International Journal of Social and Educational Innovation (IJSEIro)
Volume 10/ Issue 20/ 2023

EXPLORING THE INTERPLAY BETWEEN PERCEIVED STRESS, EMOTIONAL REGULATION, AND SELF-EFFICACY AMONG UNIVERSITY STUDENTS

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Abstract

In the current modern and extremely competitive educational environment, the stress experienced by students has become a compelling concern. Academic stress is highly prevalent among university students and it has a significant impact on the overall physical and mental health outcomes. Thus, the primary aim of the current investigation was to examine the relationship between perceived stress, emotional regulation, and self-efficacy among university students. A sample of 153 students aged 18 to 40 (M = 21.28, SD = 3.17, 101 females) completed self-reported scales measuring perceived stress, emotional regulation (i.e. cognitive reappraisal and expressive suppression), and self-efficacy. Correlation analyses suggested that students' stress was negatively related to self-efficacy and cognitive reappraisal. Also, we found that stress was positively related to expressive suppression. Age was not significantly associated with students' stress. Hierarchical regression analysis suggested that the final regression model (i.e., gender, self-efficacy, and emotion regulation strategies) explained 34.3% of students reported stress. The best predictor of students' stress was self-efficacy. We discuss our findings considering their practical implications in tailoring interventions aimed to reduce students' perceived stress.

Keywords: students; perceived stress; emotional regulation; self-efficacy.

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Introduction

Many college students struggle to reach the high standards required to succeed in the academic environment (Aslan et al., 2020). From the challenges of demanding requirements to the burden of uncertainties, students may encounter a variety of potential stressors that can significantly impact their well-being and academic performance (Por et al., 2011; Wu et al., 2020). Drawing from the existing literature and empirical studies, this article aimed to provide a comprehensive understanding of the complex interplay between perceived stress, self-efficacy, and emotional regulation strategies among students.

Stress has become a reality of everyday life that most individuals experience on a regular basis (DiCorcia & Tronick, 2011). According to Cohen et al. (2007), stress is defined as a normal physiological and psychological reaction related to an imbalance between an individual's perception and the external expectations. Similarly, Lazarus and Folkman (1984) described stress as an interaction between individuals and the environment, emphasizing the role of cognitive appraisal and coping strategies in this regard. Later, Lazarus (1991) extended this model to the Cognitive Appraisal Theory, highlighting the role of subjective perception in stress responses. Cohen et al. (1983) defined perceived stress as a self-subjective assessment of the demands and the pressure experienced by individuals in their daily life.

College students are particularly vulnerable to experiencing prolonged levels of stress due to the specific challenges and demands they face in their academic pursuits (Ramón-Arbués et al., 2020). Some of the primary sources of stress among students are related to academic examinations, time management, and financial concerns (Jain et al., 2017). Even though academic stress is commonly associated with negative connotations (e.g., anxiety, depression, health problems), stress can also serve as a benefit for motivation and increased academic performance (Robotham & Julian, 2006; Varghese et al., 2015).

Self-Efficacy and Emotional Regulation in Relation to Perceived Stress

Emotional regulation comprises the capacity of an individual to comprehend, regulate, and express emotions in response to different situations (Gross, 1998). In academic contexts, effective emotional regulation plays a crucial role in coping with specific stressful situations (Austin et al., 2010) and it positively impacts academic performance (Pau & Croucher, 2003).

Over the past several decades, several models have provided frameworks for understanding how individuals manage and regulate their emotions (McRae & Gross, 2020).

The Cognitive Emotion Regulation Model describes two cognitive strategies used by individuals to regulate emotions, i.e., cognitive reappraisal and expressive suppression (Gross & John, 2003; Verduyn et al., 2012). Cognitive reappraisal refers to reframing the meaning of a situation to change emotional responses, while expressive suppression involves inhibiting or reducing the behaviors associated with emotional responses (Goldin et al., 2008). Moreover, efficient emotion regulation is generally associated with positive academic outcomes for students as it enhances attention and concentration (Schmeichel, 2007) and increases motivation engagement (Tamir et al., 2020), also reducing test anxiety (Davis et al., 2008). In contrast, inefficient emotion regulation among students is linked to anxiety (Nesayan et al., 2017), increased stress (Lewis et al., 2018), risky behaviors (e.g., substance abuse, addictions, self-harm), and academic impairment (Graziano et al., 2017; Zareban et al., 2017).

Finally, self-efficacy is generally recognized as a key variable in current educational psychology (Van Dinther et al., 2011) because it describes the belief in one's ability to successfully accomplish a specific task or achieve a desired goal (Ponton et al., 2001). Moreover, it has a significant impact on the ability of students to cope with stress and regulate emotions (Zhao, 2015). Previous studies showed that students with high self-efficacy tend to set more ambitious goals (Hsieh et al., 2011) and use more effective learning strategies (Van Dinther et al., 2011). Also, self-efficacy is also a significant predictor of student's academic success (Zajacova et al., 2005).

Also, gender and age are among the most explored demographic variables in relation to students' perceived stress. Previous studies suggested that female students may experience higher levels of stress compared to male students (Dahlin et al., 2005; Pierceall & Keim, 2007). One explanation is related to the coping mechanism used. Female students are more likely to employ more emotional and instrumental support to cope with stress, while males tend to be engaged in problem-focused coping strategies and the use of humor (Eisenbarth, 2019; Graves et al., 2021). Also, other stress-related factors were more prevalent among female students, including low self-esteem, higher anxiety levels, test pressure, body disturbances, drinking, and depression (Gao et al., 2020; Montolio et al., 2021). In addition, certain stressors such as cultural expectations, gender discrimination, and balancing various roles may be experienced differently by female students (Eagan & Garvey, 2015; Perrotte et al., 2018).

Furthermore, the influence of age-related discrepancies significantly impacts the level of stress experienced by students. For example, students in early college years may experience

stress related to academic workload (Aam et al., 2017), transitioning to a new educational environment (Verger et al., 2009), time management (Misra & McKean, 2000), and establishing social relationships (Bhargava & Trivedi, 2018). Older students, such as those in advanced college or graduate school, may experience stress associated with more specialized academic demands, research or thesis work, internships or job placements, and the transition into the workforce (Evans et al., 2018; Levecque et al., 2017).

The Present Study

The present study aimed to examine the relationships between students' perceived stress, self-efficacy, emotion regulation strategies, and the role played by demographic variables (i.e., gender and age) in this regard. Our specific aim was to examine how much variance in students' perceived stress might be explained by the proposed variables. Our primary assumption was that all the proposed variables would significantly be related to stress, with self-efficacy and cognitive reappraisal acting as protective factors (i.e., negative predictors of stress), and expressive suppression as a risk factor (i.e., positive predictor of students' perceived stress).

Method

Participants and Procedure

Participants were students from public Romanian universities. A sample of 153 students (52 males and 101 females, *M*age = 21.28 years, *SD* = 3,17 age range 18 to 40 years) completed self-reported scales measuring their perceived stress, emotional regulation strategies (i.e., reappraisal, suppression), and self-efficacy. The Ethics Committee of the university where the authors are affiliated approved the study and it was carried out in accordance with the principles outlined in the 2013 Helsinki Declaration. The sample of participants for the present study was recruited via online advertisements on Facebook. The participants provided their informed consent to participate and were informed that taking part in the present research was completely voluntary and that they could withdraw at any time. They were additionally assured that the provided information would be private, anonymous, and used only for the purpose of the study. The completion time of all questionnaires required an average time of 15 minutes.

Measures

Perceived Stress. We used the Perceived Stress Scale (PSS; Cohen et al., 1983), which is a widely used instrument that measures the psychological stress perceived by individuals in the past month. The scale contains ten items with responses given on a 5-point Likert scale and investigates the frequency and intensity of participants' thoughts and feelings in relation to stressful circumstances over the previous month (Lee, 2012). Example items included "*In the last month, how often have you felt that you could not control the important things in your life*?", and" *In the past month, how often have you felt nervous and stressed*?". Higher scores indicated higher levels of perceived stress. Cronbach's alpha in the present study was 0.79.

Self-Efficacy. We used the General Perceived Self-Efficacy Scale (GSE), which is a self-report instrument developed by Schwarzer and Jerusalem (1995). The scale comprises 10 items and uses a 4-point Likert scale ranging from 1 (not at all true) to 4 (exactly true). Example items included "*I can always manage to solve difficult problems if I try hard enough*" and "*I can solve most problems if I invest the necessary effort*". The total score ranges from 10 to 40, with a higher score describing higher perceived self-efficacy. In the present study, Cronbach's alpha was 0.88.

Emotional Regulation. We used the Emotional Regulation Questionnaire (ERQ; Gross & John, 2003) containing ten items measured on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The ERQ assesses two emotion regulation strategies, i.e.. Cognitive Reappraisal (e.g. "*When I want to feel more positive emotion, I change the way I'm thinking about the situation*."), and Expressive Suppression (e.g., "*When I am feeling positive emotions, I am careful not to express them* "). Higher scores indicated higher levels of these specific emotional regulation dimensions. In the present study, Cronbach's alpha was 0.70 for the cognitive reappraisal dimension, and 0.81 for expressive suppression.

Finally, the demographic questionnaire requested participants to provide information related to their age and (self-reported) gender. The exclusion criteria of the study included age limitations (> 18) and the requirement of being enrolled in a public university in Romania.

Overview of the Statistical Analyses

The IBM SPSS Statistics (Version 26) was used to examine the data. To evaluate the normality of the distributions, we computed the Skewness and Kurtosis values. Following that, zero-order correlations between the primary study variables (age, perceived stress, self-

efficacy, and emotional regulation) were computed. We also examined the potential gender differences related to students' perceived stress. Finally, to examine how much variance in participants' perceived stress is explained by the proposed variables, we conducted a hierarchical multiple regression analysis. Descriptive statistics of the main variables are provided in Table 1.

Table 1.

Descriptive statistics for the main variables (N = 153)

Variables	M	SD	Min	Max	Skewness	Kurtosis
Self-Efficacy	30.22	5.76	13	40	-.46	.16
Perceived Stress	20.8	5.94	7	32	-.13	-.6
Expressive Suppression	15.77	6.08	4	28	-1	-.76
Cognitive Reappraisal	28.29	7.14	8	42	-.32	-.17

Results

Associations Between Perceived Stress, Self-Efficacy, and Emotional Regulation

Correlation analyses suggested that stress was negatively related to self-efficacy (r = -.48, p < .001) and cognitive reappraisal (r = -.19, p = .01). Also, we found that stress was positively related to expressive suppression (r = .25, p = .001). age was not significantly associated with students' stress (p > .05). Results are detailed in Table 2.

Table 2.

Associations between the main variables (N = 153)

Variables	1	2	3	4
1. Self-Efficacy	-			
2. Perceived Stress	-.48**	-		
3. Expressive Suppression	-.007	.25*	-	
4. Cognitive Reappraisal	.53**	-.19*	.16*	-
5. Age	.06	-.08	-.11	.03

**p < .05; **p < .001.*

Next, Independent T-test results suggested significant differences between male and female participants regarding stress levels, $t(151) = -3.53$, $p = .001$. Specifically, female participants reported significantly higher stress ($M = 21.98$) than male participants ($M = 18.51$).

Regression analyses summarizing how self-efficacy, cognitive reappraisal, expressive suppression, and gender predict students' perceived stress

We entered gender in Model 1, emotion regulation strategies in Model 2, and self-efficacy in Model 3. All models were significant (all p-s <.05). Gender explained 7% of the variance in students' stress. The change added by the variables in Model 2 (i.e., cognitive reappraisal and expressive suppression) was significant, F (2, 149) = 15.31, $p < .001$, explaining an additional 15.7% of the variance in students' stress. The final model explained 34.3% of students' stress, and the change brought by adding self-efficacy was significant, F (1, 148) = 29.36, $p < .001$. The best predictor of students' stress was self-efficacy ($\beta = -.43$, $p< .001$), followed by expressive suppression ($\beta = .28$, $p <.001$), and gender ($\beta = -.26$, $p< .001$). In the final regression model, cognitive reappraisal was not a significant predictor of students' perceived stress.

Discussions

This study aimed to examine the relationships between perceived stress, self-efficacy, and emotional regulation in a sample of university students. More specifically, we were interested in examining how much variance in students' perceived stress would be explained by self-efficacy, cognitive reappraisal, and expressive suppression, in addition to age and gender.

Our findings suggested that students' self-efficacy was the most important predictor for perceived stress. This means that a high level of self-efficacy might be one of the most important protective factors when addressing the perceived stress. The primary implication of this result is related to the use of strategies aimed to increase students' self-efficacy to better manage and cope with stress. This result aligns with previous similar findings suggesting the importance of self-efficacy in this regard (Crego et al., 2016; Schwarzer & Hallum, 2008).

At the same time, our findings highlight expressive suppression as a significant risk factor for students' perceived stress. The practical implication of this result lies in the need to engage students in more adaptive emotion strategies to better cope with daily academic

stressors. The fact that such negative emotion regulation strategies (i.e., expressive suppression) predict higher levels of stress has also been pointed out in previous studies (e.g., Aldao et al., 2010; Gross & John, 2003); thus, our results align with previous findings and add to the related literature.

Finally, the significant predictive role of gender for students' reported stress also highlights the need to tailor potential intervention strategies while also considering students' gender. In line with previous findings (e.g., Dahlin et al., 2005; Pierceall & Keim, 2007), our results highlight that female students might be more prone to experience stress; thus, addressing especially female student groups might be an effective intervention practice.

The current research has a few limitations that need to be mentioned and addressed in future studies. First, we used a small sample size, which makes it difficult to generalize the findings. Second, the nature of the self-assessment measures may make the results susceptible to social desirability. Next, the impossibility to establish a causality between variables represents a specific limit to the present cross-sectional study (Wang & Cheng, 2020).

Nevertheless, the present exploratory study highlighted some important risk and protective factors for Romanian students' perceived stress. Students who reported high levels of self-efficacy seem to report more adaptative emotional regulation strategies and lower stress levels. Furthermore, our results outline the importance of addressing perceived stress, emotional regulation, and self-efficacy in supporting students' well-being and academic success among university students. Further research should enlarge the sample size and explore the potential mediating and moderating roles of additional variables related to students' stress, such as academic workload (Koudela-Hamila, 2022), time management (Yener et al., 2021), sleep quality (Allen et al., 2021), social support (Wang et al., 2014), and culture (Liang et al., 2008).

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