

*Original article*

# Assessment of stress and burnout among intensive care nurses at a tertiary care hospital

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## *Abstract*

**Background:** Nursing, by virtue of its nature, is an occupation subject to high degree of stress. Stress is not an isolated outcome of the transaction between stimuli and responses but the concept of burnout is closely associated with it. **Aim:** The study aimed to assess various factors leading to stress and burnout among nurses working in an Intensive Care Unit. **Method:** Twenty five nurses were interviewed using demographic profile sheet, Workplace Stress Scale and Maslach Burnout Inventory. **Results:** It was found that 92% nurses experienced average and 8% experienced high levels of stress. The stress level of nurses was independent of their demographic characteristics. The study found workload, decreased job autonomy, inadequate supervisor support, less opportunities of learning on job and inappropriate feedback to be significant predictors of stress among nurses. Nurses with high levels of personal accomplishment perceived significantly lesser degree of stress. **Conclusion:** Findings can have important implications for nursing practice and research.

**Key words:** Nurses, Intensive care unit, Stress, Burnout

## **Introduction**

Workplace stress has long been recognized as a challenge for the nursing profession. Stress is perceived when environmental demands exceed the individual resources. Role-stress occurs through perceived mismatch between the expectations of the role and the accomplishment.<sup>1</sup> Lazarus considered stress as the transaction involving an individual and his or her environment.<sup>2</sup>

There is growing body of research about stress in nursing in addition to some general indications. For example, occupational mortality figures in early 1980s indicated that the suicide rate for female nurses was significantly higher than national average. In addition, a nurses' life

expectancy at age 45 was found to be 26.9 years, only one year more than a miner working below ground.<sup>3</sup> High levels of stress has been documented in critical care unit nurses.<sup>4</sup> Burnout is one of the causes of increased psychological morbidity among working people.<sup>5</sup> The concept of burnout, first introduced in 1974 by Fredeunberger, was initially seen more commonly in occupations whose members dealt directly with people,<sup>6</sup> however subsequently it was found in other professions as well.

Maslach<sup>7</sup> defined burnout as a physical, emotional and intellectual exhaustion syndrome, manifested by adverse attitude to professional life and other people with the development of negative self-esteem in the individual

experiencing chronic fatigue, and feelings of helplessness and hopelessness. The three core dimensions of burnout are: Emotional Exhaustion (lack of energy and a feeling that one's emotional resources are used up), Reduced Personal Accomplishment (deterioration of self-confidence and dissatisfaction in one's achievements) and Depersonalization (development of negative and uncaring attitudes towards others).<sup>7</sup>

A number of studies<sup>8,9</sup> conducted among various categories of health care professionals reported various pre-disposing factors leading to stress and burnout levels and depicted interplay of these factors. Age, job status, job stressors (workload, experience with pain and death, conflictive interaction and role ambiguity) and hardy personality (commitment, control and challenge) as the significant predictors of burnout.<sup>8</sup> Another study<sup>9</sup> reported personal disposition (anxiety-trait), social integration, unit tenure, professional experience, position level and job/non-job conflict, along with the relations with the head nurse and physicians are the significant predictors of psychological distress among nurses.

Demir and colleagues<sup>10</sup> in a large sampled study found out that the higher education level, work experience & higher status decreases burnout levels, while the conflictive interpersonal relations, working at night shifts, difficulty in child care and in doing house chores, health problems of the nurse herself, economic hardships and difficulties encountered in transportation are among the factors that increase the burnout.<sup>10</sup> The increased levels of stress and burnout among nurses significantly affect the efficiency and productivity of nurses leading to low quality care, lowered job satisfaction, increased nurses' turnover rates, and increased health care costs on the part of patients.

The present study was undertaken to assess various factors leading to stress and burnout among nurses working in an Intensive Care Unit (ICU) of a tertiary care hospital.

### Materials and Method

The study was conducted at Nehru Hospital, Post-Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. It is a tertiary level teaching hospital with bed strength over 1600. There are different critical care units in the hospital like Main ICU, Respiratory ICU, Neurosurgical ICU, Liver ICU Pediatric ICU and Neonatal ICU. The study was conducted in a 12-bedded Main ICU. It is a highly specialized unit equipped with latest monitors, ventilators, transport ventilators, defibrillators, infusion pumps etc. It admits patients suffering from head injuries, motor neuron diseases, severe metabolic disorders, various poisonings etc. and require continuous observation, monitoring and critical care on the part of physicians and nurses.

The study population comprised of all the nurses working in Main Intensive Care Unit. Using convenience sampling, a total of 25 nurses were taken up for the study. The tools used for data collection were as follows:

- Demographic Profile Sheet: It contained items related to the personal and professional information of study subjects such as age, gender, marital status, number of children, educational qualifications, work experience, work pattern and satisfaction with salary etc.
- Workplace Stress Scale (WSS): The WSS from the Marlin Company, North Haven and the American Institute of Stress, New York had been modified according to the needs of the present study. It consisted of 12 items under the domain of Job demands (Workload, Job Security and Role Conflict) and Job

Resources (Job Autonomy, Goal Clarity, Work-group and Supervisor support, Job Challenge, and Feedback). They were rated on 5-point scale. Validity of the tool was assessed by seeking opinions from the experts in nursing and administration. The reliability of WSS using Cronbach alpha ( $\alpha$ ) came out to be 0.690.

- Maslach Burnout Inventory (MBI)<sup>11</sup>: The MBI, a 22-item instrument was used to measure the three aspects of professional burnout: emotional exhaustion (feeling unable to carry on), depersonalization (treating people as objects) and personal accomplishment (gaining satisfaction from the job) using 7-point Likert type scale. The validity of the MBI was well established and the internal consistency of the dimensions of MBI, using Cronbach's alpha were: emotional exhaustion (EE) = 0.89, depersonalization (DP) = 0.71, personal accomplishment (PA) = 0.71.

The permission for data collection was obtained from the competent authorities in the Main ICU. An informed verbal consent was taken from the study subjects. Each day one nurse was contacted as per her feasible time. Anonymity and confidentiality of the subjects was maintained during the study and they were given full autonomy to withdraw from the study at any time.

#### Statistical analysis

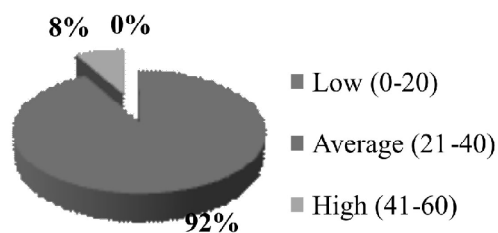
The data was transferred into SPSS 15.0 Evaluation Version and analyzed using descriptive and inferential statistics. The chi-square test was applied to analyze the significance of relationship between demographic variables and stress level of the subjects, while regression analyses was done to examine the

variance due to workplace variables and burnout subscales on the stress level of nurses.

#### Results

A total of 25 nurses were enrolled in the study. Their mean age was  $27.88 \pm 5.97$  years with range of 23 to 46 years. Twelve (48%) nurses were below the age of 25 years, nine (36%) were between 26-30 years and four (16%) were above 30 years of age. Majority (92%) was female. In professional qualification, 48% had diploma and 52% had a degree course. Majority (88%) was working as Nursing Sister Grade II. The mean experience of nurses working in an ICU was  $3.18 \pm 4.18$  years. Majority (88%) had less than 5 years of experience working in ICU.

The stress scores of nurses were categorized into: Low (0-20), Average (21-40) and High (41-60). Majority (92%) experienced moderate stress as shown in Fig 1.



**Fig. 1: Stress Level of Nurses in ICU**  
(on basis of scores of workplace stress scale)

More than half (56%) prefer to choose the same job if they were given another chance and 11(44%) responded that they will try another job, if given an option to choose a job.

The relationship between demographic characteristics of nurses and stress level was assessed using Chi-square test. No significant relationship was found with age, gender, marital status, age of children, educational status of nurses, their designation, working pattern, experience, present salary and the present job.

Multiple regression analysis was used to study the degree to which stress can be explained by nurses demands and resources. The variables were arranged in two hierarchical steps. The first step contained the job demands while the final step consisted of job resources (Table 1). It was found that among job demands, workload was a significant predictor of stress, accounting for 0.89% of the variance. Among job resources, job autonomy, supervisor support, job challenge, and feedback were strongly associated with stress. The scores of nurses on subscales of MBI were categorized into three levels as Emotional Exhaustion: Low (0-16), Average (17-26), High ( $\geq 27$ ); Depersonalization: Low (0-8), Average (9-13), High ( $\geq 14$ ); Personal Accomplishment: Low (0-30), Average (31-36), High ( $\geq 37$ ). The detailed findings are shown in Table 2.

**Table 3: Regression Analysis**

Burnout Subscales	B	SE	p
Emotional Exhaustion	0.066	0.090	0.473
Depersonalization	0.137	0.257	0.599
Personal Accomplishment	0.352	0.143	0.022*

Analysis done with stress as dependent variable

Personal Accomplishment was negatively associated with stress level.

**Discussion**

Not surprising, the profession of nursing is widely perceived as one of the most inherently stressful occupations, often characterized by high rates of staff turnover, absenteeism and burnout.<sup>12</sup>

In the present study, the focus was on the various factors leading to stress and burnout among nurses working in ICU of a tertiary care

**Table 1: Hierarchical Multiple Regression: Stress as dependent variable**

Variable	R <sup>2</sup>	Adjusted R <sup>2</sup>	R <sup>2</sup> Change	F Change	p
Job Challenge	0.580	0.562	0.580	31.740	0.001**
Job Autonomy	0.690	0.662	0.111	7.854	0.010*
Workload	0.779	0.747	0.089	8.414	0.009*
Feedback	0.831	0.798	0.052	6.216	0.022*
Supervisor support	0.867	0.831	0.035	5.020	0.037*

**Table 2: Categorization of Burnout: Descriptive Statistics**

Variable	Categorization of burnout N (%)			Score (Mean ± SD)
	Low	Moderate	High	
<i>Emotional Exhaustion (EE)</i>				
Norm	0-16	17-26	$\geq 27$	
% in each group	15 (60%)	6 (24%)	4 (16%)	16.40 ± 9.95
<i>Depersonalization (DP)</i>				
Norm	0-8	9-13	$\geq 14$	
% in each group	15 (60%)	8 (32%)	2 (08%)	3.60 ± 6.33
<i>Personal Accomplishment (PA)</i>				
Norm	$\geq 37$	31-36	0-30	
% in each group	13 (52%)	8 (32%)	4 (16%)	08.36 ± 3.49

Regression analysis of different subscales of burnout was done to determine their effect on the stress level among nurses (Table 3). Emotional Exhaustion and Depersonalization were not found to be associated with stress level.

hospital. The present study revealed that none of nurses' fall in the category of low stress while 92% nurses experienced average stress and 8% experienced high level of stress. Further, it was found that none of the demographic

characteristics of nurses was associated with the stress level of nurses. This is inconsistent with an earlier study<sup>8</sup> which reported a significant correlation of variables such as age, sex, level of education, length of time in nursing with more than one aspect of burnout. Demir et al<sup>13</sup> in another study found that higher education level, work experience and higher status decreases burnout levels while working at night shifts, difficulty in child care and house chores increases burnout levels.

The present study reported workload, decreased job autonomy, inadequate supervisor support, less opportunities of learning on job and inappropriate feedback as significant predictors of stress among nurses. The findings of a meta-analysis<sup>14</sup> suggest that communication with supervisor and peers, autonomy, recognition are most significantly associated with job satisfaction among nurses. Ehrenfeld and colleagues<sup>15</sup> reported that the nurses who work more hours, who prefer the structure of work which allows autonomy and involvement in judgment and decision-making and those who identify the need for additional technical preparation perceive higher levels of stress.

Nurses with high levels of Personal Accomplishment perceived significantly lesser degree of stress which was partially consistent with the findings of Schmitz et al<sup>16</sup> where a significant association was found between higher levels of burnout and perceived work stress.

The main limitation of the present study was its small sample size. The ICU is more demanding setting and findings cannot be simply generalized to other settings. Overall, the findings of the study offer implications for nursing practice and research. Staff nurses who were more stressed and burned out may be less productive and will not give quality care. This will result in decreased patient satisfaction.

Information on factors influencing nurses' feelings of stress and burnout can be used as the basis to modify work environment and plan programs to improve their psychological health.

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