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PROBLEM SOLVING AMONG NURSES AS A STRATEGY FOR COPING WITH THE STRESS OF HOSPITAL RESTRUCTURING

Paul D. Tyson,[1]* Rana Pongruengphant,[2] and Bela Aggarwal[3]

[1]*Department of Psychology, Brock University, St. Catharines, Ontario, Canada L2S 3A1.*
[2]*Faculty of Nursing, Burapha University, Bangsaen, Chonburi 20131, Thailand.*
[3]*Fonthill, Ontario, Canada L0S 1E0.*

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ABSTRACT

Problem solving as a strategy for coping with government cutbacks and anticipated staff reductions was examined as a buffer of organizational stress and job satisfaction. A sample of 107 nurses was asked to rate their occupational stress, job satisfaction, and coping strategies. Avoidance and social support were found to be significantly correlated with stress, but neither of these coping strategies appeared to reduce nurses' level of organizational stress. However, an interaction between problem solving and job satisfaction was found to be highly significant and it added 42% to predicting stress levels. Supporting the stress-buffering hypothesis, nurses with lower intrinsic job satisfaction seemed to benefit from employing problem solving whereas dissatisfied nurses who infrequently use problem solving reported the highest levels of organizational stress. Paradoxically, intrinsically satisfied nurses who most frequently utilize problem solving experienced heightened organizational stress. Protracted problem solving aggravated stress levels among nurses with insufficient information, decisional control, or resources to cope with the anticipated demands of hospital restructuring.

Keywords : Occupational stress, coping and problem solving, job satisfaction.

INTRODUCTION

This study is part of a cross-cultural investigation of how nurses cope with stress (Pongruengphant and Tyson, 1997, 2000), but this paper will narrow the focus to whether problem solving can buffer organizational stress, which appears to be related to hospital restructuring in Ontario, Canada. Recent research on the effects of hospital restructuring in Ontario found that nurses' perceived it as a threat to job security, patient care, and job satisfaction (Burke and Greenglass, 2000). In particular, both full-time and part-time nursing staff attributed the negative effects of organizational restructuring and deterioration in working conditions to recent government interventions into health care.

* Corresponding author. E-mail address: tyson@spartan.ac.brocku.ca

Political background

Since the early 1970s, nursing in Canada has made significant political strides and has gained a measure of recognition as a key interest group in health care (Baumgart, 1999). Even though nurses are now consulted more regularly, governments make policy decisions, with far-reaching implications for nursing services and education, ignoring nurses' views and policy solutions. For instance, the Ontario Government established the Health Services Restructuring Commission in 1995 which was given the authority to reduce the duplication of health services by reallocating resources, reducing staff, and closing hospitals. Federal and Provincial funding cuts have resulted in fewer registered nurses being available to provide patient care. The nurse-to-patient ratio in Ontario has become the worst in Canada over the last five years and full-time nursing jobs have declined, while casual nursing has increased (Ontario Nurses' Association, Feb. 16, 1999). Studies have shown that registered nurses are more likely to miss work due to illness than police officers, firefighters, machine operators, and other shift-workers (Canadian Institute for Health Information, 2001). In addition, absenteeism among full-time nurses and nursing assistants was more than three weeks a year compared to about six and a half days for all Canadian workers. Enid Mitchell, Vice-President of the Ontario nursing union, said that "nurses are tired of being overworked and understaffed, and they are fed up with bearing the brunt of health care cutbacks. They are angry and demoralized, and they have been pushed to the wall." (Ontario Nurses' Association, June 30, 1999).

Occupational stress

Data collected from a nationwide survey of New Zealand nurses (Dewe, 1987), from nurses within Canada (Jamal, 1984), the U.K. (Hingley and Cooper, 1986), the U.S.A. (Humphrey, 1992), and Thailand (Pongruengphant and Tyson, 1997) have identified several common sources of occupational stress. These sources of stress include (1) workload pressures due to insufficient time and resources to complete nursing tasks, (2) pressures due to role ambiguity and coping with changing responsibilities, (3) pressures dealing with patients and relatives especially when patients are dying, (4) pressures due to conflicting demands of work and home, and finally (5) organizational pressures due to nurses' lack of involvement in planning and decision making (Harris, 1989). In the present study, government cutbacks, hospital restructuring, and anticipated staff reductions were hypothesized to be a major source of organizational stress for hospital nurses.

Coping and problem solving

The quality of nurses' care is dependent on the ability to adjust to and cope with a wide range of occupational demands, both psychological and physiological (Dewe, Cox, and Ferguson, 1993). Work-related demands are not the only factors determining occupational stress. According to Lazarus (1995), stress occurs when there is an imbalance between the perceived demands and appraised ability to cope with those demands. Many coping strategies effectively reduce this perceived discrepancy by use of defense mechanisms such as avoidance, selective attention, rationalization and procrastination. However, the effectiveness of these strategies is limited to short periods of time before negative feedback reintroduces stress (Ashford, 1988). Coping strategies such as problem solving that reduce the discrepancy by attempting to manage the situation could reduce stress in the work place.

Problem solving is an integral part of nursing education and it is expected that nurses cope with stressful situations by utilizing this strategy (Pongruengphant and Tyson, 1997). Using a medical model, problem solving is comprised of at least three stages: diagnosis, treatment, and evaluation

(Cox, 1987). Following the nurse's recognition that a problem exists, an appropriate diagnosis requires adequate information about the situation to define the problem and generate a range of possible solutions. Treatment of problems may be implicit in the way the problem is defined and generation of possible solutions usually begins by recalling those used in previous and similar situations. Once a possible treatment has been identified, and before specific actions are taken, implementation may be preceded by contingency planning, for example, "what do I do if" (Cox, 1987). Finally, evaluation of treatment should be examined holistically assessing the quality of patient care and specifically in terms of improving the stressful situation. Feedback on the consequences of treatment should be used to evaluate the problem solving process.

Despite the rationale for the use of problem solving in the health care field, the models are idealistic and run into considerable difficulty when insufficient or biased information is available to diagnose the problem and inadequate resources are available to implement the proposed solutions. Particularly in unique or novel situations, not every treatment will be successful in terms of improving patient care or the ability to cope with the stressful event (Tyler and Cushway, 1992). Faulty or lack of evaluation may lead to the same incorrect decisions being made in future problem solving situations resulting in deterioration of patient care.

Research question

The primary research question is whether problem solving has beneficial buffering effects on job satisfaction and organizational stress associated with hospital restructuring. Without a buffering effect, the amount of problem solving is predicted to be positively related to stress; however, the strength of this relationship would be reduced to the extent coping might successfully moderate the outcome variable. Statistically, the buffering hypothesis is tested by looking at interactions between stress, problem solving, and job satisfaction (Aiken and West, 1992). In this study, interactions between intrinsic or extrinsic job satisfaction and each of the three coping strategies will be examined as possible buffers of organizational stress. Especially among nurses with lower job satisfaction, the buffering effect will depend on how effectively problem solving diminishes the pressures associated with nurses' lack of involvement during the hospital restructuring process.

Research hypotheses

The first hypothesis predicts that organizational pressures due to nurses' lack of involvement in planning and decision making related to hospital restructuring will be a major source of occupational stress.

The second hypothesis predicts a negative correlation between occupational stress and job satisfaction. Job satisfaction, defined as the individual's assessment of the extent the job meets their needs and expectations, will be reduced by job-related stress.

The third hypothesis predicts a positive relationship between coping strategies and occupational stress. As nurses experience higher levels of stress, they will attempt to manage the perceived demands by utilizing more problem solving, social support, and avoidance coping strategies.

The forth hypothesis predicts a stress buffering interaction between coping strategies and job satisfaction. The primary research question investigates whether problem solving can moderate the effects of organizational stress and improve nurses' job satisfaction.

METHODS

Nursing sample

The study was conducted in two Southern Ontario community hospitals each over three

hundred beds. Participants were informed that they would be asked fill out several questionnaires about stress, coping, and job satisfaction and each nurse was assured of remaining anonymous with an informed consent document approved by the university ethics committee. Two hundred questionnaires were distributed to nurses proportional to the number in each ward and 107 complete questionnaires were returned to secured boxes on each ward. The largest number of respondents were from medical wards (18.7%), followed by surgical (14%), chronic (12.1%), labor and delivery (10.3%), I.C.U. (9.3%), E.R. (7.5%), O.R. (3.7%), special care nursery (3.7%), obstetrics (2.8%), psychiatric (2.8%) and 12% other wards. The female nurses, registered by the College of Nurses of Ontario, were primarily staff nurses (84.1%), with 4.7% nurse managers, 4.7% coordinators, 2.8% charge nurses, 1.9% directors, and 0.9% nurse educators. The sample had a mean age of 32.5 years (SD = 7.3) and 5.6% were employed occasionally, 29% part-time, and 65.4% full-time. The two hospitals were not significantly different on any of the stress, coping, or job satisfaction variables.

Measures

Nurse stress index: This 30 item index asks nurses to rate their potential stress on a 6 point scale (Harris,1989). In this study Cronbach's alpha for the whole index was .92 and the six subscales were workload pressures related to insufficient time (Managing Workload 1, alpha = .75), workload pressures due to resources and conflicting priorities (Managing Workload 2, alpha = .68), Confidence and Competence in Role (alpha = .68), Dealing with Patients and Relatives (alpha = .75), Home and Work Conflicts (alpha = .68), and Organizational Support and Involvement (alpha = .82).

Coping strategy indicator: This 15 item indicator asks nurses to rate how frequently they used each coping option rated on a 6 point scale with 0 = never and 5 = all the time (Amirkhan, 1990). Three subscales assess three types of coping strategies. Problem solving strategy emphasizes defining goals, planning and searching for alternative solutions and had a Cronbach's alpha of .72. Social support strategy (alpha = .81) reflects a tendency to turn to others for advice, communication, and comfort. Avoidance strategy (alpha = .55) involves either physical or psychological withdrawal through distraction or fantasy. The coping scale also had an open ended question which asked nurses to describe the most important source of stress they had experienced as a nurse in the last six months.

Job satisfaction: This 20 item measure asks nurses to rate how they feel about their present job on a 5 point scale ranging from -2 = very dissatisfied to 0 = neutral to +2 = very satisfied. The short form of the Minnesota Satisfaction Questionnaire (Weiss et al., 1967) can be divided into intrinsic and extrinsic satisfaction subscales. The 12 item intrinsic subscale (alpha = .82) includes factors such as "the chance to make use of my abilities" and "the feeling of accomplishment I get from my job." The 6 item extrinsic subscale (alpha = .79) addresses individual satisfaction with factors such as pay, company policies, and management. The final total job satisfaction (alpha = .87) scores were computed by averaging across all 20 items in the scale which included two items directed at general working conditions.

RESULTS

Organizational stress

As hypothesized, the lack of involvement and organizational support during hospital restructuring was found to be the major source of stress reported by nurses. Hospital nurses felt the most pressure in their work environment from decisions being made from 'above' without their knowledge or involvement (M = 3.22, SD = 1.49). In addition, nurses felt that management misunderstands the real needs of their ward or department

(M = 2.96, SD = 1.32). Other major sources of stress included fluctuations in workload (M = 2.76, SD = 1.22), time pressures (M = 2.74, SD = 1.25), and changes or reductions in staff (M = 2.73, SD = 1.48). Supplementing these findings was an open-ended question, which asked nurses to describe their most important source of stress in the last six months. Twenty five percent of the respondents referred to increased workload due to staff shortages as their major source of stress, 22% to conflicts with management, 21% to job security, 5% to home/work conflicts, and 6% to other sources of stress. Interestingly, 20% specifically mentioned government cutbacks or restructuring as their most important source of stress.

Job satisfaction

As expected, stress measures were negatively correlated with job satisfaction. In particular, organizational stress was negatively correlated with total job satisfaction ($r = -.53$, $p < .001$), but appeared to be less related to intrinsic factors ($r = -.27$, $p < .01$) than extrinsic factors ($r = -.63$, $p < .001$). On a -2 to +2 scale, nurses were particularly dissatisfied with the way hospital policies were put into practice (M = -.51, SD = .69). On the positive side, hospital nurses reported the highest levels of intrinsic job satisfaction when they had a chance to do things for other people (M = +1.45, SD = .69) and make use of their abilities (M = +1.22, SD = .86).

Coping with stress

Coping strategies were hypothesized to be positively correlated with stress because nurses who report higher levels of stress were more likely to use some kind of strategy to cope with stress. Avoidance was correlated with stress associated with dealing with patients ($r = .32$, $p < .01$), organizational stress ($r = .27$, $p < .01$), home/work conflicts ($r = .25$, $p < .05$) and workload 2 ($r = .20$, $p < .05$). Social support was positively correlated with organizational stress ($r = .20$, $p < .05$), but the most frequently used coping strategy, problem solving, was negatively correlated with dealing with patients ($r = -.20$, $p < .05$). To summarize the main effects, job satisfaction was found to be superior to coping strategies as a predictor of most sources of stress.

Table 1. Organizational stress predicted by the main effects of job satisfaction, coping strategies, and their interaction.

Problem solving and organizational stress			
Stress = JS + PS + PS X JS	**JS**	**PS**	**Interaction**
Total job satisfaction F (3, 87) R^2 = 48.87%	28.26%	0.01%	20.60% ***
Extrinsic satisfaction F (3, 99) R^2 = 40.34%	40.02%	0.00%	0.31%
Intrinsic satisfaction F (3, 87) R^2 = 50.26%	7.41%	0.07%	42.79% ***
Social support and organizational stress			
Stress = JS + SS + SS X JS	**JS**	**SS**	**Interaction**
Total job satisfaction F (3, 85) R^2 = 29.99%	28.26%	1.70%	0.04%
Extrinsic satisfaction F (3, 97) R^2 = 44.81%	40.02%	4.28% **	0.51%
Intrinsic satisfaction F (3, 85) R^2 = 11.12%	7.41%	3.52%	0.19%
Avoidance and organizational stress			
Stress = JS + AS + AS X JS	**JS**	**AS**	**Interaction**
Total job satisfaction F (3, 88) R^2 = 32.74%	28.26%	4.47% *	0.01%
Extrinsic satisfaction F (3, 99) R^2 = 45.37%	40.02%	5.30% **	0.05%
Intrinsic satisfaction F (3, 88) R^2 = 14.16%	7.41%	6.31% *	0.44%

* $p < .05$ ** $p < .01$ *** $p < .001$

Predicting organizational stress

The focus of the results will narrow from considering six sources of stress to predicting only organizational stress using stepwise multiple regressions. The amount of organizational stress predicted by the main effects of job satisfaction, coping, and their interaction is shown in Table 1. As previously reported, job satisfaction (JS) as a main effect was negatively correlated with stress and specifically satisfaction with extrinsic factors predicted about 40% of organizational stress. The per cent of nurses' stress predicted by a variable is equal to the correlation squared, for example, a correlation of -.272 means that 7.41% of the variance was accounted for by intrinsic job satisfaction as a main effect. Social support contributed an additional 4.28% to extrinsic satisfaction and a nonsignificant 3.52% to intrinsic factors towards predicting stress (Table 1). Avoidance added a significant amount of new variance to extrinsic (5.3%) and intrinsic (6.3%) job satisfaction when predicting organizational stress. After the effects of job satisfaction were removed, the main effect of problem solving added an insignificant amount to predicting organizational stress. In general, nurses with low extrinsic job satisfaction had higher levels of organizational stress and although coping strategies such as social support and avoidance had significant main effects, their utilization appeared to reflect increases in stress.

In this study, the primary stress buffering hypothesis focused on the beneficial interaction between coping, stress, and job satisfaction. Researchers recognize that low correlations between coping and a source of stress may mean that the coping strategy was a buffer of stress (Aiken and West, 1992). In the case of problem solving, the hypothesized direct relationship between the amount of stress and coping can be cancelled out by the beneficial effects of utilizing problem solving. According to the buffering hypothesis, the level of stress will depend on how effectively a coping strategy reduces stress among nurses with lower job satisfaction. Therefore, nurses may benefit more from problem solving if they are dissatisfied with their job compared to nurses who are satisfied with their job.

The interaction between problem solving and intrinsic job satisfaction was found to be a significant predictor of stress even after the main effects had been removed from the multivariate equation (Aiken and West, 1992). The interaction of total job satisfaction and problem solving was significant (Table 1), but was primarily due to intrinsic factors which added 42.79% of unique variance towards predicting organizational stress. Predicting this amount of variance is extremely unusual given that most studies find that significant interactions with coping strategies, such as social support, account for 2% to 3% of the variance (McClelland and Judd, 1993). The highest levels of stress were among moderately dissatisfied nurses who did not frequently use problem solving as a strategy to cope with stress. The lowest levels of stress were among intrinsically satisfied nurses who did not frequently use a coping strategy. When utilized more frequently, problem solving was found to buffer organizational stress in nurses who had lower levels of intrinsic satisfaction, but was indicative of elevated stress in nurses who had higher levels of intrinsic job satisfaction. The interaction indicates that problem solving, as a coping strategy, may be directly related to increasing levels of stress or buffer organizational stress depending on the nurses' intrinsic job satisfaction.

DISCUSSION

Hospitals throughout Canada are currently experiencing massive changes to their organizational structure in an effort to reduce costs. In many cases, organizational change means hospital closure, job loss, reduced employee status, and higher levels of workload (Burke and Greenglass, 2000). The present study found the lack of organizational

support and involvement was the major source of stress reported by our sample of hospital nurses in Ontario. Nurses perceived that government and management did not understand the real medical needs of their hospital ward and that changes were being imposed on them without their involvement. Recent research reveals that nurses' appraisal of perceived controllability and self-efficacy were important factors when attempting to understand the stress associated with organizational restructuring (Bunce and West, 1994). Organizational stress, which seems to occur because Canadian hospitals have highly differentiated bureaucracies, could be modified by increasing the proportion of full-time nurses, increasing the efficacy of the communication process, and decentralizing decision-making (Leatt and Schneck, 1985). and pointed out that the level of occupational stress was a significant factor in determining job satisfaction. Confirming previous research, organizational stress was found to have a direct detrimental effect on job satisfaction (Decker and Borgen, 1993; Hipwell, Tyler and Wilson, 1989). Dissatisfaction with extrinsic factors like management decisions and hospital policies were strong predictors of organizational stress and in this study accounted for about forty percent of the variance. Although nurses' intrinsic job satisfaction was consistently higher than extrinsic satisfaction in this study, it only accounted for about seven percent of the variance related to organizational stress. This finding underlies the value of examining interactions between coping strategies and job satisfaction, which in this study accounted for a substantial proportion of the variance. Research has found that nurses' job satisfaction can be adversely affected by occupational stress, but this does not translate itself into performance or mental health effects unless the individual utilizes inappropriate coping strategies or is unable to cope (Hingley and Cooper, 1986).The Ontario Nurses' Association (2000) membership recently ratified a three-year labour agreement which has government promising to establish workplace committees and programmes to ensure that nurses have the opportunity to fully participate in the health care system. Further research is obviously required to evaluate the extent to which government changes have an impact on organizational stress and coping strategies.Four decades ago, Menzies (1960) drew attention to the pressures of nursing

Studies of occupational stress, particularly in the health care professions, emphasize a task-oriented, problem solving coping strategy as the most adaptive way of dealing with the pressures of workload, inadequate resources, role ambiguity and other sources of stress (Lazarus, 1995). Coping strategies such as avoidance, being considered palliative and ineffective, may temporarily reduce the emotional distress, but have few adaptive outcomes (Tyson and Pongruengphant, 1996). The present study found that avoidance and social support were significantly correlated with organizational stress, but these coping strategies did not appear to have stress-buffering effects. In contrast to other studies (Bhagat et al., 1994, Martin, 1993), problem solving was not correlated with organizational stress, but in this study did buffer the effects of stress among nurses with lower intrinsic job satisfaction.

The findings in this study may be specific to a situation where the government's organizational restructuring has layered a new form of stress on hospital managers and nurses. In the present study, the interaction of intrinsic job satisfaction and problem solving, which added 42.79% of unique variance towards predicting organizational stress, may be due to this new form of stress. Problem solving among nurses with lower levels of intrinsic satisfaction may buffer stress by focusing attention on controllable sources of stress and attracting support from colleagues, but many dissatisfied individuals who chronically disengage from emotional aspects of the situation have higher risks of depression and health problems (Tyler and

Cushway, 1992). This group of moderately dissatisfied nurses, who infrequently use problem solving, experienced the highest levels of stress and are in desperate need of stress management interventions as well as social and organizational support (Bunce and West, 1994).

Contrary to expectations, the results of this study imply that intrinsically satisfied nurses who engage in moderate amounts of problem solving experience less stress than their colleagues who feel they are planning or searching for alternative solutions either very frequently or all the time. One interpretation of this highly significant interaction is that the reorganization of hospitals in Ontario has created considerable anticipatory stress. For the nurses who are working the hardest to solve the problems there is insufficient information provided by government to analyze the future situation and plan for possible outcomes. In contrast, intrinsically satisfied nurses experiencing less stress may have adopted disengagement strategies, including relaxation methods, as a valuable coping method in situations not amenable to change (Lazarus, 1995). Ashford (1988) illustrates cognitive styles of disengagement utilized to forget about the implications of restructuring such as focusing on present problems, avoiding thinking about the future, and taking more vacations.

Policy implications

The Ontario government needs to provide hospital management with long-term legislative commitments to stabilize hospital funding, working conditions, and standards of health care. Hospital management needs to provide health professionals with sufficient information, decisional control, and resources to effectively implement problem solving and evaluate its effects on patient care and stress levels. Nurses feel stress because they are attempting to cope with actual harm and potential threats. Harm refers to damage that has already occurred, as in staff shortages, hospital closures, or lack of control over job demands (Lazarus, 1995). Threat refers to harm that has not yet happened, but is anticipated in the future. On the other hand, challenge refers to a condition of high demand in which the emphasis is on utilizing problem solving skills to master the demands, overcome obstacles, and grow as nurses. Instead of focusing on protecting ourselves from harm (Pongruengphant and Tyson, 2000), the attitude of challenge allows nurses to feel empowered, engaged, and expansive, rather than endangered, defensive, and self-protective (Lazarus, 1995). Realistically, the challenges of providing health care in the twenty first century require cooperation and trust between government, management, and health care professionals instead of the present adversarial climate.

Future research

Nurses feel that government has created a crisis in health-care services across the Province leaving them in a situation of attempting to cope with having direct responsibility for dealing with patients during times of high uncertainty and funding cuts (Ontario Nurses' Association, June 30, 1999). When nurses were asked to describe their most important source of stress in this study, they most frequently described stress from staff shortages increasing their workload, conflicts with hospital management, job insecurity, and government cutbacks or restructuring. The interaction demonstrates that problem solving can aggravate or reduce stress levels depending on nurses' intrinsic job satisfaction and persistence. Although these results support recent research on the effects of hospital restructuring on nurses in Ontario (Burke and Greenglass, 2000), there are limitations in this study because the sample size was small and limited to two community hospitals in a small geographical area. Longitudinal studies are needed to determine the effects of government's interventions on patient care, organizational stress, job satisfaction, and coping strategies.

The question "coping with what?" is of particular importance for nurses (Ritchie, 1999). Problem solving should not be considered the panacea for coping with organizational stress. Generally, it is believed that nurses with good problem solving skills can engage in constructive appraisals of stressful situations which are assumed to be under their control (Browne et al., 1994). When confronted with unpredictable events and intractable working conditions, the results of this study suggest that the most intrinsically satisfied nurses, who are vigilantly attempting to solve the problems in their hospital, may find that the attempt to cope with restructuring actually amplifies their stress.

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