

Mindfulness and Resilience: Mediating Role of Emotion Regulation

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Abstract

The aim of the present study was to evaluate the relationship between mindfulness, emotion regulation, and resilience. The primary aim of the study was to determine the role emotion regulation plays in the relationship between dispositional mindfulness and resilience to stress. The study consisted of undergraduate students ($N = 117$) who completed the Five Facet Mindfulness Questionnaire, The Connor-Davidson Resilience Scale, and the Cognitive Emotion Regulation Questionnaire. The results replicated previous findings supporting the relationship between mindfulness and resilience, as well as the relationship between mindfulness and emotion regulation. Further analyses found that in the regression models, mindfulness and adaptive emotion regulation were significant predictors of resilience. The results suggest the combination of mindfulness and adaptive emotion regulation strategies significantly predict resilience, with implications for therapeutic interventions.

Keywords: mindfulness, resilience, emotion regulation, adaptive emotion regulation, maladaptive emotion regulation

1. Introduction

As demonstrated during the COVID-19 pandemic, stressors are inevitable and unpredictable features of human life, which calls for the ability to develop resiliency in response to adversity. The importance of resilience has become increasingly recognized as a result of the COVID-19 pandemic, which has caused unprecedented levels of stress for the human population. However, stress has been an integral part of human existence long before the COVID-19 pandemic. Indeed, previous research has shown that the greatest contributing factor to suicide is a result of the inability to be resilient towards stress, reflected by the alarming number of an estimated 800,000 suicide attempts per year (Roy, Sarchiapone & Carli, 2007; World Health Organization, 2018). Developing resilience to stress is important because of the grave consequences of suicide. While there are many cases in which people are not able to overcome stress, there are circumstances in which individuals displayed resiliency towards extreme hardships (e.g. holocaust, extreme poverty), highlighting that components of human nature can modify extreme responses to stress. This interaction between stress and resilience and its impact on human life experiences has led recent research to explore the components of resilience that may aid with better outcomes under stressful circumstances. We therefore propose that further research evaluating the dispositions associated with high resilience in response to stress will greatly inform future therapies aimed at positively improving responses to life stressors and address the unprecedented high suicide rates.

1.2 Resilience

Resilience is defined as the ability of an individual to thrive and cope in the face of adversity (Connor & Davidson, 2003). Resilience plays a critical role in being able to “bounce back” and cope with adversity, while also allowing an individual to control the negative aspects of stress and adversity to promote adaptation (Rutter, 1987). According to the Resilience Theory, resilience consists of both internal psychological characteristics and external characteristics (Ahern, Kiehl, Lou Sole, & Byers, 2006). The internal psychological characteristics associated with resilience include self-efficacy, humor, patience, optimism, and faith. While the internal psychological characteristics focus on dispositions and traits, the external factors are based on extraneous factors

such as friends, family, and a sense of belongingness. The interaction between internal psychological and external characteristics helps to strengthen an individual's resilience (Munoz, Hanks, & Hellman, 2019).

Resiliency is a desirable trait because it provides one with the ability to overcome hardship and improve overall well-being. Resiliency is critical for being able to overcome the negative aspects of life's stressors. Positive psychology, a growing field in psychology studying optimal functioning, began to focus on research attempting to answer the question: how are some individuals able to rebound from adversity and others cannot? In an attempt to answer this question, research has focused on the relationship between mindfulness, a growing psychological construct, and its relationship to resilience.

2. Dispositional Mindfulness

Mindfulness meditation is an increasingly popular intervention for coping with psychological distress (Bodhi, 2011). Originally a Buddhist tradition, mindfulness has become a standard tool for improving psychological well-being (Bodhi, 2011). Most research evaluates mindfulness-based interventions, such as Mindfulness-Based Stress Reduction, and has determined that mindfulness meditation induces present moment awareness (Kabat-Zinn, 2003). The purpose of inducing present moment awareness is to initiate conscious and controlled adaptive behaviors instead of automatic and innate responses (Bishop et al. 2004).

While mindfulness meditation is a therapeutic intervention, dispositional mindfulness is an inherent trait involving the typical awareness level in the present moment (Lakey, Campbell, Brown, & Goodie, 2007). There are individual differences in how mindful an individual is in the present moment. Although dispositional mindfulness is an inherent trait, an individual's level of mindfulness is malleable and can change over time with consistent mindfulness meditation (Lakey, Campbell, Brown, & Goodie, 2007).

While mindfulness meditation is an intervention used to induce awareness in the present moment as a result of repeatedly practicing over time, there are individual differences in the ability to be aware of the present moment. Mindfulness questionnaires have been validated as a useful tool for measuring individual differences in dispositional mindfulness (Christopher, Neuser, Michael, & Baitmangalkar, 2012). Along with individual differences in mindfulness, there are also individual differences in the ability to be resilient to stress. More recently, research has focused on the relationship between mindfulness and stress. As interest in mindfulness continues to grow, it is important to further investigate the role mindfulness plays in fostering the ability to become resilient to stress.

2.1 Mindfulness and Resilience

Prior research emphasized the relationship between mindfulness and stress, more specifically whether being more mindful is associated with lower levels of stress (Palmer & Rodger, 2009; Williams, Kolar, Reger, and Pearson, 2001). It is just as important to understand the factors associated with resilience. Resilience is vital for psychological well-being, physical health, and adapting to stressful circumstances (Ryff & Singer, 2003).

Resilience research is a field focused in understanding underlying components associated with the ability to thrive, cope, and adapt when facing adversity. Keye and Pidgeon (2014) studied the relationship between mindfulness and resilience. Undergraduate students completed a series of

questionnaires: the Freiburg Mindfulness Inventory (Walach, 2006); the Connor Davidson Resilience Scale (Connor & Davidson, 2003); and Edinburgh Mental Well-Being Scale (Stewart-Brown & Janmohamed, 2008). The questionnaires were used to evaluate individual differences in mindfulness, resilience, and psychological well-being. The results showed a significant positive relationship between mindfulness and resilience. The results also revealed that mindfulness predicted an individual's psychological state of well-being (Keye & Pidgeon, 2014). These results suggest that mindfulness is not only associated with lower stress but is also predictive of the likelihood that an individual overcomes adversity.

Keye and Pidgeon (2013) also conducted a study evaluating the role of mindfulness and self-efficacy in predicting resilience. The study defines self-efficacy as the belief in one's ability to succeed in specific situations. The research design was based on Lightsey's theory (2006) that self-efficacy is a central component in determining one's resilience. The results revealed that both mindfulness and self-efficacy predicted resilience. However, a regression model showed that mindfulness was a factor contributing most highly to resilience. These results suggest that both mindfulness and self-efficacy are dispositions associated with resilience. However, self-efficacy is a characteristic that only partly predicts resilience. Therefore, there are still other traits that are involved in resilience and should be further explored.

As prior research has shown, mindfulness is a significant predictor of resilience (Keye & Pidgeon, 2013). However, other factors may also be involved in explaining resilience, such as self-efficacy. Therefore, it is important to understand other potential underlying mechanisms responsible for being more resilient.

3. Emotion Regulation: Adaptive and Maladaptive

During exposure to a stressful event, an individual is placed in a position to interpret the meaning of a stressor, which in turn dictates the stress reaction. The perception of a stressor elicits both a physiological response (i.e. heart rate, blood pressure) and psychological response, such as anxiety or depression (Yang, Zhao, Wang, Liu, Zhang, Li, & Cui, 2015; Lupien, McEwen, Gunnert, & Heim, 2009).

There are two types of emotion regulation strategies. The first type of emotion regulation strategy is adaptive emotion regulation. Adaptive emotion regulation is a strategy utilized by reinterpreting the meaning of a stressor in order to alter the resulting emotional response (Gross, 1998). Some adaptive emotion regulation strategies include: acceptance, positive refocusing, refocus on planning, positive reappraisal and putting into perspective. Acceptance refers to thoughts of accepting what has happened (i.e., *I think that I have to accept the situation*). Positive refocusing refers to thinking about pleasant experiences instead of thinking about the actual event (i.e., *I think of something nice instead of what has happened*). Refocus on planning refers to thinking about what steps to take and how to handle the adverse event (i.e., *I think of what I can do best*). Positive reappraisal refers to thoughts of creating positive meaning to the event in terms of personal growth (i.e., *I think about what I can learn from the situation*). Lastly, putting into perspective refers to thoughts of brushing aside the seriousness of the event in order to gain perspective on the severity of the event (i.e., *I think that it all could have been much worse*) (Garnefski & Kraaij, 2007). Adaptive emotion regulation activity has been associated with lower levels of mental illness, reduced negative affect experiences, and healthy cardiac activity (Aldao, & Nolen-Hoeksema,

2012). Adaptive emotion regulation utilizes coping strategies to help an individual become resilient to stress.

The second type of emotion regulation strategy is maladaptive emotion regulation. Maladaptive emotion regulation are strategies that do not promote adaptation to a stressor. When undergoing stress, reactions to stressful events can be intensified by our negative perception of the event. Negative interpretation of a stressor can result in significant damage to one's overall well-being, and in some cases, even depression (Mor & Winquist, 2002). While adaptive emotion regulation assists an individual in adapting to a stressful situation, maladaptive emotion regulation intensifies the negative aspects of a stress. Some maladaptive emotion regulation strategies include rumination, catastrophizing, self-blame, and other-blame. Rumination is a stress response in which an individual experiences repetitive negative thinking about a distressful event (i.e., *I dwell upon the feelings the situation has evoked in me*) (Nolen-Hoeksema, 2000). Catastrophizing refers to thoughts explicitly emphasizing the negative aspects of the experienced stress (i.e., *I continuously think about how horrible a situation has been*) (Garnefski & Kraaij, 2007). Self-blame refers to thoughts of placing blame for the stressor on oneself (i.e., *I feel that I am the one to blame for it*). Lastly other-blame refers to thoughts of putting blame on the environment or other people for creating the stressor (i.e., *I feel that others are to blame for it*).

Continuously dwelling on the negative aspects of a stressor restricts the ability to respond appropriately and instead intensifies negative emotions, negative thoughts, and stress. Engaging in maladaptive emotion regulation results in detrimental outcomes, such as negative affect, greater sympathetic nervous system activation, diminished autonomic flexibility, and mental disorders (i.e. depression and anxiety) (Aldao, & Nolen-Hoeksema, 2012). In order to avoid the negative effects that results from stress, it is important to alter the way one interprets the meaning of a stressor in a positive way.

3.1 Emotion Regulation and Resilience

Research has suggested that an efficient emotion regulatory system is associated with lower levels of perceived and physiological stress. Adaptive emotion regulation is a beneficial strategy for coping with a stressor and may foster the ability to become resilient. Conversely, maladaptive emotion regulation intensifies the negative aspects of a stressor and may inhibit the ability to become resilient.

During exposure to a stressor, effectively utilizing adaptive emotion regulation alters the resulting emotional response, which promotes adaptation to the demanding circumstance. On the other hand engagement, in maladaptive coping strategies intensify the perception of the stressful situation, thus intensifying the negative emotional response of the demanding circumstance. In order to further understand the role of cognitive emotion regulation strategies and coping with adversity, Min, Yu, Lee, and Chae (2013) evaluated the relationship between maladaptive and adaptive emotion regulation and resilience. Results revealed that adaptive strategies were more strongly correlated with resilience than maladaptive strategies. More specifically, refocus on planning and positive reappraisal, as well as less rumination predicted high resilience. The results, however, only analyzed the maladaptive and adaptive strategies of a sample with anxiety and depression; therefore, the results cannot be generalized. Further research evaluating the association with resilience and emotion regulation strategies across a variety of demographics would aid with generalizability of these findings.

Emotion regulation is crucial in determining the type of coping that will occur when facing a stressful event (Garnefski&Kraaij, 2007). Efficient emotion regulation utilizes adaptive coping strategies, such as positively reappraising a stressful event, resulting in less stress. While, an ineffective emotion regulation leads to a maladaptive response, such as engagement in negative thinking (rumination and catastrophize), resulting in greater feelings of stress. It is important to find practical approaches, such as mindfulness, for improving emotion regulation.

4. Present Study

Individuals more aware of the present moment (mindful) are better able to regulate their emotions, which results in fewer maladaptive coping strategies and greater adaptive coping strategies towards a stressful event (e.g., Hill & Updegraff, 2012; Raes & Williams, 2010; Garland, Gaylord, and Frederickson, 2011). The present study aimed to replicate previous findings suggesting that mindfulness is associated with resilience. The present study further aimed to evaluate whether the reason mindfulness is associated with resilience is because of the cognitive engagement in either maladaptive or adaptive emotion regulation strategies.

Based on prior literature, mindfulness is associated with engagement in adaptive emotion regulation strategies and fewer maladaptive emotion regulation strategies during exposure to stress (Raes and Williams, 2010; Garland, Gaylord, and Frederickson, 2011). Prior research also established a relationship between adaptive and maladaptive emotion regulation strategies and resilience. Most recent research focused on the relationship between mindfulness and retroactive stress.

It is important for further research to better understand dispositions and factors associated with resilience in order to advance interventions aimed at improving the ability to cope with stress. The present study evaluated emotion regulation as a mediator responsible for the association between mindfulness and resilience.

The first hypothesis of the present study, based on previous findings, was that mindfulness would predict resilience. The second hypothesis was that mindfulness would predict more efficient emotion regulation. An efficient emotion regulatory system is operationally defined as greater engagement in adaptive strategies (reappraisal, positive refocusing, refocus on planning, putting into perspective) and less engagement in maladaptive strategies (rumination, self-blame, catastrophizing). The third hypothesis was that emotion regulation would mediate the relationship between mindfulness and resilience.

5. Methods

5.1 Participants

Inclusion criteria for the study required participants to be at least 18 years old and undergraduate students attending Towson University actively enrolled in Psychology classes. The final sample size consisted of ($N = 117$) 15 males (12.8%) and 102 females (87.2%). The median age of the participants was 20 years old ($IQR = 19-21$). The race and ethnicity of the participants consisted of Caucasian (64.1%), Asian (10.3%), Black or African American (14.5%), Hispanic or Latino (8.5%), and other (2.6%) (Table I). Participants were rewarded with 0.5 research credits for their participation.

Table I.**Demographics of sample (Gender, Race/Ethnicity, Class)**

Measure	Item	Count	Percentage
Gender	Male	15	12.8%
	Female	102	87.2%
Race/ Ethnicity	Caucasian	75	64.1%
	Asian	12	10.3%
	Black or African American	17	14.5%
	Hispanic or Latino	10	8.5%
	Other	3	2.6%
	Class	Freshman	35
Sophomore		29	24.8%
Junior		32	27.4%
Senior		21	17.9%

6. Measures**6.1 Five Facet Mindfulness Questionnaire**

The Five Facet Mindfulness Questionnaire (FFMQ) is a 39-item questionnaire used to evaluate individual differences in mindfulness (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Participants responded on a 5-point Likert scale, ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*), of how much they felt each statement describes how they generally feel (e.g. *When I do things, my mind wanders and I get easily distracted*). The Five Facet Mindfulness Questionnaire was used to determine the dispositional mindfulness levels of the participants. Some items on the questionnaires were reverse-scored to make higher scores indicate greater levels of mindfulness.

6.2 Connor-Davidson Resilience Scale

The next questionnaire participants completed was the Connor-Davidson Resilience Scale (CD-RISC) in order to quantify resilience (Connor & Davidson, 2003). The Connor-Davidson Resilience Scale is a 25-item questionnaire aimed at capturing resilience (e.g. *Able to adapt to change*). Participants responded on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*true nearly all of the time*). Higher scores indicated greater levels of resilience and lower scores indicated lower levels of resilience.

The questionnaire evaluated individual differences in ability to view stress as a challenge, developing a strategy with a clear goal, taking on responsibilities with dealing with stress, faith in the future, and optimism (Connor & Davidson, 2003).

Analyses were conducted to determine the internal consistency, reliability, and validity of the scale. Results revealed that the items on the CD-RISC has a Cronbach's α level of 0.89 (Connor & Davidson, 2003), suggesting that the items on the CD-RISC have good internal consistency.

6.3 Cognitive Emotion Regulation Questionnaire

The Cognitive Emotion Regulation Questionnaire (CERQ) was developed to measure the cognitive components of emotion regulation and evaluate an individual's response to a stressful event (Garnefski, Kraaij, & Spinhoven, 2001). The CERQ is comprised of nine different subscales: *Putting into Perspective, Positive Refocusing, Positive Reappraisal, Acceptance, Planning, Other-blame, Self-Blame, Rumination, and Catastrophizing* (Garnefski & Kraaij, 2006). There are four items for each subscale that are answered on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*). The CERQ has been shown to have acceptably high internal consistency between all subscales. Alpha levels for internal consistency ranged from 0.62 to 0.85 (Garnefski & Kraaij, 2006).

The present study focused on adaptive coping associated with positively changing the meaning of the stressor (*Putting into Perspective, Positive Refocusing, Positive Reappraisal, and Planning*). The present study also focused on maladaptive coping associated with negatively interpreting the meaning of a stressor in accordance with oneself (*Self-blame, Rumination, and Catastrophizing*). As a result, the present study used a shortened-version of the CERQ using seven different subscales: *putting into perspective, positive refocusing, positive reappraisal, planning, self-blame, rumination, and catastrophizing*.

Maladaptive coping strategies (*Self-blame, Rumination, and Catastrophizing*) were reverse scored in order to develop a composite score for emotion regulation, indicating more efficient emotion regulation. Maladaptive coping items (*Self-blame, Rumination, and Catastrophizing*) and adaptive coping items (*Positive Reappraisal, Putting into Perspective, Positive Refocusing, and Planning*) were used to comprise both a maladaptive coping subscale (12 items) and an adaptive coping subscale (16 items). Each participant had three emotion regulation scores: composite emotion regulation score, adaptive coping score, and a maladaptive coping score.

7. Procedures

All participants were recruited from the Towson University Psychology Research Pool. Participants signed up for the "*Mindfulness and Resilience: Impact of Viewing Stress Positively*" study and were informed that the study was to be conducted online through the Qualtrics software. Participants were provided a link to the survey and were directed to the Qualtrics page for data collection.

Participants were also informed that their participation in the study was entirely voluntary and were free to withdraw at any time. The study was approved by the Towson University Institutional Review Board. All questionnaires were completely anonymous and required that participants provide a 4-digit numeric code that was linked to their responses. If under any circumstance a participant wanted their data excluded from the study, the participant would provide the principal investigator with their 4-digit numeric code.

Prior to completing the series of questionnaires, participants were asked to fill out a brief demographics form determining the age, gender, and race of all participants. Following the demographics form, participants completed a series of questionnaires evaluating dispositional mindfulness, resilience, and emotion regulation. Participants were asked to complete all questions and all incomplete forms were excluded from analyses. Lastly, all questionnaires were counterbalanced and randomized using the survey flow option on Qualtrics.

Debrief

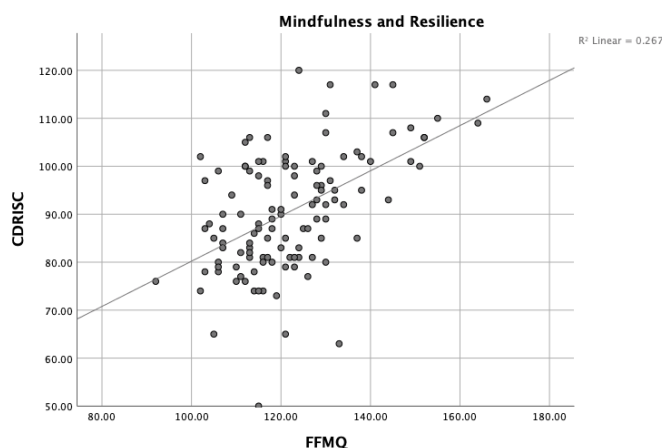
After the participants completed the questionnaires, they were informed of the true purpose of the study. They were also provided with appropriate contact information, of the principle investigator, in case of any questions or concerns.

8. Results

8.1 Hypothesis 1: Mindfulness and Resilience

Simple linear regression was used to test the first hypothesis that mindfulness would predict resilience. A simple linear regression revealed that mindfulness was a significant predictor of resilience, $\beta = .47$, $t = 6.48$, $p < .001$. Using Pearson's correlation, the results also revealed a strong positive correlation between mindfulness scores and resilience scores, $r(115) = 0.52$, $p < .001$ [95% CI: 0.37, 0.64] (Figure I.). These results supported the first hypothesis and suggest that participants more mindful of the present of moment were associated with greater resilience.

Figure I. Scatter plot representing the relationship between Mindfulness (FFMQ) and Resilience (CDRISC).



8.2 Hypothesis 2: Mindfulness and Emotion Regulation

Based on previous literature on the relationship between mindfulness and emotion regulation, the second hypothesis was that mindfulness would predict better emotion regulation. In order to test this hypothesis, composite emotion regulation scores were used which indicated greater engagement in adaptive and less maladaptive emotion regulation strategies. A simple linear regression revealed that mindfulness was a significant predictor of emotion regulation, $\beta = .34$, $t = 4.22$, $p < .001$. Also, using Pearson's correlation, the results also revealed a moderate positive correlation between mindfulness and emotion regulation $r(115) = 0.37$, $p < .001$ [95% CI: 0.20, 0.52]. These results supported the second hypothesis that mindfulness would predict better emotion regulation.

Pearson's correlation was also used to further explore the relationship between mindfulness, adaptive, and maladaptive emotion regulation. There was a significant positive correlation between mindfulness and adaptive emotion regulation, $r(115) = 0.36$, $p = .001$ [95% CI: 0.19, 0.51]. However, there was a no relationship between mindfulness and maladaptive emotion regulation, $r(115) = -0.14$, $p = .133$. These results suggest participants who are more mindful are more likely to engage in adaptive strategies (*putting into perspective, refocus on planning, positive reappraisal, and positive refocusing*). Also, the results indicate mindfulness is not associated with maladaptive emotion regulation strategies (*ruminating, catastrophizing, and self-blame*).

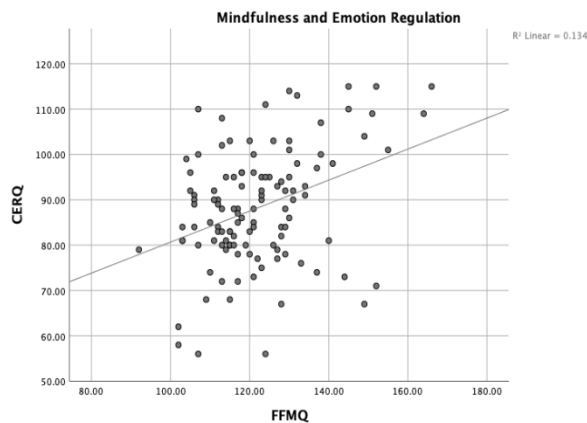


Figure II.: Scatterplot representing the relationship between Mindfulness (FFMQ) and Emotion Regulation (CERQ).

8.3 Hypothesis 3: Mindfulness, Emotion Regulation, and Resilience.

A mediation analysis was conducted to test the hypothesis that emotion regulation is a mediator between mindfulness and resilience. As shown in Figure III, mindfulness predicted better emotion regulation, $\beta = .34$, $t = 4.22$, $p < .001$, and greater resilience, $\beta = .47$, $t = 6.48$, $p < .001$. Also, emotion regulation predicted resilience, $\beta = .46$, $t = 5.69$, $p < .001$. Similarly to the second hypothesis, composite emotion regulation scores were used for the mediation analysis. A mediation analysis indicated that Emotion Regulation partially mediated the relationship between mindfulness and resilience, Indirect $B = 0.11$ [95% BCa CI: 0.04, 0.20]. After adding emotion regulation to the model, the mindfulness and resilience relationship was still significant, Direct $B = .36$, $t = 4.94$, $p < .001$ [95% BCa CI: 0.22, 0.51]. The results partially supported the third hypothesis and suggest that emotion regulation explains some of the relationship between mindfulness and resilience.

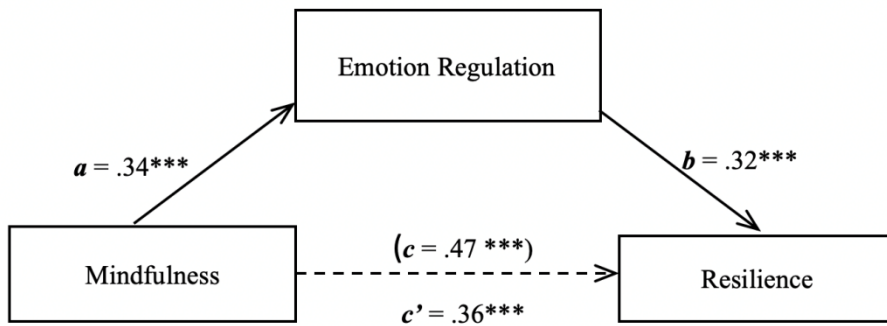


Figure III. Emotion Regulation partially mediated the relationship between Mindfulness and Resilience.

8.4 Further Analyses

In order to differentiate the strength of mindfulness, adaptive, and maladaptive emotion regulation as predictors of resilience; a multiple regression analysis was conducted. A multiple regression model was used to examine mindfulness, adaptive emotion regulation, and maladaptive emotion regulation as predictors of resilience. The overall model was significant $F(3,113) = 36.65, p < .001$, and explained 49.3% of the variance in resilience. As shown in Table IV., mindfulness ($\beta = 0.35$) and adaptive emotion regulation strategies ($\beta = 0.50$) predicted resilience, but maladaptive emotion regulation ($\beta = .10$) did not. The model became stronger when adaptive emotion regulation strategies was added to the model. Adaptive emotion regulation was a stronger predictor of resilience ($\beta = 0.50$) than mindfulness ($\beta = 0.35$). This result suggests that mindfulness is a stronger predictor for resilience with the engagement of adaptive emotion regulation strategies during exposure to stress. Also, engagement in maladaptive emotion regulation strategies (rumination, catastrophize, and self-blame) does not predict resilience. Practicing adaptive emotion regulation strategies plays an important role in promoting resilience.

Table II.

Coefficients for regression models

	B(SE)	β	t	p
Constant	11.66(9.39)			
Mindfulness	.33(0.07)	.35	4.87	<.001
Adaptive	.61(.90)	.50	6.91	<.001
Maladaptive	.17(.11)	.10	1.52	.130

Note: *** $p < .001$, ** $p < .01$, * $p < .05$.

9. Discussion

The present study investigated the role of mindfulness and emotion regulation in predicting resilience. Simple linear regression and correlation analyses replicated previous studies and supported the first and second hypotheses that mindfulness predicts resilience and also emotion regulation. While previous research has suggested a relationship between mindfulness and resilience, there was little research on the reason mindfulness is associated with resilience. A mediation analysis was conducted and partially supported the third hypothesis that emotion

regulation mediates the relationship between mindfulness and stress. These results suggest mindfulness draws attention towards the resulting emotional response from a stressful event. This awareness promotes adaptation to the stressful event by engaging in cognitive emotion regulation strategies (adaptive) for the purpose of altering the negative emotional response. The adaptive emotion regulation strategies reinterpret the meaning of a stressful event in a positive way that leads to coping and thriving under stressful events thus resulting in resilience. On the other hand, being less mindful results in the engagement of cognitive emotion regulation strategies (maladaptive) that inhibit the ability to adapt to a stressful event. By reacting automatically to a stressful event, leads to minimal effort in trying to alter the negative emotional response. Also, being less mindful allows the mind to wander and focus on the stressor, which intensifies the negative emotion response thus inhibiting resilience. However, there was a partial mediation suggesting there are other components of mindfulness, other than emotion regulation, responsible for the relationship between mindfulness and resilience. Further research should continue to evaluate other factors strongly associated with mindfulness in order to improve mindfulness interventions aimed at promoting resiliency.

A regression model was conducted and showed that mindfulness and adaptive emotion regulation explain a large amount of the total variance in the model. However, maladaptive strategies did not predict resilience. A common misconception in psychology is that interventions should be based around relieving negative aspects (maladaptive emotion regulation) associated with mental illness in order to improve well-being. However, the present study suggests maladaptive emotion regulation strategies (*ruminating, catastrophizing, and self-blame*) do not predict resilience. Conversely, engagement in adaptive emotion regulation strategies is the strongest predictor of resilience. As positive psychology, the scientific study of the strengths that enables individuals to thrive within their environments, continues to grow it is important for interventions to shift from focusing on relieving components of mental illness to promoting mental actions associated with well-being.

9.1 Limitations

The study contained a number of limitations that must be considered in order to generalize the findings to other populations. The first limitation was all of the findings were based on regression models and correlational data; therefore, the conclusions drawn from the study do not represent a causal effect. Further analyses should evaluate a more direct relationship between mindfulness and adaptive emotion regulation strategies on resilience.

The second limitation was the disproportionate number of female participants (87.2%) compared to male participants (12.8%). While this sample may be representative of the students in the Towson Psychology undergraduate program, these results may be potentially limited in terms of generalizability across different demographics. However, the study population was racially diverse. Future studies should evaluate the relationship between mindfulness, emotion regulation, and resilience across a variety of demographics.

The third limitation was that the *Acceptance* and *Other-blame* subscales were removed from the study for reasons described above. The *Acceptance* subscale, resigning oneself to what has happened, does not positively reinterpret the meaning of the stress and therefore was excluded from analysis. Previous studies showed all subscales had good internal consistencies except for *Other-Blame*, which had an alpha level of 0.32 (Garnefski, Koopman, Kraaj, & ten Cate, 2009). As a

result, the subscale, *Other-Blame*, was excluded from the questionnaire. The results did not consider these two subscales when analyzing participants' engagement in cognitive emotion regulation strategies. However, analyses indicated maladaptive coping strategies were not associated with mindfulness and resilience. Also, sub-analyses indicated that the subscales did not contribute equally in the relationship with mindfulness and resilience. Further analyses should address this potential limitation.

Despite data collection occurring during the COVID-19 pandemic, the resilience scores were normally distributed. This suggests that the sample was not undergoing a heightened level of stress, and thus the results were not affected.

10. Conclusion

The findings of this study suggest implications for advancing interventions aimed at promoting resiliency. Currently many routine interventions focus on relieving negative thoughts in order to promote resiliency, such as mindfulness meditation and cognitive behavioral therapy. Conversely, the ability to positively reinterpret the meaning of stress predicts resilience and further interventions should focus on instilling adaptive emotion regulation coping strategies and mindfulness at an early age in order to strengthen resiliency for future stressors.

In conclusion, the present study evaluated the relationship between mindfulness, emotion regulation, and resilience among college-age students. Given the results of the study, further interventions should focus on adopting more positive reinterpretations of life stressors and mindfulness to combat the negative aspects that result from poor resilience to stress.

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