

LONGITUDINAL STUDY OF STRESS AMONG FEMALE HOSPITAL NURSES IN THAILAND COMPARED TO CANADIAN NURSES

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ABSTRACT

Sources of stress, coping strategies, and job satisfaction were measured in 14 hospitals in Thailand, then again five years later using the same hospital wards, and compared to nurses in two Canadian hospitals. As hypothesized, increases in stress were reported by the sample of Thai nurses in the follow-up period, particularly related to role conflicts with physicians and lack of specialized training. The Canadian nurses, however, experienced higher levels of stress stemming from lack of involvement in decision making and management changing priorities. Paradoxically given the increased levels of stress, there were significant increases in Thai nurses' job satisfaction, particularly related to monetary compensation and chances for advancement. Canadian nurses experienced dissatisfaction with the implementation of hospital policy, recognition, and management style. Thai and Canadian nurses were most satisfied with being able to help patients and their profession allowing them an opportunity to utilize their ability. In both cultural settings hospital nurses utilized problem solving as their primary strategy, but Thai and Canadian nurses differed in their willingness to engage colleagues for social support and ways of avoiding stress.

Keywords : Occupational stress, coping strategies, job satisfaction, cross-cultural, hospital nurses.

INTRODUCTION

Cross-culturally, stress is an integral part of hospital life for health professionals, such as nurses, physicians, and administrators as their main responsibility focuses upon providing help to

patients who are usually encountering crises situations. Hospital nurses from many countries report a similar pattern of workplace stressors (Dewe, 1987; Hingley and Cooper, 1986; Lambert

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et al., 2004). Nurses rated high workloads and dealing with 'death and dying' as their major stressful events (Hipwell, et al., 1989). In addition to workload pressures, organizational factors within the hospital, such as role conflicts, particularly related to nurses being required to perform the physician's role, have been a major sources of stress and determining factors of job satisfaction (Humphrey, 1992, Tyson and Pong-ruengphant, 2004). Hospitals throughout the world are currently undergoing massive changes to their organizational structure in an effort to reduce costs (Yin and Yang, 2002). The negative effects of organizational change usually means higher levels of workload and a disparity between what is expected of nurses by management and their perceived role in the hospital (Burke and Greenglass, 2000). In Canada, hospital restructuring was a major source of stress due to administrators making changes on the ward without nurses' involvement in planning and decision making (Tyson, et al., 2003). As part of a global economic slowdown, Thailand and Canada have experienced a prolonged period of economic decline accompanied by increased financial demands within the health sector suggesting increases in the amount of stress experienced by hospital nurses.

During periods of economic pressures, coping with stress can be conceived of as the thoughts and behaviors nurses use to manage the perceived demands of the situation (Folkman and Moskowitz, 2004). Strategies for dealing with stress are multidimensional and culturally varied, but generally can be classified as problem solving, seeking social support, and avoidance (Amirkhan, 1990). Problem solving is the most frequently utilized strategy in western and Asian cultures including Thailand, Taiwan, Japan, and South Korea (Lambert et al., 2004). Among Canadian nurses, during a period of government cutbacks

to hospitals, problem solving interacted with job satisfaction to predict over 40% of their occupational stress. Problem solving buffered the effects of stress among nurses with lower levels of intrinsic satisfaction, but contrary to expectations nurses with high levels of satisfaction and working the hardest to solve the hospital's problems experienced high levels of stress (Tyson, et al., 2003). Most studies find that social support and avoidance are correlated with organizational stress, but these coping strategies did not appear to have stress-buffering effects on hospital nurses in Thailand. 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). In Thailand, avoidance and social support were strong predictors of nurses' mental health which is important since Thai nurses had lower scores than nurses from Japan, South Korea, or Hawaii in the USA (Lambert et al., 2004).

Job satisfaction has been considered one of the most important outcome variables related to occupational stress and specifically has been described in terms of extrinsic organizational factors and intrinsic factors (Menzies, 1960). Dissatisfaction with extrinsic factors, like management decisions and monetary compensation, were found to be strongly related to nurses' occupational stress (Tyson, et al., 2003) and predicted depression, health risks, and intention to quit (Tyler and Cushway, 1992; Tzeng, 2002). Nurses working in the public health sector in Singapore were recurrently dissatisfied with their working conditions and half of them had been thinking of quitting the profession (Boey, 1998). Nurses consistently rate their satisfaction with intrinsic factors, such as accomplishments, professionalism, and opportunity to utilize their abilities higher than extrinsic factors (Thongchant, 1986).

In Thailand, hospital nurses were significantly more dissatisfied with extrinsic factors (Pongruengphant and Tyson, 1997), but a five year follow-up found significant increases in their satisfaction with salary, chances for advancement, and management recognition (Tyson and Pongruengphant, 2004).

Research question

The primary research question is what sources of stress affect female Thai and Canadian hospital nurses, culturally how both groups cope with the stress, and what gives them the most job satisfaction. In this study, two samples of Thai nurses from 14 hospitals separated in time by five years were compared to a sample of nurses from two Canadian hospitals in terms of sources of occupational stress, coping strategies, and job satisfaction.

Research sub-questions

The first sub-question predicts that organizational pressures will increase the level of stress arising from a number of sources related to workload, such as time pressures, role conflicts especially related to nurse-physician duties and responsibilities, and nurses' lack of involvement in planning and decision making. In addition to general increases in stress levels over time, Thai nurses were expected to experience greater stress than Canadian nurses related to staff role conflict, especially pressure to perform doctor's duties. In contrast, greater levels of stress in Canadian nurses were expected to be associated with organizational factors within the hospital, such as decision making, setting priorities, and management's style.

The second sub-question predicts that job satisfaction, defined as the individual's assessment of the extent the job meets their needs and expectations, will be reduced by increasing levels of job-related stress. In particular, extrinsic factors

such as wages, opportunities for advancement, working conditions, and implementation of hospital policy will be detrimental than those factors that contributed to intrinsic job satisfaction. Although job satisfaction was generally expected to be greater in Thai nurses related to extrinsic organizational factors compared to Canadian nurses, the exceptions might be wages and control over their time on the ward.

The third sub-question predicts that as nurses experience higher levels of stress, they will attempt to manage the perceived demands by utilizing problem solving, social support, and avoidance coping strategies. Both Thai and Canadian nurses were expected to utilize problem solving the most frequently, but due to cultural differences Canadian nurses were more likely to rely on social support and Thai nurses on avoidance coping strategies.

METHODS

Nursing sample

The first Thai study was conducted in seven hospitals in Bangkok and in seven hospitals in three provinces along the eastern seaboard of Thailand. Of the 240 questionnaires distributed to Thai nurses in the first study, 120 were sampled from Bangkok and 120 sampled from three eastern provinces. Within each region, 60 nurses were sampled from three public hospitals and 60 were sampled from four private hospitals. After consultation with and approval by each hospital's administration and head nurses, the purpose and voluntary nature of the questionnaire was advertised on each ward at least two weeks prior to administration. Utilizing a quota sample, to ensure representation of each ward, coded questionnaires were distributed to nurses proportional to the number in each ward and completed questionnaires were returned to secure boxes on each ward. Eighty seven percent of the question-

naires were returned, but six male respondents and three technical nurses were eliminated. The remaining 200 female professional nurses, who graduated from a four-year Bachelor of Science University program, were 98.5% Buddhist and 1.5% Christian. Of these female nurses, 56.5% were staff nurses, 23% head nurses, 6.5% charge nurses, 1% supervisors, and 13% other positions. The largest number of respondents were from emergency (E.R.) (12.1%) and private wards (12.1%), followed by intensive care (I.C.U.) (11.6%), operating room (O.R.) (9.6%), medical (9.1%), surgical (8.1%), obstetrics (6.6%), pediatric (3.5%), orthopedics (2.5%), labor and delivery room (2.0%), and 22.7% other wards.

In the second Thai study 240 questionnaires distributed to the same 14 hospitals, 61.25% were returned after two male respondents were eliminated and the remaining female nurses' religious affiliations being 97.9% Buddhist and 2.1% Christian. Of the female nurses responding there were 40.8% staff nurses, 38.8% head nurses, 8.2% charge nurses, 1.4% supervisors, and 10.9% other positions. In this second study, the nurses by department were from E.R. (12.9%), private wards (3.4%), I.C.U. (10.9%), operating room (2.0%), medical (12.9%), surgical (8.8%), obstetrics (6.1%), pediatric (3.4%), orthopedics (2.0%), labor and delivery room (6.1%), and 31.3% other wards.

The Canadian study was conducted in two Southern Ontario community hospitals, each over three-hundred beds. After consultation with and approval by each hospital's administration, head nurses, and University's ethics committee, the purpose and voluntary nature of the questionnaire were advertised on each ward at least two weeks prior to administration. Utilizing a quota sample, to ensure representation of each ward, 200 coded questionnaires were distributed to nurses proportional to the number in each ward, and 107 (53.5%) completed questionnaires were returned to secure boxes on each ward. 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 largest number of respondents was 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.

Measures

Nurse stress index: This 30 item index asks nurses to rate their potential stress on a six point scale with 0 = no pressure and 5 = extreme pressure (Harris, 1989). Cronbach's alpha in the first Thai (α_1) and second Thai (α_2) study and Canadian (α_c) study for the six subscales were workload pressures related to insufficient time (Managing Workload 1, $\alpha_1 = .74$, $\alpha_2 = .76$, $\alpha_c = .75$), workload pressures due to resources and conflicting priorities (Managing Workload 2, $\alpha_1 = .69$, $\alpha_2 = .74$, $\alpha_c = .68$), Confidence and Competence in Role ($\alpha_1 = .67$, $\alpha_2 = .79$, $\alpha_c = .68$), Dealing with Patients and Relatives ($\alpha_1 = .70$, $\alpha_2 = .73$, $\alpha_c = .75$), Home and Work Conflicts ($\alpha_1 = .73$, $\alpha_2 = .73$, $\alpha_c = .68$), and Organizational Support and Involvement ($\alpha_1 = .72$, $\alpha_2 = .82$, $\alpha_c = .82$).

Coping strategy indicator: This 15 item indicator asks nurses to rate how frequently they used each coping option rated on a six point scale with 0 = never and 5 = all the time (Amirkhan, 1990). Four subscales assess four types of coping strategies. Problem solving strategy emphasizes defining goals, planning and searching for alternative solutions and had a Cronbach's $\alpha_1 = .72$ in the first Thai study, $\alpha_2 = .83$ in the second Thai study, and $\alpha_c = .72$ in the Canadian study. Social support strategy ($\alpha_1 = .79$, $\alpha_2 = .81$,

$\alpha_c = .82$) reflects a tendency to turn to others for advice, communication, and comfort. Avoidance strategy ($\alpha_1 = .57$, $\alpha_2 = .53$, $\alpha_c = .55$) involves either physical or psychological withdrawal through distraction or fantasy. Relaxation strategy ($\alpha_1 = .81$, $\alpha_2 = .75$, $\alpha_c = .79$) asks nurses how frequently they utilized relaxation or meditation techniques such as deep breathing (Pongruengphant and Tyson, 1997). 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 five 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 ($\alpha_1 = .81$, $\alpha_2 = .81$, $\alpha_c = .82$) includes factors such as "the chance to make use of my abilities" and "the feeling of accomplishment I get from my job." The six item extrinsic subscale ($\alpha_1 = .73$, $\alpha_2 = .72$, $\alpha_c = .79$) addresses individual satisfaction with factors such as pay, company policies, and management. The final total job satisfaction ($\alpha_1 = .87$, $\alpha_2 = .86$, $\alpha_c = .87$) scores were computed by averaging across all 20 items in the scale which included two items directed at general working conditions.

Translation: The questionnaire items were translated from English to Thai by the first author (R.P.) and independently translated back into English by nurses. The English translations were reviewed by the second author (P.T.) and questionable items were retranslated. This reiterative back translation process was utilized until there

was agreement by both authors. The complete questionnaire was then submitted to five hospital staff nurses for item by item comments concerning item ambiguity and relevance.

RESULTS

Factors resulting in higher levels of stress in Thai nurses

On a scale with extreme pressure rated as five, Table 1 presents Thai nurses' ratings of stress generated by six sources at two points in time (separated by five years) compared to Canadian nurses as a difference score. With a few exceptions Thai nurses working in the 14 Thai hospitals reported greater occupational stress after the five-year period. The exception was stress due to role conflicts which began as the highest rated source of stress for Thai nurses (Thai 1) and decreased (-0.15) after five years (Thai 2), but was still significantly higher (-0.62) than nurses in Canadian hospitals ($p < 0.001$). The most significant source of stress was from supervisors requiring Thai nurses to perform doctor's functions, which increased from 1.71 to 2.66 ($+0.95$) following five years, but pressure to performing Doctor's duties was less stressful (-0.25) for Canadian nurses ($p < 0.001$). Canadian nurses felt significantly less pressure (-0.96) associated with a lack of specialized training than Thai nurses, which was 0.94 compared to 1.90 at the first time period ($p < 0.001$) and 2.03 after ($p < 0.001$) five years in Thai hospitals. In addition, Thai nurses reported greater stress compared to Canadian nurses related to a lack of time management skills, stress related to emotional involvement with patients, and uncertainty about nursing responsibilities in the hospital (Table 1).

Table 1. The comparison of stress among Thai and Canadian nurses.**Sources of stress greater in Thai nurses**

Sources of stress	Thai 1	Thai 2	Canada	Significance
Nurse performing doctor's duties	1.71	+ .95	-.25	F(2,448) = 28.67 p < .001
Lack of specialized training	1.90	+ .13	-.96	F(2,450) = 23.87 p < .001
Role conflicts	2.53	-.15	-.62	F(2,450) = 8.20 p < .001
Lack of time management	2.25	+ .07	-.47	F(2,450) = 6.89 p < .001
Over-emotional involvement	1.54	+ .18	-.29	F(2,448) = 5.68 p < .01
Uncertainty about responsibilities	1.52	+ .12	-.30	F(2,450) = 3.77 p < .025

Sources of stress greater in Canadian nurses

Sources of stress	Thai 1	Thai 2	Canada	Significance
Dealing with relatives	1.18	+ .18	+ 1.12	F(2,448) = 27.24 p < .001
Changing priorities	1.42	+ .49	+ 1.13	F(2,450) = 26.01 p < .001
Decisions without involvement	2.08	+ .14	+ 1.14	F(2,448) = 24.48 p < .001
Time pressures and deadlines	1.61	+ .22	+ .90	F(2,450) = 15.05 p < .001
Lack of organizational support	1.52	+ .14	+ .73	F(2,448) = 11.35 p < .001
Life and death situations	1.70	+ .33	+ .72	F(2,447) = 9.60 p < .001
Fluctuations in workload	2.14	+ .12	+ .62	F(2,450) = 8.37 p < .001
Time allotment conflicts	1.53	+ .04	+ .49	F(2,450) = 5.94 p < .01

Factors resulting in higher levels of stress in Canadian nurses

Canadian nurses find that dealing with relatives, being forced to frequently change priorities and management making decisions without involving nurses were more stressful than experienced by Thai nurses (Table 1). In particular, a major source of stress among Canadian nurses was hospital management making decisions without nurses' knowledge or involvement, which was 3.22 or +1.14 compared to 2.08 time one (Thai 1) and 2.22 following five years (Thai 2) for Thai nurses ($p < 0.001$). As hypothesized, involvement with life and death situations was found to be a major source of stress reported by hospital nurses, and this source of stress increased (+0.33) from

1.70 to 2.03 for Thai nurses following five years ($p < 0.001$). However, as can be seen in Table 1, Canadian nurses experienced even more stress (+0.72) related to life and death situations than Thai nurses at both time periods ($p < 0.001$). Furthermore, Thai nurses found that management continually interrupting their work for new priorities significantly increased from 1.42 to 1.91 (+0.49), but this source of stress was significantly greater among Canadian nurses 2.55 ($p < 0.001$). Also, Canadian nurses found time pressures, workload fluctuations, lack of support, and time conflicts were more stressful than reported by Thai nurses. Although time one and two differences between

Thai nurses were not significantly different, fluctuations in workload ($p < 0.001$), lack of organizational support from senior staff ($p < 0.001$), time pressures ($p < 0.001$), and conflicts related time ($p < 0.001$) were all significantly greater among Canadian nurses (Table 1).

Job satisfaction

Although levels of stress were generally higher for Thai nurses after five years (Thai 2), surprisingly, job satisfaction among Thai nurses increased significantly. On a scale ranging from +2 as very satisfied to -2 as very dissatisfied, Thai nurses' satisfaction increased from +0.52 to +0.69 after five years compared to +0.23 among Canadian nurses ($F(2,442) = 19.29, p < 0.001$). As expected, intrinsic job satisfaction was higher than extrinsic

satisfaction, and it was found that both Thai and Canadian nurses were very satisfied that they were able to help patients and their profession allowed them an opportunity to utilize their ability. As seen in Table 2, in many areas Canadian nurses were significantly ($p < 0.001$) less satisfied than Thai nurses during the first period (Thai 1) as represented by negative differences, and these differences became larger after five years (Thai 2). Some extrinsic factors increased significantly for Thai nurses such as the way hospital policies were implemented ($p < 0.05$), management's recognition ($p < 0.025$) and opportunities for advancement ($p < 0.001$). In all of the other sources, the increases in job satisfaction reported by Thai nurses after five years were not significant, but Thai nurses had significantly greater job satisfaction than Canadian nurses (Table 2).

Table 2. The comparison of job satisfaction among Thai and Canadian nurses.

Sources of job satisfaction greater in Thai nurse

Sources of satisfaction	Before	After	Canada	Significance
Hospital policy implementation	0.38	+20	-90	$F(2,444) = 53.57$ $p < .001$
Recognition for good job	0.61	+21	-74	$F(2,445) = 43.49$ $p < .001$
Social assertiveness	0.99	+11	-59	$F(2,445) = 37.64$ $p < .001$
Management style	0.68	+06	-85	$F(2,445) = 32.33$ $p < .001$
Opportunities for advancement	0.05	+52	-47	$F(2,445) = 29.20$ $p < .001$
Job security	0.90	+20	-44	$F(2,445) = 14.28$ $p < .001$
Co-worker social relations	0.62	+14	-42	$F(2,445) = 13.12$ $p < .001$
Management decision competence	0.62	.00	-44	$F(2,445) = 9.43$ $p < .001$
Working conditions	0.28	+14	-27	$F(2,245) = 5.72$ $p < .01$

Sources of job satisfaction greater in Canadian nurses

Sources of satisfaction	Before	After	Canada	Significance
Altruistic care	1.09	+07	+36	$F(2,445) = 10.84$ $p < .001$
Appropriateness of wages	-.03	+41	+51	$F(2,445) = 8.73$ $p < .001$
Time utilization	0.75	+27	+28	$F(2,445) = 5.20$ $p < .01$
Task variety	0.89	+08	+27	$F(2,444) = 5.07$ $p < .01$

Canadian nurses felt that helping their patients was the most important source of intrinsic job satisfaction (+1.45), and although Thai nurses gave altruistic helping a very high satisfaction rating, Canadians were significantly higher ($p < 0.001$) at the first sampling time (+1.09) and after (+1.16) the five-year period. The small improvement (+0.07) for altruistic helping after five years was not significant for Thai nurses and similar improvements (+0.08) in satisfaction related to task variety was not significant for Thai nurses. Compared to Thai Nurses, Canadian nurses found the variety of tasks assigned to them significantly ($p < 0.01$) more satisfying. Monetary compensation and chances for advancement, as previously described, improved radically during the five-year period for Thai nurses, and these changes were reflected in their job satisfaction. Thai nurses' satisfaction with the appropriateness of their pay for their work increased (+0.41) significantly ($p < 0.001$) from a negative -0.03 to +0.38. Although the level of satisfaction among nurses for their pay was relatively low, the significant ($p < 0.001$) difference between Canadian and Thai became non-significant after five years. Similarly, the significant ($p < 0.01$) improvements (+0.27) in Thai nurses' rating of how effectively their time had been utilized on hospital wards had made their rating very similar to their Canadian colleagues (Table 2).

Stress coping strategies

On a frequency scale where five denoted using the strategy "all the time", problem solving increased its use after five years from 3.02 to 3.17 in Thai hospitals, but was utilized even more frequently 3.31 in Canadian hospitals [$F(2,445) = 6.22, p < 0.01$]. Canadian nurses reported considering many possible solutions before deciding more frequently (3.48) than Thai nurses at the first sampling period (2.85) and after (3.03) the intervening five years [$F(2,450) = 14.03, p < 0.001$]. In addition, Canadian nurses tried not to dwell on

past problems [$F(2,449) = 21.47, p < 0.001$], tried to calm themselves before making decisions [$F(2,451) = 15.85, p < 0.001$], and attempted to pay attention to the present situation instead of their problems [$F(2,450) = 14.71, p < 0.001$] more frequently than Thai nurses. In general, Canadian nurses employed problem-solving techniques more than Thai nurses did, but both nursing samples reported problem solving as their primary strategy for coping with occupational stress.

Social support among Thai nurses increased non-significantly from 2.36 to 2.42 after five years, but both were significantly less than reported 2.78 by Canadian nurses [$F(2,447) = 8.79, p < 0.001$]. This difference was related to Canadian nurses' willingness to talk to other people about their situation which was rated as 3.44 compared to Thai ratings of 2.42 at the first period and 2.38 after five years [$F(2,450) = 38.09, p < 0.001$]. Generally, Canadian nurses were more willing to confide, accept empathy and reassurance from friends and colleagues than nurses working in Thai hospitals. Canadian nurses applied relaxation or meditation techniques (2.34) more frequently than Thai nurses (2.09), but the significance of the difference disappeared (2.48) at the second sampling period [$F(2,450) = 4.11, p < 0.025$]. Canadian nurses dealing with death and dying as a natural process utilized this strategy (2.83) more than Thai nurses (2.35), but similarly the reported frequency became almost the same as Thai nurses (2.73) after five years [$F(2,449) = 5.63, p < 0.01$]. Thai nurses' frequency (2.03) of using deep breathing techniques to cope with stress increased (2.23) after five years and at both periods were significantly more than Canadian nurses [$F(2,449) = 6.13, p < 0.01$].

The most significant increase was the frequency of avoidance as a coping strategy which changed from 1.57 to 1.79 after a five-year period in Thai hospitals compared to 1.48 in Canadian hospitals [$F(2,445) = 7.58, p < 0.001$]. In particular, Thai nurses frequently 'daydreamed about better

times' which increased from 3.21 to 3.44 in contrast to only 2.01 among Canadian nurses [$F(2,450) = 45.46, p < 0.001$] or watched more TV or movies which grew from 1.29 to 1.72 in Thai hospitals compared to 1.36 in Canadian hospitals [$F(2,449) = 6.30, p < 0.01$]. Thai nurses increased their strategy of escaping into fictional characters from 0.81 to 1.10 over the intervening period compared to 0.67 among Canadian nurses [$F(2,448) = 5.86, p < 0.01$]. On the other hand, Thai nurses did not significantly change .99 to 1.00 how frequently they avoided people compared to 1.32 among Canadian nurses [$F(2,448) = 3.92, p < 0.025$]. The insignificant increase (Thai 1 = 1.56 to Thai 2 = 1.69) among Thai nurses wishing people would leave them alone were each significantly less compared to 1.96 in Canadian hospitals [$F(2,449) = 4.05, p < 0.025$]. Canadian nurses avoided stress by avoiding colleagues and friends or wishing people would leave them alone more frequently than Thai nurses.

DISCUSSION

A longitudinal perspective on fourteen hospitals in Thailand revealed that Thai nurses reported more stress than Canadian nurses converging around role ambiguity, time management, and lack of specialized training did. In this study, the most significant increase in Thai nurses' stress levels were related to physician-nurse role conflicts. It is interesting that in a cross-cultural comparison, Thai and South Korean nurses rated the frequency of conflicts with physicians considerably less than Japanese and Hawaiian hospital nurses. However, the mental health scores of Thai nurses were much lower than other countries and conflicts with physicians was found to be the strongest predictor of poor mental health (Lambert et al., 2004). The health care profession assumes doctors make decisions about patient treatment while nurses assist patients and provide a supportive role for doctors. The extreme case is Japanese hospital nurses who are completely

reliant upon physicians for directions and perceive their role as carrying out orders and providing custodial care (Lambert et al., 2004). In practice most Asian and western nurses were found to participate overtly in decisions about patients' diagnosis, interventions, and evaluation in specialty hospital settings such as critical care and emergency (Manias and Street, 2001). Due to a lack of physician availability or experience, this study has shown that Thai nurses feel substantial stress from being required to perform what they perceive as doctors' functions. In Thai hospitals, stress caused by being required to perform tasks outside of their competence and associated with the responsibility of practicing without the support of doctors increased substantially during a five-year period. Doctors in Thai culture are traditionally held in very high regard and people are usually unwilling to criticize them (Tangcharoensathien et al., 1999). Studies on nurse decision making have placed emphasis on nurses' position as independent practitioners or their complementary position with doctors (Henneman, 1995). In this study, Canadian nurses felt less stress related to role conflicts and like South Korean or Hawaiian nurses may have resolved or accepted the professional conflicts between physicians and nurses (Lambert et al., 2004). Although Thai and Japanese nurses are reluctant to express negative opinions about physicians, when licensed to practice, nurses have responsibilities to practice within legal constraints and professional codes of ethics and conduct. Given the negative impact on Thai nurses' mental health (Lambert et al., 2004), there is a need for further research examining the nurse-doctor power relations and how effectively nurses cope with this stress.

The findings of the present study indicate that in some cases Canadian nurses experience higher levels of stress compared to Thai nurses, specifically from organizational sources such as a lack of opportunities to participate in making

decisions directly affecting their patients, management changing priorities, time pressures, and workload. As hypothesized, stress increased in our sample of hospital Thai nurses after the five-year follow-up period, but Canadian nurses experienced higher levels of these sources of occupational stress. Similar to Canada, nurses in Japan and Hawaii reported higher levels of workload than Thai and South Korean nurses and workload was the strongest predictor of physical health in these two countries (Lambert et al., 2004). In addition to organizational sources of stress, Canadian nurses reported more stress than Thai nurses did when dealing with relatives and situations involving death and dying. Hospital nurses frequently rate high workload and dealing with 'death and dying' as their major stressful events (Hipwell et al., 1989; Jowett, 2003). Converging evidence suggests the importance of organizational factors such as workload and emotional factors such as involvement with life and death situations as important predictors of nurses' stress, burnout, health complaints, and quality of patient care (Florio et al., 1998).

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). With increasing levels of stress, Thai nurses more frequently utilized problem solving, Buddhist relaxation techniques, and avoidance as strategies for dealing with the pressures of workload, role ambiguity, and other sources of stress. Canadian nurses, in this study, reported problem solving as their primary strategy for coping with stress even more frequently than Thai nurses' cope. Nurses in Singapore preferred self-help coping strategies to seeking social support from colleagues or management (Boey et al., 1997, 1998). Thai nurses utilized social support

strategies less than Canadians did, particularly by being unwilling to confide or accept empathy and reassurance from friends and colleagues. If the problem situation can be kept from being known by others by relying on personal resources, strategies such as relaxation and avoidance protect nurses under stress (Tyson and Pongruengphant, 1996). In a culture where personal problems are views as inadequacies, it is essential for professional nurses to keep private their difficulties in coping with patients or demands of the job (Pongruengphant and Tyson, 2000). Thai nurses were more likely to use techniques such as deep breathing techniques to deal with stress. However, if the problem becomes known to management, nurses will be respected for their self-reliance which may explain why less than one percent of the nurses would seek professional help in coping with their occupational stress (Boey, 1998). Previous research suggests that nurses coping with hospital restructuring can benefit from employing problem solving strategies, but the buffering effect interacts with the nurses' job satisfaction (Tyson et al., 2003). Avoidance was used in this study as an escape more frequently by Thai nurses, whereas Canadian nurses avoided colleagues. Cross-culturally avoidance has been one of the best predictors of poor mental health, likelihood of leaving the profession, levels of occupational stress, and low job satisfaction (Tyson and Pongruengphant, 1996, Lambert et al., 2004).

Contrary to expectations, job satisfaction among Thai nurses increased amidst increasing levels of stress and was higher than Canadian nurses extrinsic job satisfaction. One possible explanation for this paradoxical finding has to do with the real growth in nurses' wages, chance for advancement, and working conditions during the intervening five years. In Thailand, government health expenditures rose substantially with a strong commitment to the health system for high quality service (Wibulpolprasert, 2000; Sreshthaputra and

Indaratna, 2001). In other countries including Canada, economic conditions have resulted in hospital closures, increased workload, reductions in the nursing workforce, and the quality of patient care (Yin and Yang, 2002; Tyson et al., 2003). Canadian nurses felt the least satisfied with the way hospital policy was implemented and most stress from a lack of opportunity to participate in decision-making. This longitudinal study confirms the importance of monetary factors and organizational support within the hospital wards for nurses' job satisfaction. Further research is obviously required to evaluate the extent to which hospital administrative changes have an impact on organizational stress, physician-nurse conflicts, and coping strategies.

Limitations and policy implications

There are limitations in this study because it is based on small quota samples and limited to 14 hospitals in Thailand and two Canadian hospitals in a small geographical area. When comparing nonequivalent groups with linguistic, cultural, and historical differences there are many sources of bias that can influence self-report measures. However, in terms of policy, governments need to stabilize hospital funding in order to provide hospital management with predictable economic conditions to prevent excessive workloads and conflicts with supervisors and physicians. Nurses in Canada felt that government had created a crisis in health-care services 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 (Canadian Institute for Health Information, 2001). In contrast, nurses in Thailand interpreted government initiatives as an attempt to rectify a difficult health care situation (Tyson and Pongruengphant, 2004). Hospital management needs to provide nursing professionals with sufficient information, decisional control, and resources to effectively implement

problem solving to cope with the situational demands appraised as stressful and evaluate its effects on patient care (Folkman and Moskowitz, 2004). However, effectively improving motivational factors such as salary and promotion temporarily stimulates job satisfaction, hospital nurses need suitable workloads, and control over job demands (Lazarus, 1995). Utilizing problem solving skills to master the workload demands, overcome obstacles, and facilitate patient care can only be accomplished within a hospital structure which empowers and engages nurses (Tyson et al., 2003). Dealing with physicians will require nurse training in conflict resolution and particularly for Asian culture assertiveness training to reduce role conflicts. Instead of an adversarial climate, the challenges of providing health care in the twenty first century require cooperation and trust between government, management, and health care professionals.

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