare organizations continue to adopt flatter structures with wider managerial spans of control (Pillai & Meindl, 1998; Spence Laschinger, Finegan & Shamian, 2001).

Studies on leadership (House & Aditya, 1997; Bass, Waldman, Avolio & Bebb, 1987) have acknowledged the significant influence of organizational factors, such as size and culture, on leadership. Several nursing studies have provided evidence that management style influences nurse satisfaction (Decker, 1997; Loke, 2001; McGillis Hall et al., 2003; McNeese Smith, 1995; Tovey & Adams, 1999) and retention of nurses (Irvine & Evans, 1995; Leveck & Jones, 1996; Medley & Larochelle, 1995). A study to identify the leadership style and span of control that contribute to optimum nurse, patient, and organizational outcomes was undertaken.

Initiated by a team of investigators led by Amy McCutcheon (PhD) and Diane Irvine Doran (PhD) at the faculty of nursing of the University of Toronto, the project examined 1) the effect of the manager's leadership style on outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit staff turnover; 2) the influence of the manager's span of control on outcomes; and 3) which particular leadership style contributes to optimum outcomes under differing spans of control. The study was conducted at seven hospitals, including both teaching and community hospitals, and comprised a sample of 41 nurse managers, 717 nurses, 680 patients, and 51 units. The results of this study may assist organizational leaders make decisions concerning their structures and design management development initiatives to promote effective leadership. Effective leadership will in turn influence organizational outcomes such as staff satisfaction, staff nurse retention, and quality of care.

Definitions

Leadership Styles

Research demonstrates that contemporary nursing issues such as patient satisfaction, nurses' job satisfaction, and unit staff turnover are linked to the managers' leadership styles. For example, the relationship between staff nurses and their managers has been found to have an effect on staff nurse retention (Irvine & Evans, 1995; Lucas, 1991; Medley & Larochelle, 1995). Furthermore, nurses' job satisfaction has been linked to the manager's leadership style (Decker, 1997; Loke, 2001; McGillis Hall et al., 2003; McNeese Smith, 1995).

Leadership refers to the ability to "influence, motivate, and enable others to contribute toward the effectiveness and success of the organizations of which they are members" (House & Aditya, 1997). Leadership style is the manner in which leaders express specific leadership behaviours (House & Aditya). A number of leadership theories and models are postulated in the literature; however, the present study will focus on the transformational leadership theory and contingency leadership theory.

The transformational leadership theory (Bass, 1985, 1998) defines four leadership styles: transformational, transactional, management-by-exception, and laissez-faire. Transformational and transactional leadership styles are considered the positive styles of leadership. The transformational leader has a vision for what the organization can be and shares that vision with others. The transformational leader develops, stimulates, and inspires followers to exceed their own self-interests for a higher purpose. In transactional leadership, leader-follower relationships are based on a series of exchanges or interactions between leader and followers. Transformational and transactional leadership styles have been associated with subordinates' job satisfaction and work performance, and with higher ratings of leadership effectiveness and performance (Bass, 1985, 1998; Bryman, 1992; Hatter & Bass, 1988; Yammarino & Bass, 1990).

Management-by-exception and laissez-faire are considered negative styles of leadership. In management-by-exception, the leader takes action only when required or when issues become serious. In laissez-faire, the leader avoids leadership responsibilities. Several studies have found lower staff satisfaction with management-by-exception leadership style (Bass & Avolio, 1990; Densten & Gray, 1998) and with laissez-faire (Bass, 1990; Lowe et al., 1996).

Contingency leadership theory proposes that the leader's ability to be effective is influenced by situational factors. The present study will focus on the manager's span of control.

Supervisory Span of Control

Span of control is defined as the number of people supervised by the manager. Using the principle of span of control proposed by Gulick (1937) and Urwick (1956), Meier and Bohte (2000) developed the theory of span of control. This theory proposes that there is a certain size at which span of control reaches its maximum capacity to be effective, and increasing the size beyond this capacity adds no value and may even be harmful. Four management studies (Burke, 1996; Gittell, 2001; Hechanova Alampay & Beerh, 2001; Meier & Bohte) found span of control influenced outcomes. For example, Gittell found that groups with wide span of control (average span of control of 34) were significantly associated with lower performance compared to the groups with narrow span of control (average span of control of nine).

The examination of span of control as a moderating variable on the relationship between leadership and outcomes was found in a few management studies, but none in the nursing literature. Three studies (Cogliser & Schriesheim, 2000; Green, Anderson & Shivers, 1996; Schriesheim, Castro & Yammarino, 2000) found that when work unit increases in size, low-quality leader-member exchange increases; that is, relationships between managers and staff become less positive, which in turn affects staff performance.

Drawing on span of control theory, transformational leadership theory, and contingency leadership theory, this study proposes that the manager's span of control will have a moderating effect on the relationship between leadership style and outcomes. It is argued that even if managers possess the desired leadership style, their span of control may interfere with their ability to influence desirable outcomes for their subordinates, patients, and their unit. To succeed, nurse managers must have an optimum span of control that will allow them time to develop relationships with staff. Howell and Hall Merenda (1999) suggested that transformational leadership produced significantly higher staff performance in close versus distant situations. At a distance, a leader is less likely to form the type of relationship that is characteristic of close leadership (Waldman & Yammarino, 1999).

Study Framework

The study's theoretical framework and the three study outcomes — nurses' job satisfaction, patient satisfaction, and unit staff turnover — are presented.

Outcomes

Patient outcomes

Patient satisfaction is considered a legitimate indicator of patient outcomes (Nelson, Hays, Larson & Batalden, 1989). As well, patient satisfaction has been found to be influenced by management (McNeese Smith, 1997) and by provider satisfaction (Carey & Posavac, 1982; Weisman & Nathanson, 1985).

Nurse outcomes

Research demonstrates that the quality of supervisory relations (Decker, 1997) and leader behaviours (McNeese Smith, 1995; Tovey & Adams, 1999) affect nurse outcomes, such as nurses' job satisfaction. As well, several studies have found job satisfaction to be a strong predictor of turnover and intent to stay (Blegen, 1993; Borda & Norman, 1997; Davidson et al., 1997; Irvine & Evans, 1995; Larabee et al., 2003; Lucas, 1991; Lucas, Atwood & Hagaman, 1993; Shader et al., 2001). As hospitals face a nursing shortage, consideration of factors that influence staff retention is essential.

Unit outcomes

Leveck and Jones (1996) found leadership style to be a predictor of staff nurse turnover. Leadership style affects group cohesion and job stress, which in turn affects job satisfaction and consequently turnover. Shader (2001) found that the more job stress, the lower group cohesion, the lower work satisfaction, and the higher the anticipated turnover. A better understanding of specific factors that influence turnover would reduce labour costs and provide insight on strategies to improve staff retention.

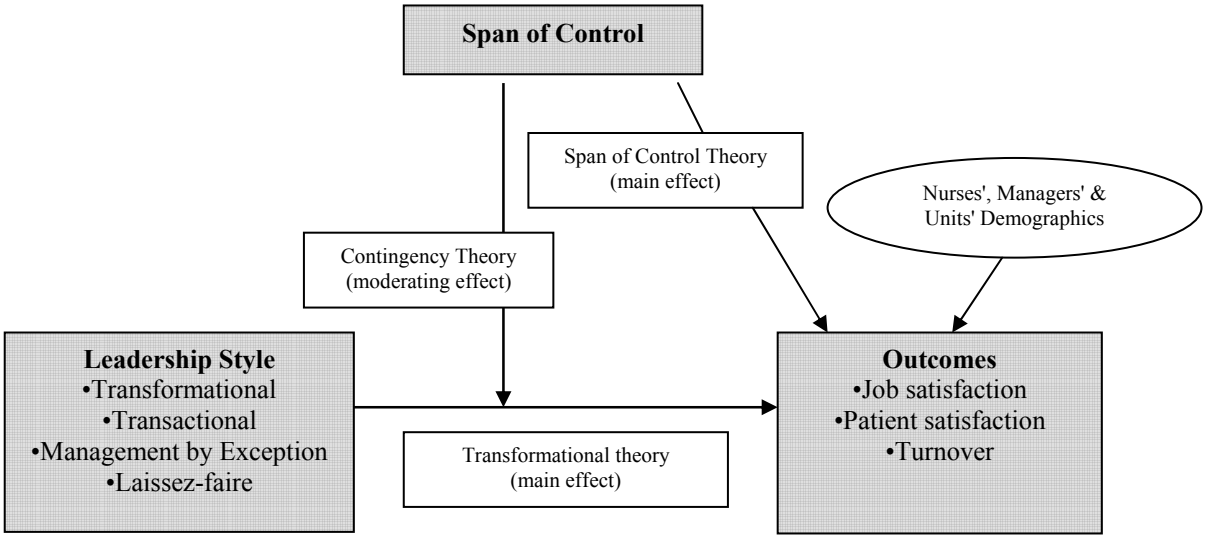
Confounding variables

Confounding variables that may affect the outcome variables are included, but not theorized, in the study's theoretical framework: a) nurses' demographic variables such as age, education, and experience; b) managers' demographic variables, which include age, education, and experience; and c) unit characteristics. Unit characteristics include number of staff resources not reporting to the manager, number of staff categories reporting to manager, unit unpredictability, and type of unit.

Theoretical Framework

For the purpose of this study, a theoretical framework was developed by integrating concepts drawn from three theories: transformational leadership theory, span of control theory, and contingency leadership theory. This theoretical framework (Figure 1) proposes three specific relationships: a) the manager's leadership style has an effect on outcomes, as measured by staff satisfaction, patient satisfaction, and unit turnover; b) the manager's span of control has an effect on outcomes; and c) the manager's span of control has a moderating effect on the relationship between leadership style and outcomes.

Figure 1. Relationships between leadership, span of control, and outcomes model



Research Hypotheses

Hypotheses were advanced to examine the relationships between leadership, span of control, and outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit staff turnover.

Study Method

Design

The research design used for this study was a descriptive correlation design using a survey method to collect both individual and unit data.

Setting and Sample

The study was conducted in seven hospitals with similar forms of organizational structure; that is, with a total of four layers of management: president, vice-president, program director, and manager. The inclusion criteria were nurse manager on medical, surgical, obstetrics, and day surgery unit; staff registered nurses and registered practical nurses working full-time, part-time, or casual on participating units; and patients on a participating unit, going home in the next 24 hours, 18 years of age or older, and able to read and write English. A sample of 41 managers and 51 units met the study criteria and all agreed to participate in the study. The 51 units do not represent all of the units that the 41 managers are responsible for, because some of these units, such as operating room and intensive care units, did not meet the study inclusion criteria. The nurses were recruited through meetings held at the patient care unit. The target sample size was 10 nurses and 10 patients per participating unit. A total of about 717 nurses and 680 patients participated in the study. Data collection was conducted over a period of six months, from April to September 2002.

Data Collection Procedure

The hospital inclusion was based on the willingness of the vice-presidents of nursing/chief nursing officers and managers to participate in the study. The study proposal was sent to the University of Toronto's ethics review committee and to the respective hospitals' research ethics committees. Upon approval from the various research ethics committees, the investigator and research assistants met with the hospitals' nursing management groups to explain the purpose of the study and request their participation. Those who agreed to participate were asked to complete the Nurse Manager Questionnaire. The investigator and research assistants held several open sessions for staff nurses to provide information about the study and to request their participation. To minimize possible disruption with patient care, sessions were held either during the nurses' coffee breaks or lunch breaks. Refreshments were provided during the open sessions. Those who agreed to participate were asked to complete the following three questionnaires: Modified Multifactor Leadership Questionnaire (Bass & Avolio, 2000), the McCloskey Mueller Satisfaction Scale (Mueller & McCloskey, 1990), and a Nurse Demographic Questionnaire.

The participating nursing unit was given a copy of the letter soliciting informed consent of the patient, which includes the criteria for patient participation. The manager or designate was asked to make a list of patients who met the study criteria for patient participation. A nurse or unit clerk approached patients on the list to obtain permission for the research assistant to discuss the study with them. Once permission was granted, the research assistant explained the study to the patient and provided the subject with a letter soliciting

informed consent of the patient and asked for consent to participate in the study. Once the patient consent was obtained, the research assistant asked the patient to complete the appropriate questionnaire.

Risks and Benefits

The participants were informed that there were no known risks for patients and nurses participating in the study, but there were minimal risks for nurse managers. Specifically, the questionnaire asking nurses questions about leadership behaviours of their manager may lead nurses to question their manager's leadership style in ways they might not have otherwise. Similarly, the questionnaire asking the nurses their feelings of satisfaction toward certain aspects of their work may make them question the issue more deeply that they ever had before. However, the confidentiality of participants was protected. Number coding was used. Names of participants were not attached to any of the questionnaires or interviews. All the raw data were stored in a locked file cabinet away from the hospital and participants were not identified by name in any publication or presentation of the study findings.

Participants were informed that they were free to raise questions or concerns with the principal investigators throughout the study and could withdraw at any time. Subjects were assured that they were under no obligation to participate and that their decision to participate or not or to withdraw at a later time would not have any consequences for their healthcare or employment.

Participants were informed that although the findings of this study may not benefit them directly, by being part of this study they would be contributing to a better understanding of nursing management and patient care. Participants were also informed that they would receive a copy of the summary of findings from the study, if they wished.

Measures

Manager's leadership style

The manager's leadership style was measured using the modified Multifactor Leadership Questionnaire Form 5X (Bass & Avolio, 2000). Staff nurse participants were asked to rate how frequently their manager demonstrated each behaviour on a five-point scale ranging from 0 (not at all) to 4 (frequently, if not always). The questionnaire is divided into four leadership subscales, which correspond to leadership styles. Each subscale consists of

several items. A score is calculated for each of the four leadership styles. The assumption is that leaders may exhibit leadership behaviours characteristic of more than one leadership style. Thus, a manager receives a score for each of the four leadership styles from each of the nurse participants reporting to that manager.

Manager's span of control

Manager's span of control was the total number of staff reporting directly to the manager and was obtained from the managers. We recorded the total number of people (full-time, part-time, and casual), not full-time equivalents, because full-time equivalent numbers did not accurately give the number of people reporting directly to the manager. In some instances one full-time equivalent consisted of two part-time nurses, and in other cases, one part-time and two casual nurses filled one full-time equivalent. Span of control included all categories of staff, nursing and non-nursing, reporting directly to the manager. Float pool staff were not included because they reported to a different manager.

Nurses' job satisfaction

The McCloskey Mueller Satisfaction Scale (Mueller & McCloskey, 1990) was used to measure nurses' job satisfaction. This scale measures eight subscales of job satisfaction: satisfaction with extrinsic rewards, scheduling, family and work balance, praise and recognition, co-workers, interaction opportunities, professional opportunities, and control/responsibility. The nurse participants were asked to rate their degree of satisfaction on 31 Likert-like items with 1 to 5 response categories ranging from very dissatisfied, moderately dissatisfied, neither satisfied nor dissatisfied, moderately satisfied, and very satisfied. The job satisfaction score is the average of the scores for the 31 items.

Patient satisfaction

Pascoe (1983) defined patient satisfaction as a recipient's reaction to the service experience. A section from the Patient Judgments of Hospital Quality Questionnaire (Rubin, Ware & Hayes, 1990) was used to measure patients' satisfaction. The entire tool consists of 100 questions to measure patient evaluations of hospital care. Of the 100 questions, 21 items are used to determine satisfaction with nursing care. Questions are rated using a five-point Likert-type scale ranging from excellent to poor, with an option to check "don't know."

Unit turnover

Turnover rate is defined as the percentage of nurses who left their position either by voluntary resignation or transfer to another unit during a one-year period (Song et al., 1997). The percentage was derived by dividing the number of nurses who left that unit between January 1, 2001 and December 31, 2001 by the total number of nurses employed on that unit on January 1, 2001. Turnover information was obtained from managers and human resources departments.

Control variables

The demographic variables specific to the nurses and the managers were obtained using the Nurses Demographic Questionnaire and the Nurse Manager Questionnaire. The two questionnaires contain questions asking about the participant's demographic characteristics, such as age, level of education, and length of time employed as a nurse (as a manager for the managers) on the unit, in the hospital, and total nursing. In addition, the Nurse Manager Questionnaire contained questions concerning unit-level variables, such as roles of the manager, unit unpredictability, number of staff categories reporting to the manager, number of staff reporting directly to the manager, number of staff not reporting to the manager, number of units responsible for, and type of unit participating (medical, surgical, obstetrics, or day surgery).

Data Analysis

Data analysis was performed in consultation with the Statistical Consulting Services at the Institute for Social Research at York University. The study hypotheses were tested using the hierarchical linear model (Bryk & Raudenbush, 1992).

The hierarchical linear model allows one to simultaneously examine relationships within a particular level and relationships between or across levels. Data on nurses are nested within nursing units; thus, the level 1 model examines relationships within each of the nurses (that is, relationships between leadership styles and job satisfaction), and the level 2 model estimates how these relationships within units vary between units (that is, how the relationships between leadership styles and job satisfaction vary between units when span of control is taken into consideration). Data for level 1 were obtained from the nursing staff. Level 2 data were obtained from the nurse managers and from organizational documents provided by human resources departments.

Study Findings

Description of the Sample

The sample consisted of 717 nurses out of 744 who attended the information sessions and received questionnaires, a 96 percent response rate. Of the 686 patients who met the study criteria, 680 patients participated in the study, giving a 99 percent response rate. Subjects were drawn from 51 units and 41 managers and included all of the units and managers that met the study criteria. Certain units that some managers are responsible for did not meet study criteria, thus were not included.

Nurses' Age, Experience, and Education

Table 1 shows the nurses had a mean age of 40 years, seven years of unit experience, 12 years of hospital experience, and 16 years total nursing experience. These results compare well with the study findings of McGillis Hall, et al. (2003), which showed that in 1,116 nurses, the mean age was 39 years and they had eight years of unit experience, 13 years of hospital experience, and 16 years of total nursing experience.

Table 1. Nurses' and managers' age and experience

	Nurses		Managers	
	Mean	**Range**	**Mean**	**Range**
Age	40	20 - 64	45	30 - 59
Unit Experience	7	1 - 35	5	1 - 25
Hospital Experience	12	1 - 38	7	1 - 25
Total Experience	16	1 - 43	10	1 - 30

Figure 2. Nurses' education

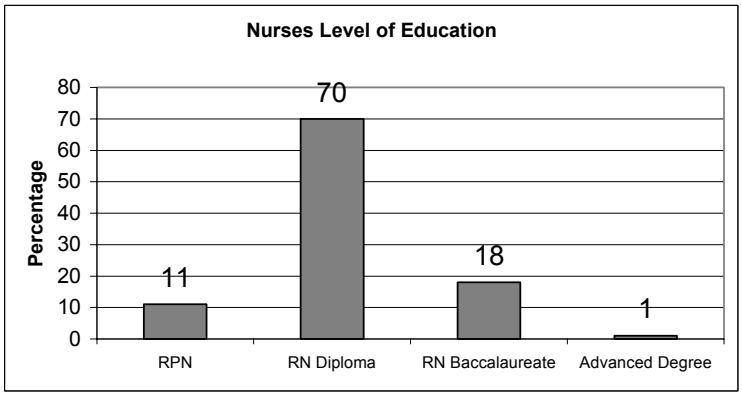


Figure 2 shows that most nurses were prepared at the diploma level (70 percent), with 18 percent at the baccalaureate level. More nurses (22 percent) in McGillis Hall et al.'s (2003) study had baccalaureates, which is likely due to a difference in setting.

McGillis Hall et al.'s study involved teaching hospitals, while the present study included both teaching and non-teaching hospitals.

Managers' Age, Experience, and Education

Figure 3. Managers' level of education

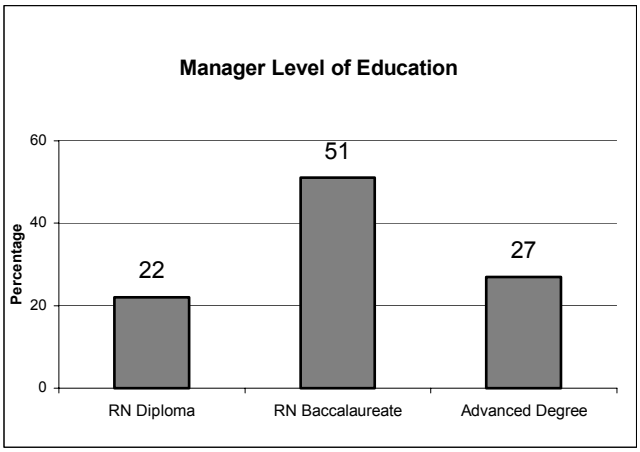


Table 1 also shows that the managers in the study had a mean age of 45 years old and that they had been managers on their present unit for five years, with seven years in the hospital and 10 years total management experience. Half (51 percent) of the managers had a baccalaureate degree. About 27 percent of the managers had an advanced degree compared to 16 percent in McGillis Hall et al.'s (2003) study. Higher education could mean the study results on transformational leadership style may be higher based on Dunham Taylor's (2000) findings that nurse executives with higher educational degrees tended to have higher transformational scores.

Span of Control

Table 2 shows the span of control of the 41 managers. One unit with a 258 span of control, which was considered an extreme value or an outlier, was removed from the analysis. The managers in this study had a larger span of control (median = 67) than those in the sample (n = 1,352) used by Donner and Wylie (1995), in which only 15 percent had greater than 60 span of control. This difference is likely due to the mergers after 1995.

Table 2. Span of control, job satisfaction, patient satisfaction, and turnover rate

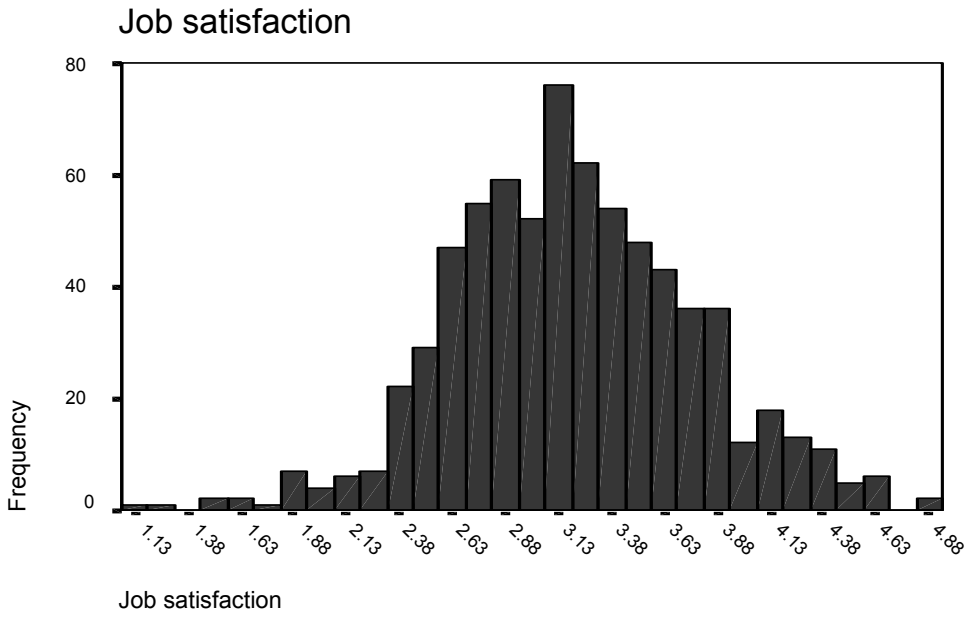
	Number in Sample	Mean	Range
Span of control of 41 managers	41	81	36 - 258
Span of control of 40 managers*	40	77	36 - 151
Nurses' job satisfaction	717	3.20	1.06 - 4.94
Patient satisfaction	680	2.16	1 - 5
Unit turnover rate	51	.18	.10 - .63

**unit of 258 span of control excluded*

Nurses' Job Satisfaction

Figure 4 presents the nurses' job satisfaction scores distribution. Scale range is 1 = very dissatisfied, 2 = dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, and 5 = very satisfied. On average, nurses reported a moderate level of job satisfaction.

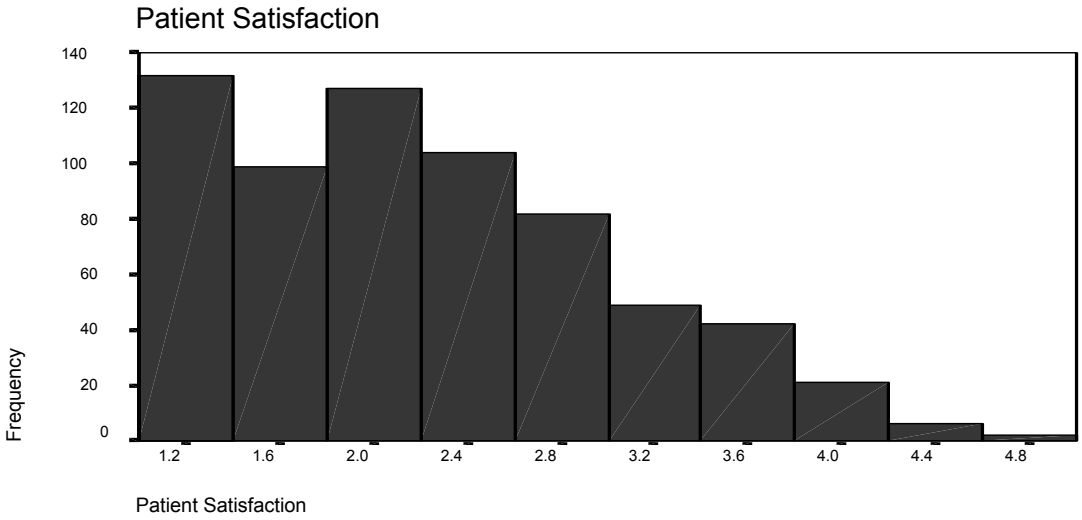
Figure 4. Nurses' job satisfaction



Patient Satisfaction

The patient satisfaction scores distribution is shown in Figure 5. The item with the lowest mean score (1.64, very good to excellent) was item 7, "courtesy and caring by nurses." Item 19, "co-ordination of care after discharge," received the highest mean score (3.61, fair to good). Scale range is 1 = excellent, 2 = very good, 3 = good, 4 = fair, and 5 = poor.

Figure 5. Patient satisfaction



Turnover Rate

As illustrated in Table 2, the mean unit staff turnover rate was 18 percent, which is relatively high.

Relationships between Leadership, Span of Control, and Job Satisfaction

Transformational and transactional leadership styles were found to have a positive effect on nurses' job satisfaction, while management-by-exception and laissez-faire leadership styles had a negative effect. Transformational and transactional leadership styles explained a relatively large proportion (22 and 20 percent, respectively) of the variability in the individual scores for nurses' job satisfaction within nursing units.

A regression analysis was conducted to determine the effect of span of control on nurses' job satisfaction. Span of control was not found to be a predictor of nurses' job satisfaction.

The results of steps two and three of the hierarchical model are similar to the results of the multiple regression analysis. Three variables — transformational, transactional, and management-by-exception leadership styles — contribute significantly to explaining nurses' job satisfaction. Transformational and transactional leadership styles were positively related to nurses' job satisfaction; thus the higher the nurses rated their manager as having a transformational or transactional leadership style, the higher the nurses' job satisfaction. Conversely, management-by-exception leadership style was weakly and

negatively related to nurses' job satisfaction; that is, the higher the nurses rated their managers as having a management-by-exception style, the lower the nurses' job satisfaction. On the other hand, laissez-faire leadership style was not found to have a significant effect on nurses' job satisfaction.

An analysis was conducted to determine the effect of span of control on the relationship between leadership style and nurses' job satisfaction. The test was performed to measure the possible interaction between span of control and leadership. The results showed four significant cross-level interactions between span of control and leadership styles on nurses' job satisfaction. First, span of control moderated the relationship between transformational leadership style and nurses' job satisfaction, with the interaction explaining 79 percent of the variance in the relationship. Second, a smaller (13 percent) proportion of the variance in the relationship between transactional leadership style and job satisfaction was explained by the moderating effect of span of control. Third, nine percent of the variance in the relationship between management-by-exception leadership style and job satisfaction was explained by the moderating effect of span of control. Finally, eight percent of the variance in the relationship between laissez-faire leadership style and job satisfaction was explained by the moderating effect of span of control.

These results support the hypothesis that span of control decreases the positive effect of both the transformational and transactional leadership styles on nurses' job satisfaction and increases the negative effect of management-by-exception and laissez-faire leadership styles on nurses' job satisfaction. Therefore, the positive effect of transformational leadership style on nurses' job satisfaction is greater in units with lower span of control than in units with higher span of control.

Relationships between Leadership, Span of Control, and Patient Satisfaction

A hierarchical linear model was used to test the hypotheses specific to the dependent variable patient satisfaction. A one-way analysis of variance with random effects was conducted to measure the degree to which total variance in patient satisfaction may be attributed to individual scores (variance within), and how much may be attributed to nursing units (variance between). The proportion of variance in patient satisfaction explained by differences between nursing units was 12.72 percent.

A multiple linear regression analysis was conducted to measure the effects of unit-level predictors and demographic variables on patient satisfaction. Seven variables contributed significantly to explaining the variability in patient satisfaction. These variables are listed in Table 3 in the order entered in the regression analysis. In terms of the independent study variables, two were found to have a significant effect on patient satisfaction: transactional

leadership style increased patient satisfaction, while span of control decreased patient satisfaction. More specifically, units with managers with a transactional leadership style had higher patient satisfaction. In contrast, units with wider span of control had lower patient satisfaction.

In terms of confounding variables, five variables were found to have a significant effect on patient satisfaction. One variable, the number of staff categories reporting to the manager, increased patient satisfaction. In contrast, four variables decreased patient satisfaction: type of unit, unit unpredictability, number of staff not reporting to the manager, and nurses' unit experience. In other words, units with a larger number of staff categories reporting to the manager had higher patient satisfaction. On the other hand, day surgery and units with higher unpredictability, larger number of staff not reporting to the manager, and with nurses with longer unit tenure had lower patient satisfaction.

Table 3. Unit-level variables

Predictor variables of patient satisfaction
1. Nurses' unit experience
2. Staff not reporting to manager
3. Number of staff categories
4. Type of unit
5. Unit unpredictability
6. Transactional leadership style
7. Span of control

Hierarchical linear modeling was conducted to measure the effect of span of control on the relationship between leadership style and patient satisfaction. This test was done to measure the possible interaction between span of control and leadership style. The results show a significant cross-level interaction between span of control and leadership styles on patient satisfaction. Span of control moderates the relationship between transformational and transactional leadership styles and patient satisfaction. More specifically, in units with wider span of control, the positive effect of transformational and transactional leadership styles on patient satisfaction was decreased.

Relationship between Leadership, Span of Control, and Turnover

A multiple linear regression analysis was conducted to measure the effects of unit-level predictors on turnover. The findings support the hypothesis that transformational leadership style decreases turnover and that span of control increases turnover. One

demographic variable, the manager's unit experience, decreased turnover. In other words, units with managers with transformational leadership style and with managers with longer tenure had lower turnover rates. Conversely, units with wide spans of control had higher turnover rates.

The next step in the analysis examined the effect of the interaction between span of control and leadership on turnover at the unit level. The interactions were not significant with or without covariates. Span of control was found to have no significant moderating effect on the relationship between leadership styles and unit turnover. As reported in the preceding paragraph, span of control had a main effect on turnover; that is, wide span of control increased turnover.

Summary

In terms of nurses' job satisfaction, transformational and transactional leadership styles increased nurses' job satisfaction, while management-by-exception leadership style decreased nurses' job satisfaction. Span of control moderated the relationships between leadership styles and nurses' job satisfaction. More specifically, wide spans of control decreased the positive effect of transformational and transactional leadership styles on nurses' job satisfaction and increased the negative effect of management by exception and laissez-faire on nurses' job satisfaction.

Transactional leadership style increased patient satisfaction, while span of control decreased patient satisfaction. In other words, units with managers with transactional leadership styles and narrow span of control had higher patient satisfaction than units with higher spans of control. In addition, span of control moderated the relationship between transactional leadership style and patient satisfaction. In particular, wide span of control decreased the positive effect of transactional leadership style on patient satisfaction.

With regards to turnover, transformational leadership style decreased turnover. As well, span of control had a main, but not a moderating, effect on turnover. More specifically, units with managers with transformational leadership styles and narrow span of control had lower turnover than units with managers with low transformational leadership style and wide span of control.

Discussions and Implications

The purpose of this study was to examine the relationships between leadership, span of control, and outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit turnover. Study findings and implications for research and practice are discussed.

Leadership and Outcomes

One of the proposed relationships in the theoretical model is the influence of leadership on outcomes. This was tested by examining the effects of leadership on outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit turnover. The study findings provide support for these relationships and are discussed below.

Transformational leadership style

Transformational leadership style was a significant predictor of nurses' job satisfaction and unit turnover. The findings on the effect of transformational leadership style on nurses' job satisfaction correspond with the results reported by studies in the nursing literature (Bakker et al., 2000; Stordeur et al., 2000; Stordeur et al., 2001). Transformational leaders exert a significant positive impact on staff satisfaction by providing support, encouragement, positive feedback, and individual consideration and by promoting open communication. These leadership behaviours tend to generate a favourable climate on the unit, characterized by increased co-operation, teamwork, and fewer interpersonal conflicts. As well, these behaviours have been found to decrease nurses' feelings of stress (Stordeur et al., 2000) and emotional exhaustion (Stordeur et al., 2001) and increase nurses' self-esteem (Bakker et al.).

The findings on the effect of leadership style on turnover are congruent with the findings of Leveck and Jones (1996). Leveck and Jones found that leadership style has an indirect effect on staff retention through job satisfaction. More specifically, leadership style affects group cohesion and job stress, which in turn influence job satisfaction and subsequently turnover. Shader (2001) found that the higher the job stress the lower the group cohesion, the lower the work satisfaction, and the higher the anticipated turnover. This indirect effect may also be applicable to the results of this study. This is an important finding because it clarifies the relative importance of leadership in understanding turnover. Leadership has not been included in most studies on turnover.

Transactional leadership style

Similar to the findings on transformational leadership style, although to a lesser extent, transactional leadership had a significant positive influence on nurses' job satisfaction. The higher the nurses rated their manager as having a transactional leadership style, the higher the nurses' job satisfaction. Transactional leaders assign tasks, specify procedures, and clarify expectations. These transactional leadership behaviours have been shown to decrease emotional exhaustion (Stordeur et al., 2001), reduce role ambiguity, and increase job satisfaction (Gray Toft & Anderson, 1981).

On the other hand, the study results were inconsistent with the findings of Medley and Larochelle (1995), who found that transactional leadership did not influence job satisfaction. This difference in findings is likely attributed to the fact that Medley and Larochelle defined transactional leadership as consisting of the management-by-exception items and considered the contingent reward items as part of transformational leadership. The present study defined transactional leadership style as consisting of contingent reward items.

Transactional leadership style was a significant predictor of patient satisfaction. This is an exciting and important finding. One possible explanation is that transactional leaders, as mentioned earlier, provide direction and clarification of tasks, procedures, and expectations, which in turn facilitates patient care. There are no studies that have examined the effect of the unit manager's transactional leadership style on patient satisfaction.

Transactional leadership style did not have a significant effect on turnover. A possible explanation is that benefits, rewards, and disciplinary terms are included in the union contract, with most hospitals offering similar terms. Thus these items may not be an issue for nurses deciding to leave. As well, transactional leadership style was highly correlated with transformational leadership style; thus it may have been redundant. In other words, once transformational leadership style was accounted for in the regression model, transactional leadership style did not contribute significantly to the explanation of the variation in turnover rates.

Management-by-exception leadership style

Management-by-exception leadership style had a significant effect on nurses' job satisfaction, but not on patient satisfaction and unit turnover. The more nurses rated their managers as having a management-by-exception leadership style, the lower the nurses' job satisfaction. These results are consistent with the findings of several studies (Bakker et al., 2000; Bass, 1985; Bass & Avolio, 1990; Densten & Gray, 1998; Hater & Bass, 1988; Morrison, 1997; Stordeur et al., 2000; Stordeur et al., 2001). Management-by-exception managers are perceived as only available to monitor their staff so as to prevent mistakes. This tends to cause higher levels of anxiety, emotional exhaustion (Stordeur et al., 2001), and burnout (Bakker et al.). As well, the manager's monitoring may be perceived as a lack of trust by staff. Studies that examined the association between leadership style and turnover are sparse and did not include management-by-exception in the assessment.

In summary, the study results have reaffirmed the findings in management and nursing research that some leadership styles, particularly transformational, are better than others. Transformational leadership style increases nurses' job satisfaction and decreases turnover. Transactional leadership style increases nurses' job satisfaction and patient satisfaction.

Span of Control and Outcomes

Another proposed relationship in the theoretical model is the influence of span of control on outcomes. This was tested by examining the effects of span of control on outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit staff turnover. The study findings provide support for the proposed relationships.

Span of control was a significant predictor of patient satisfaction and unit turnover but not of nurses' job satisfaction. The results specific to job satisfaction are not congruent with the findings by Burke (1996). Burke found that wide span of control decreased job satisfaction; that is, staff in larger units reports fewer satisfying work outcomes, such as less satisfaction with the firm. A possible explanation is that the effect of span of control on job satisfaction has only a moderating influence, rather than a main effect. The moderating effect of span of control is discussed in the next section.

Span of control had a significant influence on patient satisfaction. Units with wider span of control had lower patient satisfaction. One possible explanation is that managers with wide span of control have less time to develop, implement, and evaluate systems and processes that enhance patient care.

Span of control had a significant positive effect on unit turnover. The predicted turnover rate increased by 1.6 percent with every change of 10 in the size of span of control. For example, with a span of control of 50, the unit turnover rate would be eight percent, and a span of control of 100 would have a 16 percent turnover rate. Thus the wider the manager's span of control, the higher the unit turnover. Possible explanations for this effect may be found in the findings of Green et al. (1996) and Gittell (2001). Green et al. found that when the work unit increases in size, relationships between managers and staff become less positive. Managers are not able to develop close relationships with staff and provide support and individual consideration while at the same time seeing to the daily operations of their unit. Gittell found that small supervisory spans have positive effects on group process; that is, managers with smaller spans are able to relate more with the staff. Managers with smaller spans work with and provide intensive coaching and feedback to their staff.

Span of Control, Leadership, and Outcomes

The third proposed relationship in the theoretical model is the moderating influence of span of control on the relationship between leadership and outcomes. This was tested by examining the effects of the interaction between span of control and leadership on outcomes as measured by nurses' job satisfaction, patient satisfaction, and unit staff turnover. The study findings provide support for some of the proposed relationships.

For patient satisfaction, span of control moderated the relationships between transformational and transactional leadership styles and patient satisfaction. In particular, in units with wide span of control the positive effect of transformational leadership style on patient satisfaction was decreased.

In terms of nurses' job satisfaction, span of control moderated the relationships between the four leadership styles and nurses' job satisfaction. More specifically, the positive effect of transformational leadership style on nurses' job satisfaction was significantly reduced in units where managers had wide spans of control. Similarly, although to a lesser extent, the positive effect of transactional leadership style on nurses' job satisfaction decreased in units with wider managerial spans of control. The time constraints and demands are likely greater for managers with wide spans of control, resulting in limited opportunities for interaction between the manager and individual staff. The limited interaction may decrease the ability of the manager and staff to develop close and quality relationships.

The study findings are consistent with the findings of Green et al. (1996) that as work unit size increases, the relationships between the manager and staff become less positive. As well, Gittell (2001) noted less-timely communication in groups with broad spans of control. In such situations the manager does not have time to consistently provide transformational leadership, such as encouraging and supporting staff and providing individual consideration. On the other hand, managers with small spans of control were able to relate more with staff and provide coaching and feedback to staff.

Finally, the negative effects of the interaction between span of control and management-by-exception and laissez-faire leadership styles on nurses' job satisfaction were increased in units where managers had wider spans of control. An explanation for this moderating influence also relates to the manager's lack of time due to wide span of control. This lack of time may result in increased practice of management-by-exception — which focuses

only on mistakes rather than on providing support and individual consideration — and laissez-faire — that is, a lack of leadership. Since even at the best of times management-by-exception and laissez-faire managers do not consistently attend to the needs of their followers, it is likely that these managers will turn their attention away from work even more in situations of wide span of control.

The study findings, however, show that there are exceptions. In some cases, the negative effect of management-by-exception and laissez-faire leadership styles showed a decrease, rather than the expected increase; that is, some units with wide spans of control had higher nurses' job satisfaction than units with narrow spans of control. This is a surprising finding. Under some situations, as yet to be determined, managers with a management-by-exception or laissez-faire leadership style are able to point out mistakes or errors less frequently under wide spans of control.

Confounding Variables

For nurses' job satisfaction, none of the demographic variables was found to have a significant effect on nurses' job satisfaction.

In terms of turnover, only one demographic variable was found to have a significant influence on unit staff turnover. The managers' unit experience was found to decrease turnover. In other words, units with managers with longer unit tenure had lower turnover. One possible explanation is that a manager with longer unit tenure has been able to develop close relationships with the staff and thus be more responsive to the needs of staff and the unit. As well, the manager is likely more aware of staff strengths and weaknesses and thus more apt and better able to delegate responsibilities. There were no studies found in the literature that examined the effect of managers' unit experience on turnover.

For patient satisfaction, five confounding variables were found to have a significant effect on patient satisfaction. One unit variable, number of staff categories reporting to the manager, was found to increase patient satisfaction. More specifically, units with larger number of staff categories reporting to the manager had higher patient satisfaction. A possible explanation is that the greater the number of staff categories, the more the staff is able to provide patient care and spend time with patients.

Four of the five variables were found to decrease patient satisfaction. First was the nurses' unit experience, where units with nurses with longer unit tenure were found to have lower patient satisfaction. A possible explanation is that unit tenure equates to what Decker (1997) refers to as a period of exposure to the role strains within the hospital system. Thus the longer the nurses' unit tenure, the greater the stress nurses felt which could possibly

transfer to patients. Second was the number of staff resources for the unit but not reporting to the manager. Units with larger number of staff resources available for the unit but not reporting to the manager had lower patient satisfaction. One possible explanation is that staff not reporting to the manager had less unit identification. Third is the type of unit. More specifically, day surgery units were found to have lower patient satisfaction, possibly because of the short patient stay; thus nurses are not able to form good relationships with patients. Finally, units with higher unit unpredictability were found to have lower patient satisfaction. A possible explanation is that the more unpredictable the unit is, the greater the complexity of the work; thus nurses would more than likely appear to be in a hurry and have less time for stable patients.

Implications for Research and Practice

This study is the first to theorize span of control as a moderating variable in the relationship between leadership and outcomes. The primary contributions of the span of control moderator theory to research and practice follow from its underlying premise that leaders have difficulty in consistently practicing positive leadership behaviours under wide span of control. The theoretical framework developed in the study presents a model of leadership effectiveness that has greater explanatory potential than the simple relationship between leadership and outcomes.

The study's theoretical model also provides an important link between the emphasis on individual relationship quality in transformational leadership research and the emphasis on situational factors in contingency leadership analysis. Combining the assessment of the manager-nurse relationships and the organizational structure within which staff and managers interact has resulted in an integrated framework for studying leadership and manager-nurse relationships in organizational contexts; that is, the effects of leadership style and span of control on outcomes.

Are some leadership styles better than others?

Transformational leadership style and, to a lesser extent, transactional leadership style result in more positive staff outcomes than management-by-exception and laissez-faire leadership styles. Transformational leadership style increases nurses' job satisfaction and decreases turnover. Transactional leadership style increases nurses' job satisfaction and patient satisfaction. Management-by-exception leadership style decreases nurses' job satisfaction. An important issue is whether leaders can consistently exhibit transformational leadership behaviours regardless of organizational context, such as span of control. Research efforts that explore how various organizational contexts affect leaders, staff, work groups, and organizations are necessary.

Is there an optimum span of control?

A second significant implication for research and practice concerns the question of optimum span of control. Stieglitz (1962) and Rodger (2002) presented some factors that need to be considered when deciding the size of span of control. These factors include similarity of the workers' functions, geographic proximity of the workers, complexity of functions, direction and control required by the workers, degree of co-ordination required of the workers, organizational assistance, and unit unpredictability. Research that will examine the extent to which these factors affect the size of the span of control is necessary.

More importantly, research on the impact of span of control on processes and outcomes is critical. The question is how wide can the manager's span of control be for the manager to still be effective. There are no firm guidelines, but the impact of span of control on the relationship between leadership style and nurses' job satisfaction and on patient satisfaction and unit staff turnover can serve as a guide in answering this question. For example, the study results indicate the significant decrease in the positive effects of transformational and transactional leadership styles on nurses' job satisfaction and patient satisfaction in units with managers with wide span of control. As well, the study findings suggest an increase of 1.6 percent in unit turnover rate for every increase of 10 in the size of span of control. Thus a span of control of 100 is predicted to have a 16 percent turnover rate.

The study findings suggest a need to conduct studies to examine the relationships between span of control and other outcomes, particularly patient outcomes — such as functional status — and organizational outcomes, such as cost per weighted case.

What is the optimum leadership style under differing spans of control?

A third important implication for research and practice concerns the question of optimal leadership style under different spans of control. An interesting finding of this study is that no leadership style can overcome the effects of a wide span of control. Research efforts to further explore this finding are necessary. Further empirical evidence supporting the study's propositions would encourage organizations to consider the importance of a manageable size of span of control when determining the structure for the management of patient care units. As well, the study findings support the need to develop guidelines regarding the number of staff a nurse manager may effectively supervise and lead. It is very difficult, if not impossible, to consistently provide positive leadership to a large staff while at the same time ensuring, on a daily basis, the effective and efficient operation of a large unit.

Conclusions and Recommendations

Conclusions

The conclusions are based on the study findings and support for the study hypotheses. Conclusions must be interpreted within the context of the study. Care must be taken in generalizing the study findings to other hospitals, units, and staff beyond those comparable to the study participants.

Effect of Leadership on Job Satisfaction, Patient Satisfaction, and Turnover

Leadership matters, and some leadership styles — particularly transformational — are better than others. The higher the nurses rated their manager as having a transformational leadership style, the higher the nurses' job satisfaction and the lower the unit turnover rate. Conversely, the higher the nurses rated their manager as having a management-by-exception leadership style, the lower the nurses' job satisfaction. Transactional leadership style was found to increase patient satisfaction. The findings in this study provide empirical evidence demonstrating relationships between leadership and patient satisfaction and leadership and turnover, using the transformational leadership theory.

Effect of Span of Control on Job Satisfaction, Patient Satisfaction, and Turnover

Span of control matters — the wider the span of control, the higher the unit turnover rate and the lower the patient satisfaction. This is the first study to provide empirical evidence on these relationships.

Moderating Effect of Span of Control

There is no leadership style that can overcome a wide span of control. More specifically, the wider the span of control, the less positive the effect of transformational and transactional leadership styles on nurses' job satisfaction and the more negative the effect of management-by-exception and laissez-faire leadership styles on nurses' job satisfaction. As well, wide spans of control decrease the positive effect of transformational and transactional leadership styles on patient satisfaction. Also, wide spans of control decrease the positive effects of transformational and transactional leadership styles on patient satisfaction. This is the first study to demonstrate the moderating effect of span of control on the relationship between leadership styles and nurses' job satisfaction and on the relationship between leadership styles and patient satisfaction.

In conclusion, the major contribution of this study is its finding that no leadership style can overcome a wide span of control.

Recommendations

Recommendations for practice

The results of this study support the importance of the manager's leadership style and span of control in creating a positive work environment. First, these findings reaffirm the need for organizations to provide mechanisms to help managers become effective leaders. Organizations should design and implement management training and development programs that focus on effective and facilitative leadership styles, such as a transformational style of leadership.

Second, the moderating influence of span of control on the effects of leadership on nurses' job satisfaction demonstrates that no leadership style can overcome a wide span of control. It is not humanly possible to consistently provide positive leadership to a very large number of staff while at the same time ensuring the effective and efficient operation of a large unit on a daily basis. Thus there is a need to develop guidelines regarding the number of staff a nurse manager can effectively supervise and lead.

Recommendations for theory and future research

The study's theoretical framework, that is, the moderating influence of span of control on the relationship between leadership and outcomes, offers a model of leadership effectiveness that has a greater explanatory potential than the simple relationship between leadership and outcomes. The study findings suggest the need for research that examines whether leaders consistently exhibit transformational leadership behaviours regardless of the organizational context. As well, the investigation of the relationships between span of control, leadership, and outcomes that are patient-specific, such as functional status, is recommended.

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