The Role of Resilience, Emotional Regulation and Perceived Stress Among Depressed Students

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Abstract: The purpose of this study investigated the role of resilience, emotional regulation and perceived stress among depressed students of the Payame Noor University of Tehran. The research design was descriptive and correlational. The study population consisted of all students of Payame Noor University of Tehran who were studied in the academic year of 2018-19. 150 students were selected by purposeful sampling method (61 males, 89 females), aged 19–34 years. The Connor-Davidson Resilience Scale (CD-RISC) and The Emotion Regulation Questionnaire (CERQ), and Perceived Stress Scale-10 (PSS-10) were administered in this study. Data were analyzed by SPSS version 23 and were used for data analysis. Regression analysis revealed that emotion regulation had the most contribution in predicting perceived stress while, resiliency was the next contributing factor, respectively. These variables could predict 24 percent of perceived stress altogether. Moreover, the difference between the mean resiliency of depressed male and female students ($t = 1.04$ and $P = 0.30$) was not significant at the $p < 0.05$ level. According to the results, the difference between the average emotional regulation of depressed students ($t = 2.63$ and $p = 0.01$) was significant at $p < 0.05$. Moreover, the difference between the mean perceived the stress of depressed students ($t = 0.49$ and $p = 0.61$) was not significant at the $p < 0.05$ level. More research must be done to identify what affects stress levels during a college course, how resilience and emotion regulation may affect stress levels in college or the general population, and if stress prevention efforts are possible for new college students.

Keywords: Resilience, Emotion, regulation, Perceived stress, Students

Introduction

In the National College Health Assessment by the American College Health Association, students reported the extent to which some of the emotional and situational aspects influenced their academic efficacy (Milojevich & Lukowski,2016). Academics, culture shock, finance, and social life have all come together to make the college experience more challenging (Wu, Garza, & Guzman,2015). According to the 2017 American Student Health Association survey results, 45% of students experienced above-average stress, and 87% felt overwhelmed by all they had to do during the past year (American College Health Association,2017). Indeed, there is growing experimental evidence for the being of psychological problems in young adults, particularly in years of college (Milojevich & Lukowski, 2016).

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Wu et al.,(2015) report due to stress and trying to decline it some people turn to drugs, alcohol, tobacco, and food. Beiter et al(2015), stated that college students are going via an important period of development and stress is becoming more prevalent among this population. As a result, previous research suggests that college life can be considered as a potentially stressful situation and college students exhibit high levels of psychological distress such as depression, anxiety, and especially stress (Saleh, Camart, & Romo, 2017). Stressful events in students' lives are associated with many negative consequences, including decreased well-being, mental health disorder, anxiety, and depression (Troy & Mauss,2011). Further studies indicate that stressful life events have negative effects on students' physical and mental health (Zhang, Zhang, Zhang, & Guo,2019). During and after stress, the body strives to maintain performance, recover from problems and improve adaptive abilities (Zautra, Arewasikporn, & Davis, 2010) One trait that may influence the outcome of this process is resilience. in other words, resilience is adapted in a positive and effective way of dealing with problems and pressures (Pendergast,2017). Resilience has also been associated with coping strategies (Lee, Seo, Lee, Park, Lee, &Lee,2017). Accordingly, a group of APA's specialists defined resilience as "a process of good adaptation to maladaptation, disaster, threat, and even significant sources of threat" (American Psychological Association,2017). The analysis of human resilience traces its origins back to myths of survival in conditions of extreme risk, including the London Blitz and the death camps of Nazi Germany (Cyrulnik, 2008). These early observations on the resilience of the human spirit in the toughest of situations tried to clarify the causes that might explain the extraordinary habits of coping. Originally, resilience work centered on psychoanalytical principles such as child-to-parent attachment stability that predicts stronger adaptation during wartime exposure or a sense of faith and life meaning that sustains those who are interred (Ungar, 2019).

stress. More studies that are thorough followed, turning the emphasis on human-environment interaction processes. This included research by Rutter (1989) on the Isle of Wright with children of parents diagnosed with schizophrenia, and Werner and Smith (2001) longitudinal studies on the Isle of Kuaii with a population of nearly seven hundred lower socio-economic status families and their newborns. Concurrent studies by Garmezy, Masten, and Tellegen (1984) in Minnesota and the re-analysis of cohort data by Schoon (2006) in England have indicated a variety of protective social mechanisms that make human beings more likely to survive despite being subjected to atypical levels of stress. Lists of these pathways typically involve interactions that, in the case of children, facilitate self-esteem, risk-reduction strategies, and the avoidance of chains of adverse life events, the creation of new opportunities for positive growth, and exposure to developmental assets such as supportive peer groups or adult mentors (Ungar, 2019). Perceived stress and resilience have also been investigated in cross-cultural studies. For example, in a study involving three different samples (United States, China, and Taiwan), it was found that the rate of resilience was similar in different cultures (Li & Yang, 2016). Similarly, in a study of American and Basque students found that students with better resilience present lower perceived stress (Sarrionandia, Ramos-Díaz, &Fernández-Lasarte, 2018). Pourafzal, Seyedfatemi, Inanloo, and Haghani (2013) determined the relationship between the perceived stresses and resilience in undergraduate nursing students. Findings demonstrated that most of the students (99.3%) had moderate or high-perceived stress, and there was a significant relationship between perceived stress and resilience (Pourafzal, Seyedfatemi, Inanloo, &Haghani, 2013).

Stress can be very harmful in many areas of life such as health and emotion regulation (Pendergast, 2017). The regulation of emotions is often a voluntary and conscious act to ensure everyday functioning and to obey

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social rules. Emotions offer inspiration for action and motivation, influencing the body in a way that reasoning alone cannot (Gilbert 2014). Emotions on a biological basis and a study of emotions should not exclude regulatory processes; emotions and their control should be considered as one (Kappas 2011). For well-being, these feelings need to be controlled because they affect regulation mechanisms that regulate our hearts and muscles and the way our brain works in order to maintain equilibrium (Richardson, McEwan, Maratos, & Sheffield, 2016). From an evolutionary viewpoint, the origins of the scientific approach to emotion are generally due to Darwin (1872) and the theory that emotions have evolved as responses to nature that encourage survival. Termed ‘ serviceable interaction patterns, ‘ Darwin proposed that feelings and their actions developed because they were accurate antecedents of specific activities, with Frijda (1987) proposing a relatively small collection of such action trends. According to Frijda, these patterns in practice help us to build, sustain or disrupt a relationship with the world (Richardson et al, 2016).

Both experimental and daily diary research have provided interesting insights into regulatory strategies and processes in the daily lives of college students (da Estrela, Barker, Lantagne , & Gouin ,2018; Scheibe, Yeung, & Doerwald, 2018). Some studies have found that the tendency to experience unpleasant emotions and suffer from low self-esteem, little optimism and a low sense of self-efficacy could be stress predictors in college students (Saleh, Camart, & Romo, 2017). Schall & Schütz (2019) found that emotion-regulation knowledge was a significant predictor of perceived stress. Reappraisal or suppression strategies are two components of emotion regulation that are specifically used at an academic level, although there is no literature on the use of these strategies in college-related situations (Pendergast,2017). For example, the use of positive reappraisal is associated with higher academic self-efficacy after experiencing a perceived academic failure (Hanley AW, Palejwala, Hanley, Canto, & Garland, 2015). Stress reappraisal is also associated with better test performance and lower appraisal anxiety than participants reported to neglect stress (Jamieson, Peters, Greenwood, & Altose, 2016). In sum, the purpose of this study is to examine the relationship of resilience, emotional regulation and perceived stress among depressed students. College students, by exposure to stressful life events, experienced challenging situations, thus, the students’ college resiliency and emotional regulation, are two necessary factors, to cope with stress.

Material and Method

This is a descriptive-descriptive study, which was conducted during 2018-2019. The statistical population consisted of all undergraduate students evaluated by the Hamilton questionnaire. In total, 217 students were selected by the Cochran formula. Considering the population of this study the sampling method was purposeful. Inclusion criteria were encompassed depressed students, age range 34- 19 years, undergraduate psychology students, and substance abuse. Inclusion criteria were an unwillingness to participate in the research and invalid questionnaires. Thus, of the 217 students’ sample, only 167 were eligible. It should be noted that due to the invalid questionnaires of some participants, a total of 17 students were excluded from the analysis. Therefore, 150 students were used after data screening (61 males, 89 females, and 19 to 34 years). All depressed male and female students were provided written informed consent in accordance with the recommendations of the Human Ethics Committee of Payame Noor University. Then students fill out all paper questionnaires. Data were analyzed using SPSS 23 software. In addition, a significance level of 0.05 was set. Participants completed the Contour-Davidson Resilience Scale (CD-RISC), Emotion Regulation Question-

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naire (ERQ), and Perceived Stress Scale 10 (PSS-10).

The Connor-Davidson Resilience Scale (CD-RISC): The CD-RISC Scale involves 25 elements in the original version that are grouped into five subsets or dimensions and measure the capability to cope with difficulty. Items are scored on a scale from 0 (absolutely false) to 4 (always true) (Connor & Davidson, 2003). In Iran, Cronbach alpha was found α=0.93(Jowkar, 2008). In this study the Cronbach's alpha coefficients was 0.90.

Emotion Regulation Questionnaire (ERQ): The ERQ is a self-report questionnaire with 10 items consisting of two scales corresponding to two different emotion regulation strategies: a cognitive appraisal has 6 components and expressive suppression has 4 components (Gross & John, 2003). The subscale of reappraisal individuals' tendency to regulate emotion by changing their thoughts, while the suppression subscale evaluates individuals' tendency to control their expression of emotion. The guidelines ask the participants some questions about their emotional life, in particular, how they control (i.e. regulate and manage) their emotions. The 10 items on the 7-point Likert scale ranged from strongly disagree to strongly agree. The reappraisal and suppression scales have been shown to have good internal consistency (0.79 and 0.73, respectively), 3-month high test-retest reliability (0.69 for both scales), and evidence of validity (Gross & John, 2003). Is. The reliability of the two ERQ-P subscales showed high consistency (0.81 to 0.91) and high test-retest validation (0.51 to 0.57) over a 5-week interval (Hasani, 2016). In this study, the Cronbach's alpha coefficients was 0.86.

Perceived Stress Scale (PSS): Perceived Stress Scale (PSS) is a 10-item article that is a self-report measure of one's perceived stress over the past month (Cohen, Kamarck, & Mermelstein , 1983). Respondents report an outbreak of a case on a 5-point scale in the past month, from 0 (never) to 4 (often). Scoring is completed by scoring four positive expression items (4, 5, 7, and 8) and summing up all the scores on the item. Higher scores indicate more stress. The total score (PSS-10) Cronbach's alpha coefficients for negative factors, positive coefficient were 0.86, 0.83 and 0.90, respectively (Maroufizadeh, Zareiyan, &Sigari, 2015). In this study, the Cronbach's alpha coefficients were 0.81, 0.83 and 0.88, respectively.

Results

As shown in Table 1, the Mean and SD of the resiliency of depressed male students were (42.86 and 5.19), emotional regulation (129.73 and 19.54), and perceived stress (8 and 3.49) respectively, and the mean and standard deviation of the resiliency of depressed female students were (41.06 and 5.57), emotional regulation (116.40 and 19.58), and perceived stress (7.56 and 3.22) respectively. These results show that the average resiliency, emotional regulation, and perceived stress of depressed female students are lower than that of depressed male students

Table1. The mean and standard deviation of the test scores for the three variables

Variable	Group	Mean ± SD	Min.	Max.
Resiliency	Man	42.66 ± 5.19	29	53
	Woman	41.06 ± 5.57	27	54
Emotional regulation	Man	129.73± 19.54	99	162
	Woman	116.40 ± 19.58	85	165
Perceived stress	Man	8 ± 3.49	2	13
	Woman	7.56 ± 3.22	0	16

As can be seen in Table 2, regression analysis using the inter method showed multiple correlations between the dependent variable (perceived stress) and the remaining independent variables in the regression and emotional regulation of depressed students. The coefficient of determination was $R^2 = 0.224$ and adjusted coefficient

of $R^2 = 0.221$, $r = 0.493$ and $p < 0.001$, which was significant at $p < 0.05$. It means that, through predictors of resilience and emotional regulation of depressed students, we can predict about 24% of the variance of the perceived stress criterion variable.

Table 2. Summary of the Regression Model

Criterion variable	Predictive variable	B	Beta	T	Sig.	R	R^2	Adjusted R^2
Perceived stress of depressed	Intercept	6.76	-	2.08	0.04	0.493	0.243	0.216
	Emotional regulation	0.07	0.44	3.76	0.001			
	Resilience	0.189	0.33	-2.83	0.006			

According to the results, the probability obtained is related to the regression coefficients. {X2 (0.33) + X1 (0.44) Y = X2 + X1 Y = Perceived stress {regression equation according to the regression equation with the above standard coefficients, emotional resilience and adjustment of depressed students affect perceived stress. With each unit of resiliency and emotion regulation score, a 0.24 score of perceived stress is induced. The results also show that among the predictor variables, respectively, the importance of emotional regulation variable with a beta coefficient of 0.44 is the best predictor and in the next step, the variable of resilience with a beta of 0.33 predicts the perceived stress criterion. Also, the correlation coefficient between resiliency and perceived stress in depressed students was -0.24 ($P <= 0.05$). These results indicate that there is a significant negative relationship between resilience and perceived stress in depressed students. That is, increasing the resiliency score is associated with a decrease in the perceived stress score of depressed students.

In addition, the correlation coefficient between emotional adjustment and perceived stress in depressed students was 0.37 ($P <= 0.004$).These results indicate that there is a significant relationship between emotional adjustment and perceived stress in depressed students. That is, an increase in emotional adjustment score is associated with an increase in the perceived stress score of depressed students.

Table 3. The comparison between two groups in Resiliency, Emotional regulation and Perceived stress

Variable	Group	Mean	SD	Difference between Mean	T value	Sig.
Resiliency	Male	42.66	5.19	1.60	1.04	0.30
	Female	41.06	5.57			
Emotional regulation	Male	129.73	19.54	13.33	2.63	0.01
	Female	116.40	19.58			
Perceived stress	Male	8	3.49	0.43	0/49	0.61

As shown in Table 3, the difference between the mean resiliency of depressed male and female students ($t = 1.04$ and $P = 0.30$) was not significant. According to the results of the table, the difference between the average emotional regulation of depressed male and female students ($t = 2.63$ and $p = 0.01$) was significant at $p < 0.05$. Moreover, the difference between the mean perceived the stress of depressed male and female students ($t = 0.49$ and $p = 0.61$) was not significant at the $p < 0.05$ level.

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Discussion

The purpose of this study was to investigate the relationship between resilience, emotional regulation and perceived stress among depressed students. Several expected results were observed. These results show that the average resiliency, emotional regulation, and perceived stress of depressed female students are lower than that of depressed male students. We expected to find higher levels of resiliency and less emotional regulation, perceived stress in females as compared to male students, so the results are revers to our expectations and are in accordance the other studies (Beiter et al, 2015; Pendergast, 2017; Lee et al, 2017; Scheibe et al, 2018).

As previously, shown, attending college can cause chronic stress. College students often leave home for the first time, borrow money or work long hours to pay tuition and work in a rigorous and academic environment for two to four years or more that can be effective contributors in creating stress of this group (Pendergast, 2017). It also develops poor coping skills that lead to aggressive behavior and physical disorders (Pendergast, 2017).

The result of a study stated that men are more likely to be influenced by stress than women are. More results have been obtained that male stress is associated with changes in aggression and violence. In the female, more stress has been linked to gender roles with body image issues as well as eating disorders (Calvarese, 2015). Some studies of self-reported emotional experience indicate that women may indeed be more emotionally responsive than men may and women are emotionally more reactive than men in terms of psycho-physiological reactivity are. In addition, individuals who report using emotional regulation more frequently in everyday life experience lesser negative affect and fewer depressive symptoms (Heinen, Bullinger, &Kocalevent, 2017).

Resiliency' is associated with a discrete personality trait, 'resilience' is understood as a dynamic development process. This means that individuals can acquire or learn resilient features (Racic, Todorovic, Ivkovic, Masic, Joksimovic, & Kulic, 2017). This fact can lead to the assumption that the moderation variables like personality traits should be considered to cope with perceived stress between both depressed male and female students. Therefore, if students are experiencing some level of stress that interrupts their ability to function, they may also be at risk of developing a psychological disorder that could further affect functioning (Pendergast, 2017). Resilience is a primary predictor relevant to adaptation to the university environment. Evidence indicates that resilience decreases the risk of psychological distress, helps to balance academic needs, improves learning performance, and encourages positive coping mechanisms when dealing with learning pressure (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014). In the absence of resilience, university students with stressors face the ability to adversely affect their mental health, to increase their psychological distress and to cause greater problems of adaptation. Previous resilience work centered mainly on individuals impacted by short-and long-term adversity. College students are subject to long-term challenges, such as academic stressors and environmental pressures (Pidgeon, Coast, Coast, Coast, & Coast, 2014). While there is no common concept of resilience, resilience is generally regarded as an individual's ability to overcome adversities and effectively adapt to their environment. Definitions of resilience vary from a collection of attributes, an outcome, or a complex mechanism involving exposure to stress or adversity, accompanied by a positive adaptation (Sisto, Vicinanza, Campanozzi, Ricci, Tartaglini, & Tambone, 2019).). Connor and Davidson (2003) describe resilience as personal qualities that enable individuals to succeed in the face of adversity. Whereas Gilligan (2007) describes resilience as the ability to react adequately and perform effectively in the face of adversity, or to surpass expectations during hardship. In addition, researchers view resilience as a defensive buffer that protects individuals from adversity (Jackson, Firtko, and Edenborough, (2007). Overall, global

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studies indicate that stability in the university setting is positively cor related with improved mental wellbeing as well as a productive transition and adjustment to university life (Pidgeon et al, 2014).

In line with other studies, the depressed students in our study showed higher levels of perceived stress than the normal population (Davoodi R, Ghahari, 2017). Furthermore, another explain is, the perception of stress levels can be a reflection of an individual's ability to cope with a specific stressor. One of the psychiatric features identified by the ER defect is the existence of significant gender differences in the prevalence of these disorders (García-León, Pérez-Mármol, Gonzalez-Perez, del Carmen García-Ríos, & Peralta-Ramírez, 2019). In a study the results showed that women were more flexible in using problem-solving and emotion-focused strategies than men (Goubet, &Chrysikou, 2019).

Through predictors of resilience and emotional regulation of depressed students, the study can predict about 24% of the variance of the perceived stress criterion variable. The results also show that among the predictor variables, respectively, the importance of emotional regulation variable with a beta coefficient of 0.44 is the best predictor and in the next step, the variable of resilience with a beta of 0.33 predicts the perceived stress criterion. Our findings are supported by the previous studies that have been conducted in various groups (Chen, 2016; Tamannaeifar & Shahmirzaei , 2019).

Students with inadequate coping skills have poor cognitive flexibility, low self-control, and the inability to regulate their emotions. Also, they are unable to pursue their educational goals and environmental demands, have little academic achievement and suffer from learning difficulties (Tamannaeifar & Shahmirzaei, 2019). Resistant students are likely to be competent, self-controlled, tolerant of negative influences, and accept changes with positive attitudes (Chen, 2016). Thus, when dealing with problems, people are likely to change situations or try to solve the problem (problem-oriented style) rather than using self-blame, self-prophecy, or fantasy (emotion-driven style). Accordingly, flexible people tend to use problem-focused strategies to meet challenges (Tamannaeifar & Shahmirzaei , 2019).

Kerkowicz et al. (2018) examined whether self-reported emotion regulation predicts endocrine, autonomic, emotional, and symptomatic responses to recovery from stress. showed that all indices significantly increased in response to stressors and decreased during the recovery phase, except salivary cortisol, which showed a linear increase. Normal use of maladaptive emotion regulation (eg, rumination, catastrophizing) significantly predicted an increase in emotional enhancement and a decrease in cortisol response. Adjustable emotion regulation (ie, acceptance, reassessment) for stress response was not predictive for any of the indicators. None of the emotion regulation predicted responses during the stress recovery phase. People who habitually resort to maladaptive emotion regulation strategies show a stronger emotion and endocrine stress response, which may make them vulnerable to mental health problems.

It can be explained that the role of some variables such as resilience should be taken into account and improved. However, learning of regulating emotions and increase distress tolerance can promote resistance and enhance individuals' ability to cope with life's problems (Davoodi & Ghahari, 2017). Individuals' capability to regulate emotion may be an important factor in determining resilience, and a particular type of emotion regulation, cognitive emotion regulation, promises to help resilience, which can make a person resistant to stress (Troy & Mauss, 2011). Artuch-Garde et al. (2017) in their cross-sectional research have shown that self-regulation behavior is associated with high levels of resistance in high school students. Likewise, positive emotions seemed to deal with everyday tension.

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In addition, these results indicate that there is a significant negative relationship between resilience and perceived stress in depressed students. This means that an increase in resiliency scores is associated with a decrease in the perceived stress score of depressed students. There is a relationship between stress and resilience so that perceived stress is low when the level of flexibility is high. Higher resistance predicts less stress and better mental health (Kermott, Johnson, Sood, Jenkins, & Sood, 2019). In previous research, the results suggest that a higher resilience student shows lower scores on perceived stress (Kermott et al, 2019). The relationship between perceived stress and psychological symptoms also supports the findings of Garcia-Levon et al. (2019), which showed that high stress is associated with a higher level of depression and anxiety in a student sample.

According to the results, the difference between the mean resiliency of depressed male and female students was not significant but the difference between the average emotional regulations of depressed students was significant. In addition, the difference between the mean perceived stresses of depressed students was not significant. Studies have evaluated the association of resilience with lower stress and better mental health (Schneider, Lyons, & Khazon, 2013). Therefore, researchers found that ER is a protective factor that promotes a resilient response when facing stressful stimuli (Katana, Röcke, Spain, & Allemand, 2019). The process of Emotional Regulation consists in an emotional administration so that the individual may better adjust to the context and it has as a function defending the individual from unpleasant situations, avoiding suffering or maintaining pleasant situations in order to preserve physical and psychological health (Conceição Pina, 2017). Moreover, research suggests that the frequent experience of positive affect has short and long-term benefits for psychological adaptation. Managing and controlling emotions is a full-time job and it happens on all contexts with the aim of decreasing stress (Conceição Pina, 2017).

Finally, Emotions are not the only mechanisms that directly driven behavior since logic and foresight do the same. Often we do things that feel bad, scary, or repetitive because we know that the positive results will flow in the future. We are not doing things we might enjoy because we are expecting adverse outcomes in the future. So wise foresight will overcome inspiration and emotion. At the same time, though, we can stop doing something that would be beneficial because we over-anticipate the risks or ruminate about possible failures. Actions are related to the predicted effects. However, feelings themselves may become a source of motivation (seeking satisfaction and avoiding pain); for example, being motivated to be happy or avoiding sorrow. We are also inspired to seek to construct feelings in states of mind that we might not be in when we want them. Again, this complexity stems from our recently evolved, human cognitive capacities for internal representation. Indeed, the ability to build and undergo emotional states can be such that we do things that are harmful to our long-term well-being (Gilbert, 2015).

Through predictors of resilience and emotional regulation of depressed students, the study can predict the perceived stress criterion variable. More research must be done to identify what affects stress levels during a college courses, how resilience and emotion regulation may affect stress levels in college or the general population, and if stress prevention efforts are possible for new college students. In addition, research to differentiate resilience from other related constructs such as conscientiousness may help validate research findings and clarify overlapping aspects of each. If traits or tendencies that do predict lower stress in college students can be identified, prevention programs may be developed to help students form a buffer against stress. Therefore, it is necessary to design socio-emotional intervention programs aimed at reinforcing these psychological variables

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(ER and resilience). Only by performing such interventions in the form of a pilot study and a longitudinal study can we confirm whether the improvement of ER affects resilience levels and whether this, in turn, has an effect on reducing stress in students.

There are several limitations to the current study. The most relevant issue is sample size. Because of the low number of students, analyses performed were not as powerful. Future research can also keep the number of questions in a survey to a minimum to decrease the number of participants that finish quickly without putting decent thought into their responses. Generalizability in the sample was also an issue. The sample lacked diversity, therefore the results may not generalize well across ethnicity, age, or gender. Stress can occur in several settings for many reasons. If adding academic context to these and other measures of resilience increase prediction accuracy, specific contextual assessment measures may be necessary for future evaluation and practice. Determinants of how stress can occur in individuals may also provide insights into how self-concept, cognitive bias, or genetics may play a role in stressful experiences. Future research should also determine what the consequences of flexible grades can have, both at the university and in the community at large.

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