Original Research Paper

Medicine

A cross sectional study to assess physical and mental health status due to occupational stress of nursing staff at tertiary care centre of Central India

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ABSTRACT Stress is a fundamental inevitable experience of modern work. The role of nursing is associated with multiple and conflicting demands imposed by nurse supervisors, managers, medical and administrative staff. Chronic Stress may induce to health burden. Consistently high stress can become a chronic condition, which can exacerbate existing mental health conditions and chronic physical conditions (diabetes, hypertension, weak immune system). It was a questionnaire based study comprised of 90 Nurses working at tertiary care centre for more than 10 years contrast to non-working female of identical age group.General examination ,anthropometric messurments, CMI were calculated of both the groups Occupational stress score was calculated of study group by using modified occupational stress score. In the study it was observed thatAccording to CMI health questionnaire evaluation 60% of Control group females were having good physical health in contrast to Study group females in which 58.8% showed poor physical health status. Similarly Mental health of control group was 100% good while study group was 84.44% poor . 63%nurses reported high OSS and 37% showed moderate OSS. Eventually the study showed that working Nurses to be on higher health risks than the non-working female. Study investigation data made apparent that nurses are more towards occupational stress.

KEYWORDS :

Introduction

Selye(1) a pioneer of stress research points out that stress is a mediational process in which stressors trigger, an attempt at adaptation of or resolution, that result in individual distress, if the organism is unsuccessful in satisfying the demand. Stress responding occurs at physiological, behavioral and cognitive level(2) .Recent occupational health data indicate that 40-50 percent of the working population is exposed to hazardous conditions in the work place. Between 68 million to 157 million new cases of occupational diseases arise as a consequence of various types of work related exposures. Work place stress is associated with many health problems(3,4)

Nursing is by its very nature, a stressful occupation. 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 and disgusting, other are often degrading, some are simply frightening. Nursing was chosen as one of the occupations on which the ILO has commissioned a manual on stress prevention.

The role of nursing is associated with multiple and conflicting demands imposed by nurse supervisors and managers and by medical and administrative staff. Such a situation appear to lead to work overload and possible to role conflict.

The main goal of present study is to investigate how job related stress affect the physical health and mental health of nurses at tertiary care centre, of central India.

Material and Methods

Study has been carried out Department of Physiology, in collaboration with Department of Biochemistry at tertiary care centre, Bhopal.

90 Nursing Staff of tertiary care centre. 30 non working females age 30 - 45 years were accounted as Control group.

Inclusion criteria:

90 Nurses working since last 10 years or more at hospital

Exclusion criteria:

1. Nurses suffering from any sever cardio respiratory disorder
2. Nurses suffering from known autonomic and endocrinal dysfunction.

90 nurses fulfilled exclusion & inclusion criteria and were enrolled for the study.

Nurses were classified on the basis of BMI recommended by WHO(5) The health status of the study population was assessed on the basis of Cornell Medical Index scores.Occupation stress score(OSS) was calculated using A K shrivastava and A P Sing occupational stress inventory.

RESULTS

TABLE No.1 CHARACTERISTICS OF STUDY POPULATION

Group	Parameters Values	Age (yrs.)	Wt. (Kg.)	Ht. (cms.)	BMI (kg./m2)
Control Group (n = 30)	mean± SD	43.2± 6.059	57.36±5.54	154.6±5.09	23.86±2.17
	Range	31-50	46-68	146-161	19.90 - 27.68
Study group (n = 90)	mean ± SD	43.93± 5.20	58.38±6.43	154.54±4.28	24.62±2.73
	Range	30-50	46-80	146-161	18.91 - 29.80

The calculated mean BMI of control group (23.86 ±2.17) and study group (24.62 ±2.73) suggested that none of the subject included in the study could be classified as having poor nutritional status.

TABLE No. 2
CLASSIFICATION OF CONTROL GROUP BASED ON BODY MASS INDEX (KG / M²)

Group	No. of cases n = 30	Percentage	BMI mean± SD (kg/m²)
Underweight (< 18)	Nil	Nil	Nil
Normal weight (18-25)	24	80%	22.65± 1.54

| Overweight (> 25) | 06 | 20% | 26.30± 0.93 |
| Obese (>30) | Nil | Nil | Nil |

The value of the Body mass Index calculated revealed that nutritional status of the majority (80%) of the subjects in the control group was normal. 20% subjects were categorised as overweight.

TABLE No. 3
CLASSIFICATION OF STUDY GROUP BASED ON BODY MASS INDEX

Group	No. of cases n=90	Percentage %	BMI mean ± SD
Underweight(< 18)	Nil	Nil	Nil
Normal weight(18-25)	49	54	22.58± 1.67
Overweight(> 25)	41	46	26.63± 1.42
Obese(>30)	Nil	Nil	Nil

The data revealed that 54% nurses were having normal nutritional status and 46% were overweight. The percentage of overweight subjects was higher in the study group as compared to control group.

TABLE No.4
CLASSIFICATION OF CONTROL GROUP BASED ON CMI HEALTH STATUS SCORE

Health Status	No. of cases n = 30	Percentage (%)	CMI health questionnaire score mean ± SD
Physical Health			
Very good	18	60	9.78 ±3.09
Good	6	20	16.8 ±1.28
Fair	6	20	22.67 ±1.37
Poor	Nil	Nil	Nil
Mental Health			
Good	30	100	2.1 ±0.71
Poor	Nil	Nil	Nil

60% of the subjects included in the study group found to have very good health status. None of the subject reported physical or mental distress to be categorized under poor health status group.

TABLE No. 5
CLASSIFICATION OF STUDY GROUP BASED ON CMI HEALTH QUESTIONNAIRE SCORE

Group	No. of cases n = 90	Percentage (%)	CMI - HQ score mean ± SD
Physical Health			
Very good	6	6.67	12.67 ±1.17
Good	16	17.78	18.19 ±1.79
Fair	15	16.67	22.93 ±1.53
Poor	53	58.8	36.94 ±6.57
Mental Health			
Good	14	15.56	2.29 ±0.73
Poor	76	84.44	5.84 ±1.53

According to the CMI health questionnaire scoring system 58.8% nurses reported >25 health problems and they were classified as having poor physical health status, nearly 7% cases found to the have very good health status. Analysis of the observation revealed that 84% subject reported existence of mental distress, mainly in terms of anxiety. An attempt was made to further classify the study population on the basis of degree of anxiety using Sinhas anxiety scale.

Criteria of classification (Sinha's Anxiety scale 1961)

Anxiety state group	Anxiety score
Low anxiety	1 – 20
Normal anxiety	21 – 30
Moderate	31 – 40
High anxiety	41 – 50
Very high anxiety	> 50

TABLE - 6
CLASSIFICATION OF CONTROL GROUP BASED ON SINHA'S ANXIETY SCALE

Anxiety Status	Anxiety Score	No. of cases	Percentage (%)	Anxiety score mean ± SD
Low	1 - 20	6	20	15.30 ± 3.2
Normal	21 - 30	24	80	22.16 ±1.47

On the basis of anxiety scores obtained 80% subjects of the control group were labeled as having normal anxiety status. None of the subject was found to have high anxiety scores.

TABLE - 7
CLASSIFICATION OF STUDY GROUP BASED ON SINHA'S ANXIETY SCALE

Group	Anxiety Score	No. of subject	Percentage (%)	Anxiety score mean ± SD
Low anxiety	< 20	Nil	Nil	Nil
Normal anxiety	21 - 30	10	11	27.2 ± 3.01
Moderate anxiety	31 - 40	33	36.67	36.18 ± 2.78
High anxiety	41 - 50	20	22.22	45.77 ± 2.92
Very high anxiety	> 50	07	7.78	51.71 ± 0.76

Majority (37%) of the nurses had moderate level anxiety (36.18 ± 2.78). 22% fell in to the high anxiety group. Only 8% were categorised in very high anxiety group.

Categorisation of Occupational Score based on normal distribution Principle

Category	Occupational stress score
Low stress	< 120
Moderate stress	120- 180
High Stress	> 180

TABLE – 8
CORRELATION OF OCCUPATIONAL STRESS SCORE AND ANXIETY SCORE

Group	Mean OSS ± SD	Mean anxiety score ± SD	Correlation coefficient "r"	Value "p"
Moderate stress (n=33)	160.96 ± 19.12	35.60 ± 8.24	0.55	< 0.001
High stress (n=57)	198.58 ± 9.99	43.57 ± 5.24	0.50	< 0.001

On statistical analysis significant positive correlation was found between the anxiety scores and the occupational stress score. Indicating that occupation stress increases the anxiety level.

Discussion

Recent occupational health data indicate that 40-50 percent of the working population is exposed to hazardous conditions in the work place. Between 68 million to 157 million new cases of occupational diseases arise as a consequence of various types of work related exposures.

Work - related stress generally distracts from the quality of nurses working lives, increases minor psychiatric morbidity(6,7) and may contribute to some forms of physical illness with particular reference to musculoskeletal, depression, anxiety ,cardiovascular and autonomic dysfunction. (8,9,10,11).There may be several potential mechanisms through which stress can affect cardiac health, and IHD that produces clinically significant changes relatively late in life is considered as a multifactorial disease by many authors.

Evidently now it is universally recognized that nursing is by its very nature a stressful occupation .Many studies on stress in nursing have attempted to measure the effects of such stress on nurse's health and well being. Work related stress generally distracts from the quality of nurses working lives, increases minor psychiatric morbidity and may contribute to some form of physical illness with particular reference to cardiovascular and autonomic problems, stress and depression.

The main goal of the present study on the hospital nursing staff was to test the hypothesis that before any apparent sign of disease work related stress is already accompanied.

Present study comprised 90 nurses (aged 43.93 ±5.2) working for more than 10 years at tertiary care centre of Central India were compared with 30 healthy age and sex matched control group. Accumulation of work stress is associated with unhealthy eating habits sedentary behavior and their by contributes to higher risk of metabolic syndrome and incident obesity. In the present study 80% subjects were overweight (BMI-26.63 ±1.42 Kg \m2) as compared to control group where only 20% were identified as overweight (26.30 ±0.93). In some research studies high job demands and low job control have been associated with higher BMI(12) [Niedhaammer et.al(1998)]. Previous studies have shown the relationship between stress and the disease (13,14,15)(New berry et. al. 1991), Maria Kopp (2007), Kawano Y (2008). More intense and longer the stress situation results in the higher the risk for negative health outcome. Rapid change in health care technology in nursing profession can further increase stress on nurses.

An attempt was made to know the existence and extent of physical & mental health problems in the study population using CMI Health Questionnaire. 60% of the subjects included in the control group reported no significant physical distress. None of the subject in the control group reported psychological problem. As compared to the control nearly 18% of the nurses could be classified as having good health status, 16% having fair health status, large majority (58.8%) reported health problems to be categorised in to poor health status group. The observation revealed that 84% subjects reported existence of psychological distress.

Analysis of the observation of the CMI health questionnaire revealed that more than 80% of the subjects reported anxiety as main psychological problem. So a detailed study of anxiety status of study population was done using Sinha's anxiety scale.

80% of the subjects of control group showed normal anxiety status (anxiety score 22.16 ±1.47) and none of the subject showed high anxiety status.

36.6% of the nurses were categorised in to moderate anxiety group 22% into high anxiety group and 7.8% in very high anxiety group depending on the anxiety score calculated .

The occupational stress relates both to an individual perception of demands being made on them and to perception of their capabilities to meet those demands. A mismatch will mean that an individuals stress threshold is exceeded triggering a stress response (Clancy and Mc Vicar, 2002). (16)

An attempt was made to classify the study population on the basis of occupational stress score. As evident from the observations 63% nurses scored high on the scale (Mean OSS 198.57 ±9.99). Moderate stress was identified in 37% subjects. On correlating the occupational stress score and anxiety score statistically significant (p<0.001) positive correlation was found. Three identifiable emotional constellations that are fairly regular outcome of stress are anxiety anger and depression.

Present study recognised that unfavourable working condition, workload, poor, professional relationship, unprofitability and intrinsic impoverishment were must frequently reported major causes of work place distress for the nursing staff.

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