



Post-Traumatic Growth and Resilience Among Medical Students In the Wake of COVID-19

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PUBLISHED ABSTRACT



ABSTRACT

Background/Rationale: The ongoing COVID-19 pandemic has not only affected the physical wellbeing but also the mental health of many individuals, including young adults such as medical students. Many factors influence a student's ability to cope with and grow from stressful experiences, including their resilience behaviors and traits. Building upon prior studies on post-traumatic growth and resilience in medical students at Fukushima Medical University following their 3/11 disaster, this study broadens the scope by asking medical students at the Icahn School of Medicine at Mount Sinai to identify any life event they recall as being most stressful, including but not limited to COVID-19, and to reflect on their resilience promoting behaviors and post-traumatic growth post-event. Surveying a new population of medical students in New York allows for comparisons of posttraumatic growth and resilience behaviors exhibited by students in Japan and the US. We also hope to identify specific strategies that are commonly used by students to cope with various traumatic experiences.

Hypothesis or research question: The primary goal is to determine factors that contribute to posttraumatic growth and resilience among a cohort of medical students. We hypothesize that medical students who demonstrate greater resilience behaviors will experience less posttraumatic stress. Additionally, we hypothesize that students who indicated that their most impactful life event was a non-COVID event experienced less COVID-related stress.

Study Design/Methods: All consenting medical students at the Icahn School of Medicine at Mount Sinai were anonymously surveyed and asked to reflect on their most stressful life event (Impactful Life Events Survey). In the context of the impactful life event, students were asked to respond to an adapted version of the Davidson-Trauma Scale (DTS); Resilient Behavior Scale (RBS), a Mount Sinai-developed survey examining resilience behaviors across 10 domains; the Post-Traumatic Growth Inventory (PTGI); and the Connor-Davidson Resilience Scale-10 (CDRS-10). Students were also asked to reflect about the impact of COVID-19 on themselves and their

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families. Optional interviews were conducted to provide qualitative insights into students' experiences. The survey data was analyzed by examining correlations between student demographics, post-traumatic stress, and responses on the RBS, PTGI, and resilience scales. Interview findings were analyzed qualitatively for trends and commonalities shared among students.

Results: We distributed our survey to medical students at the Icahn School of Medicine at Mount Sinai and collected 78 responses. 35 (44.9%) students indicated that the COVID-19 pandemic was their most impactful life event (ILE), while 43 (55.1%) students indicated a non-COVID-19 event as their ILE (*Figure 1*).

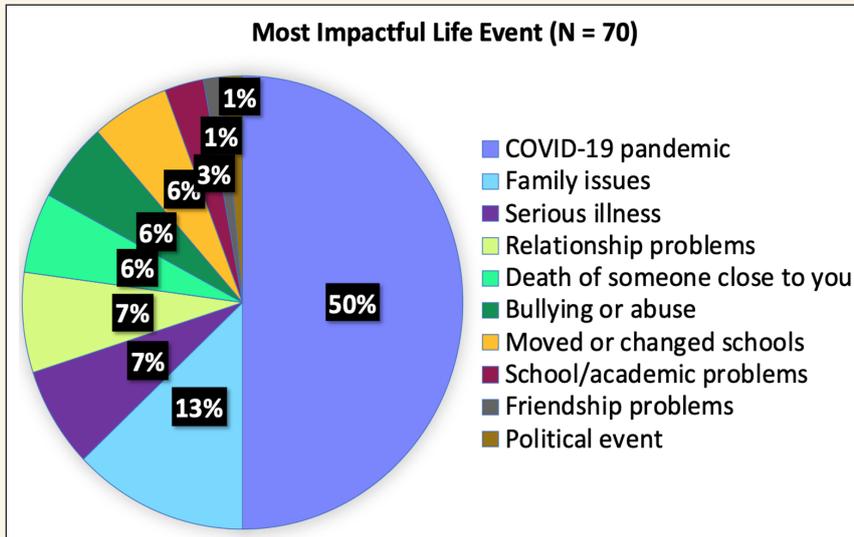


Figure 1 50% of students indicated that COVID-19 as their ILE, while 50% indicated another event as their ILE.

The RBS and CDRS-10 were positively correlated with one another (Pearson correlation = .533, $p < .001$) (*Table 1A*), and both resilience scales were positively correlated with students who believed there was something positive about COVID-19 (RBS: Pearson correlation = .26, $p = .05$; CDRS-10: Pearson correlation = .31, $p = .017$). The RBS was positively correlated with posttraumatic growth (Pearson correlation .455, $p < .001$), while the CDRS-10 was not (*Table 1B, C*).

A		CDRS-10	
	Pearson correlation		p value
RBS-total	0.533		<.001
B		CDRS-10	
	Pearson correlation		p value
PTGI total	0.029		0.827
C		RBS	
	Pearson correlation		p value
PTGI total	.455		<.001
PTGI-F1: Relating to Others	.339		0.007
PTGI-F2: New Possibilities	.365		0.004
PTGI-F3: Personal Strength	.421		<.001
PTGI-F4: Spiritual Change	.441		<.001
PTGI-F5: Appreciation of Life	.28		0.029

Table 1 RBS and CDRS-10 are positively correlated with each other (A); CDRS-10 is not correlated with posttraumatic growth (B); RBS is positively correlated with posttraumatic growth (C).

The highest-rated resilience behaviors used by students to cope included RBS-7: Established and nurtured a supportive social network, RBS-3: Relied on your moral compass, and RBS-2: Used cognitive flexibility through reevaluation of trauma (*Table 2*). Students who were interviewed similarly expressed that they relied on family, friends, and significant others to cope with stressful life events.

Compared with students who indicated COVID-19 as their ILE, students who indicated a prior, non-COVID ILE experienced less COVID-related stress ($t = -2.2, p = .03$), greater posttraumatic growth ($t = 4.3, p < .001$), and more resilient behaviors including establishing and nurturing a supportive social network ($t = 2.2, p = .03$), developing brain fitness ($t = 2.2, p = .03$), and finding meaning and purpose in things ($t = 2.9, p = .006$) (*Table 2*).

	ILE: NON-COVID (N = 43)	ILE: COVID (N = 35)	TEST	P VALUE
PTGI Total	M = 29.47 (10.21)	M = 19.24 (9.10)	t = 4.33	<.001**
PTGI-FI: Relating to Others	M = 5.37 (3.05)	M = 3.57 (2.39)	t = 2.75	0.008**
PTGI-F2: New Possibilities	M = 4.89 (2.92)	M = 2.31 (1.97)	t = 4.32	<.001**
PTGI-F3: Personal Strength	M = 6.60 (3.10)	M = 3.46 (2.69)	t = 4.53	<.001**
PTGI-F4: Spiritual Change	M = 5.35 (2.55)	M = 3.52 (2.49)	t = 2.99	0.004**
RBS-7: Est supportive social network	M = 3.09 (0.78)	M = 2.61 (0.88)	t = 2.18	0.033**
RBS-8: Attended to physical wellbeing	M = 2.25 (1.15)	M = 1.99 (1.02)	t = 0.9	0.372
RBS-9: Developed brain fitness	M = 2.79 (0.93)	M = 2.28 (0.88)	t = 2.17	0.034**
RBS-10: Found and fostered strengths	M = 2.64 (1.04)	M = 2.27 (0.90)	t = 1.45	0.153
RBS-11: Found meaning and purpose in things	M = 2.69 (0.99)	M = 1.99 (0.87)	t = 2.87	0.006**
COVID Stress Symptoms	M = 8.39 (5.65)	M = 13.1 (3.99)	t = -2.24	0.029**

Table 2 Students who indicated a non-COVID impactful life event (ILE) demonstrated significantly** greater posttraumatic growth (PTGI), resilience behaviors (RBS), and less COVID-19 stress symptoms than students who indicated COVID-19 as their ILE.

Conclusions/Future Plans: Given the ongoing COVID-19 pandemic and its effects on mental health, understanding how young adults respond to this and other stressful life events is essential. We identified specific resilience behaviors and traits that medical students commonly used to cope with traumatic experiences. Additionally, we demonstrated that the RBS and CDRS-10 likely measure different aspects of resilience, since only the RBS was positively correlated with posttraumatic growth. Finally, we found that students who chose a non-COVID event as their ILE demonstrated greater posttraumatic growth, greater resilience behaviors, and less COVID-19 stress than students who indicated COVID-19 as their ILE. This suggests that stressful experiences prior to or in parallel to COVID encourage posttraumatic growth and development of resilience behaviors that are protective factors to COVID-19-related stress.

COMPETING INTERESTS

The authors have no competing interests to declare.

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