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My Thoughts / My Surgical Practice



## Post-traumatic growth among general surgery residents during the COVID-19 pandemic: Emerging stronger in the face of adversity

The life-threatening risk of the COVID-19 pandemic has caused considerable mental health problems including anxiety, depression, and post-traumatic stress disorder in healthcare workers.<sup>1,2</sup> Although people respond to adversity and stress in various ways, there is evidence that people can positively change their perspectives and experience personal growth as a result of major life crisis or traumatic events. This process is known as post-traumatic growth (PTG) and was first described by Tedeschi and Calhoun in 1996.<sup>3</sup> PTG is characterized by positive adjustments that occur following severe traumatic experiences and includes five major aspects: forging stronger relationships with others, increased perception of personal strength, willingness to embrace new possibilities, deeper appreciation of life, and increased spirituality.<sup>3</sup>

Since the COVID-19 pandemic, researchers have refocused their lens on assessing the PTG of front-line health care workers such as doctors and nurses. However, research to date has not investigated PTG in general surgery residents during the COVID-19 pandemic. As such, in December of 2020 we conducted an IRB-approved, multi-center survey of general surgery residents from four academic medical centers in Boston, MA. The survey consisted of 23-questions, including a modified Post-Traumatic Growth Inventory (PTGI) (supplement).<sup>4</sup>

A total of 75 of 172 surveys were completed, for an overall response rate of 43.6%. Both female (46.7%) and male (53.3%) residents participated. The most positive COVID-19 related change reported by the surveyed general surgery residents was the feeling that they can rely on people in times of trouble, followed by increased compassion for others, greater sense of personal resilience, greater appreciation for their own life's value, greater sense of closeness with others and increased relationship efforts, changed priorities about what is important in life, increased willingness to express emotions and try to change situations that they are unsatisfied with, increased appreciation of each day, and appreciation of new opportunities (Fig. 1).

Interestingly, our study showed that female residents reported greater growth than male residents in all components of the PTGI. This is in line with existing evidence in the PTG literature. For instance, even in the original creation of the PTGI, Tedeschi and Calhoun found that female participants scored higher than male participants, suggesting that women were better able to perceive and experience spiritual and relationship changes.<sup>3</sup>

Our study did not explore reasons for the gender-based differences in PTG during the COVID-19 pandemic. However, other studies suggest that a key factor that could influence gender differences in post-traumatic growth could be rumination - a method of coping with negative mood that is characterized by repetitive and passive self-reflection.<sup>5,6</sup> Recent studies have shown that the degree of rumination

soon after the event positively correlates with post-traumatic growth in young adults who sustained trauma.<sup>7</sup> Furthermore, frontline nurses working during the COVID-19 pandemic have demonstrated medium to high levels of PTG when performing deliberate rumination and offered psychological intervention or training.<sup>8</sup>

Nevertheless, more research is needed to improve understanding of these gendered differences in PTG during the COVID-19 pandemic.

Significant PTG was also seen in nurses who have had more working years for experience and self-confidence in frontline work,<sup>8</sup> which further stresses the need for a larger study to assess the impact of post-graduate years on general surgery residents and their PTG.

The PTG literature shows that growth following traumatic events is generally stable over time.<sup>9,10</sup> However, further research is necessary to determine potential factors that could facilitate long-term growth in surgical residents as a result of the COVID-19 pandemic.

Like all survey studies, this study is prone to several limitations. First, the small sample size of the study reduces generalizability of the results and limits our ability to analyze the impact of all demographic characteristics. Second, the study population exists in a limited geographic location in the Northeast, analyzing a specific COVID-19 pandemic experience that other institutions may not have encountered. Third, although our survey response rate of 43.6% is similar to other studies on education and wellness of surgical residents, we cannot account for the perspectives of the surgical residents who did not participate in our survey. A selection bias could exist such as residents who perceive a positive outlook on the COVID-19 experience could more likely to participate in our survey. Lastly, our study blinded the residency programs of our respondents to maintain privacy and establish psychological safety. This limits our ability to isolate what programs are associated with higher rates of PTG amongst their residents. In a future study where a larger sample size can be acquired, it would be of interest to identify institutions with higher rates of PTG to better elucidate institutional initiatives that are conducive to promoting PTG.

Despite these important limitations, our findings suggest that overall, general surgery residents established new perspectives following a major life crisis such as the COVID-19 pandemic, suggestive of PTG. These positive changes should never serve as a reason for advocating suffering for personal growth, but rather for understanding that suffering and grief can co-exist with transformation and growth.

PTG has been shown to be significantly facilitated when people feel being supported and understood.<sup>11,12</sup> As such, residency should provide increased support during the pandemic and create a culture of safety and optimism. Future studies should attempt to identify methods of encouraging deliberative rumination and promoting PTG amongst

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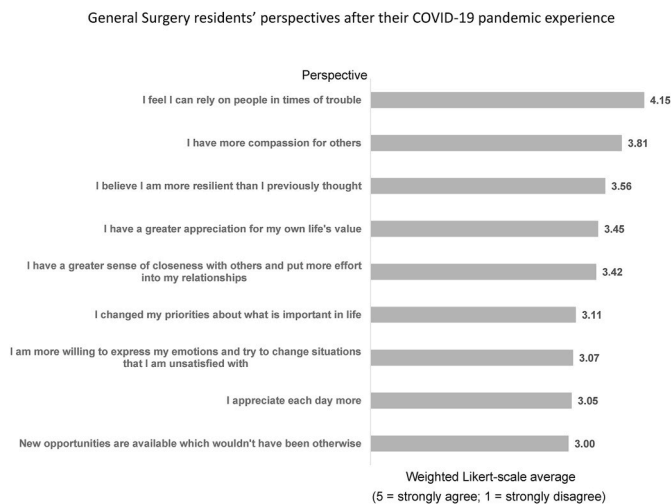


Fig. 1. General surgery residents' perspectives after their COVID-19 pandemic experience.

residents during times of local or national crises.

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### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amjsurg.2021.09.014>.

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