

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

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Abstract

Aims: This study identified general causes of work related stress among critical care nurses in the eastern province of Sri Lanka; and identified the degree of stress experienced by Sri Lankan nurses in critical care settings.

Method: A descriptive quantitative cross sectional study was conducted using the self-administered questionnaire. Convenience sampling technique was used to select 105 critical care nurses working at 2 government hospitals in the eastern province of Sri Lanka.

Results: Of the 105 respondents, general causes of stress was identified due to having more dependents (45%), 85% was due to extended duty shift more than 100 hours, another 35% was due to managerial issues at work place, 25% was due to inadequate partner's contribution and 25% was due to improper workplace facilities. To specifically identify the degree of stress according to the respondents, mild stress (n=40), was identified among those who extended shift duties more than 100 hours, while moderate (n=38) for those who had poor relationship with their fellow staff or with doctors rotating in their units, the extreme stress (n=14) was due to managerial paper works documenting incident reports, and worst (n=8) was due to emergency leaves or inadequate staffing.

Keywords: Nursing, stress, work-related stress, critical care nursing, and cross-sectional, Sri Lanka.

INTRODUCTION

In Sri Lanka there is no specific study done on stress among nurses. Researching on the causes and extent of stress in any healthcare is essential for successful management in the hospital settings (Kane, 2010). Stress can challenge a healthcare workers' ability to provide services and maintain personal and professional relationships with each other and with their clients (Collins and Long, 2003; Edéll-Gustafsson, 2002).

This study seeks to identify general causes of work related stress among critical care nurses in the eastern province of Sri Lanka; and identify the degree of stress experienced by nurses in a critical care setting.

It is also hoped that the findings will provide great understanding of the major causes of stress and its effects towards Sri Lankan nurses in critical care settings. The valuable information gathered in this study will provide helpful insights to healthcare services in Sri Lanka to develop and implement "stress coping" programs

LITERATURE REVIEW

In this study, web based literature search engines such as Google Scholars, PUB MED, and CINHAL were used. Of the 10,000 hits, only six studies were reviewed with similar variables.

Moola et al (2008) did a research on critical care nurses' perceptions of stress and stress-related situations in the workplace. A qualitative research approach (exploratory, descriptive and contextual) was used to explore the stressful situations experienced by critical care nurses in the Tshwane metropolitan area of South Africa. Focus group interviews were conducted with critical care nurses. They mentioned that critical care nurses experienced stressful situations in their daily working environments. Troubleshooting the technology and equipment are examples of stressful environment (Moola et al, 2008). This literature added that the nurses are not so much acquainted with technology and sometimes the machines do not work properly while patients are experiencing code attacks. Critical care units will always experience physiological maladaptation of their patients who are mostly in mechanical ventilation and troubleshooting these machines are sometimes more stressful than the resuscitation itself.

On the other hand, the effects of stress on working hours on vigilance and patients' safety done by Scott et al (2006) describing managerial work of critical care nurses, and determined an association that exists between the occurrences of errors in documentation and stress in the workplace. Scott et al (2006) have given evidences to prove that long shifts more than 12 hours is associated with errors in documentations and decision making. Staffs in the intensive care are expected to be autonomous decision makers and managing their own units such as having the skills of the managers. However, if stress occurs, errors can take place.

Loudoun (2008) on the other hand did a study on balancing shift work and life outside work with 12 hour shifts that has a relationship with stress. They explained the potential negative effects of 12 hour shift leading to disturbance in emotions and conflicts between staff. The researcher stated that "shift workers are required to work and sleep at times". Conflict between staff occurs due to abnormal societal and biological patterns. This statement is strong enough to show that long shift interrupts socialization.

Blair and Littlewood (1995) emphasized that work relationships are potential stressors. Two sources of stress in this field are the conflicts with co-workers and the lack of staff support. This study showed that lack of social support from colleagues and superiors and less satisfaction with the head nurses contributed significantly to workers' stress. This study among a large sample of Swedish nurses revealed that more than 80% of the nurses reported very high work related stress.

Yoder (2010) has done a study to describe the prevalence of job stress among variety of nurses and to investigate the situations that lead to job stress and methods of coping. The sample was 178 registered nurses who work in Midwest Magnet community hospital. The researcher reveals that job stress is a phenomenon present not only in emergency workers and volunteers dealing with catastrophic events but also in nurses who work in this small community hospital. This study included both qualitative and quantitative mixed components using a questionnaire. Nurses take a contrasting approach regarding the level of engagement with stressful situations and being a bread winner of their own family. Conclusion of this study was some nurses experienced compassion to their family and fatigue with their work (Yoder, 2010).

Nagai et al (2011) have done a research on the effects of stress on immune function among nurses performing shift works. The researcher stated that shift work has deleterious effects on natural killer cell function in the body and that effects depend on the degree of stress. Proper management of shift work may improve immune system among healthcare workers with health problems. Furthermore, evaluating the effects of chronic mental stress as well as the menstrual cycle of subjects which might influence immune function reveals the need for early recovery from work related stress.

SUMMARY OF THE REVIEWED LITERATURES

Variables from the reviewed studies emphasized on the importance of rest, family and social relationships and adequate skills. In addition, stress came from long hours of duty, troubleshooting equipment, extending hours of work due to inadequate staffing, and conflicts between co-workers.

The design of this study will be an integration of the reviewed literatures. The data analysis will be a unique structure that is relevant to the Sri Lankan set up.

Methodology

The study starts with an ethical consideration to commence with research settings where samples are taken. This section ends with the data collection and analysis.

Ethical Consideration

The researchers primarily obtained permission from ethical committee of Lincoln University College, Malaysia, to conduct the research. Secondly, permission was taken from the Ministry of Health in the Eastern province of Sri Lanka and the medical superintendents' of the said hospitals was also sought to obtain permission to conduct this study. Thereafter, the researchers met the ward managers of the relevant units to get the number of nurses who may answer the questionnaires.

Adhered with ethical principles informed and written consent was sought from each participant. Participants were given their freedom to withdraw from this study at any time without any risk or reason. The findings would be shown to the respondents before transcription of the data collected to ensure credibility of the results (Polit and Hungler, 2003; Burns and Grove, 2006).

Setting

This descriptive cross sectional study design used 2 sections from 2 different government-owned hospitals in the east Sri Lanka. The study was conducted at Ashraff Memorial Hospital and at Kalmunai North Base Hospital with bed capacity of 427 and 357 respectively. Both are government owned hospitals which provides more than hundred thousand patients per year with required health services annually for both clients and staff. Specifically, the Critical Care Units used were the Pediatric Critical Care Unit (PCU) with 8 bed capacities and the Surgical Intensive Care Unit (SICU) with 7 bed capacities, at Ashraff Memorial Hospital and Medical Intensive Care Unit (MICU) with 10 bed capacities and Neonatal Intensive Care Unit (NICU) with 8 bed capacities at Kalmunai North Base Hospital. These settings were selected due to the accessibility of the researchers to conveniently distribute the survey questionnaires.

Sampling Technique

Convenience sampling technique was used in this design. Respondents were from different socio-cultural background and they reasonably represent the Sri Lankan population. There are total of 220 nurses working in Ashraff Memorial and 128 nurses in Kalmunai, and around 150+ nurses in critical care units of both hospitals combined. Conveniently, a total of 105 (70 nurses from Ashraff Memorial and 35 from Kalmunai) nurses were selected by the researchers as the survey respondents.

Pregnant nurses and nurses who are having illnesses or taking medications for serious diseases which may cause stress were excluded in the sampling for the convenience of the researchers. Furthermore, newly hired nurses within 6 months period were also excluded.

Data collection

A questionnaire was distributed among the respondents to be completed within maximum of 2 days and was collected at their workplaces. The questionnaire consisted of 40 items with 5 sections. Section A was their

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

background information, while B was their working time and nature, while on section C was the effects of stress, and section D was their stress scale and lastly on section E was their interpretation of stress. The questionnaires provided items to be written by the participants themselves and some were to be ticked – yes or no.

Data analysis

Reliability of the questionnaire was tested using Cronbach's alpha. Data of this study was analyzed according to the descriptive statistics method using percentile ranking. Central tendencies are also used.

RESULTS AND FINDINGS

The respondents were 35 nurses from PCU (33%), 25 nurses from SICU, (24%), 30 Nurses from MICU, and 15 nurses from NICU (14%) (figure 1).

Of the 105, figure 2 identified 45% of the respondents were experiencing stress having more dependents, while 85% was due to extended duty shift more than 100 hours a month, another 35% having stress was due to managerial issues at work place, while 25% was due to inadequate partner's contribution and 25% was due to improper workplace facilities.

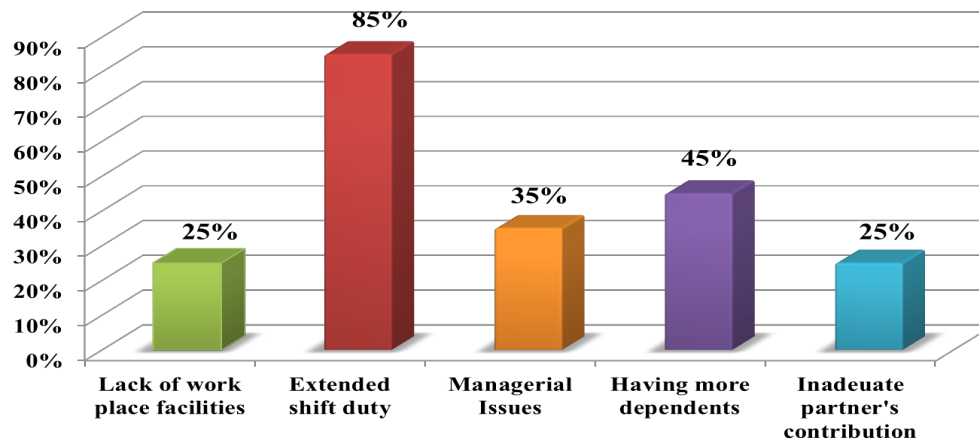


Figure 1

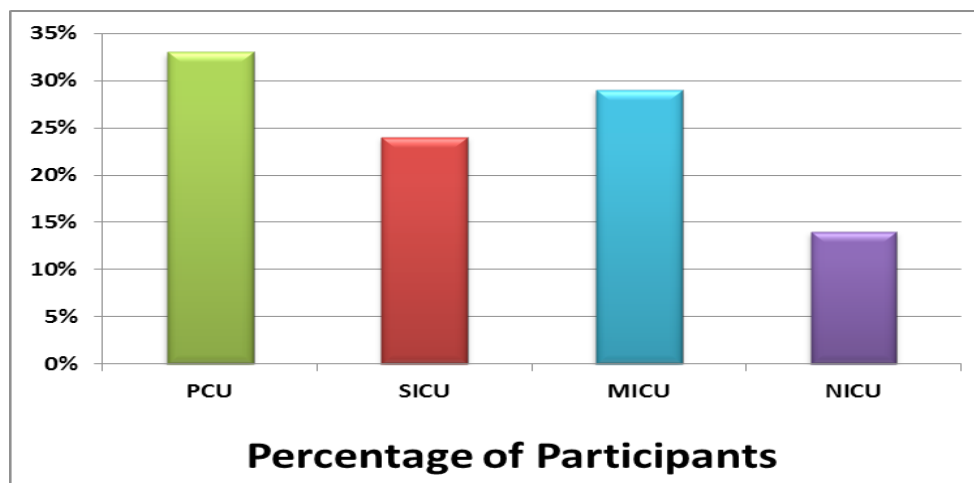


Figure 2

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

Among 105 nurses 79 had dependents mostly from PCU, SICU and MICU. Among the 7 nurses who were remarried at an age bracket of 21-30 years old, who was once separated/ divorced/ widowed, they reported to have experienced worst stress mostly from MCU and SICU.

It is interesting to specifically identify one of the causes of stress which is the extended duty hours. Among 105 respondents, 35 nurses (33%) have done above 100 hours extra duties, 40 nurses (38%) have done 80 to 100 hours, 28 nurses (26%) have done 40 to 80 hours and two nurses (2%) have done less than 40 hours. The frequency of doing extended shifts (12 or more hours) were six nurses (4%) “never”, 30 nurses (20%) “rarely”, 68 nurses (48%) “occasionally” and 40 nurses (28%) “very frequent”. These results showed that the majority has to work the average of 80 to 100 extra duty hours “occasionally” per month.

On the other hand, the effects of stress due to lack of sleep was also interesting to identify. Among the 105 respondents, 10 (9%) had an experience of falling a short sleep during day shifts (from SICU and MICU), 50 nurses (48%) had experience of documentation errors during extended shifts (from NICU, SICU, MICU, and PCU), 30 nurses (29%) had medication errors (from SICU and MICU) and 15 nurses (14%) from all the four intensive care units mentioned had experienced occupational hazards during extended duty shifts.

According to the level of stress experienced by Sri Lankan nurses in critical care units, 38% of the respondents identified mild stress (n=40), while 36% had moderate stress (n=38), 13% had extreme (n=14), 8% had worst stress (n=8) and only 5% had no stress identified (n=5).

To specifically identify the degree of stress (figure 3) according to the respondents, mild stress (n=40), was identified among those who extended shift duties more than 100 hours a month, while moderate (n=38) for those who had poor relationship with their fellow staff or with doctors rotating in their units, the extreme stress (n=14) was due to managerial paper works documenting incident reports, and worst (n=8) was due to emergency leaves or inadequate staffing.

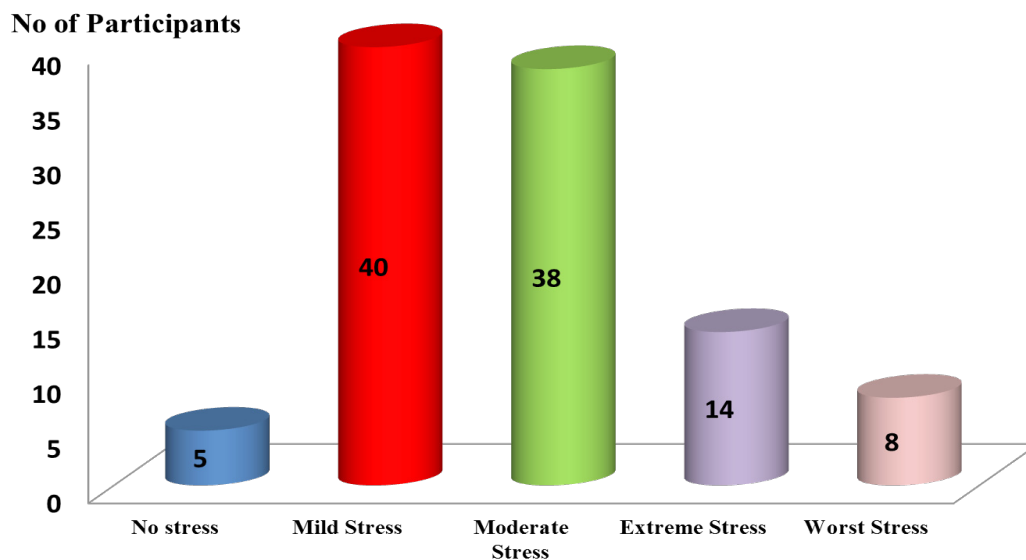


Figure 3. Level of stress

Though the nurse-respondents were categorized according to the level of stress, the researchers further categorized them under age groups. Among the age bracket 21-30 years old, 16 nurses had mild stress, 60 nurses had moderate stress and 5 nurses had severe stress. In the age group of 31-40 years old, 65 participants

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

were in moderate to severe stress and 7 participants experienced the worst level of stress. In the age group 41-50 years old, 7 nurses were without stress, 10 were with mild stress, 6 were with moderate stress and only 1 nurse was with severe stress.

Categorizing the level of stress according to extended duty hours is even interesting. Averaging from 80 to more than 100 hours a month, 3 nurses (2%) were with severe stress, 30 nurses (28%) were mild stress and 76 nurses (70%) were with moderate stress.

DISCUSSIONS

As the study was conducted using questionnaires, the manipulation and control of confounding variables are not required. This is the strength of the study since no interventions are necessary to be used but plainly observational through survey.

A weakness of the study is the self-reported information obtained from questionnaires that may be inaccurate since there are no published researches of stress found from the eastern province of Sri Lanka. Sri Lanka might have previously published stress management among nurses but not specifically in the eastern part where cultural components are not similar with the west.

That is why it is best to discuss the findings, highlighting the general causes of stress which are: (1) having more dependents, (2) extended duty shifts, (3) managerial issues, (4) inadequate partners' collaboration, and (5) improper workplace facilities.

Having More Dependents

In Sri Lanka, having small children, and partner's frequency in helping their other family members were some factors that contributed to stress. The results showed that married nurses or those living with their spouses are considerably experiencing stress especially if they are divorced/ separated/ widowed. Having dependents may be a cause for stress as it increases their responsibilities (Blair and Littewood, 1995; Yoder, 2010).

Furthermore, in Sri Lanka, the nursing population is mainly represented by females. Women have several roles as a mother, a wife, a daughter and likewise to their personal lives. At the same time being a female nurse is also a role. And according to this study's result, almost all female nurses are mothers. Kane (2010) agreed that psychologically, female nurses are more stressed out because of their emotional attachment to the patient empathizing on them with a motherly attitude to the extent that they bring home their emotional stress from work. Thereby increasing psychological stressors because they are not just taking care of patients at work, but they also take care of their family when they are at home (Kane, 2010).

With regards to age, the younger age group (21- 30 years old) in Sri Lanka garners much personal responsibility (having small children, and family dependents). Their stress scale ranged from "mild" to "severe" and the majorities were in "moderate" stage. This is because those nurses have to earn more for living (more extra duties) under less family support. Therefore, they are at high financial constrain at home in addition to stress at work place.

On the other hand they may be under social pressure as separation, and being divorced that are less likely acceptable in the Sri Lankan society, so as they may not get adequate psychological support. Yoder (2010) agreed that compassion to their family occurs simultaneously with fatigue at their workplaces.

Extended Duty Shifts

The influence of shift duties for work related stress was also identified. The frequency and the number of leave taken per month by participants were due to the stressful extended duty hours taken. In Sri Lanka, the majority of nurses have to do extended duty shifts, due to shortage of staff. This is because pregnant nurses in Sri Lanka do only single shifts and are released from night shifts at the third trimester, therefore the rest of the staff have to cover the shortage. The extended shifts included night duties, leading to work-related stress because of sleep deprivation.

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

Nagai et al (2011) agreed that the natural killer cell function in the body depends on the degree of stress. Lack of sleep may lead to sick leaves and decreased immune response. Edéll-Gustafsson et al (2002) added that adequate amount of sleep must be acquired before working on stressful environments otherwise, physiologic maladaptation may be encountered by an individual.

Managerial Issues

Managerial issues as cause of stress are found to be inherent in the Sri Lankan critical care environment. Lee and Yom, (2013) agreed that the effect of critical care units' environment involves fatiguing situations that are related to role conflict, error in decision-making and less efficient and effective delivery of care.

Managers also encounter stress due to tough decision making for patients who are having lack of funds and could not afford to pay their rentals for mechanical ventilation. Indigent patients should have free of charge but not all facilities in government hospitals are being provided by the government for free. It will be tougher for managers to do decisions if the relatives of patients will decide to go home against medical advice due to lack of funds. Rita et al (2013) agreed that job satisfaction is patient satisfaction; therefore, nurse managers need to maximize all the resources in order to keep the patient alive. This is therefore a stressful decision-making to be demonstrated.

Another example of stressful situation for managers to handle was if errors on patient care occur. Incident reports must be done and paper works are usually done after shift hours thereby extending duties. Loudoun (2008) agreed that duty shifts must be balanced with personal life to avoid stress. Therefore, if working hours is longer than personal time, stress may be experienced.

Inadequate Partners' Collaboration

In Sri Lanka, nursing requires a great deal of collaboration with people of different professions, social backgrounds, cultures, as well as the ability to take on various roles during a single workday to avoid stress. Moola et al (2008) agreed that nurses must be involved in team buildings, attendance during rounds and meetings, field trips, and hospital's social gatherings, connoting collaborations among other hospital staff. Collins and Long, (2003) recommended that critical care nurses must become aware of how they see themselves and how they act on stressful situations to avoid conflicts between staff.

It is also worth noting that graduates of private universities in the discipline of nursing are not allowed to work in the government hospitals of Sri Lanka as registered nurses of the Ministry of Health. This will lead to an inadequate number of employed nurses working in government hospitals in Sri Lanka, addressing the lack of manpower. This is aggravated as female staff nurses become pregnant and goes on sick leaves.

Improper Workplace Facilities

In Sri Lanka, high technology is not expected in critical care units. Sri Lankan nurses still use *Bennett's* mechanical ventilators. Having *Galileo 2000* mechanical ventilation (the latest technology) will still cause stress in troubleshooting and calibrating it. Infusion pumps and suction machines can also be 20 years old and some are donated by other countries that malfunction most of the time. Furthermore, Sri Lanka still uses the *Alibaba* newborn incubators which are difficult to troubleshoot if it malfunctions. If high technology incubators such as the *BB300* are donated, it is still difficult to troubleshoot. Moola et al (2008) further agreed that troubleshooting the machines is more stressful than the patient resuscitation itself. This is because nurses are not trained with handling engines and machines which sometimes may cause delay in patient care.

CONCLUSIONS

There is a significant evidence of work-related stresses among Sri Lankan nurses in the critical care units. Causes of stress were due to having more dependents, extended duty shifts more than 100 hours a month, managerial issues, inadequate partner's contribution and improper workplace facilities. The degree of stress according to the respondents were mild stress (n=40), was identified among those who extended shift duties

Work-Related Stress Among Sri Lankan Nurses in Critical Care Settings – A Cross Sectional Study

more than 100 hours a month, moderate (n=38) for those who had poor relationship with their fellow staff or with doctors rotating in their units, extreme stress (n=14) due to managerial issues such as providing facilities and paper works, and worst (n=8) due to emergency leaves or inadequate staffing.

RECOMMENDATIONS

Primarily, the policy makers and administrators should take measures to reduce work related stress associated with shortage of staff, poor physical environment, and lack of facilities (Pawson et al, 2005). Developing standard policies for extended shifts is helpful at the work place as it can provide structured system which managers can follow. It is recommended that hospital policies must include structured monetary system of rewarding and/or physical incentives that may reduce stressors from nurses, if hiring of newly graduate nurses from private educational institutions is unlikely to be an option.

When the means to work well lack the stress increases. Unfortunately the stress remains elevated even in countries that have more financial resources. This is why secondly, nurse managers must create a supportive physical environment to reduce work related stress, such as providing proper ventilation and fixing broken air-conditions. The managers can influence the higher level administrators to make the environment as an optimal place to work. In Sri Lanka, there is a meditation program conducted by quality management unit every month among government-owned hospitals – a religious activity addressing supportive physical environment. A welfare association arranges holiday trips twice a year for the whole staff for their meditation program. Managers can use these privileges to help their employed nurses at the government hospitals recover from work-related stress.

Thirdly, technical supports are also to be provided in critical care settings to reduce work related stress. It is a good motive and an opportunity for nurses to have high technological equipment imported from high income countries to improve patient care. However, troubleshooting the machines must be done by other staff who are experts on engines and machines.

The respondents however, recommended to the researchers how to reduce work-related stress. A total of 25 nurses (24%) suggested that having a good sleep is helpful. While meeting friends and gathering with family were suggested by 35 nurses (33%) and having adequate workplace facilities (equipment, infusion pumps, air-condition, mechanical ventilators and defibrillators) were suggested as contributing strategies by 32 nurses (30%). While 9 nurses (9%) suggested religious activities as stress reducing factors. Engaging in hospital recreational activities such as sports festivals, gym fitness sessions, and hospital parties were suggested by 4 nurses (4%). Coping strategies are found on figure 4.



Figure 4. Coping strategies used by participant to reduce stress

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