

A descriptive study on stress and coping of nurses working in selected hospitals of Udupi and Mangalore districts Karnataka, India.

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Abstract: Nursing is, by its very nature, an occupation subject to a high degree of stress. Every day the nurse confronts stark suffering, grief, and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are by normal standards distasteful, even disgusting, others are often degrading; some are simply frightening. Workplace stress has long been recognised as a challenge for the nursing profession. Objectives of the study were - To determine stress and coping of nurses and to find its association with selected variables. The study population consisted of 1040 registered nurses working in selected medical college hospitals and government hospitals of Udupi and Mangalore districts. Descriptive survey design was used to conduct the study. Purposive sampling was used to select the samples. Data were gathered by administering background proforma, stress and coping questionnaires. Majority of the subjects i.e. 60.38% experience low stress, 38.46% experience moderate stress and stress was high among 1.15% of the subjects. Significant association is found between stress and professional qualification, marital status, and area of work. There is significant association between coping and marital status. There was no significant association between coping and other demographic variables. Kruskal - Wallis test computed for total years of experience ($z = 21.21$, $p < 0.001$) and experience in current area ($z = 11.07$, $p < 0.01$) and coping of nurses was significant.

Keywords: coping, nurses, stress

I. Introduction

Stress is an internal state, which can be caused by many causative factors.[1] Lazarus and Folkman (1984) define stress as “a relationship between the person and environment that is appraised by the person as taxing or exceeding his resources and endangering his well-being”.[2] Workplace stress has long been recognised as a challenge for the nursing profession.

Increased workload among nurses, growing occupational stress and inability to cope with it, lack of social or family support and declining job satisfaction are major concerns in nursing. Numerous studies have shown that nursing is strenuous work and hence the occupational stress is prevalent among nurses. Lambert, Lambert, Itano, Inouye, Kim, Kuniviktikul et al (2004) examined work stressors, ways of coping and demographic characteristics as predictors of physical and mental health among 1554 hospital nurses from Japan, South Korea, Thailand and USA. Subjects were administered four self-report questionnaires: Demographic Questionnaire, Nursing Stress Scale, Ways of Coping Questionnaire and SF-36 Health Survey. Findings suggested that nurses indicated similar workplace stressors, ways of coping, and levels of physical and mental health. While subjects, across countries, demonstrated a variety of predictors of physical and mental health, several predictors were found to be the same. Cross-culturally the role of nurses may vary; however, certain factors are predictive of the status of hospital nurses' physical health and mental health.[3]

Another study was conducted by Healy, McKay (1999) to identify what the nurses perceived as the major causes of stress in the workplace. Results showed that the nurses rated their workload as highly stressful in terms of both frequency of its occurrence and its perceived effect upon themselves. As expected, higher levels of reported nursing stress were associated with lower levels of job satisfaction. [4]

Bianchi (2004) surveyed a representative sample of cardiovascular nurses to describe ways of coping, and identify sources of stress in the hospital setting. A self-completed questionnaire was distributed to 76 nurses from a cardiovascular hospital in Sao Paulo City, Brazil. The measures were the Nursing Stress Evaluation Questionnaire (NSEQ) and Ways of Coping Questionnaire (WCOQ). The results identified work conditions as the major source of stress for nurses and they used positive reappraisal, self-controlling skills, and social support to cope with job stress. Nurses are using coping strategies based on personal resources but the use of organizational strategies is encouraged to improve life quality.[5]

Sources of job stress and levels of job satisfaction are extensively investigated abroad, but no extensive studies have been conducted in India to identify nurses' problems. Nurse-per-bed ratio in India is 0.87 vis-à-vis

the world average of 1.2 nurses per bed, which has been arrived at based on data from the World Health Organisation (WHO). The nurse-to-bed ratio was 1.4 in 2006. This ratio may fall to 1.29 in 2011 and ultimately to 1.15 in 2016. According to the planning commission, India faces a shortage of about one million nurses.[6]

In order to prevent this shortage it is important to retain the nurses who are active in India. Due to the shortage, active nurses experience lot of problems, and heavy workload can have a devastating effect and threaten the life and security of patients as the study by Tarnow, Warden, Shearer et, al (2000) found that inadequate nursing staffing in an Intensive Care Unit increased patients' mortality rate. Furthermore occupational stress has been found to be one of the major work related health problems. In addition to these serious consequences, a high level of occupational stress has been found to reduce nursing quality.[7]

1.1 Objectives

- To determine the stress and coping of nurses
- To find the association between stress and selected demographic variables work place variables
- To find the association between coping and selected demographic variables work place variables

II. Methods

The study was conducted in selected medical college hospitals and government hospitals of Udupi and Mangalore districts by using survey approach. The study population consisted of the registered nurses working in selected medical college hospitals and government hospitals of Udupi and Mangalore districts. Purposive sampling was used to select the samples from medical college hospitals, whereas all available samples were chosen from government hospitals as the population was comparatively very less in government hospitals. Total sample size was 1040. Sampling criteria included female nurses who were: registered with state nursing council, working as staff nurses, involved in direct patient care, employed at the hospital at least six months and working in respective units at least six months

2.1 Measures

The instruments used to collect the data were Background proforma, stress and coping questionnaires.

Tool 1: Background proforma

It has 11 items such as age, professional qualification, marital status, married status, type of family, number of children, monthly income, area of work, daily working hours, experience in current area of work and total years of experience as a nurse. Content validity was established by nine experts from the field of psychiatric nursing, psychiatry, psychology and psychiatric social work.

Tool 2: Nursing stress scale

This is a standardized scale developed by Pamela Gray Toft and James G. Anderson in the year 1981. It consists of 34 items that describe situations that have been identified as causing stress for nurses in the performance of their duties. The subscales are death and dying, conflict with physicians, inadequate preparation, lack of support, conflict with other nurses, workload and uncertainty concerning treatment. The responses are never, occasionally, frequently and very frequently with the scoring of 0, 1, 2, and 3 respectively. Stress is categorized as low, moderate and high with the score range of 0-34, 35-68 and 69-102 respectively. Two estimates of the reliability of the Nursing stress scale were determined by the authors: test-retest and internal consistency. The test-retest coefficient for the total scale was 0.81. Four measures of internal consistency were obtained; a Spearman-Brown coefficient of 0.79, a Guttaman split-half coefficient of 0.79, a coefficient alpha of 0.89 and a standardized item alpha of 0.89. All four measures indicated a satisfactory level of consistency among items.

Tool 3: Ways of coping questionnaire

The revised Ways of Coping (Folkman & Lazarus, 1985) scale is used by the investigator to measure the coping of the nurses. It is a 4-point Likert scale (0 = does not apply and/or not used; 1 = used somewhat; 2 = used quite a bit; and 3 = used a great deal). The areas covered were Confrontive coping, Distancing, Self-controlling, Seeking social support, Accepting responsibility, Escape-Avoidance, Planful problem-solving and Positive reappraisal.

2.2 Data collection procedure

The nurses were contacted and administered the questionnaires in their respective wards during different shifts according to their convenient time. The institutions which had continuing nursing education programme (CNE) nurses were met and data were collected soon after the CNE sessions.

III. Ethical considerations

Written permission was obtained from Dean, Manipal College of Nursing Manipal, Manipal University and also from the administrators of the institutions selected for the study. The study proposal was presented to the PhD committee of the Manipal University and ethical committee members of Kasturba hospital, Manipal and ethical clearance was sought. Permission was also sought from the administrators of the institutions from where the subjects were selected. On the days of data collection, the researcher introduced herself and the purpose of the study was explained to the subjects and written consent was taken. Subject information was also provided to them. The subjects were assured of the confidentiality of the information provided.

IV. Results

The gathered data were first coded and summarized in a master sheet and then analysed using SPSS for windows 11.5 and 16.

4.1 Description of Sample characteristics

The sample characteristics according to demographic variables i.e. age, professional qualification, marital status, married status, type of family, number of children, monthly income and work variables i.e. area of work, daily working hours, experience in current area of work and total years of experience are described in terms of frequency and percentage in Table 1 and 2.

4.2 Description of Stress

Majority of the subjects i.e. 60.38% experience low stress, 38.46% experience moderate stress and stress was high among 1.15% of the subjects. Subscale wise Mean, SD, Median and Inter quartile range of stress score presented in table 3 show that mean stress score (7.03 ± 3.1) was high for the nurses in the sub area of death and dying followed by workload (6.9 ± 3.3) and lowest mean stress score (2.7 ± 1.6) was in the area of lack of staff support.

4.3 Description of Coping

Area wise Mean, SD and Median were calculated which are presented in table 4 and show that mean score is high (12.2) for positive reappraisal in the subscale of coping followed by seeking social support which had the mean score of 8.8. It indicates that the nurses make efforts to create positive meaning by focusing on personal growth and make efforts to seek informational support, tangible support and emotional support. Whereas it is observed that the mean score was least in the area of accepting responsibility (4.9) ie acknowledging one's own role in the problem with a concomitant theme of trying to put things right.

4.4 Association between stress and demographic variables

As age was a continuous variable and did not follow normality, Spearman's rho was computed between Stress and age to determine whether age is related to stress of nurses. The Spearman Rho calculated was 0.037 with p value of 0.238 which was not significant at 0.05 level. It can be interpreted that there is no relationship between age and stress of nurses. Data on association between stress and demographic variables is presented in table 5.

Data in table 5 show that there is significant association between Stress and professional qualification ($p=0.02$) Significant association is also observed between stress and marital status ($p=0.04$) stating that married subjects are more stressed (Mdn=33) than subjects who are single (Mdn=31). Wherever Kruskal Wallis values were significant data were further analysed with Bonferroni correction. Significant association between Stress and Professional education category in pair of GNM :PCBSc. By observing the median of stress score it is clear that stress is experienced by the nurses who are qualified with General Nursing and Midwifery.

4.5: Stress and work variables

Data in table 6 show that there is significant association between Stress and area of work. Hence area of work of nurses can be considered as a factor determining stress. As Kruskal Wallis value of area of work was

significant, data were further analysed with Bonferroni correction and there is significant association between Stress and area of work pairs of Medical: ICU, Surgical: OBG, Surgical: ICU ICU: Special and ICU: Casualty. Median stress score (37) of nurses working in Special ward is high compared to all other areas which is significant. Thus it can be interpreted that nurses working in special ward experience higher degree of stress.

4.6 : Coping and selected demographic variables

As age was a continuous variable and did not follow normality, Spearman's rho was calculated between Coping and age to determine whether age is related to coping of nurses. The Spearman Rho calculated was 0.039 with p value of 0.211 which was not significant at 0.05 level. It can be interpreted there is no relationship between age and coping of nurses.

Data given in table 7 show that there is significant association between coping and marital status of the nurses and as the median coping score of married nurses is lower than nurses who are single, it may be interpreted that coping ability of married nurses is low.

4.7: Coping and selected work variables

Findings presented in the table 8 indicate that Kruskal - Wallis test computed for total years of experience ($z=21.21$, $P<0.001$) and experience in current area of work (11.07 , $p<0.01$) and coping ability of nurses is significant. It is inferred that area of work and daily working hours are independent of coping and total years of experience, experience in current area of work are determinants of coping with regard to work variables of nursing. Further analysis was done by using Bonferroni correction and found a significant association between coping and total years of experience in the pairs of 1-5:6-10, and 6-10:11-15 ($p<0.001$) Analysis of the median coping score reveals that nurses who have the experience of 6-10 years are having lowest coping.

V. Discussion

In the present study majority of the samples i.e. 60.38% experienced low stress and 38.46% experienced moderate stress and stress was high among 1.15% of the subjects. This is similar to the findings of Snelgrove[8] which compared stress and job satisfaction in a sample ($N = 143$) of health visitors (HV), district nurses (DN), and community psychiatric nurses (CPN) in mostly urban and some rural areas of a health districts in England and found that the subjects were sometimes to some extent stressed ($M = 57.31$; $SD = 15.75$). Findings of Williams A [9] also report the similar finding where nurses surveyed showed a moderate level of job stress ($M = 145.2$; $SD = 31.04$; range of 86 - 210). Findings of the present study are also consistent with the findings of Kane PP [10] who reported that significant stress of varying severity was experienced by 73.59% of nurses.

Present study revealed a significant association between stress and professional qualification ($p<0.05$). Stress is experienced more by the nurses who are qualified with General Nursing and Midwifery. Significant association is also observed between stress and marital status, married subjects being more stressed than subjects who are single. It may be due to the added responsibilities of the married life which in turn may contribute to the stress at work. Significant association is also observed between stress and area of work, i.e. the nurses working in special ward experience more amount of stress. Patients who are admitted in special wards are usually from higher socio-economic class paying more for the hospital services they receive. Meeting the demands of such a class of service receivers can be naturally stressful. This factor along with compromised training received, could be a major determinant of this finding. No significant association was found between stress and age, type of family, number of children, income per month, working hours, total years of experience and experience in current area of work.

Study carried out by Williams A[9] reported that the level of stress was more among nurses working in the Newborn Intensive Care Unit (NICU). But this study was conducted among 30 nurses who worked in maternal and child health areas. Kelly JR, Cross DG [11] report that nurses who were not working in ICUs reported higher levels of burnout than those working in ICUs and Wu S, Zhu W, Wang Z, Wang M, Lan Y [12] found the scores for burnout of surgical and medical nurses were significantly higher than those of other nurses ($P < 0.05$). Jaracz K, Gorna K, Konieczna J[13] noted a significantly higher level of burnout in general medical nurses. All these studies used different tools for measuring stress. The findings of present study on age does not agree with the study by Kirkcaldy BD, Martin T [14] involving 276 nurses in a large hospital in Northern Ireland, who found age as a significant variable related to total stress. Ernst M E, Mesmer P R, Franco M, Gonzalez JL [15] identified a set of factors that describe nursing satisfaction and stress in the pediatric setting. Job stress correlated significantly and inversely with age, years as a nurse, and years in the organization. This could be because the nurses get adjusted with the work environment as they gain experience and become older.

Mean stress score was high for the nurses in the sub area of death and dying (7.03±3.1) followed by workload (6.9 ± 3.3) and lowest mean stress score was in the area of lack of staff support (2.7±1.6) and inadequate preparation to deal with emotional needs of patients and their families (2.8 ± 1.6) in the present study. Nurses witness suffering of the patients every day and sometimes death of the patients whom they have cared for. They also deal with patients who do not improve in spite of providing maximum possible care and treatment. They need to perform painful procedures on patients. All these may result in experiencing more stress related to death and dying. As there is acute shortage of nurses in majority of the hospitals in India nurses face problems due to increased work load. They are unable to complete their tasks in time, and have inadequate time to meet emotional needs of the patients, unpredictable staffing may be there and also in most of the hospitals nurses have to do too many non-nursing tasks such as clerical work. Similar findings are reported by Healy C, McKay M [4] and Chang EM, et al [16] who found most common source of nursing stress as workload followed by death and dying. The least reported stressors were perceived lack of staff support and inadequate preparation to deal with emotional needs of patients and their families.

Present study found high mean score (12.2) for Positive reappraisal (efforts to create positive meaning by focusing on personal growth) in the subscale of coping followed by seeking social support which had the mean score of 8.8. Similar finding is reported by a study conducted by Bianchi E R [5] where nurses used positive reappraisal, self-controlling skills, and social support to cope with job stress. But these findings are in disagreement with the findings of the study conducted by Chang EM, et al [16] who found planful problem solving as the most used coping strategy by nurses followed by self-control and seeking social support. In the cross cultural comparative study conducted by Lambert VA et, al [3] only nurses from United states were found to exercise planful problem solving as the most frequently used coping when compared with nurses from Japan, Thailand and South Korea. The reason could be that the problem solving technique might have been inadequately dealt in the nursing curriculum in these countries. This could suggest that planful problem solving is a coping strategy more often used in western countries, such as Australia and the US rather than in eastern cultures.

VI. Conclusion

Significant number of nurses experience stress, which may diminish nursing care quality. Dual roles of the nurses after marriage could be one of the contributing factors for married nurses to have more stress and less coping. Nurses make efforts to create positive meaning by focusing on personal growth and make efforts to seek informational support, tangible support and emotional support. The limitations identified were : current research was focused on self-report measurement where researcher had to assume that the respondents were truthful, non random selection of sample, sample size from different units/wards was not balanced and only nurses in a hospital setting were included in the study which limits the generalization of findings. Nursing shortage could be one of the reasons for having increased stress as the mean score of workload in the subscale of stress was more. Excessive work load require attention from management especially because safe work environments are legally required. Reducing the effect of environmental stressors such as workload, staffing, and assisting nurses to balance priorities may be effective interventions. Attempts to deal with the sources of stress and their consequences need to be made at individual, inter-personal, and organisational levels.

Table 1: Frequency and percentage distribution of sample characteristics with regard to demographic variables

Demographic variables	Frequency (f)	Percentage (%)
n=1040		
Age in years		
21- 30	730	70.2
31- 40	218	21.0
41- 50	69	6.6
51- 56	23	2.2
Professional qualification		
General Nursing and Midwifery	906	87.1
Basic BSc Nursing	105	10.1
Post Certificate BSc Nursing	29	2.8
Marital status		
Single	555	53.4
Married	485	46.6
Married status		
Staying with spouse	326	67.22
Staying away from spouse for job purpose	142	29.28
Divorced	6	1.24
Widowed	11	2.26

Type of family		
Nuclear	858	82.5
Joint	182	17.5
No. of children		
None	84	17.32
One	164	33.81
Two	214	44.13
Three or more	23	4.74
Monthly income in Rupees		
<5000	255	24.5
5001-9000	532	51.2
9001-13000	155	14.9
<13000	98	9.4

Table 2: Frequency and percentage distribution of sample characteristics with regard to work variables

Work variables	Frequency (f)	Percentage (%)
n=1040		
Area of current work		
Medical	334	32.1
Surgical	183	17.6
Operation Theatre (OT)	111	10.7
Intensive Care Unit (ICU)	154	14.8
Casualty	85	8.2
Special ward	52	5.0
Paediatrics	42	4.0
Obstetrics and Gynaecology	56	5.4
Dialysis	23	2.2
Daily working hours		
8	785	75.5
10	195	18.8
12 and more	60	5.7
Total years of experience		
1-5	592	56.92
6-10	196	18.85
11-15	106	10.19
16-20	92	8.85
>20	54	5.19
Experience in current area of work		
<One year	390	37.5
1-3 years	348	33.46
3-5 years	164	15.77
>5years	138	13.27

Table 3. Subscale wise Mean, SD, Median and Inter quartile range of stress score

Stress subscales	Mean \pm SD	Median (IQR)	Minimum score	Maximum score
Death and dying	7.03 \pm 3.1	7 (5,9)	0	21
Conflict with physicians	4.2 \pm 2.3	4 (3,5)	0	15
Inadequate preparation	2.8 \pm 1.6	3 (2,4)	0	9
Lack of staff support	2.7 \pm 1.6	3 (2,4)	0	9
Conflict with other nurses	4.3 \pm 2.6	4 (3,6)	0	15
Workload	6.9 \pm 3.3	7 (5,9)	0	18
Uncertainty concerning treatment	4.4 \pm 2.6	4 (3,6)	0	15

Table 4: Area wise Mean, SD, Median, Minimum and maximum coping score

Coping subscales	Mean \pm SD	Median (IQR)	Minimum score	Maximum score
Confrontive coping	6.6 \pm 2.9	7 (5,8)	0	18
Distancing	6.8 \pm 3.5	7 (4,9)	0	18
Self-controlling	8.5 \pm 3.5	9 (6,11)	0	20
Seeking social support	8.8 \pm 3.6	9 (6,11)	0	18

Accepting responsibility	4.9 ±2.3	5 (3,6)	0	12
Escape-Avoidance	8.0 ±3.9	8 (5,10)	0	24
Planful problem-solving	8.4 ±3.4	8 (6,11)	0	18
Positive reappraisal	12.2± 4.5	12 (9,16)	0	21

Table 5: Median, IQR, Test statistic, df and p value of stress and demographic variables of nurses n=1040

Demographic variables	Median	Inter quartile range	Test statistic &df	p value
Professional qualification				
GNM	32	25-40	7.48	0.02
BBSc	30	23-39.5	2	
PCBSc	28	23-33		
Marital status*				
Single	31	23-39	-2.002	0.04
Married	33	25-40	1	
If married (Married status)				
Staying with spouse	33	25-40		0.89
Staying away from spouse	33	25-40	0.59	
Divorced	35	24-38	□3	
Widowed	32	24-36		
Type of family*				
Nuclear	32	24-40	0-.04	0.97
Joint	31.5	23.75-41	□1	
No. of children				
None	33.5	23-42.75		0.87
One	33	24.25-39	0.73	
Two	33	27-40	□3	
Three or more	29	23-47		
Monthly income in Rupees				
<5000	31	24-41		0.79
5001-9000	32	24-39	1.05	
9001-13000	32	25-39	3	
>13000	32.5	24.75-41		

*Mann-Whitney

Table 6: Median, IQR, Test statistic, df and p value of Stress and work variables of nurses

n=1040

Work variables	Median	Inter quartile range	Test statistic &df	p value
Area of current work				
Medical	32	26- 39		<0.001
Surgical	34	25-43		
Operation theatre	31	25-43		
Intensive care unit	28	20-35.25	39.13	
Casualty	36	27-42	8	
Special ward	37	27-45		
Paediatrics	28.5	23-36.25		
OBG	27	20-35		
Dialysis	27	16-48		
Daily working hours				
8	32	24-29		0.72
10	32	25-41	0.66	
12 and more	34	23.25-45	□2	
Total years of experience				
1-5	32	24-40		0.21
6-10	32	25-39		
11-15	32.5	26-42	5.91	
16-20	29.5	21-38	□4	
>20	34	25-40.25		
Experience in current area of work				
<1	32	24.50-40.50		0.69
1-3	31	23.50-39	1.489	
3-5	35.	25-41	3	
>5	32.	25-39		

**Table 7: Median, IQR, Test statistic, df and p value of Coping and demographic variables of nurses
n=1040**

***Mann-Whitney**

Demographic variables	Median	Inter quartile range	Test statistic &df	p value
Professional qualification				
GNM	65	52-77		
BBS	63	49-74.5	1.74 2	0.42
PCBS	62	57-68.5		
Marital status*				
Single	66	53-77	-2.22	0.03
Married	62	51-74	1	
If married(Married status)				
Staying with spouse	66	53-77		
Staying away from spouse	61	50-73	1.94	0.59
Divorced	48	45.5-92	3	
Widowed	48	47-82		
Type of family*				
Nuclear	65	52 -76	0-.64 1	0.53
Joint	61	51-76.25		
No. of children				
None	61	49.25-75.75		
One	63	49-73.75	7.47 3	0.07
Two	60	52-73		
Three or more	80	61-97		
Monthly income in Rupees				
<5000	67	52-77		
5001-9000	65	52-77	1.85 3	0.6
9001-13000	62	53-74		
>13000	61	50.75-73.5		

Table 8: Median, IQR, Test statistic, df and p value of Coping and work variables of nurses

n=1040

Work variables	Median	Inter quartile range	Test statistic &df	p value
Area of current work				
Medical	66	53.75-76		
Surgical	64	51 -76		
Operation theatre	63	55-78		
Intensive care unit	59	51.75-71		
Casualty	67	52-78	11.12 8	0.19
Special ward	73	47.5-78.75		
Paediatrics	63.5	46.75-74.25		
OBG	70	47.5-77.75		
Dialysis	63	61 -76		
Daily working hours				
8	63	52-76		
10	67	56-76	1.67 2	0.43
12 and more	66.5	53.5-74		
Total years of experience				
1-5	67	53-78.75	21.21 4	<0.001
6-10	59	47-73		

11-15	67.5	57.5-77		
16-20	63	53.25-73		
>20	58	48.75-70.75		
Experience in current area of work				
<1	69	54-80		
1-3	65	51.5-75	11.07	0.01
3-5	61.5	46.25-73	3	
>5	62	52.75-74		

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