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Work Stress and Psychological Well-being among the Nursing Profession in Singapore

K W Boey, K B Chan, Y C Ko, L G Goh, G C Lim

ABSTRACT

Objective: To investigate the work stress of nursing and its relationship with the psychological well-being of the nurses.

Design: A survey research method was adopted in which a questionnaire was designed for data collection.

Setting: The study was conducted in the hospital setting.

Subjects: Nurses (N=1,043) of different grades participated in this study on an anonymous and voluntary basis.

Measures: A work stress measure (ie, the Nursing Stress Inventory) and GHQ-12 were incorporated in a questionnaire which also contained items on subject's background information.

Results: The eight areas of work stress identified were found to be negatively related to psychological well-being of the nurses, with stronger effects on anxiety and depression than sense of adequacy.

Conclusion: Certain work stressors were more detrimental than the others. They may also exert differential effects on the affective and cognitive stress reactions.

Keywords: work stress, nursing, psychological well-being

Department of Sociology
National University of Singapore
Kent Ridge Crescent
Singapore 119260

K B Chan, PhD
Associate Professor

Y C Ko, PhD
Senior Lecturer

Department of Social Administration,
University of Hong Kong,
Pokfulum Road, Hong Kong

K W Boey, PhD
Senior Lecturer

Department of Community, Occupational and Family Medicine,
National University of Singapore

L G Goh, MBBS, M Med (Int Med), FCGP, MRCGP
Associate Professor

G C Lim, M SocSci
Research Assistant

Correspondence to:
Dr K W Boey

INTRODUCTION

In the last two decades, there has been a tremendous surge of academic and lay interest in the area of work stress among different professionals. Apparently, most occupations are susceptible to stress but the nursing profession seems to be particularly vulnerable. The psychologically demanding nature of the job carried out by nurses has been extensively documented[1-3]. Different stressors among the nursing profession have been identified[4,5]. Inadequate staffing, work overload, dealing with difficult patients, interpersonal conflicts, awareness of tremendous responsibility for patients, and other organisational constraints inherent in the hospital system, are work stressors frequently encountered by nurses. These work stressors are believed to affect the mental health status of the nurses, which may lead to high levels of anxiety and depression. Regrettably, very few studies have been conducted in Asian countries to investigate the stressful events experienced by nurses in the course of their work. Based on a larger survey completed in 1992 on work stress and coping among six different professional groups in Singapore, the purpose of this paper is to provide empirical data on the nurses. An attempt is also made to examine the extent to which work stress is related to the psychological well-being of the nurses.

METHOD

Subjects

This study focused on nurses working in the public hospitals since they make up the bulk of the nursing population in Singapore. Permission was granted to conduct our survey in three main public hospitals in Singapore. A preliminary analysis showed that the nurses in these three hospitals were unevenly distributed in various departments. This made it difficult to sample the nurses based on the ratio representation of their departments. It was then decided that all the 1,335 nurses working in these hospitals were invited to participate on an anonymous and voluntary basis.

Consequently, a total of 1,043 nurses participate, showing a high response rate of 77%. This sample consisted of 371 assistant nurses (36.23%), 532 staff nurses (51.95%), and 121 nursing officers (11.82%). Data on the nursing grade of 19 nurses were missing. The distribution of these nurses in various departments of the hospitals is shown in Table I.

Table I - Distribution of nurses in various hospital departments

Department	Frequency	Percentage
Medical	216	21.09
Surgical	221	21.58
Paediatrics	105	10.25
Operation Theater	121	11.82
Accident & Emergency	69	6.74
Intensive Care Unit	68	6.64
Multidisciplinary	204	19.92
(Data Missing)	20	1.95

The age distribution of the nurses showed that slightly more than half (56.9%) of our sample were below 34 years old. The majority (68.7%) were below the age of 40, indicating that most nurses were in their young adulthood. The mean age of the nurses was 33.8, with an SD of 9.2. The average length of

service was 15.8 years (SD=13.2). A great majority of these nurses were females (about 94%), while only 6% were males.

Measures

Nursing Stress Inventory (NSI): Most of the items in the NSI were compiled through an extensive review of the literature on stress in nursing. The relevance of these items in the local setting was checked and confirmed by in-depth interviews with 15 nurses. Additional stressors identified in these in-depth interviews were included in the inventory. The final version of the NSI consisted of 78 items, each of which described a stressful event or situation which nurses may encounter. Subjects were asked to indicate whether or not they had encountered the events in the course of their work in the past 6 months, and if they had, they were to rate the stress level of the events on a 5-point scale (O = not a source of stress; 1 = slight stress; 2 = moderate stress; 3 = considerable stress; 4 = extreme stress).

In addition to the NSI, subjects were asked to rate the overall work stress they had experienced in the job situation over the past 6 months. A 5-point scale (O = no stress, 4 = extreme stress) was used for this single-item measures of work stress. The nurses were also asked to estimate the percentage of total stress in their lives that had resulted from their job.

12-Item General Health Questionnaire (GHQ-12): This questionnaire was originally developed to detect minor psychiatric disorders among respondents in community settings[6]. Its validity in discriminating between 'cases' and 'normals' was demonstrated in an epidemiological study conducted in Singapore[7]. In the present study, an abbreviated version of the questionnaire, the GHQ-12, was adopted to provide a general measure of psychological well-being. This abbreviated version consisted of only 12 items, each of which described a condition or an aspect of mental health status (eg, "lost sleep over worry", "thinking self as worthless"). Subjects were asked to indicate whether they had experienced the condition more or less than usual over the past one month. Lower score indicated better psychological well-being. The reliability of the GHQ-12 was examined in this study and was found to be very satisfactory (Cronbach alpha = 0.81). Based on the results of a principal component analysis, two separate scores of the GHQ-12 were derived: (a) Sense of inadequacy (eg, "losing confidence"; "could not overcome difficulties") and (b) Anxiety and depression (eg, "felt constantly under strain"; "feeling unhappy and depressed"). The reliabilities of these two scores were satisfactory (Cronbach alpha = 0.77 and 0.82 respectively).

The above two measures (NSI and GHQ-12) were included in a questionnaire which also contained items on socio-demographic characteristics and personality measures.

Procedure

The questionnaires were distributed to the nurses through their principal nursing officers. Participation was voluntary and anonymous. The nurses were requested to complete the questionnaire within 10 days and drop it in a box located at their respective ward counter. A reminder was sent to them by their matrons four days after the deadline given. A total of 1,043 survey questionnaires were returned, which constituted a high response rate of 77%.

RESULTS

The 78 items of the NSI were grouped into 8 categories of stress according to their content areas. The 8 categories of work stress (with exemplary items) are listed below:

(1) Work overload: Having too much work to do; Time pressure and having to meet deadlines; Fluctuations in workload.
(2) Incompetence in work: Fear of making mistakes; not feeling adequately trained; not knowing what ought to be told about patient's conditions.
(3) Poor job and working conditions: Lack of promotion prospects; poor physical working conditions; underpaid.
(4) Difficult working relationships: Lack of support from superiors; relationship problems with colleagues; jealousy/competition among colleagues.
(5) Role conflict and ambiguity: Dealing with conflicting demands; nursing and administrative role conflict; other co-workers unclear about my job.
(6) Organisation constraints: Lack of participation in planning; work delayed by unnecessary red tape; difficult to bring about change in staff/organisation.
(7) Demands in caring for patients: Dealing with demanding patients; difficulty in distancing emotionally from patients; death of patient.
(8) Family demands: Career at the expense of family; taking problems home; absence from work to cope with domestic problems.

The internal consistency (Cronbach alpha) and average stress level of the items included in each of the above 8 categories are shown in Table II. The Cronbach alpha ranged from 0.88 to 0.92, indicating that our measures on the 8 content areas of stress were highly reliable.

Table II - Internal consistency and average stress level of the 8 categories of work stress

	Cronbach alpha	Stress level
Work overload	0.91	2.20
Incompetence in work	0.91	1.83
Poor job & working conditions	0.92	1.83
Difficult working relationships	0.92	1.80
Role conflict & ambiguity	0.89	1.71
Organization constraints	0.88	1.69
Demands in caring for patients	0.90	1.55
Family demands	0.90	1.54

The presentation of the stress categories in Table II is arranged in the order of their average stress levels. As can be seen, work overload was rated as most stressful among the 8 areas of work stress. Stressors other than work overload, eg, incompetence in work, poor working conditions, and difficult working relationships, were rated as moderately stressful. Dealing with demands in caring for patients was rated as slightly to moderately stressful. Its stress level was lower than that of the pressure arising from role conflict and organisation constraints. Unexpectedly, for nurses who experienced conflicts between family and job demands, such conflicts were perceived as least stressful of all.

In terms of the overall level of work stress, the rating seemed to be quite evenly distributed (Table III). About one-third of the nurses reported no or mild work stress, another 35.4% considered the work stress as moderate, and 32.4% rated the level of work stress as considerable or extreme. Similarly, the rating of work stress as a percentage of total life stress was also evenly distributed, with 0%-30%, 40%-60%, and 70%-100% each rated by about one-third of the nurses as percentage of work stress of total life stress.

Table IV presents the distribution of self-reported overall stress level by different biographical subgroups. Though the data showed that females reported higher level of work stress than their male counterparts, the difference was not statistically significant. Age was found to be an important factor affecting perceived work stress. Nurses aged 24 or below perceived significantly higher level of stress than the other age groups except those aged 30-34 ($F=2.78$, $DF=4/836$, $p<0.026$). No significant differences were found among the other age groups.

Table III - Self-reported overall level of work stress

Level of stress	Frequency	Percentage
Not at all	21	2.0
Mild	315	30.2
Moderate	369	35.4
Considerable	237	22.7
Extreme	101	9.7
Total	1,043	100.0

Analysis of variance also revealed that nurses who had more than 10 years of working experience reported significantly less stress than the two less experienced groups ($F=4.85$, $DF=2/890$, $p<0.01$). Multiple comparison showed that the difference between the latter two groups was not statistically significant.

Table IV also shows clearly that the stress level of the senior assistant nurses was the lowest among the different grades of nursing ($F=4.71$, $DF=3/883$, $p<0.003$). Multiple comparison indicated that the differences in stress levels as reported by assistant nurses, staff nurses, and nursing officers were negligible.

Results of the correlational analysis (see Table V) revealed that the various stress categories were significantly related to the two indicators of psychological well-being. Apparently, work stress exerted a stronger impact on emotional stability than on sense of adequacy of the nurses. Among the 8 areas of stress, demands of caring for patients seemed to have the least effect on nurses' psychological well-being. On the other hand, although meeting family demands was rated as least stressful, it was most significantly related to anxiety and depression ($r=0.44$, $p<0.001$) and sense of inadequacy ($r=0.34$, $p<0.01$).

Table IV - Self-reported overall stress level of biographical subgroups[a]

	No Stress %	Mild %	Moderate %	Considerable %	Extreme %	Mean %
Sex						
Male	3.6	30.4	33.9	28.6	3.6	1.98
Female	1.9	30.2	35.5	22.4	10.1	2.06
Age						
below 25	1.9	20.0	36.8	29.7	11.6	2.29
25 - 29	3.6	27.8	37.9	21.9	8.9	2.04
30 - 34	0.7	34.0	37.9	21.1	12.9	2.11
35 - 39	2.0	35.6	31.3	15.8	10.9	1.98
above 39	2.2	33.8	35.6	21.9	7.1	1.98
Years of Working						
below 5	2.8	19.6	39.2	26.6	11.9	2.25
5 - 10	2.0	26.4	34.8	25.9	10.9	2.17
above 10	1.6	34.2	35.1	20.9	8.2	2.00
Nurse Grade						
Assistant Nurse	3.3	24.3	40.0	20.7	11.7	2.13
Sr Assistant Nurse	10.5	57.9	26.3	5.3	0.0	1.26
Staff Nurse	1.3	32.2	31.6	24.6	10.3	2.10
Nursing Officer	0.0	30.4	39.3	26.8	3.6	2.03

[a]Total $N=1,043$

Table V - Relationship between work stress and psychological well-being[a]

Stress Category	Sense of inadequacy	Anxiety & depression	t-value
Work overload	0.24	0.37	5.29**
Incompetence in work	0.29	0.32	1.20
Poor job & working conditions	0.21	0.37	2.45*
Difficult working relationships	0.34	0.38	1.65
Role conflict & ambiguity	0.30	0.34	1.59
Organization constraints	0.31	0.35	1.61
Demands in caring for patients	0.25	0.28	1.20
Family demands	0.34	0.42	3.32**
Overall stress level	0.33	0.44	4.46**

[a]all *rs* significant at $p<0.05$ or less

*$p<0.05$, **$P<0.01$

DISCUSSION AND CONCLUSION

Consistent with findings reported in the West[1,5], work overload was found to be the most stressful event encountered by the nurses. Apparently, the stress of work overload in the hospital settings was often a direct result of staff shortage. Besides, multiple demands imposed by the medical and administrative staff may also add to the stress of work overload. It may be pointed out that the content of work overload as measured in the present study consisted of both quantitative pressures (eg, too much administrative work) and qualitative demands (eg, fluctuation in work load). These two aspects were shown to be associated with a number of physiological and psychological complaints[5,8].

Understandably, the dual lines of authority which were associated with work overload may also produce another source of work stress, viz, role conflict and ambiguity. According to the role theory, when the behaviour expected of an individual is inconsistent, he or she may become dissatisfied and perform less effectively if the stress remains unresolved[9]. This may partly account for the fact that work overload was cited as the most frequent cause of work stress among the nursing staff.

Results of the study suggested that meeting with family demands was most detrimental to nurses' emotional stability and sense of adequacy. Relevant to this finding, it may be recalled that a great majority (94%) of our subjects were females. In Singapore, women are still the primary persons to attend to household and children's needs. This is the case in spite of their increasing contributions to the family's economy and an increasingly egalitarian marital relationship. On the other hand,women's tendency to attach much significance to the marriage and home-related activities also made them susceptible to guilt and distress if they perceived that work commitments prevented them from meeting family demands[10]. In such situations, it is understandable that stress associated with meeting family demands would affect negatively a person's psychological well-being.

Although the present findings provide evidence for the negative relationship of work stress and psychological well-being, there are other factors which need to be considered. For example, the data of the present study also indicated that for nurses who were older (aged above 24), with more than 10 years of working experience, or of senior assistant grade reported lower levels of work stress. It is likely that the impact of work stress would be weaker for these nurses. Furthermore, work stress in nursing may be moderated by a person's social and personal resources. Relevant studies have reported that social support serves to buffer the negative effects of work stress[11,12].

Studies on locus of control indicated that the internals were more able than the externals to maintain their sense of well-being in stressful situations[13-15]. On the other hand, subjects who exhibited Type A behavioural pattern (characterised by high level of competitiveness, time urgency, and hostility) were found to show greater reactivity to environmental stress[16,17]. Therefore, the relationship between work stress and psychological well-being would only be more clearly established if these relevant factors were also taken into account. As reported elsewhere[18], analyses have been performed and confirmed that the negative relationship between perceived work stress and psychological well-being remained essentially unchanged when the effects of social support, locus of control, and Type A behavioural pattern were statistically controlled. The independent main effect of work stress on psychological well-being was therefore substantiated.

The findings of this study also indicated a consistent tendency for the various categories of work stress to be more strongly associated with anxiety and depression than with the sense of inadequacy. These findings suggested that work stress may have greater effect on the affective than cognitive component of stress reactions. In other words, nurses could be emotionally upset in stressful situations, but their sense of adequacy was less seriously affected. Admittedly, the design of this study was correlational in nature and would not enable us to draw any firm conclusion on the causal relationship between work stress and psychological well-being. One may consider that nurses who were more anxious and depressed tended to perceive a higher level of work stress. One may venture that those in the nursing profession were in the first place mentally unhealthy and therefore experienced greater work stress. However, we find such an argument hard to accept particularly in light of the finding that nursing tends to attract individuals who are emotionally stable[19]. That work stress in nursing had an adverse effect on the psychological well-being of the nurses is certainly corroborated.

The hospital authority needs to recognise that nursing stress is, to a large extent, a reflection of the impact of the hospital system, its administrators, and the nature of task, on the nursing staff. In order to maintain and enhance the psychological well-being of nurses, apart from a stable and balanced distribution of work load, stress associated with poor working conditions, organisation constraints, and interpersonal conflicts need to be seriously looked into. Perhaps, most importantly, superiors of the

nursing units should be more understanding and willing to provide emotional support to their nursing staff who are under pressure to meet family demands. Unless the various work stressors are recognised and properly dealt with, it may lead to poor morale and unco-operative behaviour. If left unattended, the end results could turn the hospital into a dysfunctional system.

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