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# POST-TRAUMATIC STRESS DISORDER AMONGST SURGICAL RESIDENTS OF RAWALPINDI

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**Abstract:**

***Objectives:*** *To determine the frequency of PTSD among surgical trainees and correlation of PTSD with demographic profile and well-being in Rawalpindi and Islamabad.*

***Methods:*** *A questionnaire-based study was conducted in Surgery and allied departments of Holy family hospital, Combined Military Hospital, Military Hospital, Armed Forces Institute of Cardiology, PIMS Hospital, Islamabad, District Headquarters hospital, Rawalpindi Institute of Cardiology and Benazir Bhutto hospital, on 207 surgical trainees. It was a cross sectional descriptive study and stratified random sampling was used to collect data. Study was conducted from April 2018 to April 2020. Non-surgical and non-Pakistan based surgeons were excluded from the study. Questionnaires were designed with PTSD Checklist for DSM-5 (PCL-5) and WHO well-being index. SPSS v25 was used for data analysis.*

***Results:*** *For 164 returned surveys the mean age was 29.2 (SD 2.9) years; 100/164 respondents were male. Mean years in training were 2.66 (SD 1.4). Median PCL-5 score was 14. 31/164 respondents had cut off score ≥ 33. 38/164 respondents met the diagnostic criteria for PTSD. Females were more likely to have PTSD p=0.016(<0.05). Correlation between PCL-5 score and WHO well-being index was found to be significant at the 0.000 level, showing a -0.332 Pearson correlation value.*

***Conclusion:*** *PTSD amongst surgical trainees may be higher than in the general population. Recognition and management of this risk is important for the mental health of trainees and the safety of patients.*

***Keywords:*** *PTSD, Surgical Trainees, Well-being, PCL 5*

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## INTRODUCTION:

A risk that is often undermined and overlooked in many surgical settings is the mental health of the surgeons themselves. Surgeons may face fear and acute stress in both themselves and their patients as well as guilt associated with their responsibility for any of these patient experiences while treating patients in severe pain and life-threatening injuries. Trauma- and stressor-related disorders include disorders in which exposure to a traumatic or stressful event is listed explicitly as a diagnostic criterion. These include Reactive attachment disorder, disinhibited social Engagement disorder, post-traumatic stress disorder (PTSD), Acute stress disorder, and adjustment disorders.[1] PTSD (posttraumatic stress disorder) is a mental health problem that some people develop after experiencing or witnessing a life-threatening event, like combat, a natural disaster, a car accident, or sexual assault.[2]

Healthcare professionals have been called the 'second victims' of adverse events in healthcare.[3] In a study conducted in London, UK all participants (26) admitted that surgical complications affected them on an emotional level and that these effects could be long-lasting. The most common reactions were guilt, anxiety and anger, crisis of confidence, worry about reputation, and worry about the patient. Some surgeons reported ongoing rumination and difficulty in maintaining concentration.[4]

A survey of American trauma surgeons revealed that 15% met the criteria for PTSD[5], which is higher than the expected level in the general population (5.6 % lifetime prevalence) [6]

In a study conducted in Birmingham, UK 16% of surgical Residents had pathological symptoms consistent with ASR or PTSD according to psychological screening.[7]

These psychological conditions can have an impact on both the surgeon's health and his/her performance. A recent survey [8] of 7900 surgeons found that those who had experienced a surgical error during the past 3 months were more likely to have a lower quality of life, and increased probability of symptoms of burnout and depression. Studies also show that such residents made significantly more medical errors than their non-depressed peers.[9]

Hence treating this psychological condition is of utmost importance in view of the unhelpful coping strategies such as such as alcohol and substance abuse [10] and suicide [11] amongst surgeons.

Preventative measures, such as increased availability of formal psychological support, should be considered by all trauma units to protect the long-term emotional wellbeing of their staff.[12]

Such a study has not been conducted in Pakistan yet.

**Objectives:**

To determine the frequency of PTSD among surgical trainees and correlation of PTSD with demographic profile and well-being in Rawalpindi and Islamabad.

## RESEARCH METHODOLOGY:

**Settings:** Surgical units of Holy family hospital, Combined Military Hospital, Military Hospital, Armed Forces Institute of Cardiology, PIMS Hospital, Islamabad, District Headquarters hospital, Rawalpindi Institute of Cardiology and Benazir Bhutto hospital (including departments of Urology, Neurosurgery, ENT, Plastic surgery, Oral and maxillofacial, Cardiac surgery, Orthopedics).

**Study design:**

Cross sectional descriptive

**Study population**

Pakistan based surgical Residents in the above departments of Allied hospitals.

**Sample size**

Calculated using WHO sample size calculator with the following:
Confidence level: 95
Anticipated population: 0.16
Absolute precision: 0.05
Sample size: 207

**Study duration**

24 months

**Inclusion criteria**

All surgical Residents in the three allied hospitals of Rawalpindi. All Pakistan based surgical Residents are eligible for inclusion. No limitation on who can complete the survey, eligibility was determined post hoc using the demographic domains of the questionnaire.

**Exclusion criteria**

Non-surgical, non-Pakistan based or non-training grade surgeons were excluded.

**Data collection technique**

Questionnaires were administered to the residents and were interviewed individually as well

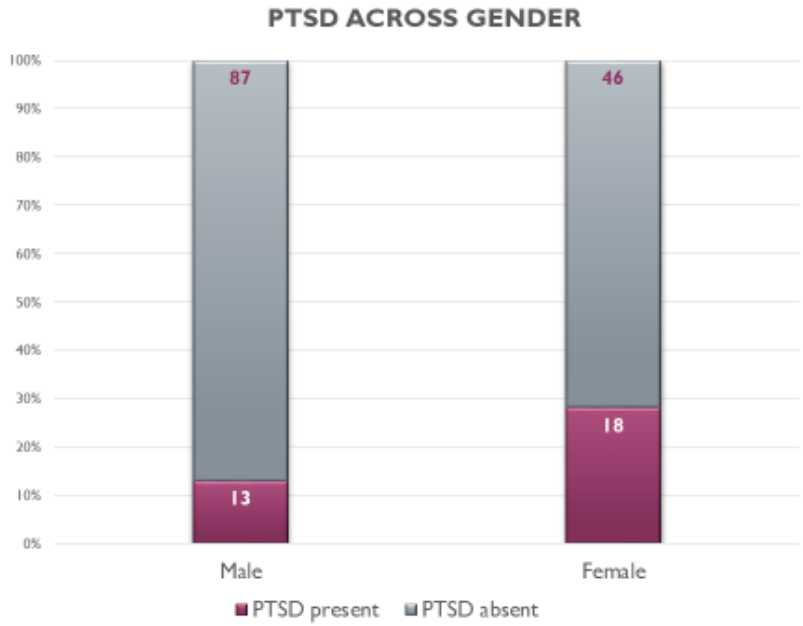
**Data collection tool**
Questionnaires

**Plan for data entry and analysis**
SPSS version 25 for data entry and analysis
Descriptive analysis was done using independent sampling T-test, ANOVA test and Chi square test.
Sampling was done according to following variables: Gender, department, year of training, Mean score of PTSD, answers relating to exposure to stressful situations compared between sub-groups.
Questionnaire responses regarding team responses to stressful events.

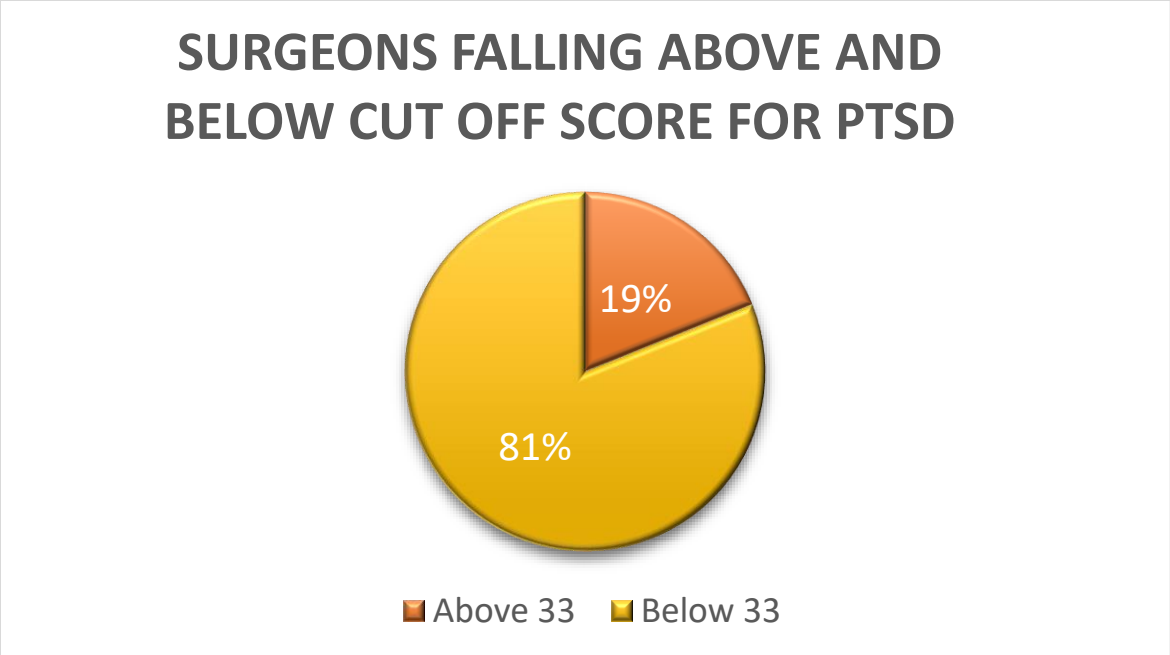
**Ethical considerations:**
The Ethical Review Committee of the relevant hospitals accepted the study plan. In addition, each patient provided informed consent.

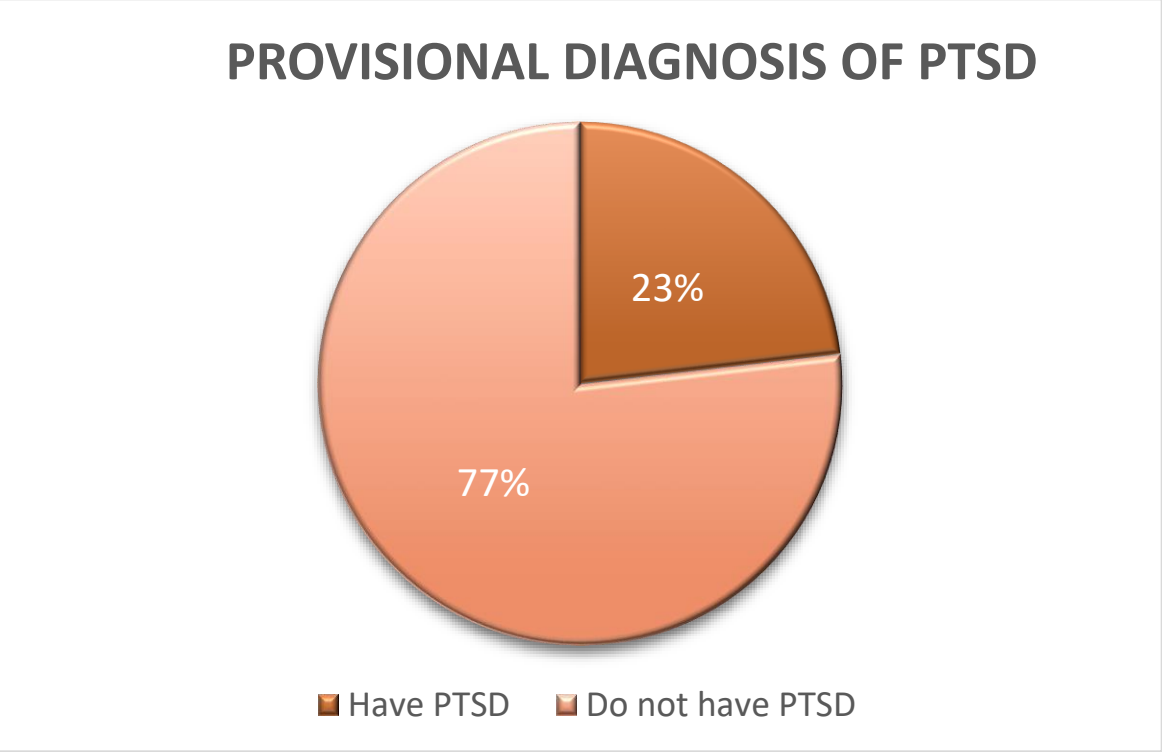
**RESULTS:**
For 164 returned surveys the mean age was 29.2 (SD 2.9) years; 100/164 respondents were male. Mean years in training were 2.66 (SD 1.4). Median PCL-5 score was 14. 31/164 respondents had cut off score ≥ 33. 38/164 respondents met the diagnostic criteria for PTSD. Females were more likely to have PTSD p=0.016(<0.05). Correlation between PCL-5 score and WHO well-being index was found to be significant at the 0.000 level, showing a -0.332 Pearson correlation value.

**Gender Distribution of PTSD:**
*Females were more likely to have PTSD p=0.016(<0.05)*




13% of the males whereas 26% of the females suffered from PTSD, which is almost, double the amount of PTSD in males.
Our study reports higher rates among female Surgical Residents, which is supported by studies. In addition, possible explanation for this is that women articulate depression symptoms more even the minor ones, they often feel helpless in such situations and blame themselves for all the wrongs they are going through. Hormonal changes also play a vital role in the development of depression among females. Estrogen depletion, known as menopausal symptoms, reports high rates of depression and vasomotor instability.

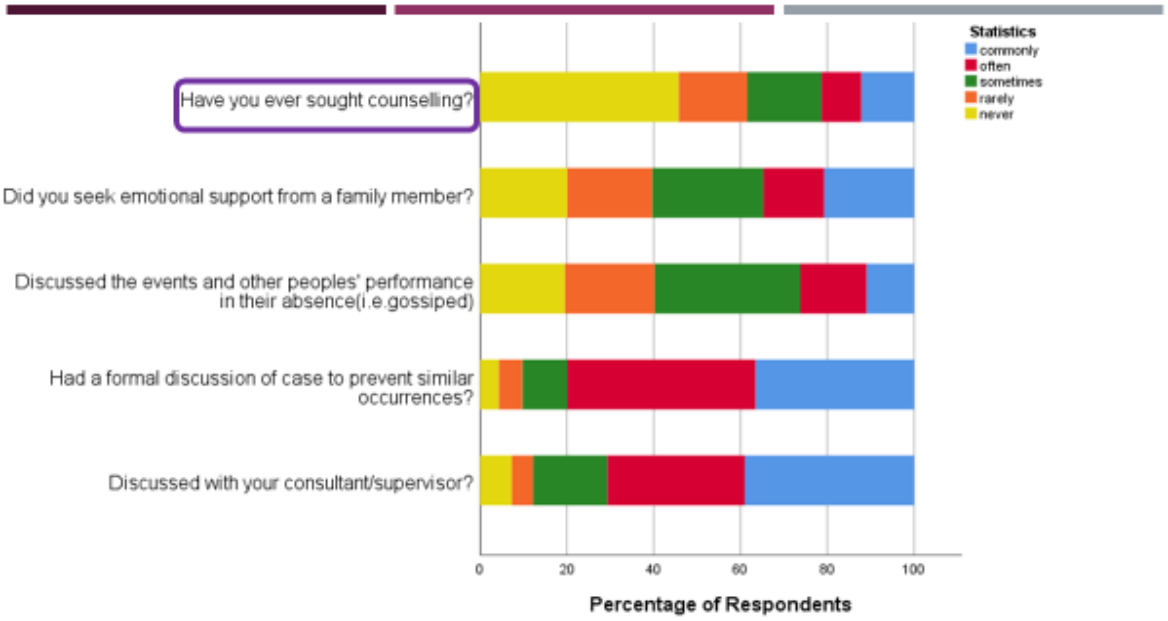



*Those who witnessed severe acute traumatic injury were more likely to have PTSD p= 0.005*

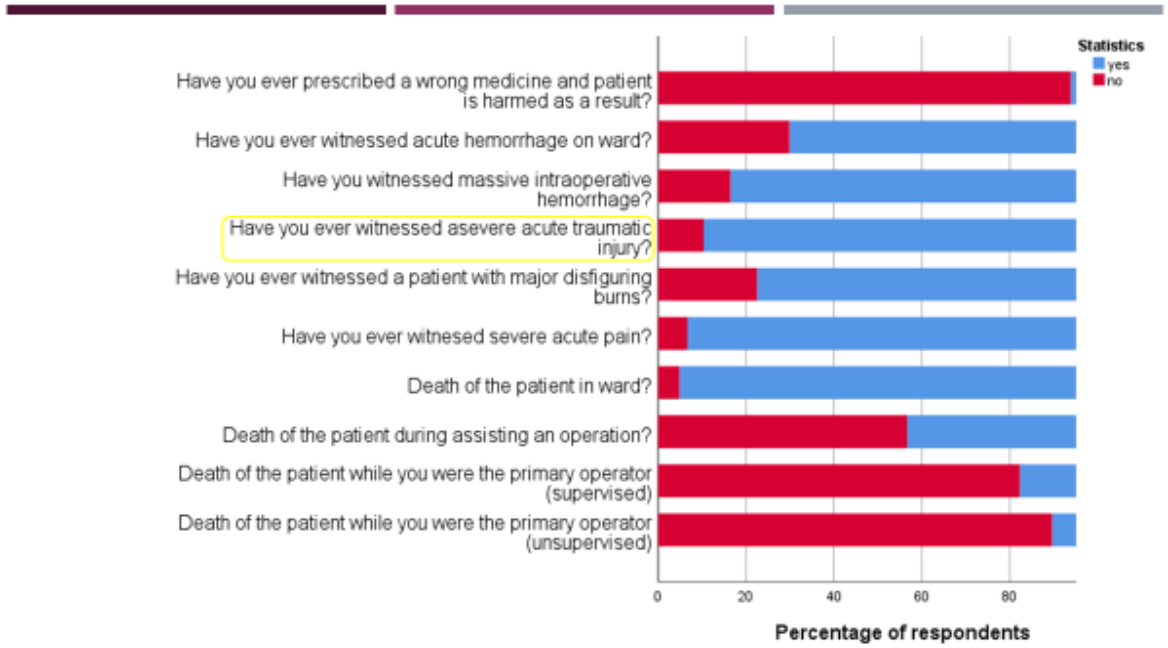
Prevalence of PTSD among those who witnessed severe acute traumatic injury was 77.0 % and those who witnessed severe acute traumatic injury but did not experience PTSC was 23.0 %. Prevalence of PTSD was found to be more in public sector Surgical Residents and more in younger age than in elder Residents**.**

**Counselling Responders:**

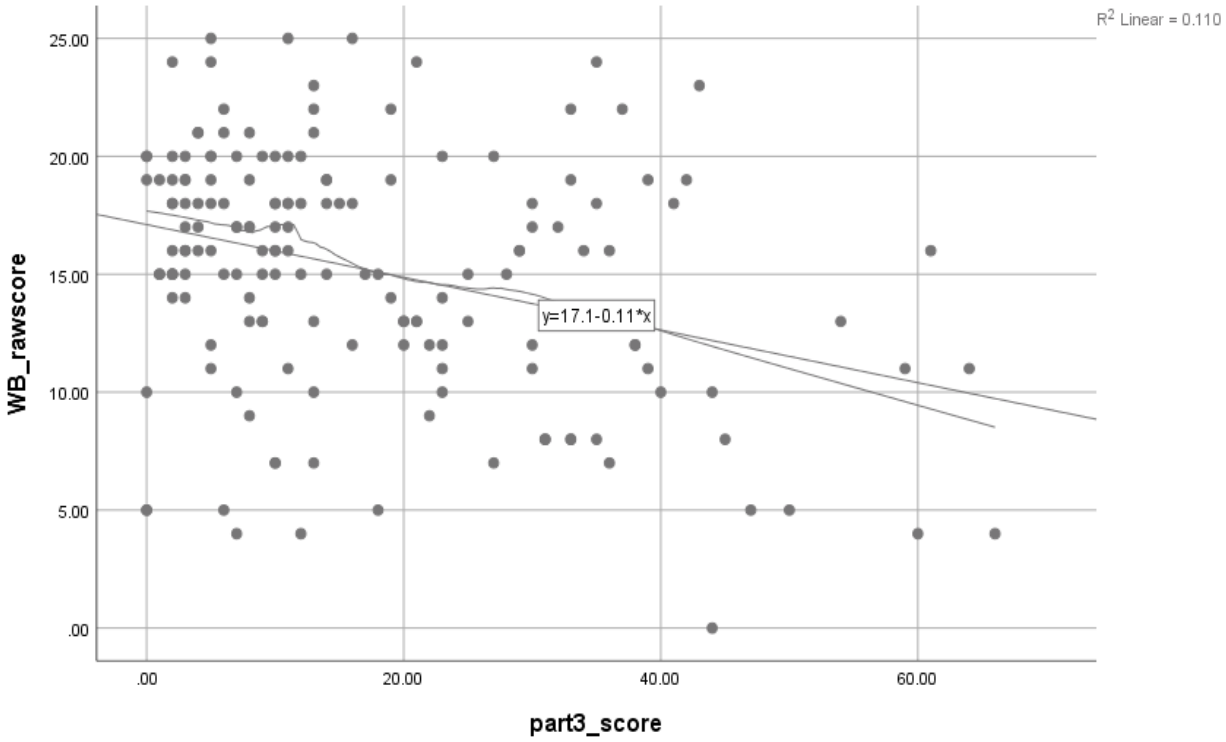



Data shows us that almost 65% of the surgeons who had PTSD had either rarely, never or sometimes received counselling.

**Witness of Harmful Event Responders:**




Prevalence of PTSD is more among those who prescribed wrong medicine, witnessed severe acute traumatic injury, death of patient during assisting or primarily operating a patient and witnessed massive acute hemorrhage in the ward than those who witnessed severe acute pain of patients or death of a critical patient in the ward.




In this study, Correlation between PCL-5 score and WHO well-being index is found to be significant at the 0.000 level, showing a -0.332 Pearson correlation value.

## DISCUSSION:

The primary finding of this questionnaire-based study of Pakistan based surgical trainees is that 23% of subjects have pathological symptoms consistent with PTSD while 19% of the respondents fall above the cut off score for PTSD (which is 33) according to psychological screening. This the first study to examine this phenomenon in Pakistan based surgical trainees. The study findings are consistent with UK based study showing similar prevalence of PTSD in trauma surgeons, which also found that those with PCL score>33 were more likely to have repeated years of training, and have witnessed severe pain, traumatic injury, and acute hemorrhage [3].

The results are also consistent with a survey of American trauma surgeons in which 15% of the subjects met the criteria for PTSD [7].

The currents study shows a trend towards a higher risk for Female subjects. However, military affiliation was not associated with higher or lower risk of PTSD.

About 2/3rd of the surgical trainees in the current study had been exposed to death, severe acute pain, acute traumatic injury, intraoperative hemorrhage, disfiguring burns of their patients and about 1/3rd to intra-operative deaths. The subjects with high PTSD score were more likely to expose to some of these stressful events than others. These events are unfortunate but an unavoidable and anticipated element of a surgeon's career.

The study also shows that the subjects with high PTSD score were more likely to have a low wellbeing raw-score and this finding is noted to be statistically significant.

It is also seen that more than half of the subjects never sought any professional help about their symptoms but majority had discussed it with their supervisor/consultants. The reason might be the stigma associated with mental health problems. The negative relationship between PTSD score and wellbeing of the surgeon is telltale of the importance of recognizing this risk and taking effective measures to overcome it. Preventive measures such as increased availability of formal psychological support should be considered by all trauma units to protect the long-term emotional wellbeing of their staff [7].

**Limitation of study:**

This study does not show the frequency of depression and anxiety among senior surgeon, hence that cannot

be compared. Class of study has not been mentioned therefore, it cannot be assessed whether prevalence is high among senior surgeons or vice versa.

## CONCLUSION:

Prevalence of occult, untreated PTSD amongst surgical trainees may be higher than in the general population, which is, strongly correlating to the negative wellbeing of the surgeons. Further investigation is necessary to more clearly outline the extent of this problem.

**Recommendations:**

- Recognition of this risk by the employer or head of department.
- Individual support to the colleague by the fellow trainees, nursing staff and senior doctors.
- Stigma attached to seeking professional help from a psychiatrist must be removed because evidence-based interventions for PTSD are proven to be beneficial for alleviating the symptoms. Hence it is also necessary to have rapid access to these therapeutic mental health services.
- Spreading awareness about PTSD and its detrimental effects on mental health among surgeons since witnessing such traumatic events are unavoidable in surgical settings.

**Conflict of Interest:**

There was no conflict of interest among the authors.

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