Malaysian Journal of Public Health Medicine 2011, Vol. 11(1): 78-85

ORIGINAL ARTICLE

STRESS AND ITS ASSOCIATED FACTORS AMONGST WARD NURSES IN A PUBLIC HOSPITAL KUALA LUMPUR

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ABSTRACT

Occupational stress exists in all professions, but the nursing profession appears to experience more stress at work compared to other health care workers. Stressful conditions at the workplace may cause the high turnover and burnout among nurses. This study objective was to determine the level of stress and its associated factors among in-patient ward nurses. A cross sectional study using the stratified random sampling method was carried out among 114 staff nurses from 5 different departments in a public hospital in Kuala Lumpur. Respondents were requested to complete a single set of validated and self-administered questionnaire, the Depression, Anxiety, Stress Scale (DASS) . Data was analysed using SPSS 17. In general, the prevalence of stress at the department of Medicine was found to be higher compared to other departments studied. There was also a statistical significant relationship between the prevalence of stress and types of department (p<0.05). The association between prevalence of stress and age, marital status, financial status and working shift were not found to be statistically significant (p > 0.05). In conclusion, stress had no significant association with socio-demographic factors (age, marital status and financial status) and working environment except for type of department nurses work in. There might be some other possible confounders that have a bigger potential in becoming stressors compared to those independent variables in this study.

***Key words**: stress, nurses, DASS-21, stressors, working environment*

INTRODUCTION

Stress is a situation when people tend to focus on the negative feelings and emotions it produces. Stress is a condition of mental pressure for a particular individual who is facing a lot of problems from environmental and social well-being which may lead to many diseases[1]. Stress can also be caused by either external or internal forces that caused a person to become tensed, upset and anxious about a harmful event that they may or may not occur. External factors include the physical environment, including work environment, relationships with others, home environment, and also condition, challenges, difficulties, and expectations faced on daily basis. Internal factors may also include a person's nutritional status, overall health and fitness levels, emotional well-being, and the amount of sleep and rest a person gets.

Stressors can promote physiological and behavioral disturbances ranging from immune system dysfunction to psychiatric disorders. Projections show a shift by 2020 from infectious diseases to neuropsychological disorders. Neurological and psychiatric conditions could increase their share of the total global disease burden by almost 50%, from 10.5% to almost 15%. A study conducted in the USA revealed that 23% of respondents from various occupations could be classified as suffering from stress. This included 27% of district nurses and 22% practice nurses[2].

Nurses with different socio-demographic status will handle work demands differently. A survey conducted in the USA among adults aged 25 to 74 years, showed that increasing age is directly proportional to the level of stress. A Study among 717 nurses revealed that nurses in their 30's are more stressful than the other age-groups. This occurred since they are not skillful in coping than the older groups.

A study showed that there is no association between stress and marital status among nurses[3]. Similar results had been found by Demerouti et al. (2000) and he further explained that external social support from the family is not a significant factor that can contribute to stress[4]. However, another

study revealed that stress among nurses is more frequent in those who are single compared to those who are married[5]. This is supported by another study showing nurses who are married can handle stress much better[6].

One of the main factors that cause stress is financial status. According to a study conducted in 2006, people with low incomes are more likely to be under stress than their wealthier peers[7]. This finding is further supported by another research conducted by lecturers in University of Pittsburgh School of Medicine and Children's Hospital of Pittsburgh[8].

Working environment might be a type of stressor. In a study of nurses from emergency care unit, intensive care and internal medicine units using Maslach Burnout Inventory showed that nurses who worked in the emergency department experienced a higher level of stress and related burnout than those who worked in the intensive care or internal medicine wards[9].

The February 15, 2005 issue of American Family Physician Journal noted that work shifts have been associated with health problems such as stress. There are various effects of night shift on workers especially in the increasing level of stress[10]. Nurses who work at night faced a higher stress level due to the heavier workload that they need to face compared to the day shift[11]. Besides that, the nurse's health study found that nurses who worked night shifts are at least three times more prone to develop cancer due to high level of stress, sleep disturbance and hormonal inbalance[12].

MATERIALS AND METHOD

A cross sectional study was carried out in a public hospital in Kuala Lumpur. The sampling frame consisted of a list of all departments in the hospital. Five departments were selected using random sampling technique. Eligibility criteria included staff nurses who were available at department of orthopedic, oncology, medicine, psychiatry, and obstetrics & gynaecology at the hospital during data collection which was done in the morning, afternoon and night time shifts. All pregnant staff nurses and male staff nurses were excluded from the study. All staff nurses from departments of orthopedic, oncology, medicine, psychiatry, and obstetrics & gynaecology were selected randomly.

A sample size of 114 with 20% addition of respondents to overcome non-response bias was obtained from the calculation. Data was then collected using a self-administered questionnaire. The questionnaire was adopted and modified from the Depression, Anxiety, Stress Scale (DASS) which consisted of 21-item self report instrument designed to measure the three related negative emotional states of depression, anxiety and tension/stress. Content of the questionnaire included: part I on socio-demographic and working environment status (gender, age, financial, marital status, type of ward and shift), and part II determines the severity of stress level experienced by the nurses by using the DASS. DASS consisted of 21 item measuring depression, anxiety and tension/stress. However, for this study, the researchers only focused on 7 stress scales, which were from questions 1, 6, 8, 11, 12, 14 and 18. The score for each of the 7 items were summed up and multiplied by two to look at the severity level.

Data was analyzed using SPSS 17.0. The scores for each of the 7 items were summed up and multiplied by two to look at the stress severity level (normal, mild, moderate, severe and extreme stress). For test of association, the data was analyzed using Chi square and Fisher Exact Test to determine the relationship between stress and socio-demographic status (age, marital status and financial status) and working environment (type of departments and working shift time).

Ethical issues

The study was approved by the Ethical Committee of the Faculty of Medicine and Health Sciences, University Putra Malaysia and permission was obtained from the Ministry of Health, Malaysia. The ethical consent was also obtained from each respondent before data was collected.

RESULTS

Response rate

Questionnaires were distributed among in-patient ward nurses from 12 wards in 5 departments of the hospital. There were a total of 114 respondents who fulfilled the inclusion criteria but only 110 participated in this study which gave a response rate of 96.5%. Four participants did not fully complete the questionnaires.

Distribution of respondents according to wards
Table 1 shows the distribution of respondents according to the 12 wards in the 5 departments.

Table 1. Distribution of respondents according to wards

Variables	N	%
Type of wards		
Medic 25	8	7.3
Medic 28	9	8.2
Medic High Dependency Unit	8	7.3
Oncology 2A/2B	9	8.2
Oncology 3A/3B	11	10.0
O&G 1A	10	9.1
O&G 2A	10	9.1
O&G 3A	7	6.4
Orthopedic 2	10	9.1
Orthopedic 4	10	9.1
Orthopedic 7	9	8.2
Psychiatric	9	8.2
Total	110	100

Median scores for DASS
The first specific objective of the study which was to evaluate the level of stress among ward nurses in the public hospital was answered in Table 2. DASS was constructed to measure three emotional states which were depression, anxiety and stress. DASS 21 consist of 7 items per scale. Respondents' level of stress ranged from normal, mild, moderate, severe, and extreme according to DASS severity ratings. Overall, most of the respondents were found to have normal stress.

Table 2. Median scores for DASS

Variable	N	%	Median	SD
Stress Scale/ Score			10.00	7.84055
Level of stress				
normal	84	76.4		
mild	15	13.6		
moderate	6	5.5		
severe	1	0.9		
extremely severe	4	3.6		
Total	110	100		

Socio demographic characteristics of respondents
Table 3 shows the socio-demographic characteristics of respondents. The age of nurses ranged between 22 to 42 years old with mean 27.77 ± 4.37, 84.5% of 110 of the respondents were between 21 – 30 years old, 50.0% were married, 49.1% single and 0.9% divorced or widowed. Fifty four point five percent (54.5%) of respondents earned less than RM2000 and a majority of them (26.4%) were from the orthopedic department and 41.8% of respondents were working their evening shift at the time of data collection.

Table 3. Socio-demography of respondents (age, marital status, and financial status)

Variable	N	%	Mean	SD
Age (years)				
21-30	93	84.5	27.77	4.37
= >31	17	15.5		
Marital Status				
Single	54	49.1		
Married	55	50.0		
Divorced/Widowed	1	0.9		
Financial Status				
<RM1000	14	12.7		
RM1000 – RM1999	60	54.5		
RM2000 – RM2999	29	26.4		
= >RM3000	7	6.4		
Type of Departments				
O&G	27	24.6		
Medicine	25	22.8		
Onco& Radiotherapy	20	18.2		
Orthopedic	29	26.4		
Psychiatric	9	8.2		
Shift time				
Morning	41	37.3		
Evening	46	41.8		
Night	23	20.9		

The relationship between stress among nurses and their socio-demographic characteristic (age, marital status and financial status) were shown in Table 4. A total of 15 (13.6%) respondents were found to have mild stress.

Their profiles were mostly between 21 to 30 years old, earning between RM1000 – RM2000 per month. A total of 6 (5.5%) respondents had moderate stress. There was only 1 (0.9%) respondent who suffered from severe stress.

Table 4. Socio-demographic characteristic with DASS severity ratings

Variables	Mild Stress	Moderate Stress	Severe Stress	Extreme Stress
Age (Years)				
21-30	10(66.7%)	6 (100%)	1 (100%)	4 (100%)
=>31	5(33.3%)	0 (0%)	0 (0%)	0 (0%)
Marital Status				
Single	6(40%)	2(33.3%)	1(100%)	3(75%)
Married	9(60%)	4(66.7%)	0(0%)	1(25%)
Financial Status				
<RM1000	2(13.3%)	0(0%)	0(0%)	0(0%)
1000-2000	9(60%)	5(83.3%)	1(100%)	4(100%)
2001 -2999	4(26.7%)	1(16.7%)	0(0%)	0(0%)

Table 5 shows the relationship between stress among respondents and working environment (working shift time and type of departments). Results showed 13.6% respondents were having mild stress. In summary, a majority of respondents who suffered from mild stress worked in the department of medicine and their shift time were in the evening. For moderate stress cases, out of 6 respondents, 50% of them work in department of medicine and department of orthopedic each. A majority of them worked in the evening shift. On the other hand, there was only 1 respondent who suffered from severe stress and she worked night shift in departments of oncology and radiotherapy. Lastly, for extreme stress cases, half of them (50.0%) worked in department of medicine and orthopedic each. Most of them worked in the morning shift.

Table 5. Working environment with DASS severity ratings

Variables	Mild Stress	Moderate Stress	Severe Stress	Extreme Stress
Type of Department				
O&G	3(20%)	0(0%)	0(0%)	0(0%)
Medicine	6(40%)	3(50%)	0(0%)	2(50%)
Onco&Radiotherapy	2(13.3%)	0(0%)	1(100%)	0(0%)
Orthopedic	3(20%)	3(50%)	0(0%)	2(50%)
Psychiatric	1(6.7%)	0(0%)	0(0%)	0(0%)
Shift Time				
Morning	3(20%)	1(16.7%)	0(0%)	3(75%)
Evening	9(60%)	4(66.7%)	0(0%)	1(25%)
Night	3(20%)	1(16.7%)	1(100%)	0(0%)

The analysis of the relationship between the prevalence of stress with socio-demographic characteristics and also working environment using either Chi-Square test or Fisher Exact Test is shown in Table 6.

Table 6. Relationship of stress with selected variable

	N	Yes stress	No Stress	x^2 / Fisher	P value
		No (%)	No (%)		
Age (years)					
21-30	92	21(80.8%)	71(84.5%)	Fisher	0.427
31-42	18	5(19.2%)	13(15.5%)		
Marital Status					
Single/Divorced/ Widowed	54	12(46.2%)	42(50%)	Fisher	0.411
Married	55	14(53.8%)	41(48.8%)		
Financial Status					
<RM1000	14	2(7.7%)	12(14.3%)	7.242	0.65
1000 - 1999	60	19(31.1%)	41(48.8%)		
2000 - 2999	29	5(19.2%)	24(28.6%)		
=>RM3000	7	0(0%)	7(8.3%)		
Working environment					
Type of Departments					
O&G	27	3(11.5%)	24(28.6%)	9.950	0.041*
Medicine	25	11(42.3%)	14(16.7%)		
Oncology & radiotherapy	20	3(11.5%)	17(20.2%)		
Orthopedic	29	8(30.8%)	21(25%)		
Psychiatric	9	1(3.8%)	8(9.5%)		
Working shift time					
Morning	41	34(40.5%)	7(26.9%)	2.202	0.333
Evening	46	14(53.8%)	32(38.1%)		
Night	23	5(19.2%)	18(21.4%)		

***** *Significant at p<0.05*

Analysis of the socio-demographic characteristics showed that types of department had a significant relationship with the prevalence of stress (x^2= 9.950, p = 0.041). Other variables such as age, marital status, financial status, and working shift time had no significant relationship with the prevalence of stress. For working environment, there is a significant relationship between types of department and the prevalence of stress. On the other hand, for working shift time, there was no significant relationship with the prevalence of stress.

DISCUSSION

Out of 110 staff nurses who participated in our study, 75.4% were found to be within normal category which meant that approximately 24.6% of nurses perceived occupational stress. These results were comparable with a study done in 2008 which revealed that among 504 nurses in a district hospital and health centers in Temerloh, Pahang, 25% of them perceived stress (95% CI: 21, 29%). Those who perceived stress were experiencing mild stress (13.56%), moderate stress (5.5%), extreme stress (3.6%) and severe stress (0.9%)[13]. Overall, 84 (75.4%) respondents were found to have normal stress, and 26 (24.6%) were having mild, moderate, severe and extremely severe stress.

The majority of the respondents were in the range of 21 to 30 years old (84.5%) while only 15.5% were 31 years old and above. About half (50.0%) of the respondents were married while 49.1% were single and only 0.9% were either divorced/widowed.

More than half of them (54.5%), received salary between RM1000 to RM2000, 26.4% earned between RM2000 to RM3000, while 12.7% received lower than RM1000 per month, and lastly only 6.4% received more than RM3000 per month.

The respondents in the study were from the department of orthopedic (26.4%), the department of obstetrics & gynaecology (24.6%), 22.8% were from the department of medicine, department of oncology and radiotherapy (18.2%), and department of psychiatry (8.2%). Out of the 110 respondents, 41.8% worked in the evening shift, 37.3% worked in the morning shift, while 20.9% worked during night shift.

Our study showed that only type of department had a significant relationship with the prevalence of stress (x^2= 9.950, p = 0.041). Results showed that respondents working in the department of medicine experienced a higher level of stress compared to those working in the other departments. This was comparable with another study which revealed that nurses who worked in the department of medicine (mean scores (sd): 26.61 (10.60); 95% CI: 24.58, 28.64) showed significantly higher mean scores compared to other units (mean scores (sd): 18.28 (10.45); 95% CI: 15.21, 21.34).[13] This finding may be supported by the fact that one of the wards that had been selected in the department of medicine is the high dependency unit (HDU) in which the environment is very similar to the intensive care unit (ICU). The work load is formidable—even in periods of relative calm. Many skillful and precise tasks had to be accomplished by staff nurses in HDU such as taking care of desperately ill, comatose patients while watching ECG leads, respirator hoses, urinary and intravenous catheters which required nurse's full attention. Moreover, the nurse must maintain detailed patients records. Besides that, the department of medicine provides specialty not only in general medicine but also in gastroenterology, infectious diseases, hematology, nuclear and respiratory medicine. Nurses who worked in this department needed to handle a variety of specialty and chronic diseases which indirectly may have caused stress. On the other hand, the nurses in the department of psychiatry experienced the lowest level of stress. This might be due to lack of respondents and few numbers of patients admitted to the ward during the data collection.

Other variables such as age, marital status and financial status had no significant relationship with the prevalence of stress. This may be due to certain personality traits, openness, agreeableness and conscientiousness, early preparation, maturity and experience which were associated with problem-solving and early coping strategies such as active planning and reframing.

Shift work, particularly night shifts, traditionally attracts pay enhancements but can have a significant effect on personal and social life. Prolonged shift work, especially night shift work also has a health risk as it produces symptoms that correspond closely to those of mild or moderate stress[14]. However, it is shown that there was no significant association between stress and shift work, in our study.

CONCLUSION

In conclusion, stress may occur in all professions with different type of stressors. The nursing profession is among one of the most stressful occupation. Nurses may face various factors that make them prone to stress. However, from this study, it can be concluded that stress had no significant association with socio-demographic factors (age, marital and financial status) and working environment except for type of department. It can also be concluded that there might be some other cofounder that have a bigger potential in becoming a stressor compared to those independent variables in this study.

ACKNOWLEDGEMENT

Special thanks to the Ministry of Health Malaysia for granting permission for this study and the nurses who participated in this study.

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