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Post-traumatic stress disorder amongst surgical trainees: An unrecognised risk?

Christopher V. Thompson ^{a,*}, David N. Naumann ^{a,b}, Jodie L. Fellows ^c,
Douglas M. Bowley ^b, Nigel Suggett ^a

^a University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital, Birmingham, UK

^b Academic Department of Military Surgery and Trauma, Royal Centre for Defence Medicine, Birmingham, UK

^c Birmingham and Solihull Mental Health Foundation NHS Trust, Birmingham, UK

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ABSTRACT

Background: Experiences of actual/threatened death or serious injury to patients are commonplace in surgery. Pathological symptoms following stress may lead to Acute Stress Reaction (ASR) and Post-Traumatic Stress Disorder (PTSD). PTSD symptoms of insomnia, anger, poor concentration, hyper-vigilance and exaggerated startle have implications for patient safety. The current study investigates the prevalence of occult, untreated psychological morbidity amongst surgical trainees.

Methods: A web-based survey of UK surgical trainees based upon the Impact of Events Scale-Revised (IES-R) was distributed using social media platforms and email. A score of ≥ 33 was indicative of ASR or PTSD (the former lasting < 1 month, the latter > 1 month). Additional questions concerned chronicity of symptoms, mentorship, team-working and access to support.

Results: For 167 returned surveys the mean age was 32.7 (SD 3.6) years; 102/167 (61%) were male. Mean years in training were 6.1 (SD 3.6). Median IES-R score was 14 (IQR 7–23.5). Of 144 respondents who answered about stress symptoms, 23/144 (16%) had IES-R score ≥ 33 ; 6 of these had symptoms < 1 month (suggesting ASR); 17 had symptoms lasting > 1 month (suggesting PTSD). Those with IES-R ≥ 33 group were more likely to have repeated years of training, and have witnessed severe pain, traumatic injury, and acute haemorrhage. Seven with score ≥ 33 had sought support.

Conclusion: Occult psychological morbidity 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.

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Introduction

As they manage patients experiencing acute pain, life threatening emergencies and death, surgeons may experience

distress, fear and acute stress both in themselves and their patients as well as guilt associated with their responsibility for any of these patient experiences. Although the majority of these experiences are cognitively processed

* Corresponding author. University Hospitals Birmingham NHS Foundation Trust, Birmingham B15 2TH, UK. Tel.: +44 (0) 7859 016 208. E-mail address: cvthompson@doctors.org.uk (C.V. Thompson).

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in the same manner as other memories, pathological symptoms such as irritability, hypervigilance and intrusions (flashbacks or nightmares) may also develop. The Diagnostic and Statistical Manual Version 5 (DSM-V) outlines what may be classed as a sufficiently “traumatic” experience that may lead to Acute Stress Reaction (ASR) and Post-Traumatic Stress Disorder (PTSD). The first of these, Criterion A, includes the witnessing in person actual or threatened death or serious injury to another person. Such experiences are commonplace during the career of most surgeons. There is an expectation that surgeons will continue to deliver care despite preceding stressful events, or even that such events might enhance the surgeon's ability to deliver care in stressful settings. However, a recent survey of American trauma surgeons found that 15% met the criteria for PTSD,¹ which is higher than the expected level in the general population (5.6% lifetime prevalence).² Interviews of surgeons have demonstrated that feelings of guilt, crisis of confidence and anxiety, coupled with sleep disturbance and physical reactions may follow complications.³ Subsequent complaints and litigation may further compound these reactions.⁴

If symptoms of reliving the traumatic event (intrusive memories), feeling on edge (hypervigilance), negative thoughts and mood, and urges to avoid reminders of the traumatic event last for less than a month, it may be classed as ASR. When symptoms persist for over a month, this is indicative of PTSD. People experiencing PTSD may also struggle with sleep, suffer with outbursts of anger, have poor concentration, or have an exaggerated startle response.⁵ Such symptoms are of obvious concern for the practice of surgeons, since they may impact on their safety and competence, which can result in potential risk to patients. Addressing this psychological morbidity is of further concern when it is put into the context of known risk of burnout,⁶ unhelpful coping strategies such as alcohol and substance abuse,⁷ and suicide⁸ amongst surgeons.

We hypothesised that there might be an elevated prevalence of occult, untreated PTSD amongst surgical trainees who have experienced stressful events as part of their work. The aim of this study was to examine the prevalence of PTSD in a cohort of trainee surgeons, to establish the proportion accessing treatment and/or barriers to this. Appropriate support and care for the mental health of surgical trainees who are continually exposed to potentially traumatic experiences may be a neglected part of surgical training. Such a finding may prompt more focussed attention towards the psychological well-being of this population at risk.

Methods

Study design

UK surgical trainees were invited to participate in a non-mandatory, self-administered anonymous survey study that utilised a 28-point questionnaire. Research Ethics Committee approval was not required for this study, as confirmed by the decision-making tool on the online National Research Ethics Service (www.nres.nhs.uk).

Questionnaire details

A survey was created to include questions regarding subjects' demographics (gender, age, ethnicity), and training details (UK Deanery, year of training, years since graduation from primary medical degree, military or non-military affiliation, declared specialty). Further questions concerned types of stressful events experienced by the trainee, reactions after the events, and how these have affected them. Questions regarding support networks (teams, mentors, deanery) were also asked. The full questionnaire is illustrated in [Supplementary File 1](#). There was no specific consent process for the analysis of these anonymous questionnaires, as assent was implied by the completion of the survey by the subject.

Survey distribution

An online survey tool was used (SurveyMonkey Inc, Palo Alto, California, USA). A hyperlink to this tool was distributed using UK surgical trainee and research collaboration email distribution lists, as well as via the social media platforms Twitter (Twitter, Inc., San Francisco, USA) and Facebook (Facebook, Inc., California, USA). Such utilisation of social media platforms has been advocated for modern study recruitment.⁹ A hyperlink was also posted on the Association of Surgeons in Training (ASiT) website, as well as embedded in the text of a published letter regarding this study.¹⁰

Inclusion and exclusion criteria

Since distribution was worldwide, and there were no limitations on who could complete a survey, eligibility was determined *post hoc* using the demographic domains of the questionnaires. All UK-based surgical trainees were eligible for inclusion. Surveys were excluded from further analysis if they were completed by non-surgical, non-UK, or non-training grades. Incomplete questionnaires were all included, but number of unanswered questions is reported alongside the data analysis.

Risk of PTSD scoring system

The Impact of Events Scale (Revised) (IES-R), a 22-item self-report questionnaire designed to identify symptoms of PTSD against the DSM-IV¹¹ criteria. It has three subscales measuring hyper-vigilance, avoidance, and intrusions. IES-R scores have been shown to be strongly related to those of the 45 min clinician administered PTSD scale (CAPS) interview,¹² and IES-R is recommended as a screening tool to identify PTSD in a large research cohort.¹³ A score of 33 or greater is indicative of likely ASR or PTSD.¹¹

Data analysis

Anonymous data from the survey tool was exported to Microsoft Excel (V14, Microsoft Corporation). The mean and standard deviation are used to summarise normally distributed continuous data, and median and inter-quartile range

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