Factors Triggering Intensive Care Unit Stress and its Effects on Registered Novice Nurses

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ABSTRACT

Nursing is an extremely taxing profession. Nurses are particularly at risk from stress-related problems, with high rates of turnover, absenteeism and burnout. Up to a certain level stress could be beneficial to the organization as it increases the efficiency and effectiveness of the employers. However, when stress becomes excessive, it may become distracting, de-motivating, and even hazardous. The study aimed to evaluate factors triggering Intensive care unit stress and its effects in novice nurses working at intensive care units in selected hospital of Bhubaneswar. Descriptive, cross sectional design utilized in the current study. Sample: 100 ICU novice nurses were included and working in two multispecialty hospitals of Bhubaneswar. Procedure: Data collected through self-structured socio-demographic questionnaires, I.C.U nursing stress scale and Stress manifestation scale of I.C.U nurses those are developed by the researchers. Validity and reliability of study were examined. Most common type of work-related stress for novice ICU nurses was due to interpersonal conflict and lack of support followed by direct patient care and inadequate knowledge and skill. Most of nurses were suffering from physical, psychological, and behavioral illnesses. Our study had shown moderately positive correlation between ICU nurses stress and physical, psychological and behavioral manifestations. High stress levels often result in burnout and turnover of employees and change of their attitudes to work. Work related stress affect physical and mental health of novice ICU nurses, so they need to provide continued organizational support, suitable training programs to deal with potentially stressful conditions in the health facility.

Keywords: ICU stress factors, intensive care unit, Novice nurses.

INTRODUCTION

A stable and productive health service system has prime significance for any country´s functioning. Nursing profession is one of the most challenging and justified in considering and investigating work-related stress, since performance turns down under stressful circumstances. In the current context, excellence and efficiency are vital for organizational survival. Consequently, stress at place of work develops a concern to organizational proprietors. Among the health care professionals, especially nurses are considered a high-risk group regarding work stress and burnout.[1]

Given the widespread impact of work environment stressors on working people's health, substantial health and economic costs, both related to absenteeism and reduced output should not be surprising.[2-3] Stress is also a significant causative factor to organizational incompetence, high staff turnover, absenteeism because of occupational stress, increased costs of health care, and decreased job satisfaction[4].

In 2004, the Canadian Federation of Nurses Union documented that 86% of nurses experienced their workplaces as stressful; 86% reported their place of work as short-staffed; 88% said they were under-resourced at work; and 91% reported heavy workloads[5]. A systematic review was performed of the causes and effects of occupational stress on nurses' adequacy, productivity,

efficiency. Results showed that a number of features of functioning pattern have been linked to stress. Aspects of the work itself can be stressful, namely work overload and role-based factors such as lack of power, role ambiguity, and role conflict threats to career development and achievement, including risk of joblessness, being underestimated and uncertain promotion hopes are stressful. Stress is associated with reduced efficiency, diminished competence to perform, a lack of concern for the organization and colleagues[6]

Numerous studies have focused on work stress in nurses because they work in high-stress environment, which has unfavorable effects both on their psychological and physical health, productivity and efficacy at work, absenteeism, as well as on patients' outcomes such as augmented mortality and patient dissatisfaction[7].

The most common negative consequences of stress are particularly the decline of performance and competence; reduce in efficiency, decreasing excellence of customers' services, health problems, frequent absence, and accidents at work, use of alcohol and drugs, deliberately destructive behavior. A person exposed to stress at work shows an absolute collection of emotional, cognitive, behavioural and physiological responses to various harmful effects of work, work organization and working environment[8]. A descriptive explorative result have shown that the majority universal type of job-related

stress for Saudi nurses was due to job pressure followed by poor rapport with managers. Almost half of nurses were experiencing from physical and mental illnesses. The study proved a highly statistically significant relation between mental problems and job stress and statistically significant relation between job stress, physical problems and marital status [9].

A number of significant correlations were established among demographic attributes, sources of nursing stress, coping strategies, and psychological well-being. Negative predictors of psychological well-being were denial (coping strategies), death, and dying (workplace stressor). Role transition is often difficult when an individual comes to a new environment and is given new responsibilities and expectations. Although this changeover is stressful and they feel inadequately prepared, with assistance, the new graduate nurses can build up effectual coping strategies to adjust to the new role[10].

Moving from the student role to the staff nurse role can be an uneasy journey, transition is recognized as a stressful experience, and many nurses find it difficult to cope with their new roles in their first few months. If new nurses go to a training program before graduation and add clinical competence in specific ICU they desire, at least in part prior to commencement of their first job, they may attain their new role faster and smoother.

On the other hand, few researchers have paid attention to experiences of the novice nurses in the field of ICU and to the best of our knowledge, no study is published in India on novice nurses ICU stress. On the other hand, there are fundamental differences between the health system and medical care services in our country. Hence, conducting a quantitative study in this regard can help to clarify the ICU stress factors in novice nurses. Considering the effects of stress on physical and mental health of nurses, Inadequate related studies and consideration to personal perceptions and experiences of novice nurses in this area, the researcher decided to perform a quantitative study and to evaluate factors triggering Intensive care unit stress and its effects in novice nurses.

In this Descriptive cross sectional study, we Determine and describe the factors, which cause Intensive care unit stress and its effects on health of novice nurses. Also, investigated the relationship between ICU stress factors and manifestations of stress in novice nurses.

MATERIALS AND METHODS

The data has been collected from intensive care units of two private teaching hospitals in the city of Bhubaneswar.

Study Sample

A purposive sample consisted of 110 new nurses, who work in the previously mentioned settings invited to participate in the study. 100 participants returned a completed questionnaire. Therefore, the final participants were 100 nurses.

The inclusion criteria

The inclusion criteria set for sample selection were as follows:

- Registered nurses who work independently in ICU

- Registered nurses within three months of experience in that ICU

- Registered nurses with no previous ICU experience.

Tools for data collection

For data collection, a self-administrative questionnaire was developed by researchers and used to assess:

a) The demographic questionnaire contained two sections. In the first, we collected personal information such as age, marital status, professional degree, Monthly Income. The second section captured work-related variables such as total experience years, current experience in the present ICU, Actual hour in Direct Patient Care, weekely shift hours in morning evening and days and Consecutive Days of Working.

b) 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.

c) Stress manifestation scale of I.C.U nurses was used to identify stress manifestations in novice ICU nurses in the context of physical, psychological & behavioral symptoms of stress. A five point rating scale was used to find out the stress manifestation in ICU nurses. The score were calculated for as follows: scores 0 = never, score 1 = seldom scores 2 = often, scores 3 = sometimes, scores 4 = always.

Validity and reliability of the study

The questionnaire was revised and validated by panel of seven experts in concerned field. The questions were retained after suggested modification and language of questions was modified according to the suggestion of experts. Internal consistency of I.C.U nursing stress scale was estimated by using Cronbach's alpha and it was 0.84, which was strongly reliable. In case of Stress manifestation scale of I.C.U nurses for testing the homogeneity of tool, Crohnbach's α was calculated and it was 0.88, which was strongly reliable.

Data analysis

The quantitative data were entered and analyzed using the SPSS (Statistical Package for Social Sciences version 20.0), and the level of significance (α) was set at 0.05.

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.

RESULT

The main findings of the study were analyzed by using descriptive and inferential analysis. The study targeted the nurses working in adult ICU and 100 nurses were participated in the study.

Description of the sample

Table 1 showed that the large group age of the studied sample (52%) were less than 25 years, Around (80%) of nurses were females, half of the studied sample (56%) were single, and in relation to the educational level, it was found that the majority (62%) of them had nursing diploma. 61% of the nurses had an experience less than 1 years as registered nurse. This table illustrated that in relation to current job experience (35 %) of nurses had less than 1 month of experience, nearly (50%) of nurses had given 30-40 hours in actual direct patient care, In Weekly shift hours of mornings 44% of nurses were posted for (4- 6) days in ICU, In Weekly shift hours of evenings 45% of nurses were posted for (4- 6) days in ICU. In Weekly shift hours of night, 60% of nurses were posted for (1-3) days in ICU. On Consecutive Days of Working 58%of nurses were in less than one week consecutive days of working in I.C.U.

Level of perceived stress among novice ICU nurses

The investigator observed that 24% of novice I.C.U nurses are having severe perception of stress, 33% of I.C.U nurses are having moderate perception of stress, 28 % of novice I.C.U nurses are having mild perception of stress & 15 % were having normal perceived stress.

Distribution of nurses according to their exposure to ICU stress factors

Table 2 illustrated that (27 % and 32 %) of nurses were suffering from severe stress and moderate stress respectively regarding direct patient care, and (27 % and 27 %) of nurses were suffering from severe stress and moderate stress respectively regarding inadequate knowledge and skill. Regarding lack of support, it was found that (7 % and 47 %) 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 (26 % and 34%) of nurses were suffering from severe stress and moderate stress respectively.

Rank order of factors related to severity of stress in ICU

Among the factors on direct patient care the highly rated perceived stressful events are to "handle the patient in I.C.U in active age groups of 20-30 years with family burden" was having rank-1 & "rendering nursing care to critically ill patient "was having rank-2. The highly rated actual stressful event is "to handle the patients who fail to improve" is having rank-1. In inadequate knowledge & skill the highly rated perceived stressful event is "to start C.P.R & defibrillation in critical ill patient" was having rank-1. The highly rated actual stressful event is "Blame for anything that goes wrong in I.C.U" is having rank-1. In the component of lack of support the highly rated perceived stressful event is to "Work without support from supervisor" was having rank-1 & the highly rated actual stressful event is "work where physician is not present in medical emergency" is having rank-1. In interpersonal conflict highly rated perceived stressful event is to "work collaboratively with nursing personal" was having rank-1 & the highly rated actual stressful event is "work where physician is not present in medical emergency" is having rank-1. In management of unit highly rated perceived stressful events is to "work continuously in nightshift" was having rank-1 & the highly rated actual stressful event is "work where resources are not available" is having rank-1.

Rank order of stress manifestations related to severity of stress in ICU

In the manifestation of perceived stress of I.C.U nurses "headache" is highly rated physical symptoms of stress having rank-1 & In the manifestation of actual stress of I.C.U nurses "feel fatigue during get up in morning" is highly rated physical symptoms is having rank-1. In psychological symptoms of stress, "become frustrated in stupid mistakes of staff members" is having rank-1 in case of manifestation of both perceived & actual stress of I.C.U nurses. In Behavioral symptoms of stress, "feel that your thoughts easily wander" is having rank-1 in case of manifestation of perceived stress & "no desire to do anything", "feel that your thoughts easily wander" are having rank-1 in case of manifestation of actual stress.

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

To find out the relationship between perceived stresses of I.C.U nurses with the selected demographic variables, One way ANOVA test was conducted for all variables except marital status and as in case of marital status, there were only two samples, hence t test was conducted.

After conducting One way ANOVA or t test, the result of significance was mentioned in the table below with respective F value and p value.

It was observed from the above table that there was no significant difference in perceived stress level of nurses among various age groups. Similarly as the p value was also greater than 0.05 in case of marital status; it may be concluded that the perceived stress level of nurses was not affected by the marital status. There was no significant difference in perceived stress level of nurses working in different days of weekly shift hours in evening and night rotational plan. There was significant difference in perceived stress levels among the nurses holding various degree as p <0.05 (0.44 in above case) and years of Registered Nurse had a significant effect on stress level of the nurses as p<0.05 (.000). Current experience in present ICU had a significant effect on stress level of the nurses .as p<0.05 (.000). It was observed from the above table that there was significant difference in perceived stress level of nurses based on actual hours of Direct Patient Care as p<0.05 (.000). Weekly Rotation Plan in Mornings had a significant effect on stress level of the nurses as p<0.05 (.000). Consecutive Days of Working had a significant effect on stress level of the nurses as p<0.05 (.039).

Relationship between between ICU stress factors and manifestations of stress in novice nurses

There is moderately positive correlation between direct patient care and physical symptoms. It

DISCUSSION

This study aimed to investigate the factors, which cause Intensive care unit stress and its effects on health of novice 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. Stress manifestations in novice ICU nurses have been categorized in the context of physical, psychological & behavioral symptoms of stress. All categories had several subsets and they were the most important professional stressors for the ICU nurses of this study. The Interpersonal conflict, direct patient care and inadequate knowledge and skill were among the most stressful experiences that the ICU nurses faced with. Based on the novice 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 20-30 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 critical ill 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 of[8], and[9] 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 emergency situations[10]. Having enough sleep and rest, lack of social acceptance, work environment, contact with contaminated objects, Many studies in other countries as well have reached to similar findings[11]. The most important factors creating stress which were mentioned by the ICU nurses of the present study have been referred to the organization management. 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.

There was significant difference in perceived stress levels among the nurses holding various degrees, years of experience as registered Nurse had a significant effect on stress level of the nurses, and this is consistent with[12], Who showed that the experienced staff were less vulnerable than inexperienced staff to job stress. This may due to despite of experience there wasn't training programs focuses on subjects related to critical issues in ICU. This is also consistent with[13,14] showed that the nurses with no post-graduation education showed a higher level of stress than nurses with at least one specialization. This may due to no presence of specific job description for nurses.

The study revealed that there is moderately positive correlation between direct patient care and physical symptoms. This is consistent with previous studies[15]. The study revealed that there are moderately positive correlation between direct patient care and psychological symptoms and behavioural problems. This is consistent with previous studies[16-20] which have also reported that continuous job stress not only endanger the quality of the services, but also the health of the healthcare providers. It can cause the symptoms of stress syndrome.

Table 1: Assessment the base line characteristics of the studied sample

Parameters	Sub parameters	Frequency	%
Age in years	25 and Below	52	52
	26-30	40	40
	Above 30	8	8
Marital Status	Single	56	56
	Married	44	44
Degree	G.N.M	62	62
	B. Sc Nursing	32	32
	P. B.Sc Nsg	6	6
Total experience in Years as Registered Nurse	Less than 1 Year	61	61
	1 Year - 2 Years	23	23
	2 Years - 3 Years	7	7
	>3years	9	9
Current experience in present ICU	Less than 1 month	35	35
	1 month – 2 month	22	22
	2 months - 3 months	43	43
Actual Hour in Direct Patient Care	30 - 40 Hours	50	50
	40 - 50 Hours	26	26
	50 - 60 Hours	14	14
	> 60 hours	10	10
Weekly shift hours in Morning	None	12	12
	1 -3day	35	35
	4-6 days	44	44
	>6days	9	9
Weekly shift hours in Evening	None	8	8
	1 -3 day	37	37
	4-6 days	45	45
	>6days	10	10
Weekly shift hours in night	None	10	10
	1 -3day	60	60
	4-6 days	22	22
	>6days	8	8
Consecutive Days Working	Less than 1 week	58	58
	1 week	20	20
	1 week - 2 weeks	22	22

Table 2: Number and percent 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	27	27	32	32	28	28	13	13
2	Inadequate knowledge & skill	27	27	27	27	33	33	13	13
3	Lack of support	7	7	47	47	26	26	20	20
4	Interpersonal conflict	33	33	27	27	33	33	7	7
5	Management of unit	26	26	34	34	20	20	20	20

Table 2: One way ANOVA to show the result of significance between perceived stresses of novice I.C.U nurses with the selected demographic variable

Dependent Variable	Independent Variables (Demographic Variables)	F Value	Significance (p Value)	Result
Perceived stress of I.C.U nurses	Age	.835	.435	NS
	Marital Status	1.032	.311	NS
	Degree	3.157	.044	S
	Total experience in Years as Registered Nurse	8.411	.000	S
	Actual Hour in Direct Patient Care	11.308	.000	S
	Current experience in present ICU	22.138	.000	S
	Weekly shift hours in Morning	7.000	.000	S
	Weekly shift hours in Evening	.095	.984	NS
	Weekly shift hours in night	.844	.498	NS
	Consecutive Days Working	3.290	.039	S

S – Significant; NS – Non Significant

Table 3: Correlations between ICU stress factors and manifestation of stress

Stress factors		Physical symptoms of stress	Psychological symptoms of stress	Behavioral symptoms of stress
Direct patient care	Pearson Correlation	.362	.387	.585
	Sig. (2-tailed)	.185	.154	.022
Inadequate knowledge & skill	Pearson Correlation	.009	.366	.375
	Sig. (2-tailed)	.974	.179	.179
Lack of support	Pearson Correlation	.415	.161	.387
	Sig. (2-tailed)	.124	.568	.154
Interpersonal conflict	Pearson Correlation	-.041	.207	.174
	Sig. (2-tailed)	.884	.458	.535
Management of unit	Pearson Correlation	.402	.405	.506
	Sig. (2-tailed)	.138	.134	.054

Correlation is significant at the 0.05 level (2-tailed); indicates that if more will be direct patient care then physical symptoms will increase in many cases as **r =.36**. There are moderately positive correlation between direct patient care and psychological symptoms as **r =.38** and moderately positive correlation between direct patient care and behavioral symptoms as **r =.58**. There is moderately positive correlation between Inadequate knowledge & skill and psychological symptoms and behavioral symptoms as **r =.36 and r =.37** respectively. In addition, lack of support is positively correlated with behavioral symptoms as **r =.38.** There are moderately positive correlation between management of the unit and behavioral symptoms as **r =.50.**

CONCLUSION

Study results have shown that the most common type of work-related stress for novice ICU nurses were due to interpersonal conflict and lack of support followed by direct patient care and inadequate knowledge and skill. Most of nurses were suffering from physical, psychological, and behavioral illnesses. Our study had shown moderately positive correlation between ICU nurses stress and physical, psychological behavioral manifestations. A high level of work-related stress among novice ICU nurses is a considerable health issue, which calls for to be deal with by health care managers executing effective coping strategies. 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. The interventions highlighted on control of stress sources in the working environment seem to be vital for the support of work of healthcare staff and safeguarding of their performance and health.

Recommendations

Suitable approaches in health care organization to explore novice nurses stress in critical care settings are recommended. Moreover, interventional programs to recognize, and alleviate sources and effects of stress should be developed.

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