

Burnout and its correlates among nursing staff of intensive care units at a tertiary care center

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ABSTRACT

Background: Burnout syndrome has been widely reported in nursing staff. It is more pronounced in intensive care setting (up to 80%). This survey was designed to assess the prevalence of burnout and its correlates among critical care nurses. **Methods:** Anonymous questionnaire was distributed to all ICU nursing staff of a tertiary care teaching hospital. Questionnaire had 25 questions covering - demography, job characteristics, Visual Analogue Scale for stress, co-worker support, work-life balance, question for measuring burnout, job satisfaction, turnover intention, organizational commitment, for depression screening and psychosomatic symptoms. The burnout scale score was used to dichotomize into low burnout (<3) or high burnout (>= 3) group. These two groups were compared using Chi-square test, Fischer's exact test for categorical variables and independent *t*-test for continuous variables. Significant variables were entered in multivariate logistic regression analysis. **Results:** Out of 150 ICU nurses, 125 (83.3%) gave completely filled questionnaires which were evaluated. 47 (37.6%) participants reported experiencing high burnout. Binary logistic regression model revealed that lack of specialized ICU training (OR = 4.28, 95% CI: 1.62 to 11.34, *P* = 0.003), performing extra duty in last month (OR = 5.28, 95% CI: 1.90 to 14.67, *P* = 0.001), High physical symptoms in last 12 months (OR = 4.73, 95% CI: 1.56 to 14.36, *P* = 0.006) and mid-level experience (1-5 years) were significantly associated with burnout. **Conclusions:** Burnout is significantly prevalent (37.6%) among intensive care nurses. Specialized training and limiting work hours can help in mitigating this problem. High frequency of physical symptoms could be early indicators of burnout.

Keywords: Burnout, critical care, India, nurses, prevalence

Introduction

Freudenberger first described Burnout syndrome in 1974.^[1] Burnout is characterised by three components (a) Emotional exhaustion (EE): physical and emotional fatigue related to work/outcomes mismatch; (b) Depersonalization (DP): lack of empathy for and/or cynicism towards colleagues and patients;

(c) Loss of personal accomplishment (PA): negative personal self-concept due to unrewarding situations.^[2,3]

The concept of burnout has empirical support for being distinct from depression, most important being the relationship of burnout to working condition^[2] whereas depression is not always related to work. However, burnout may precipitate depression.^[2]

The risk categories associated with burnout can be categorized as (a) Personal characteristics: younger age, low self-esteem, avoidance coping strategies, inadequate sleeping hours and

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work-life imbalance; (b) Organizational factors: workload, poor staffing, time pressure, role conflict, role stress, inability to alter working condition, poor rewards, environmental factors such as noise; (c) Quality of working relationships: conflicts, poor relationships with colleagues and superiors; (d) Exposure to end-of-life issues: caring for dying patients and morally distressing situations, helplessness and bereavement.^[2-6]

Consequences of burnout can be categorized as (a) physical consequences: increased psychosomatic complaints (like musculoskeletal problems, headache) and cardiovascular illness and its risk factors like hypertension, diabetes mellitus, dyslipidemia, obesity; (b) psychological consequences: risk factor for depression, post-traumatic stress disorder and insomnia; (c) occupational consequences: absenteeism, job dissatisfaction, poor quality of care, low organizational commitment, increased turnover intention.^[2,6,7]

In comparison to other healthcare professionals, nurses have higher prevalence of burnout.^[8,9] Prevalence of burnout in critical care nurses in international studies have been wide ranging from 0% to 80%.^[2] Disparities can be explained, based on tools used, various scoring system, professional strata and cultural differences which influence psychosocial factors.^[2]

Previous Indian studies on burnout in nurses have found a wide range prevalence from 2% to 69%.^[10-14] Disparities are explained based on the group studied example staff nurse, nurse educator, NICU nurses, ICU nurses and the tools used. The Critical Care Societies Collaborative in America conducted a national summit on preventing and managing burnout in ICU. Their key recommendations were increasing awareness amongst ICU staff as well as employers, greater advocacy for healthy workplace changes and increased research.^[15] In line with the last recommendation this study was designed to assess the prevalence of burnout and its correlates amongst critical care nurses at a tertiary care teaching hospital.

Material and Methods

Anonymous questionnaire was distributed to all nursing staff of ICUs of a tertiary care teaching hospital in December 2019. The setting is one of the largest ICU set-up in the western part of Gujarat with 120 beds. No nursing staff was considered for exclusion. Participants were instructed to fill the questionnaire at a time when they are free. Questionnaires were collected back from participants within one week if dispatch. The study was approved by the Institutional Ethics Committee vide letter no IEC/HMPCMCE/2019/Ex. 26/226/19 dated 18/11/2019. A waiver for informed consent was granted by the committee for the anonymous questionnaire. Following lines added at the top of questionnaire: "In this questionnaire we have asked questions about your work and associated stressful factors. There are no right or wrong answers. This is an anonymous questionnaire where we have not asked about personal identifiers like name, age etc., It is unlikely that we will be able to know the identity

of the person filling the questionnaire. So, we urge you to mark the true answers. The data from this survey will be used for research, maintaining confidentiality. The survey results will have no bearing on your performance evaluation. It is voluntary to take part in this survey."

Study questionnaire

The study questionnaire had 25 questions covering the following areas – demography, job characteristics, stress would be measures using a Visual Analogue Scale for measuring stress,^[16] co-worker support, work life balance, single questions for measuring burnout,^[17] job satisfaction, turnover intention, affective organizational Commitment,^[18] PHQ-2^[19] [for depression screening] and psychosomatic symptoms. We chose the shortest possible measures to assess a variety of elements and to prevent participant fatigue while attempting the questionnaire.

Statistical analysis

The score of the single item burnout scale was used to dichotomize the study population those having a low burnout (<3) or high burnout (>= 3). These two groups were compared on various demographic factors, work-related antecedents of burnout and subsequent of burnout using Chi-square test, Fischer's exact test for categorical variables and independent *t* test for continuous variables. A value of *P* = 0.05 was considered significant for the study. Variables which were found significantly associated with burnout were qualified for multivariate logistic regression.

A score greater than or equal to seven on the VAS for measuring stress was classified as having high stress.^[16] PHQ-2 score more than equal to 3 was considered as screen positive for depressive symptoms.^[18] For psychosomatic symptoms, rating as frequent and always was considered as higher physical symptoms.

Results

The survey questionnaire was distributed to 150 nurses working in Intensive Care units. After 3 reminders, 125 (83.3%) completed questionnaires were received. Majority of the participants were females, unmarried and completed Diploma in General Nursing and Midwifery (GNM). Most of them had some form of training in Intensive Care but almost half of them had experience less than 1 year. Majority of the participants were level one & two nurses, working in shift duties and had contractual appointments.

Seventy-eight participants (62.4%) reported experiencing low or no burnout whereas 47 (37.6%) participants reported experiencing high burnout. Burnout was higher in nurses who were unmarried. It was significantly higher in nurses who did not undergo training for ICU work. Burnout was significantly less in less experienced as well as more experienced nurses but was higher in nurses working for 1–5 years [Table 1].

Burnout was also found to be lesser amongst nurses who were able to maintain work life balance. It was significantly higher in

Table 1: Profile of participants (n=125, where not indicated)

Variable	Category	n (%)	Low burnout n (%)	High burnout n (%)	P*
Gender	Female	104 (83.2)	64 (61.5)	40 (38.5)	0.66
	Male	21 (16.8)	14 (66.7)	7 (23.3)	
Marital status	Unmarried	83 (66.4)	47 (56.6)	36 (43.4)	0.06
	Married	42 (33.6)	31 (73.8)	11 (26.2)	
Education	GNM	95 (76.0)	58 (61.1)	37 (38.9)	0.58
	BSc	30 (24.0)	20 (66.7)	10 (33.3)	
Took training for ICU work	Yes	85 (68.0)	60 (70.6)	25 (29.4)	0.006
	No	40 (32.0)	18 (45.0)	22 (55.0)	
ICU Experience	<1 year	62 (49.6)	39 (62.9)	23 (37.1)	0.005
	1-5 years	35 (28.0)	15 (42.9)	20 (57.1)	
	6-10 years	13 (10.4)	12 (92.3)	1 (7.7)	
	> 11 years	15 (12.0)	12 (80.0)	3 (20.0)	
Current post	Level 1 nurse	47 (37.6)	31 (66.0)	16 (34.0)	0.89
	Level 2 nurse	34 (27.2)	19 (55.9)	15 (44.1)	
	Level 3 nurse	19 (15.2)	12 (63.2)	7 (36.8)	
	Level 4 nurse	21 (16.8)	13 (61.9)	8 (38.1)	
	Nursing in charge	4 (3.2)	3 (75.0)	1 (25.0)	
Contract type	Contractual	112 (89.6)	70 (62.5)	42 (37.5)	0.95
	Permanent	13 (10.4)	8 (61.5)	5 (38.5)	
Does shift duty (n=123)	Yes	109 (88.6)	68 (62.4)	41 (37.6)	0.89
	No	14 (11.4)	9 (64.3)	5 (35.7)	

*Chi-square test

nurses who did extra duty in last month, and who had poor job satisfaction. Burnout was not associated with patient condition and interactions with patient/relatives, supportive environment at organizational and departmental level, payments as well as job stress [Table 2].

Burnout was not associated with organizational commitment and depression but significantly associated with physical symptoms in the last 12 months. Interestingly burnout did not affect nurses' decision to continue or leave the current job [Table 3].

Binary logistic regression model revealed that lack of specialized ICU work training (OR = 4.28, 95% CI: 1.62 to 11.34, $P = 0.003$), performing extra duty in last month (OR = 5.28, 95% CI: 1.90 to 14.67, $P = 0.001$), High physical symptoms in last 12 months (OR = 4.73, 95% CI: 1.56 to 14.36, $P = 0.006$) and mid-level experience (1–5 years) were found to be significantly related with burnout. The predictive value of the model was good with about 73% correct classification rate and coefficient of determination (Nagelkerke R^2) of about 40% [Table 4].

Twenty-four percent of the nurses screened positive for depression and an equally same number of nurses also reported experiencing high frequency of physical symptoms in the last 12 months. There was high turnover intention (61.6%) amongst the study participants.

Discussion

Previous Indian studies on burnout in nurses have found 2% prevalence in staff nurses, 4% prevalence in nurse educators.^[10] A study amongst 600 nurses from 30 government hospital nurses

from southern India found 12.4% prevalence of burnout.^[13] A large multi-national survey among nurses and physicians in Asian intensive care units, found a combined prevalence of 55.4% in Indian physicians and critical care nurses.^[14] A recent systematic review and meta-analysis of burnout amongst Indian healthcare professionals (studies having a mixed population representing nurses, doctors, residents, dentists) reported pooled prevalence of burnout was 24% in the Emotional Exhaustion domain, 27% in the Depersonalization domain, and 23% in the Personal accomplishment domain, and an overall 25% prevalence of burnout.^[20]

High prevalence of burnout (37.6%) in our study population is comparable with previous Indian studies on critical care nurses. Previous studies have reported a prevalence of 23.3% in neonatal intensive care nurses ($n = 30$) and 69% ($n = 140$) in ICU nurses.^[11,12] A study with a small sample size reported 8% ($n = 2$) prevalence in ICU nurses.^[21]

Meta-analysis of burnout amongst Indian healthcare professionals found that younger age-group, female, unmarried marital status, and tough working environment were associated with increased burnout risk.^[20] While in our study gender was not found to be associated with burnout and there was a trend suggestive of higher burnout amongst unmarried nurses.

A large multinational survey of burnout in Asian intensive care nurses found that nurses having a bachelor's degree had higher risk of burnout compared to those having a non-degree qualification.^[14] Contrary to this, our study did not find association of burnout with education level, however mid-level experience (1–5 years) was found to be significantly associated

Table 2: Work related antecedents of burnout (workload, control, reward); n=125 (where not indicated)

Variable	Category	n (%)	Low burnout n (%)	High burnout n (%)	P*
Avg. number of patients per shift	None	2 (1.6)	0 (0)	2 (100)	0.17
	1-2	42 (33.6)	29 (69)	13 (31)	
	3-4	67 (53.6)	39 (58.2)	28 (41.8)	
	>5	14 (11.2)	10 (71.4)	4 (28.6)	
Cares for patients on ventilator	Always	75 (60.0)	44 (58.7)	31 (41.3)	0.29
	Sometimes	34 (27.2)	25 (73.5)	9 (26.5)	
	Rarely	16 (12.8)	9 (56.2)	7 (43.8)	
Did extra duty last month	Yes	76 (60.8)	41 (53.9)	35 (46.1)	0.015
	No	49 (39.2)	37 (75.5)	12 (24.5)	
Recent bad experience with patient or their relatives n=124	Yes	27 (21.8)	15 (55.6)	12 (44.4)	0.37
	No	97 (78.2)	63 (64.9)	34 (35.1)	
Got leave when needed	Always	29 (23.2)	18 (62.0)	11 (38.0)	0.510
	Sometime	68 (54.4)	45 (66.2)	23 (33.8)	
	Rarely	28 (22.4)	15 (53.6)	13 (46.4)	
Perceived clarity of job role	Yes	108 (86.4)	69 (63.9)	39 (36.1)	0.39
	No	17 (13.6)	9 (52.9)	8 (47.1)	
Support from colleagues	Yes	118 (94.4)	74 (62.7)	44 (37.3)	0.53 [†]
	No	7 (5.6)	4 (71.4)	3 (28.6)	
Support from supervisor	Yes	114 (91.2)	72 (63.1)	42 (36.9)	0.57
	No	11 (8.8)	6 (54.5)	5 (45.5)	
Able to maintain work life balance n=122	Yes	76 (63.3)	52 (68.4)	24 (31.6)	0.073
	No	46 (37.7)	24 (52.2)	22 (47.8)	
Pay satisfaction n=122	Completely unsatisfied	53 (43.4)	28 (52.8)	25 (47.2)	0.21
	Somewhat unsatisfied	38 (31.1)	27 (71.0)	11 (29.0)	
	Somewhat satisfied	26 (21.3)	19 (73.0)	7 (27.0)	
	Completely satisfied	5 (4.1)	3 (60.0)	2 (40.0)	
Mean (SD) Job Stress [0-10 VAS scale]		6.36 (2.33)	6.24 (2.30)	6.55 (2.38)	0.47 [‡]
Job stress	Low (0-6)	63 (50.4)	39 (61.9)	24 (38.1)	0.91
	High (>=7)	62 (49.6)	39 (62.9)	23 (37.1)	
Job satisfaction	Completely unsatisfied	14 (11.2)	6 (42.8)	8 (57.2)	0.011
	Somewhat unsatisfied	38 (30.4)	22 (57.9)	16 (42.1)	
	Somewhat satisfied	40 (40.0)	29 (72.5)	21 (27.5)	
	Completely satisfied	23 (18.4)	21 (91.3)	2 (8.7)	

*Chi-square test; [†] Fisher's Exact Test; [‡] t-test**Table 3: Subsequent of burnout; n=125 (where not indicated)**

Variable	Category	n (%)	Low burnout n (%)	High burnout n (%)	P*
Proud to be associated with the organization (organizational commitment)	Strongly disagree	14 (11.3)	8 (57.1)	7 (42.9)	0.25
	Disagree	13 (10.5)	8 (61.5)	5 (38.5)	
	Undecided	36 (29.0)	18 (50.0)	18 (50.0)	
	Agree	53 (42.7)	38 (71.7)	15 (28.3)	
	Strongly agree	8 (6.5)	6 (75.0)	2 (25.0)	
Depression [PHQ-2]	Screen positive (PHQ-2 >=3)	30 (24.0)	17 (56.7)	13 (43.3)	0.46
	Screen negative	95 (76.0)	61 (64.2)	34 (35.8)	
Number of physical symptoms in last 12 months	High (marked frequently or always)	30 (24.0)	14 (46.7)	16 (53.3)	0.041
	Low (marked never or rarely or sometimes)	95 (76.0)	64 (67.4)	31 (32.6)	
Wish to leave current job (Turnover intention)	Yes	77 (61.6)	45 (58.4)	32 (42.6)	0.25
	No	48 (38.4)	33 (68.7)	15 (31.3)	

*Chi-square test

with burnout. These findings can be based on the postulation that those with a moderate level of experience were likely to be given higher and complex patient care responsibilities compared to those who were less experienced. Whereas those with six or more years of experience were more likely to be involved in administrative work.

The problem is further compounded by lack of specialized training, thereby increasing stress and is a risk factor for burnout. Higher levels of emotional exhaustion have been reported in nurses who have not received specialized training for ICU work.^[22] It is postulated that lack of specialized training may lead to low confidence and may also lead to increased errors in patient care.

Table 4: Factors associated with Burnout of ICU nurses

Factors	Adjusted OR*	95% CI	P
ICU training			
Yes	1.0	Reference category	
No	4.28	1.62 to 11.34	0.003
Extra Duty in last month			
No	1.0	Reference category	
Yes	5.28	1.90 to 14.67	0.001
Physical symptoms in last 12 months			
Low	1.0	Reference category	
High	4.73	1.56 to 14.36	0.006
ICU experience in Years			
1-5 Years	1.0	Reference category	
<1 year	0.61	0.21 to 0.07	0.004
6-10 years	0.033	0.003 to 0.34	0.004
>10 years	0.052	0.008 to 0.31	0.001

*Odds ratio adjusted for: Marital status, ICU training status, ICU experience, Extra Duty in Last Month, Work Life Balance, Job Satisfaction, Physical Symptoms in last 12 months

Performing extra-duty in the last month was found to be significantly associated with burnout. Extra-duties can lead to excessive workload and loss of control over work, which in turn can increase the level of burnout.^[23] Extra-duties could have been voluntarily done or mandated due to absence of fellow colleagues. We did not assess the context of extra-duties in this study. If done voluntarily it could be perceived as positive by hospital managers but this would only be useful in the short term.^[23]

Able to maintain work-life balance was found as a protective factor against burnout in the Asian multinational study.^[14] While this was not statistically significant in our study there was a trend towards lower burnout amongst participants who were able to maintain work-life balance. Job satisfaction was found significantly associated with burnout in univariate analysis. Saravanabavana *et al.* have also reported statistically significant correlation between job satisfaction among Indian critical care nurses and burnout.^[12]

High frequency of physical symptoms in the last 12 months were significantly associated with burnout in our study population. Kane *et al.* reported increased incidence of psychosomatic complaints with level of stress amongst Indian nurses.^[24] In a systematic review, burnout was found to be a significant predictor of physical impact such as hypercholesterolemia, Diabetes, Ischemic heart disease leading to hospital admissions, body pain & it's changing perception, undue fatigue, bowel disturbances, respiratory symptoms, and even mortality risk below the age of 45 years.^[7] Primary care physicians attending to ICU nursing staff as patients must consider contribution of burnout to causation of the presenting symptoms especially if presenting with physical or psychosomatic symptoms.

About 1/4th of the study population was found to be screen positive for depressive symptoms, but it was not associated with burnout. The lack of association could possibly be explained by use of a brief screening instrument for depression. Even

though not found to be associated with burnout, factors affecting turnover intention in the study population needs to be explored further.

Strengths of the study are a) use of brief single question instruments, provides valid data, binary logistic regression explains about 40% variance in burnout; b) specific focus on critical care nurses; c) good sample size.

Limitations of the study are a) we have not used MBI which is considered gold standard for burnout assessment, as we wanted to assess multiple dimensions and to prevent participant fatigue while attempting questionnaire; b) data from a single centre; c) we have not assessed factors like religious background, personality factors like neuroticism and resilience which have been found to predictors of burnout in other studies.

Conclusion

This study highlights the high prevalence of burnout amongst critical care nurses in this region. Interventions could include mandatory specialized training for ICU work and regulating the working hours to acceptable limits. Early years of nursing career (particularly between one to five years of working experience) is the vulnerable period for burnout. This is relatively new finding in this study which identifies the vulnerable group. Larger multi-centric study is required to confirm it. Significantly high frequency of physical symptoms are associated with burnout, and this could be useful in predicting it.

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Conflicts of interest

There are no conflicts of interest.

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