

The Prevalence of Post-Traumatic Stress Disorder in Intensive Care Unit Staff and the Common Coping Strategies Used

Dear Editor,

The medical personnel of the intensive care unit (ICU) encounter patients who are critically ill, have severe injuries, or require multiple life-sustaining interventions on a daily basis. Working in a stressful environment such as the ICU can be highly rewarding, but it may also have detrimental effects on the physiological and psychological well-being of the staff.^{1,2} A study by Mealer et al (2007) showed a greater prevalence of post-traumatic stress disorder (PTSD) symptoms among ICU nurses compared to general nurses while a study on ICU personnel reported that out of 144 ICU nurses who dealt with trauma and critically ill patients, 88% had suffered from intrusive symptoms, 75% from symptoms of hyperarousal, and 41% eventually developed PTSD.³ Azoulay et al (2013) showed that high burnout scores correlate with vulnerable personality, low job satisfaction, and high degree of job stress.⁴

We hypothesised that ICU staff may be at increased risk for developing symptoms of PTSD and other psychological disorders, and have negative coping strategies. Our aim was to determine the prevalence of PTSD symptoms among ICU staff in Singapore and to determine the common coping strategies employed.

Materials and Methods

Study Design and Materials

Our methodology was a cross-sectional survey using validated survey instruments. This study was approved by the Institutional Review Board (IRB). The questionnaire incorporated the Post-Traumatic Symptom Scale-10 (PTSS-10), Hospital Anxiety and Depression Scale (HADS) and COPE Inventory, and was administered over 30 days. The PTSS-10 looked at the presence of the following post-traumatic stress symptoms: sleeping difficulties, nightmares, feeling dejected or downtrodden, jumpiness or startled reactions, the need to withdraw from others, irritability and agitation, frequent mood swings, bad conscience, feelings of guilt, fear of places that remind an individual of the place that he/she works in, and muscular tension. Scores of 1 to 2 were considered mild, scores of 3 to 4 were considered moderate, and 5 or more were considered as a strong reaction.

Participants and Sampling

We studied all doctors and nurses working in the medical and surgical ICUs of a regional hospital in Singapore. This was a voluntary and anonymous survey. The sampling method was based on random voluntary sample and the questionnaire was provided to all participants and collected in a box placed in the institution's ICU.

Setting

Our institution's ICU has a mix of intensive care and high dependency patients. The ICU has a 1:1 nurse-to-patient ratio and a 1:2 ratio in the high dependency unit (HDU). Nurses work in shifts while doctors have a rotational on-call schedule. It generally has a high APACHE II score patient population. The case mix consists of adult medical and surgical critically ill patients.

Data Collection

We collected data identifying common stressors associated with working in the ICU as well as through a Life Events Checklist. The questionnaire also included the HADS, which consists of 2 subscales that evaluate symptoms of depression and anxiety. A score of 8 or greater is suggestive of the possible presence of anxiety or depression.

Another outcome measure was to identify common coping methods used to overcome stress, anxiety and depression. To this end, we used the COPE Inventory which was developed to assess a broad range of coping responses. Twenty-eight questions were asked which looked at different coping strategies and these were broadly divided into adaptive and maladaptive coping methods. Demographic data was also collected from the questionnaire. ICU stressors as mentioned in prior literature were listed.⁵

Statistical Analysis

The data was entered and analysed in SPSS™. We estimated a sample size of at least 100 participants from ICU staff in 30 days in order to obtain an 80% power for our study.

Results

Demographics

A questionnaire was distributed to 107 nurses and doctors in the ICU of a regional hospital in Singapore. We had a 94% response rate. The respondents consisted predominantly of nurses 87% (n = 90) and doctors 13% (n = 14); 83% were female (n = 88) and 17 % were men (n = 18). The mean age was 31.7 (SD = 7.3); ranging from 22 to 63 years. A total of 59% of participants had less than 5 years of experience.

Our questionnaire looked at aspects of ICU care that healthcare professionals find stressful. More than 86 % of them found working in ICU to be stressful. Cumulatively, more than 80% of the staff found dealing with difficult relatives, traumatic injuries and performing futile care to be highly stressful. Ninety-two of the staff was also unhappy with the inadequate staff-to-patient ratio (Table 1).

Post-Traumatic Stress Symptoms

On the PTSS-10, 28% of staff had experienced nightmares in relation to their work and 25% have suffered from anxiety attacks when they thought about their work experiences in the ICU as shown in the HADS scale. On this scale, 67% of participants scored 1 to 2 (mild), 29% scored 3 to 4 (moderate), and only 4% scored 5 or more indicating a relative strong reaction. In all, 33% of staff suffered from significant post-traumatic symptoms.

Healthcare professionals reported stress in the following situations: general work in the ICU, dealing with difficult relatives and traumatic injuries, performing futile care,

Table 1. Stress-Related Activities in ICU

Stressful Situations Reported by Healthcare Professionals	Percentage
General work in the ICU	86%
Dealing with very sick/dying patients	92%
Dealing with severe traumatic injuries	94%
Handling the bodies of deceased patients	59%
Inadequate staff-to-patient ratio	92%
Maintaining an amicable relationship with nurses	57%
Maintaining an amicable relationship with doctors	60%
Performing “futile” care	80%
Encountering combative patients	92%
Encountering patients with difficult relatives	96%
Involvement with end-of-life care	72%
Performing cardiopulmonary resuscitation	80%

ICU: Intensive Care Unit

and poor staff-to-patient ratios. There was no significant difference between gender or occupation on the PTSS. However, there was a significant difference for those who were younger ($P = 0.007$). Those with more years of working experience reported fewer symptoms ($P = 0.01$). Shift work also had a significant impact ($P = 0.02$) on reported symptoms (Table 2).

Anxiety Depression Score

This was measured using HADS. Eleven percent of the staff was found to have significant anxiety symptoms and

Table 2. Statistical Test of Outcomes, PTSS-10, COPE Maladaptive and Adaptive Scales Against Demographics

	PTSS-10		COPE Maladaptive Scale		COPE Adaptive Scale	
	Mean	P Value	Mean	P Value	Mean	P Value
Gender		0.15		0.98		0.84
Male	22 ± 11		12 ± 4		49 ± 11	
Female	26 ± 13		12 ± 4		51 ± 10	
Occupation		0.99		0.34		0.68
Doctor	25 ± 12		11 ± 2		49 ± 13	
Nurse	26 ± 13		12 ± 4		51 ± 9	
Age (cutoff: 30 years old)		0.007		0.09		0.71
Younger than 30 years old	28 ± 12		13 ± 3		50 ± 11	
Older than 30 years old	23 ± 12		12 ± 4		51 ± 9	
Years of experience		0.02		0.24		0.75
Less than 5 years	29 ± 13		13 ± 3		51 ± 10	
More than 5 years	23 ± 10		12 ± 4		51 ± 10	
Night shift		0.02		0.96		0.49
1 to 5 days	24 ± 10		13 ± 4		50 ± 11	
More than 5 days	30 ± 14		12 ± 3		52 ± 10	

PTSS-10: Post-Traumatic Symptom Scale-10

Table 3. Hospital Anxiety and Depression Scale (HADS) Results

Hospital Anxiety and Depression Scale (HADS)	Anxiety	Depression
Normal (0 – 7)	64%	74%
Borderline (8 – 10)	25%	15%
Abnormal (11 – 21)	11%	12%

12% had significant depressive symptoms. Gender, night shift work, and experience (in years) had no effect on the HADS score (Table 3). This is considerably higher compared to point prevalence of depression in the general Singapore population which is between 3.6 to 7%. Doing more than 5 night shifts was also a problem (Table 2).

As evident, by far, the majority of staff (92%) adapted positively with a large number resorting to active coping, positive reframing of religion, and acceptance (the actual questions were worded more simply), while a small number (3 to 8%) fell into negative coping means such as substance abuse, denial, etc. Gender, age, occupation, years of experience and night shift work did not have any effect on coping methods.

Discussion

PTSD is a complex mental illness that results from an individual's response to an experienced or witnessed traumatic event, actual death, perceived threat of death or serious injury that results in extreme fear, helplessness or horror.⁶ No large studies are present in Singapore and certainly not for prevalence in ICU staff.^{7,8} Our study explores the psychological manifestations of coping with a busy ICU environment on staff members including doctors and nurses of both genders. Our hospital has a Staff Crisis Programme where peer supporters provide emotional support and are trained to listen without judging.^{9,10}

In addition to crises intervention schemes and regular support group intervention, avenues for staff to find time for non-medical relaxation techniques such as yoga and music therapy must be considered. Frequent rotation out of the ICU may also be explored. Debilitating illness can also inhibit the individual's life. The level of success one has at his or her place of employment depends on many factors including the level of impairment and support outside and inside the work environment. Another facet could be to make people aware of this phenomenon and make it easy for staff to seek help.^{11,12}

Although at times the experiencing of symptoms is unavoidable, crisis intervention is a useful platform for screening, reducing acute distress, fostering group cohesion, providing psychoeducation and information,

and anticipatory guidance.¹³ As caring organisations, institutions have a role in assisting affected employees in dealing with the psychological aftermath of their trauma with sensitivity, understanding and support at every staff level. Despite the high levels of PTSD, the ICU staff had a low rate of negative coping methods.

Limitations

Our limitations are a relatively small sample size and more nurses than doctors who voluntarily filled the form. The scales we used are meant to screen for PTSD and depression amongst patients and not healthcare workers; neither are they meant for a proper diagnosis as this still requires a consultation with a psychiatrist. The validity of anonymous, self-reported stress symptoms are also a limitation, especially when reporting on the use of coping methods.

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Yu Zheng Ong,¹ MBBS, Shahla Siddiqui,² MBBS, DABA, FCCM, Surej John,³ MBBS, MRCP, DCP, Zen Chen,⁴ MSc, Su Chang,⁵ MSc

¹Yong Loo Lin School of Medicine, National University of Singapore, Singapore

²Department of Anaesthesia, Khoo Teck Puat Hospital, Singapore

³Department of Psychiatry, Khoo Teck Puat Hospital, Singapore

⁴Department of Nursing, Khoo Teck Puat Hospital, Singapore

⁵Clinical Research Unit, Khoo Teck Puat Hospital, Singapore

Address for Correspondence: Dr Shahla Siddiqui, Department of Anaesthesia, Khoo Teck Puat Hospital, 90 Yishun Central, Singapore 768828.
Email: shahlasi@yahoo.com