

## Introduction

US medical schools confer a doctoral degree for graduates to practice medicine, typically requiring a bachelor's degree prior to enrolling. The practice of taking time off between college graduation and medical school matriculation has become increasingly common, with the percentage of medical students taking  $\geq 1$  gap year rising from 57.9% in 2014 to 65.2% in 2019. A key motive for taking a gap year is to enhance mental well-being and increase preparedness for the rigors of medical education, but can also be due to an unsuccessful application cycle. However, burnout is a worsening problem for doctors, and is detrimental to both their mental health and patient care. 2013 report found that 40% of physicians surveyed satisfied the requirements for burnout diagnosis, while their 2017 report found 51% now fell into the category. Skills such as emotion regulation and resiliency have previously been connected to lower burnout. But, little research has been done into the effect of gap years on medical students due to its relative newness, including any impacts on these skills that may limit burnout.

### Key Terms:

**Resiliency:** one's ability to "bounce back", or the process of adapting when faced with trauma, significant stress, or adversity.

**Positive emotional regulation:** the amount of control one has over their emotions, both perceived and expressed.

**Burnout:** Chronic workplace stress that has not been successfully managed

**Gap Year:** Period of time between the end of undergraduate education and the start of medical school

## Aims and Objectives

This study's aim is to establish whether taking gap years fosters positive emotion regulation (PER) and thus increases the resiliency of medical students against burnout.

The hypotheses of this study are that:

- 1) students who have taken gap years report lower levels of burnout
- 2) engage more often in PER
- 3) PER is associated positively with resiliency
- 4) PER is associated negatively with burnout
- 5) that resiliency is a mechanism through which PER reduces the burnout (mediation hypothesis)

## Methods

- Approximately 500 medical students at Oakland University William Beaumont School of Medicine were invited to participate in this study between December 2020 and May 2021 via university email
- The survey-based design consisted of demographic information including age, gender, and graduation year; questions regarding gap years such as length and activities completed during(if applicable) and feelings towards gap years; and three previously validated surveys known as the Oldenburg Burnout Inventory (OBI), Difficulties in Emotional Regulation Scale (DERS), and Brief Resilience Scale (BRS)
- OBI was used as a measure of burnout, where a higher score indicated a higher level of burnout
- DERS was used as a measure of emotional regulation, where a higher score indicated more difficulty in emotional regulation.
- BRS was used as a measure of resiliency, where a higher score indicated a higher level of resiliency.
- Pearson's Correlation Coefficient was used for statistical analysis along with bias-corrected 95% confidence intervals calculated using bootstrapping method for the mediation hypothesis.

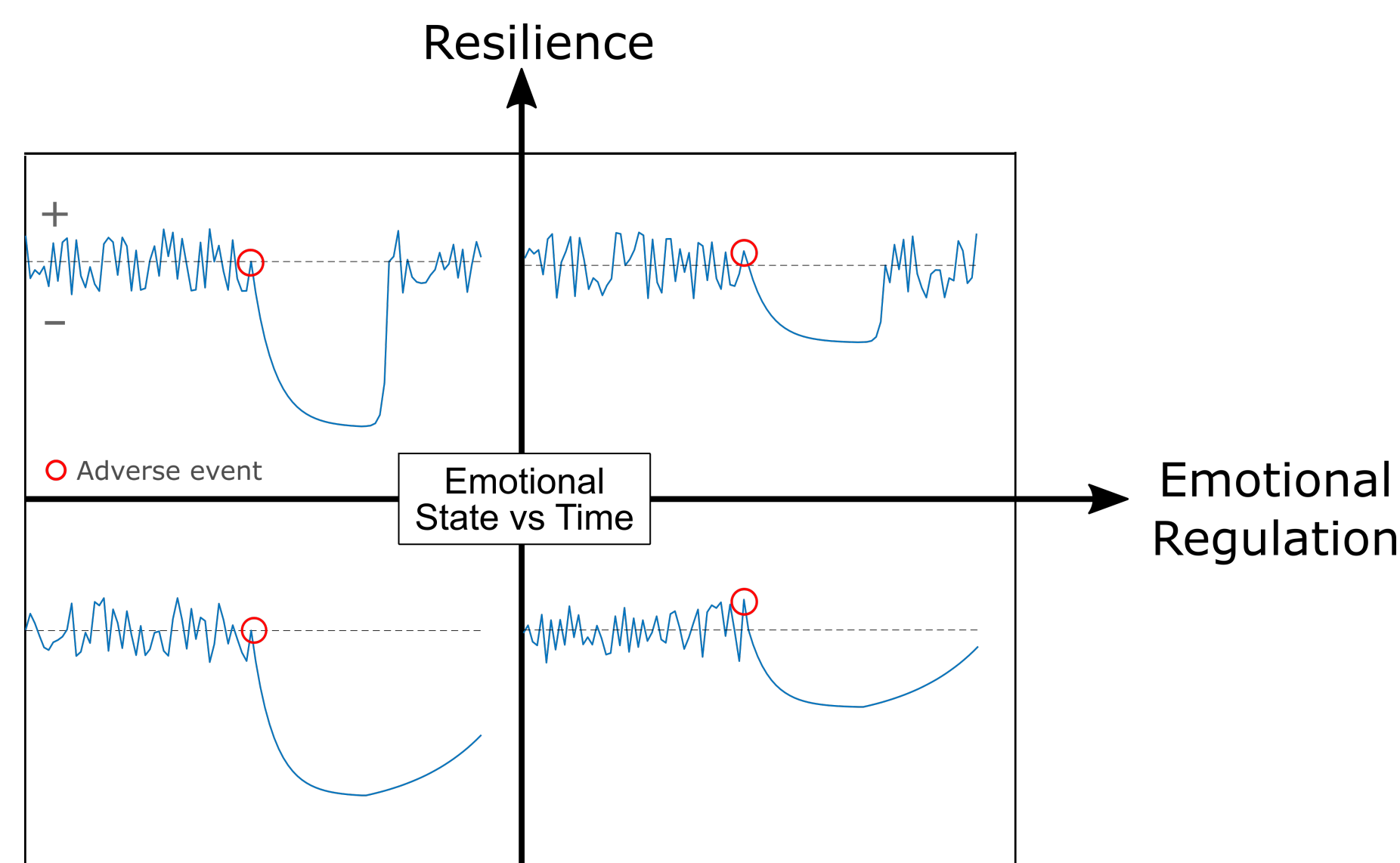


Figure 1: Representation of the effects of different levels of resilience and emotional regulation on emotional state over time after an adverse event. Strong resiliency shows rapid return to baseline emotional state while strong emotional regulation shows a smaller decrease in emotional state after an adverse event.

## Results

	All (n=79)	No gap year (n=28)	Gap Year (n=51)	P-value
Age, years (SD)	25.24 (3.16)	23.57 (1.10)	26.16 (3.54)	-
Female	51 (64.6%)	18 (64.3%)	33 (64.7%)	-
OBI (SD)	2.26 (0.37)	2.29 (0.41)	2.25 (0.36)	0.65
BRS (SD)	3.69 (0.66)	3.78 (0.62)	3.64 (0.69)	0.38
DERS (SD)	1.92 (0.62)	1.83 (0.64)	1.97 (0.62)	0.37

Table 1. Demographic and survey scores of students who did and did not take at least one gap year.

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No significant difference was found regarding resiliency, burnout, or difficulty in emotional regulation between those who took at least one gap year before starting medical school and those who did not.

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Disregarding individual undertaking of a gap year or not there was:

- Positive correlation between DERS and OBI scores ( $r = 0.395, p < 0.001$ )
- Inverse correlation between DERS and BRS scores ( $r = -0.595, p < 0.001$ )
- No significant correlation between OBI and BRS scores ( $r = -0.172, p = 0.130$ )

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Difficulties with emotion regulation mediated the link between resiliency and burnout detailed below

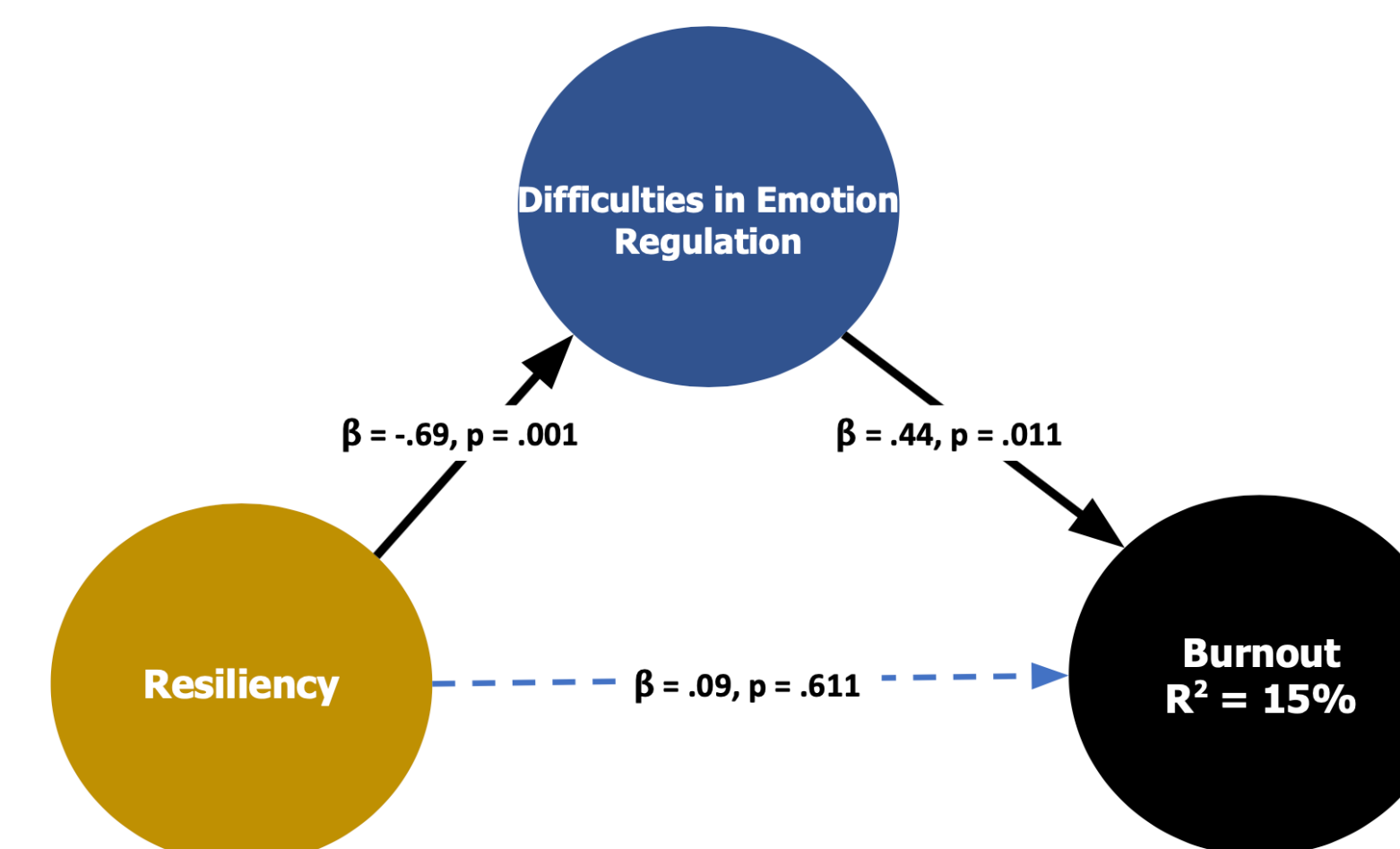


Figure 2: Representation of the mediation hypothesis demonstrating Difficulties in Emotion Regulation mediating the effect of Resiliency on Burnout

## Conclusions

- Emotional regulation mediates the link between resiliency and burnout in medical students.
- Positive emotional regulation was linked to lower levels of burnout and higher resiliency.
- These findings could be used by medical education institutions to focus on developing skills of resiliency and emotional regulation to benefit their students and prepare them to better handle the difficulties of medical school and their future careers as physicians.
- While no clear link was established between the relatively new phenomenon of gap years and the factors of burnout, emotional regulation, and resiliency within this study, hopefully this will support further research into gap years and their effect to better inform and mentor future medical students.
- Taking a proactive approach to the well-being of physicians by targeting pre-medical and medical students, may serve to increase the health of our population as a whole.

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## Acknowledgements

Thank you to the OUWB Embark Team, including Academic Librarian Stephanie Swanberg.