

Secondary Traumatic Stress in Medical Students

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To the Editor:

Healthcare workers providing care for patients surviving significant trauma have been shown to experience symptoms of secondary traumatic stress (STS), described in the literature as “the natural, consequent behaviors and emotions resulting from knowledge about a traumatizing event in others” [1–3]. Like acute and post-traumatic stress disorder, symptoms cluster into four categories, intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity, and have been shown to negatively impact both well-being and occupational functioning [1]. Although research looking at STS, utilizing the Secondary Traumatic Stress Scale (STSS) as a measure, has been generated from physicians, nurses, and social workers, the impact of caring for trauma patients has not been studied in medical students or resident physicians [1–3]. The primary purpose of this study was to assess for self-reported symptoms of STS in medical students after rotations featuring care of patients exposed to trauma.

Upon conclusion of a 2-month required surgery clerkship, an IRB approved, anonymous survey was sent via email to 282 third year medical students at the Wayne State University School of Medicine in Detroit, Michigan over a 12-month period. Completion of the survey implied informed consent. Students were asked about basic demographic information (gender, age, race), medical experience prior to matriculation into medical school, and percentage of time spent with trauma patients during their surgical clerkship. Two validated measures were included, the Secondary Traumatic Stress Scale (STSS), which is derived from the DSM-IV diagnostic criteria

for post-traumatic stress disorder (PTSD) and contains intrusion, avoidance, and arousal subscales, and the Revised Life Orientation Test (LOT-R) which assesses trait-like optimism and pessimism [4, 5]. Individuals with higher dispositional optimism have been shown to be at lower risk for the development of PTSD symptoms after exposure to trauma [6].

A total of 90 surveys were completed, for a return rate of 32%. Half of the participants reported exposure to a significant trauma prior to matriculation into medical school and were excluded from completing the STSS. Of those who completed the entire survey, 40% ($n = 18$) were male and 60% ($n = 27$) female. The majority of participants were between the ages of 21–25 ($n = 27$) and 26–30 ($n = 17$). Participants described themselves as Caucasian ($n = 26$), South Asian ($n = 8$), East Asian ($n = 8$), Middle Eastern (1), and other (2). Almost half ($n = 22$) reported less than 25% of their surgical clerkship spent with trauma patients, 17 students reported 25–50% of the clerkship time, and 6 students reported between 50 and 75%.

As a whole, the group reported infrequent experiencing of traumatic stress symptoms. Mean scores (based on a scale of 1–4 with 1 being *never* and 4 being *often*) on the intrusion, avoidance, and arousal subscales of the STSS were as follows: 1.37 (SD = 0.48), 1.43 (SD = 0.52), and 1.41 (SD = 0.60), indicating responses between never to rarely. Individual range of total STSS scores varied between 17 (no symptoms, per item mean of 1) and 55 (per item mean of 3.23). The most commonly endorsed symptom on the STSS was emotional numbing, reported by 40% of the surveyed students, followed by irritability, reported by 21%. The least likely symptoms to be endorsed among students were inability to recall patient information; avoidance of people, places, or things; and sense of reliving patient’s trauma. For the LOT-R, the mean score for female medical students was 15.8 (SD = 3.9), and for males, it was 14.9 (SD = 2.9), both within the standard deviation of population-based norms [7]. Categories related to age

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and time spent with trauma patients, gender, and ethnicity did not differ significantly on any of the STSS subscales using bivariate analysis of variance or *t* tests (all *p*'s >.25). The correlations between STSS subscales of intrusion, avoidance and arousal, and total LOT-R were respectively also nonsignificant: $-.003$ ($p = .98$), $-.21$ ($p = .16$), and $-.24$ ($p = .13$).

Although there are significant limitations to this study, most notably the low response rate (32%) that makes generalizability impossible, these results are nonetheless interesting. Did the students in our sample report low levels of STS due to lack of direct patient care responsibility? Did the total exposure time of 2 months on this surgical clerkship somehow buffer students from developing symptoms? Might staff at these hospitals shield medical students from higher-intensity trauma? Would utilization of DSM-5 PTSD diagnostic criteria that contains negative alterations in cognitions and mood lead to different findings? Perhaps medical students have mechanisms in place for preventing STS, including active supervision and mentoring from attending physicians and residents, sustainable and defined workloads, and peer support. These factors that mitigate burnout and compassion fatigue might also be protective for STS [8]. Although our study found no association between dispositional optimism and STS, perhaps other factors intrinsic to the medical student population are involved. Although utilizing a different measure and methods, a study examining STS in Romanian medical students found that students who enter into medicine for non-altruistic reasons might be protected from developing STS [9]. Finally, the fact that 48% of our initial sample reported exposure to a significant trauma prior to their surgery clerkship is noteworthy. Perhaps collecting and analyzing data from these students would have generated much different results.

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Compliance with Ethical Standards

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