Research Article

Investigating the Contribution of Various Dimensions of Stress and Selected Demographic Variables towards Perceived Stress Level of ICU Nurses.

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Received: 14-04-2017; **Revised:** 26-05-2017; **Accepted:** 12-07-2017.

ABSTRACT

Nurses practice a profession, which can be distinguished as extremely stressful if judged against other health professions. Historically, intensive care units have been struggling to retain their nursing staff, due to burnout and in adequate job satisfaction. The aim of the study is to examine the contribution of various dimensions of stress and selected demographic variables towards perceived stress level of ICU nurses. The investigation was carried out in multidisciplinary Intensive Care Unit (I.C.U) of selected multi-specialty hospitals in Odisha during the period January-June 2016.I.C.U nursing stress scale was used to assess stress factors. The demographic profile of the ICU Nurses showed that the large group age of the studied sample (43.7%) were in between 26-30 years. Distribution of nurses according to their exposure to ICU stress factors illustrated that (32 % and 27 %) of nurses were suffering from severe stress and moderate stress respectively regarding direct patient care, and (17 % and 30 %) of nurses were suffering from severe stress and moderate stress respectively regarding inadequate knowledge and skill. The regression model proved that level of stress was more dependent on "management of the unit" and less dependent on "lack of support". The present study has been helpful in understanding the contribution of various dimensions of stress and selected demographic variables towards perceived stress level of ICU nurses.

Keywords: Dimensions of stress, demographic variables, perceived level of stress, ICU nurses.

INTRODUCTION

Over the past two decades, it has been found that the experience of stress at work has detrimental effects, both on the health and safety of workers and in effectiveness of their organizations. Working in hospital with healthy work environment was correlated with significant nurse burnout and job frustration and with better quality-of-care outcomes[1]. Nurses confront various stressors throughout their activities that can persuade their personal and professional life; these stressors are linked to control in excess of work; professional rapports; and the nature of the profession, the workplace, and the organization[2]. We know that nurses practice a profession which can be distinguished as extremely stressful if judged against other health professions because they approximately work in an environment that is saturated with disease and death, demands rapid decisions, and necessitates high levels of attention, skill, and responsibility [3]. Nurses with less ICU experience are considered to care for highly dependent patients more challenging than experienced nurses and may perceive that ICU setting is a more strenuous and stressful environment in which to work. In an operational setting where turnover and lack of nursing staff is apparent and forecasted to deteriorate, this is cause for real apprehension about future resourcing for this patient group[4].

The challenging scenario of the health care profession concludes that nurses frequently work in stressful situations including dealing with death, sickness, heavy workloads, night-shift work, difficult communication with patients and their families, and possible conflicts with physicians, medical teams, fellow nurses and supervisors[5]. Nurses are confronted with stressors that come with the pressures of assuming with caring for a large number of patients suffering from ailment or sickness. The issue of stress in nursing should be checked comprehensively and accurately[6]. Work-related stress is likely to affect at least one third of the employees in every year. It outlays organizations economy in missed output and accounts for more than half the working days lost through sickness nonattendance. According to some estimates, job stress is the key factor in 70% of absentee employees and almost wasting of 10% of the country's gross domestic product[7]. Nurses in hospitals are prone to experience job stressors than those in other backgrounds, which may be appropriate for ICU nurses when compared to indoor nurses[8]. This qualitative nursing can be a driving force for innovative patient-centered practice, but if not resourced or staffed properly, may lead to work-related stress. In a tertiary care hospital there is high prevalence of stress amongst nurses, and suggests the need for stress reduction programmes targeting specific important stressors[9].

Necessities of 'Intensive Care Nursing' vary from one country to another. However, the acute deficiencies of nurses particularly in intensive care units (ICUs) has encouraged extensive research related to the identification of stressors for this group of nurses. Therefore, it is necessary to bring the attention of the administration as well as practicing nurses towards the problem of work-related stress in intensive care setting. It is important to raise the awareness of the nurses regarding work place stress and other contribute factors those trigger the perceived stress.

METHODS

The investigation was carried out in multidisciplinary Intensive Care Unit (I.C.U) of selected multi-specialty hospitals in Odisha. during the period January-June 2016. A purposive sample consisted of 260 nurses, who work in the previously mentioned settings invited to participate in the study. 252 participants

returned a completed questionnaire. Therefore, the final participants were 252ICU nurses.

Demographic data and professional characteristics of the registered nurses of I.C.U were collected by using I.C.U nurse's background information sheet, which included different demographic and professional variables. I.C.U nursing stress scale was used to identify stressors (factors of ICU stress) as regards direct patient care, inadequate knowledge & skill, lack of support, interpersonal conflict & management of the unit. The questions used the 4-point Likert scale from not at all stressful to very stressful. The score were calculated for as follows: scores 1 = low level of stress, scores 2 = moderate level of stress and scores 3 = high level of stress.

INCLUSION CRITERIA

- Registered nurses who work independently in ICU

-Registered nurses who work more than 1 week in present ICU.

- Nurses working in Adult ICUs were included in this study

EXCLUSION CRITERIA

-Nurses working in pediatric and neonatal ICUs.

- Nursing Supervisors and Nurse Educators of ICUs.

STATISTICS

The quantitative data were entered and analyzed using the SPSS (Statistical Package for Social Sciences version20.0), and the level of significance (α) was set at 0.05.Frequenciesand percentage distribution tables will be structured to present the demographic characteristics of participants. Mean perceived level of stress of the nurses will be computed for all the five dimensions of stress. Regression analysis will be applied in determining contribution of various dimension of stress towards perceived level of stress. To find out the relationship between perceived stresses of I.C.U nurses with the selected demographic variables, One way ANOVA test will be conducted for all variables except marital status as in case of marital status, there are only two samples, hence t test can be conducted.

ETHICAL CONSIDERATIONS

The hospital ethical committee approved this study. Approval from nurses was obtained. Several strategies were utilized to protect the nurse's rights who decided to take part in this study. First, oral verbal consent of the nurses was obtained prior to the administration of the questionnaire. The nurses were informed of the purpose of the study, and that they had the right to refuse to participate. In addition, the voluntary nature of participation was stressed as well as confidentiality. Moreover, the nurses were informed that they can abstain from answering any questions and they can terminate at any time. Anonymity of the nurses was preserved at all times.

RESULTS

Description of Demographic variables

The demographic profile of the ICU Nurses (Table 1) showed that the large group age of the studied sample (43.7%) were in between 26-30 years, Around (80%) of nurses were females, half of the studied sample (58.3%) were single, and in relation to the educational level, it was found that the majority (66.7%) of them had nursing diploma. (36.5 %) of the nurses had an experience within 1-2 years as registered nurse. In past I.C.U experience of registered nurses, (82.5 %) of registered nurses were not having past ICU experience and 9.9 % of them were having less than 6 Months of experience. This table illustrated that in relation to current job experience (38.9 %) of nurses had within 5-8 months of experience, nearly (31.7%) of nurses had within 1yr – 2yrs of experience, In actual Hour of direct Patient Care, (60.7 %) spent 40 - 50 hours in direct patient care and (23.8 %) spent 50 - 60 Hours in direct patient care. In Weekly shift hours of mornings (61%) of nurses were posted for (1- 3) days in ICU, In Weekly shift hours of evenings (45.6%) of nurses were posted for (1- 3) days in ICU. In Weekly shift hours of night, (29.7%) of nurses were posted for (1-3) days in ICU. In area of Current Area of Practice (67.1 %) of registered nurses are working in I.C.U and (14.3%) of nurses are working in other I.C.U. On Consecutive Days of Working (44.8%) of nurses were in one to two consecutive weeks of working in I.C.U.

Table 1: Assessment of the Demographic characteristics of the studied sample

Demographic variables		frequency	Percentage (%)
Age in years	≤ 25	83	33
	26-30	110	44
	> 30	59	23
Marital Status	Single	147	58
	Married	104	41
	Divorced	1	1
Degree	G.N.M	168	67
	B. Sc Nursing	61	24
	P. B.ScNsg	18	7
	PG Diploma	5	2
Total years as Registered Nurse	< 1	2	1
	1 - 2	92	36
	2 - 3	50	20
	3 - 5	45	18
	>5	63	25
Past ICU Experience	No Experience	208	83
	< 6 Months	25	10
	6 Months - 1Year	11	4
	1 Year - 2 Years	5	2
	No Experience	3	1
Current experience in present ICU	1 week- 6 Months	24	10
	6 Months - 1 Year	98	39
	1 Year - 2 Years	80	32
	2 Years - 3	40	15

	Years		
	3 Years & Above	10	4
Actual Hour in Direct Patient Care	30 - 40	60	24
	40 - 50	153	61
	50 - 60	39	15
Weekly shift hours during Morning	None	31	13
	1 -3days	154	61
	4-6 days	67	26
	>6days	0	0
Weekly shift hours in Evening	None	83	33
	1 -3days	115	46
	4-6 days	54	21
	>6days	0	0
Weekly shift hours in night	None	175	69
	1 -3days	75	30
	4-6 days	2	1
	>6days	0	0
Weekly shift hours in day timing duty	None	205	81
	1 -3days	18	7
	4-6 days	12	6
	>6days	17	6
Current	Medicine	24	10
Area of Practice	Intensive Care Unit		
	Surgical Intensive Care Unit	23	9
	I.C.U	169	67
	Others	36	14
Consecutive Days Working in week	< 1wk	121	48
	1	18	7
	1 - 2	113	45
	> 2	0	0

Distribution of nurses according to their exposure to ICU stress factors

Table -2, illustrated that (32 % and 27 %) of nurses were suffering from severe stress and moderate stress respectively regarding direct patient care, and (17 % and30 %) of nurses were suffering from severe stress and moderate stress respectively regarding inadequate knowledge and skill. Regarding lack of support, it was found that (10% and 43 %) of nurses were suffering from severe stress and moderate stress respectively. For Interpersonal conflict with nurses, it was found that (33 %and 27 %) of nurses were suffering from severe stress and moderate stress respectively. Regarding Management of unit, it was found that (24 % and 36%) of nurses were suffering from severe stress and moderate stress respectively.

Table 2: Number and percentage distribution of nurses according to their exposure to ICU stress factors

No	ICU Stress factors	Severe Stress		Moderate Stress		Mild Stress		Normal stress	
		No	%	No	%	No	%	No	%
1	Direct patient care	81	32	68	27	70	28	5	13
2	Inadequate knowledge & skill	42	17	75	30	93	37	6	16
3	Lack of support	25	10	108	43	68	27	8	20
4	Interpersonal conflict	83	33	68	27	83	33	3	7
5	Management of unit	60	24	93	36	50	20	8	20

Contribution of each dimensions of stress towards perceived levels of stress in I.C.U nurses.

To find out the relationship between the perceived stress level and the dimensions of stress, regression analysis was performed between them. It is relevant to say that the dependent variable is the perceived stress level and the independent variables are the five dimensions of stress mentioned above.

The descriptive statistics of table - 3, gave the mean stress level and the mean score of various dimensions of stress of 252 nurses who had experience of handling patients in ICUs along with the standard deviations of the scores.

The significant of the model summary table -4 was the value of R^2. R^2 was the percentage of variance in the dependent variable explained by the collection of independent variables. R^2provideed an indication of the explanatory power of the regression model. In this case it was 0.992 (R^2 = 0.992) which was great. This implied that the dependent variable i.e. mean actual stress level was 99% explained by the interdependent variables i.e. Direct Patient Care, Inadequate Knowledge & Skill, Lack of Support, Interpersonal Conflict and Management of the Unit.

The ANOVA table-5, tested the significance of the regression model. In this case the p value was 0.000 and hence p<0.05, It may concluded that the independent variables not only 100% explain the dependent variable, but this relationship was also significant.

The correlation table-6, indicated that there was highly positive correlation between the mean actual stress levels of stress with all the dimensions of stress with Pearson Correlation Coefficient value more than 0.6 except the dimension "Interpersonal Conflict" where it is 0.304 still positive. Again in each case the p value was 0.000, i.e. less than 0.05; this indicated the

relationship between dependent variable and independent variables were highly significant.

The coefficient table-7, gives us the coefficient of independent variables in the regression model as labelled in column three as B. Hence our desired model was:

Perceived Level of Stress = .441 + .158 (Direct Patient Care) + .175 (Inadequate Knowledge & Skill) + .059 (Lack of Support) + .070 (Interpersonal Conflict) + .232 (Management of the Unit).

The regression model proved that level of stress was more dependent on "management of the unit" and less dependent on "lack of support".

Table 3: Descriptive Statistics of Actual Stress Level of Nurses with relation to Dimensions of Stress

Descriptive Statistics			
	Mean	**Std. Deviation**	**N**
Mean Actual Stress Level	2.1402	.33223	252
Direct Patient Care	2.8562	.72234	252
Inadequate Knowledge & Skill	2.2435	.68995	252
Lack of Support	2.8556	.88606	252
Interpersonal Conflict	1.8710	.74766	252
Management of the Unit	2.3947	.52614	252

Table 4: Model Summary of Actual Stress Level of Nurses with relation to Dimensions of Stress

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.996[a]	.992	.992	.02996
a. Predictors: (Constant), Management of the Unit, Interpersonal Conflict, Inadequate Knowledge & Skill, Direct Patient Care, Lack of Support				

Table 5: Anova table of Actual Stress Level of Nurses with relation to Dimensions of Stress

ANOVA[b]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	27.484	5	5.497	6124.176	.000[a]
	Residual	.221	246	.001		
	Total	27.705	251			
a. Predictors: (Constant), Management of the Unit, Interpersonal Conflict, Inadequate Knowledge & Skill, Direct Patient Care, Lack of Support b. Dependent Variable: Mean Actual Stress Level						

Table 6: Correlation table of Actual Stress Level of Nurses with relation to Dimensions of Stress

Correlations			
		Mean Actual Stress Level	**Sig. (1-tailed)**
Pearson Correlation	Mean Actual Stress Level	1.000	
	Direct Patient Care	.769	.000
	Inadequate Knowledge & Skill	.752	.000
	Lack of Support	.688	.000
	Interpersonal Conflict	.304	.000
	Management of the Unit	.812	.000

Relationship of actual stress of I.C.U nurses with selected demographic variables.

It was observed from the above table-8, that there was significant difference in actual stress level of nurses among various age groups, Years of experience as registered Nurse, past ICU experience, Current Area of Practice, experience in Current Position and Weekly Rotation Plan Days as p <0.05.

DISCUSSION

This study aimed to investigate contribution of various dimensions of stress and selected demographic variables towards perceived stress level of ICU nurses. ICU nurses stress related factors have been placed in five main categories: direct patient care, inadequate knowledge & skill, Lack of support, Interpersonal conflict and Management of unit. All categories had several subsets and they were the most important professionalstressors for the ICU nurses of this study. The

Interpersonal conflict, direct patient care and management of the units were among the most stressful experiences that the ICU nurses faced with.

Table 7: Coefficient table of Actual Stress Level of Nurses with relation to Dimensions of Stress

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.441	.010		42.816	.000
	Direct Patient Care	.158	.003	.343	49.715	.000
	Inadequate Knowledge & Skill	.175	.003	.364	54.800	.000
	Lack of Support	.059	.003	.158	20.924	.000
	Interpersonal Conflict	.070	.003	.157	27.074	.000
	Management of the Unit	.232	.005	.368	46.284	.000
a. Dependent Variable: Mean Actual Stress Level						

Table 8: One-Way ANOVA to show the result of significance between actual stresses of I.C.U nurses with the selected demographic variables.

Dependent Variable	Independent Variables (Demographic Variables)	F Value	Significance (p Value)
Actual stress of I.C.U nurses	Age	3.134	.045*
	Marital Status	1.024	.312
	Degree	2.467	.063
	Years as Registered Nurse	3.969	.004*
	Past ICU Experience	3.054	.018*
	Current Area of Practice	4.323	.005*
	Experience in Current Position	5.661	.000*
	Weekly Direct Patient Care	1.664	.192
	Weekly Rotation Plan Morning	1.857	.089
	Weekly Rotation Plan Days	3.880	.001*
	Weekly Rotation Plan Evening	1.673	.142
	Weekly Rotation Plan Night	.844	.498
	Consecutive Days Working	1.742	.177

*P < 0.05

Based on the ICU nurses experiences, the following items were some of the stress factors, which are most stressful for the nurses: “handle the patient in I.C.U in active age groups of 26-30 years with family burden”, “rendering nursing care to critically ill patient”. The highly rated actual stressful events are “to handle the patients who fail to improve”, “to start C.P.R & defibrillation in criti calill patient”, “Blame for anything that goes wrong in I.C.U”, “Work without support from supervisor”, “work collaboratively with nursing personal and “work continuously in nightshift”.

These findings are consistent with the reports of8, and9 have reported that the nurses faced with multiple occupational risk factors. Some studies which have been conducted in Iran mentioned about the sources of stress for nurses such as patient care, inappropriate treatment of the patient’s family, increasing workload, dissatisfaction with the wages, work on holidays, and lack of access to physician in emergencysituations10. Having enough sleep and rest, lack of social acceptance, work environment, contact with contaminated objects, and many studies in other countries as well have reached to similar findings11. A significant decline in the amount of nurses over 40 years of age working in ICUs can be related to the fact that these professionals, when they arise to this age, are engaged in other areas, watching for administrative positions, educational positions, or even give up the occupation[10]. The most important factors creating stress which were mentioned by the ICU nurses of the present study have been referred to the management of the unit and interpersonal conflicts. Different stress factors statistics showed that if the senior management people will develop and adopt need based stress management strategies, it would minimize the pressure and stress imposed on nurses. The nurses should also try with the development of good relations between themselves to reduce the occupational stress.

The regression model proves that stress level of nurses having experience of handling patient independently in ICU i.e. actual level of stress is more dependent on “management of the unit” and less dependent on “lack of support”. When compared to

studies alike high levels of stress show a relationship between an increase in work demand as well as a poor work environment. These studies in meticulously show that targeting particular individuals or groups will be of limited use without also addressing the general work environment[11]. This finding points to the fact that participants who are dissatisfied with the social interaction and support in their work environment experience higher levels of stress. When compared to studies alike Stress in critical care nurses: actual and perceived, there were significant correlations between perceived life stress and the perceived severity of work stressors, as well as between actual and perceived stressful work events[12].

It is observed that there is significant difference in actual perceived level of stress in ICU nurses among various age groups In conjunction a study indicated that younger age correlated with high levels of stress[11]. Research indicated that the non-work related causes of stress are found to be statistically highly significant when correlated with the level of stress[13].

CONCLUSION

Study results have shown that the most common type of work-related perceived stress for ICU nurses were due to management of unit and Inadequate knowledge and skill followed by direct patient care and interpersonal conflicts. High stress levels often result in burnout and turnover of employees and change of their attitudes to work, and thus they can negatively influence the care for patients. Hence, action and strategies should be targeted for I.C.U working nurses at both individual and organizational level for managing I.C.U nurses stress. Lack of accurate information regarding perceived stressors leads to misconception about the stressors and creates the common challenge for the employees and employers. Therefore, it is essential to have an accurate orientation about different components of stressors for which we could check turn over & absenteeism.

Acknowledgments: We are very much thankful to the ICU Nurses for their honest opinion and for doing the present study possible.

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Source of Support: Nil, **Conflict of Interest:** None.