


# Exploring the Relationship Between Metacognition, Emotional Regulation and Perceived Stress Among College Students

## Üniversite Öğrencilerinde Algılanan Stres, Üstbiliş ve Duygusal Düzenlemeler Arasındaki İlişkinin İncelenmesi

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### ABSTRACT

Students experience stress because of difficult and demanding situations, which are related to metacognitive abilities and emotional control techniques. College students experience negative emotions frequently, which affect their capacity for metacognition. The purpose of the study was to examine the relationship between college students' perceptions of stress, metacognition, and emotional control. 226 college students in all, ranging in age from 18 to 35, participated in the cross-sectional study (M = 24.8, SD = 4.87). Participants completed a sociodemographic form, the Perceived Stress Scale, the Emotional Regulation Questionnaire, and the Metacognitive Awareness Inventory. The study's findings showed that the majority of participants experienced moderate stress (Male= M = 32.4, SD = 5.3, Female= M = 28.7, SD = 4.9), and male students reported less mastery of metacognitive processes than female students. Additionally, a negative link between perceived stress and emotional regulation was discovered, suggesting that a low degree of emotional regulation was associated with a high level of stress. The findings further showed that higher levels of stress were associated with weaker metacognitive capacity and lower use of reappraisal as an emotional regulation method, respectively ( $r(224) = -.182$ ). These results demonstrated a relationship between perceived stress, metacognitive abilities, and emotional regulation that might have significant consequences for supporting and promoting college student performance.

**Keywords:** University students, emotional regulation, metacognition, stress

### ÖZ

Üniversite öğrencileri genellikle olumsuz duygulara maruz kalırlar ve bu durum onların üstbiliş kabiliyetleri ile ilişkilidir. Bu çalışmanın amacı üniversite öğrencilerinde algılanan stres, üstbiliş ve duygusal düzenlemeler arasındaki ilişkiyi incelemektir. Kesitsel olarak gerçekleştirilen çalışmaya yaşları 18 ile 35 aralığında (Ort.=24,8, SS=4,87) toplam 226 üniversite öğrencisi katılmıştır. Katılımcılardan veriler Sosyo-Demografik form, Üstbilişsel Farkındalık Envanteri, Duygusal Düzenleme Anketi ve Algılanan Stres Ölçeği kullanılarak elde edilmiştir. Araştırmanın sonucunda bulgular, katılımcıların çoğunun orta düzeyde strese sahip olduğunu gösterirken (Erkek= Ort. = 32,4, SS = 5,3, Kadın= Ort. = 28,7, SS = 4,9), erkek öğrencilerin kadın öğrencilere göre daha düşük üstbilişsel beceriler sergilediklerini ortaya koymuştur. Ayrıca diğer bulgular arasında, duygusal düzenleyici alt boyutları arasından yeniden değerlendirme alt boyutunun düşük seviyede veya azaltılarak kullanılmasının öğrenciler arasında yüksek stres ile ilişkisi tespit edilmiş, yüksek stres seviyesi ile düşük üstbilişsel becerileri arasında da korelasyonel bir ilişki olduğu saptanmıştır ( $r(224) = -.182$ ). Sonuç olarak algılanan stresin, üstbilişsel becerilerin ve duygusal düzenlemenin öğrencilerin başarısını destekleme de teşvik etmede önemli ilişkisinin olduğu görülmüş, bu faktörlerin önemi göz önünde bulundurularak yaklaşımlar sergilemenin öğrencilerin bireysel ve akademik gelişimini olumlu katkılar sunacağı düşünülmektedir.

**Anahtar sözcükler:** Üniversite öğrencileri, duygusal düzenleme, üstbiliş, stres

## Introduction

Students experience stress as a result of one or more unpleasant and stressful occurrences. One factor that may have an impact on metacognitive abilities and emotional regulation is stress. There are behavioral, physiological, and psychological effects of stress, yet everyone responds to stressors differently (Bedewy and Gabriel 2015). University students experience stress from their new obligations in their social and academic lives, which can have an impact on how they interact with others and control their emotions. On the other hand, their ability to regulate their emotions in such trying circumstances heavily depends on their capacity for metacognition.

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According to Cumming et al. (2019) adolescents with significant behavioral issues showed worse executive function skills and higher levels of stress than their peers. The findings also showed that students who demonstrated inferior metacognitive abilities participated less in class activities and exhibited maladaptive behaviors. Executive control, often known as metacognition, is defined as a person's awareness of their own and other people's capacities for cognition as well as their active control over that awareness (Tanner 2012). Metacognitive skills include metacognitive knowledge and metacognitive regulation, which influence people's capacity for learning and their ability to do a variety of activities.

Students need to understand how metacognitive skills are intimately related to the learning process, cognitive tasks, goals, behaviors, and experiences, which have an impact on students' success (Somatori and Kunisato 2022). By controlling these processes, metacognitive abilities help students be aware of the learning processes and ensure effectiveness (Wokke et al. 2020). According to research, metacognition is favorably correlated with success and academic achievement in the setting of schooling (Dent and Koenka 2016). Additionally, research demonstrates that among college students engaged in teacher education courses, metacognitive knowledge and metacognitive regulation are positively connected with students' course grades and grade point averages (Young and Fry 2008). Performance in teenagers was found to be correlated with metacognitive awareness and control (Narang and Saini 2013). Concisely, in the context of education, metacognition affects student learning and has the potential to inform the development of successful interventions to improve student learning. In order to improve students' academic success, it may be useful to discover the metacognitive processes that affect other activities, such as emotion control and perceived stress, which are tested here. Students who have cognitive executive functioning issues may find it difficult to manage their stress levels and emotion-related information processing (Avhustiuk et al. 2018).

The study by Holley et al. (2017) revealed that adolescents who scored worse on cognitive inhibition and mental flexibility exhibited greater aggressive conduct in the classroom and feared worse academically. The ability to control one's emotional reactions in response to the environment in order to attain a particular goal is known as emotional regulation (ER) (Önen et al. 2013, Favieri et al. 2021). Emotion regulation includes the ability to manage stress and the regulation and management of various emotions. It is a crucial ability for people to adapt and carry out better life functions. It overlaps with stress management skills that people run into unpleasant and difficult situations. Therefore, techniques for emotional regulation assist individuals in controlling their level of responses and acting correctly when they need to express their feelings. It is crucial to keep in mind that controlling one's emotions can help one accomplish both internal and exterior goals. The ability to control emotions has been linked to psychological well-being since it can either support or interfere with one's ability to function (Morie et al. 2020, Aguilera et al. 2021, Pedrini et al. 2021). Previous studies have shown a favorable and significant link between emotion control and academic achievement (Gumora and Arsenio 2002), as well as a negative link between behavioral issues and learning difficulties (Han et al. 2020). However, middle school, elementary school, and kindergarten pupils have been the focus of the majority of previous studies on emotional control. Deficits in metacognition, emotional control, and perceived stress were found among college students. Therefore, the purpose of the current study is to investigate the connection between emotional control, metacognition, and perceived stress in college students. Additionally, the study hypothesizes that there is a significant difference between gender, age, student major and stress level, emotional regulation strategy, and metacognitive subdimension among college students.

## Method

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### Participants

A total of 226 undergraduate and graduate college students participates in the study. The participants' ages are between 18 and 35 years old. Among the participants, 128 (56.7%) are male and 98 (43.3%) are female. The voluntary response sampling is employed by using an online survey and a face-to-face interview. Participation in the study is entirely voluntary. 132 (58.5%) of the participants completed the questionnaires and scales online, and 94 (41.5%) of them were carried out by the researcher through face-to-face participation.

The data from the participants were obtained through questionnaires and scales. This procedure was carried out with random sampling. Inclusion criteria for participation in the study are, being in the 12-18 age range, not having any psychiatric or chronic disease, and voluntarily agreeing to participate in the study. Participants who did not meet these criteria were not included in the study. Parent and participant consent forms were obtained from the volunteers participating in the study. All participants were from Kapadokya University's undergraduate and graduate programs. 158 (85.6%) of them were from psychology, 26 (14.4%) of them were from the English

Language and Literature Department, and 42 (18.6%) of them were from graduate programs. Participants who did not meet the inclusion criteria were not included in the study. Alpha error was taken as 5% and beta error as 10% in the sample size calculated using  $G^*$  power analysis, and the differences between the variables were determined because of the statistical analysis. Thus, sample size was determined as 226.

## **Procedure**

Participants are recruited via flyers on campus bulletin boards, emails, student social media, and face-to-face invitations. The instruments are administered by the researcher, and the written consent form was signed by all the participants. Students, then, have completed the PSS, ERS, self-report of metacognition inventory, and socio-demographic information surveys. Stress levels are ascertained using the scores generated from the SPSS, emotional regulation from the scores on the ERS, and metacognition from the MAI. Participants are informed that they are not obligated to complete the survey and have the right to withdraw at any time. The researcher made certain that all ethical considerations were followed during the research. This study was approved by the Kapadokya University Ethics Committee with the date of 30.04.2022 and the protocol number of 29533901-050.99-14666.

## **Measures**

### ***Metacognitive Awareness Inventory (MAI)***

A modified version of the Metacognitive Awareness Inventory (MAI) is used to measure metacognition. The scale Turkish adaptation was conducted by Akin et al. (2007) and the internal consistency of the entire inventory was .95. The item-total correlations ranged from .35 to .65 and test-retest reliability coefficient was .95. Thus, the Metacognitive Awareness Inventory is a valid and reliable instrument that can be used in the field of education. The MAI is a 52-item survey that examines metacognitive learning activity. Eight subscales measuring metacognitive knowledge and regulation are averaged. These subscales include planning, information management techniques, comprehension monitoring, debugging/problem-solving strategies, and evaluation. Declarative knowledge, procedural knowledge, conditional knowledge, planning, and evaluation Studies revealed confirmatory factor analysis acceptable alpha reliabilities of at least .91 across two factors (i.e., knowledge of cognition and regulation of cognition). The current study found a Cronbach alpha of .89 for knowledge of cognition and .88 for regulation of cognition, and a coefficient  $\alpha$  for the entire instrument reached .93.

### ***Emotion Regulation Scale (ERS)***

The Emotion Regulation Scale has ten items on a seven-point scale [1 strongly disagree- 7 strongly agree] and was developed by John and Gross (2003). The Turkish adaptation of the scale was made by Eldeleklioglu and Eroglu (2015), and the Cronbach Alpha coefficient was found .78 for the reappraisal sub-dimension and .73 for the suppression sub-dimension. It has been found to be a valid and reliable tool that can be used in Emotion Regulation studies. The scale has two sub-dimensions as suppression and reappraisal. Eldeleklioglu and Eroglu (2015), who adapted the scale into Turkish, found the internal consistency coefficient as .78 for reappraisal and .73 for suppression. The test-retest coefficients were determined as .74 for reappraisal and .72 for suppression. In this study, the reappraisal Cronbach's alpha value of the scale was found as .86 and the suppression value as .78, and it was determined that the scale had a very good level of internal consistency and reliability.

### ***Perceived Stress Scale (PSS)***

The Perceived Stress Scale (PSS) was developed by Cohen et al. (1983). The long and short forms of the Perceived Stress Scale were translated into Turkish by Eskin et al. (2013), and their validity and reliability were tested. Consisting of 14 items in total, PSS was designed to measure how stressful the individual's life is in certain situations. Participants evaluate each item on a 5-point Likert-type scale ranging from "Never (0)" to "Very often (4)". In addition to its fourteen-item long form, PSS has two more forms, 10 and 4 items. While PSS-14 scores range from 0 to 56, PSS-10 scores range from 0 to 40, and PSS-4 scores range from 0 to 16. A high score indicates an excess of one's perception of stress. Eskin et al. (2013) found the internal consistency of the scale to be 0.86 in their study. In this study, the Cronbach Alpha value of the scale was found to be 0.84.

## **Statistical Analysis**

All statistical analyses were carried out using SPSS 25.0 package program. In the data analysis, descriptive statistics, mean and standard deviation of participants' stress level are illustrated in Table 1. Table 2 illustrated mean rating analysis on the emotional regulation strategy and Table 3 shows relationship between

metacognition, emotional regulation, and perceived stress of students through the Pearson correlation coefficient test. In order to figure out the relationship of metacognition, perceived stress and emotional regulation strategy-reappraisal and emotional regulation strategy-suppression, the Pearson correlation test was conducted. Linear regression analysis was performed on whether the measures of age, gender, and metacognition predicted emotional regulation strategy-reappraisal among students. It allowed to determine contribution of each aspect of measured metacognition and each measure of emotional regulation-reappraisal subdimension.

## Results

There are 226 participants who have completed the study. Out of the 226 participants in the study, 56.7% (n = 128) are male (M = 32.4, SD = 5.30), and 43.3% (n = 98) are female (M = 28.70, SD = 4.90). Also, 85.6% (n = 158) are from undergraduate psychology programs (M = 41.32, SD = 4.76), 14.4% (n = 42) are from undergraduate English Language and Literature Department (M = 28.36, SD = 3.94), and 18.6% (n = 42) are from graduate programs (M = 34.57, SD = 4.08). Among the participants, 72.5% (n = 164) are between the ages of 18 and 27, and 27.5% (n = 62) are between the ages of 28 and 35 years old. The ages of undergraduate students' range are from 18 to 27 years old (M = 18.3, SD = 3.2), while the ages of graduate students' range are from 28 to 35 years old (M = 27.5, SD = 5.3). In total, the ages of all participants range from 18–35 years old (M = 24.8, SD = 4.87). Table 1 shows that there is no significant difference between gender, age, student major, and participants' stress level. Thus, hypothesis 1 is rejected.

Variables	Participants	n	M	SD	t	Df	p
Gender	Male	128	32.4	5.30	1.687	224	.091
	Female	98	28.70	4.90			
Age	18-27	164	18.30	3.2	1.964	327	1.532
	28-35	62	27.50	5.3			
Student Major	Undergraduate-Psychology	158	41.32	4.76	2.487	408	1.965
	Undergraduate- English Language and Literature	26	28.36	3.94			
	Graduate	42	34.57	4.08			

The test of normality result showed that Kolmogorov-Smirnov (df = 314, p >.000) and Shapiro-Wilk (df = 314, p >.000) distributed variables normally. Also, the results of Skewness and Kurtosis supported the normality of variables. Then, a t-test was conducted between gender, age, and student major for statistical significance for participants' stress levels and emotional regulation strategies. Also, a Pearson correlation test was conducted between metacognition, emotional regulation, and perceived stress among students. Lastly, multiple logistic regression was chosen to see which variable predicted the students' perceived stress level the most. These statistical analyses were performed to support the hypothesis of the study.

	Variable	N	M	SD	t	p	
Reappraisal	Gender	Male	128	18.3	8.15	224	.000
		Female	98	12.7	6.52		
	Age	18-27	164	22.63	10.68	108	.107
		28-35	62	18.72	9.34		
	Student Major	Undergraduate-Psychology	158	32.58	14.83	537	.345
		Undergraduate- English Language and Literature	26	14.69	10.66		
Graduate		42	25.66	12.74			
Suppression	Gender	Male	128	16.4	10.36	224	.208
		Female	98	11.8	7.66		
	Age	18-27	164	28.31	17.83	238	.350
		28-35	62	22.6	12.3		
	Student Major	Undergraduate-Psychology	158	40.68	19.84	422	.283
		Undergraduate- English Language and Literature	26	29.37	15.64		
Graduate		42	37.55	18.22			

The results in Table 1 show that male and female students reported similar amounts of stress. There is no significant difference in the stress level of male and female students,  $t(224)=1.687$ ,  $p=.091$ , despite the fact that the male students ( $M = 32.4$ ,  $SD = 5.3$ ) are reported to have slightly higher stress than the female students ( $M = 28.7$ ,  $SD = 4.9$ ). There is no significant difference in the stress level of the aged 18–27 years and the aged 28–35 years,  $t(327) = 1.964$ ,  $p = 1.532$ . There is also no significant difference in the stress level of the student's major,  $t(408)=2.487$ ,  $p=1.965$ .

Table 2 reveals that male students ( $M = 18.3$ ,  $SD = 8.15$ ) have a higher mean rating than female students ( $M = 12.7$ ,  $SD = 6.52$ ) on the reappraisal item for emotional regulation strategy. This shows that male students use appraisal as an emotional regulation strategy more strongly than female students. The aged of 18–27-year participants have a higher mean rating ( $M = 22.63$ ,  $SD = 10.68$ ) than the aged of 28–35-year participants ( $M = 18.72$ ,  $SD = 9.34$ ). Also, undergraduate psychology students have a higher mean rating ( $M = 32.58$ ,  $SD = 14.83$ ) than undergraduate English Language and Literature Department students ( $M = 14.69$ ,  $SD = 10.66$ ) and graduate students ( $M = 25.66$ ,  $SD = 12.74$ ). This means that reappraisal of emotional regulation strategies is more prevalent among 18–27-year-old participants, undergraduate psychology students.

There is a significant difference in the use of reappraisal between male and female students ( $p = .000$ ). Also, male students have a higher mean rating score ( $M = 16.4$ ,  $SD = 10.36$ ) than female students on the suppression item for emotional regulation strategy. This also shows that male students use suppression as an emotional regulation strategy more strongly than female students. There is no significant difference in the use of suppression between male and female students ( $p = .208$ ), age ( $p = .350$ ), and student major ( $p = .283$ ). Thus, hypothesis 2 is rejected. Also, the aged of 18-27 years old participants ( $M = 28.31$ ,  $SD = 17.83$ ) and undergraduate psychology students ( $M = 40.68$ ,  $SD = 19.84$ ) use suppression as an emotional regulation strategy more strongly.

The results also showed that male students ( $M = 22.7$ ,  $SD = 5.7$ ) and female students ( $M = 20.8$ ,  $SD = 5.1$ ) reported similar levels of stress. There is no significant difference in the stress levels of male and female students ( $t(224)=1.382$ ,  $p=.208$ ). Male students have reported lower metacognitive skills ( $M = 43.8$ ,  $SD = 18.5$ ) as compared to female students ( $M = 56.4$ ,  $SD = 22.1$ ,  $t(224) = -2.534$ ,  $p = .152$ ). As a result, there is no significant difference in stress level and metacognitive abilities between male and female students. However, there is a significant difference in the use of reappraisal between male and female students.

Variables	1	2	3	4
1-Metacognition	–			
2-PSS	-.182**	-		
3-ERQ-Reappraisal	-.367**	.038	-	
4-ERQ-Suppression	.002	-.185	-.003	-
5-ERQ Total	-.283	-.067	.678**	.308**

\* $p < .05$ , \*\* $p < .001$ , ERQ: Emotional Regulation Questionnaire, PSS: Perceived Stress Scale, Pearson Correlation

Table 3 indicates that reappraisal and stress are negatively correlated,  $r(224) = -.367$ ,  $p < .001$ . This means that individuals with higher reappraisal scores report a lower stress level. Stress and ERQ total scores are negatively correlated,  $r(224) = -.067$ ,  $p < .001$ . This indicates that a lower or reduced use of reappraisal as an ER strategy correlates with a feeling of greater stress for individuals. Stress and metacognition total scores are negatively correlated ( $r(224) = -.182$ ,  $p < .001$ ). This means that lower metacognitive skills correlate with a high level of stress. A multiple logistic regression analysis is used to determine how suppression and reappraisal of emotional regulation influence perceived stress and metacognition (Table 4).

	B	S.E	t	p	95% C.I for Exp (B)
Age	.152	.085	1.785	.138	[.381-.076]
Gender	-.652	.104	2.571	.362	[.893-.174]
Student Major	-.972	.632	3.844	.774	[-.662-.082]
Metacognition	-.258	.023	-3.576	<.001	[-.096-.026]
ERQ (Reappraisal)	-.418	.071	-4.194	<.001	[-.672-.243]
Constant	38.524	1.964	12.806	<.001	[22.537- 37.641]

ERQ: Emotional Regulation Questionnaire

The multiple logistic regression analysis is performed to determine if emotional regulation and metacognition skills significantly predict students' stress. The two predictors explained 38% of the variance ( $R^2=.320$ ,  $F(2.222)=24.68$ ,  $p<.001$ ). It is found that reappraisal significantly predicted students' stress ( $\beta_1=-.42$ ,  $p<.001$ ), as did metacognitive skills ( $\beta_2= -.26$ ,  $p<.001$ ) (Table 4). The age, gender and student major did not show statistical significance for perceived stress level ( $p>.001$ ).

## Discussion

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This study investigated the relationship between metacognition, emotional regulation, and perceived stress in college students. The results concluded that majority of the participants have moderate stress, and there are similar levels of stress for male and female students. In terms of metacognitive skills, male students reported lower metacognitive skills than female students. Studies have demonstrated that students who have lower metacognitive functions are associated with anxiety, depression, and an increased level of stress (Aydın 2010, Irak et al. 2015). It is important to conclude that metacognition can be an important factor not only for psychological well-being but also for the cognitive and emotional well-being of the individual (Köseoğlu 2013). The present study found that a reduced ability to regulate emotions or a reduced ability to make use of emotional regulation strategies are associated with a high level of stress.

Yılmaz et al (2011) conclude that the intensity and experience of multiple negative emotions that are related to risk appraisals may lead to difficulties in using situationally appropriate emotion regulation strategies among students. This study finds that a lower or reduced use of reappraisal as an emotional regulation strategy is linked to high levels of stress. Similarly, Sarıçam (2015) reports that higher risk appraisal may be related to heightened levels of hyperarousal, lower metacognitive abilities, and higher-level negative emotions. In other words, the young people who appraise higher levels of risk in their environment might be more likely to experience stress, lower cognitive functioning, anxiety, and depression (Kremen et al. 2019). The study by Cheng (2016) concludes that the difficulties in several components of emotion regulation are associated with depression, stress, generalized anxiety, and general psychological distress.

The findings of this study revealed that most of the participants have moderate stress, both male and female students. This finding is in line with some research (Huberty et al. 2019, Barbayannis et al. 2022) that suggests social factors, homesickness, lower academic performance, clashes with academic staff, health problems, life changes, overwhelming tasks, and activities explain the perceived stress level among students. Also, the study by Jenkins et al (2021) added that perceived stress level is not related to students' age, grade, and academic performance. From the opposite perspective, McLean et al. (2022) demonstrates that college students are exposed to more stressors, which impact their emotional and psychological mood. Similarly, Heinen et al. (2017) find that students who have higher perceived stress experience more psychological, psychosocial, and academic problems. On one hand, Gavurova et al. (2020) found that the year of study among college students was the strongest predictor of perceived stress level. The current study found that although gender did not show statistical significance, male students perceived slightly more stress than female students.

The results of this study showed that male students used reappraisal and suppression as an emotional regulation strategy more strongly than female students. There have been numerous studies that examined emotional regulation and stress between different levels of students, such as undergraduate and graduate students. Wang et al (2020) found that undergraduate male students made more use of suppression than graduate male students. Both undergraduate and graduate students make more use of reappraisal as an emotional regulation strategy than suppression. The study by Wen et al. (2020) determined that reappraisal as an emotional regulation strategy was very effective in dealing with stress among college students. Some authors include adolescent groups to investigate emotional regulation and their daily lives activities (Wills et al. 2011, Romano et al. 2020, Mulyani et al. 2021,). The results of the study concluded that adolescents who depend on reappraisal have more cognitive resources to enable them to stay attentive and regulate their emotions well in their daily lives. These findings supposedly indicate that an improved metacognitive skill is linked to a greater reliance on reappraisal, while reliance on suppression is linked to poorer metacognitive skills. Another important issue is metacognition and its relation to perceived stress and emotional regulation. Metacognitive skills have an important role in the learning process, adaptation, adjustments into a new life, academic performance, and emotional regulation of the students. Similarly, Azzi et al. (2022) finds that a positive relationship between metacognition and emotional regulation may help in dealing with aggressive behaviors that students exhibit as a result of stress. All this is based on the close relationship between stress and emotional regulation. It is supposed that a high degree of stress causes a person's inability to regulate their emotions.

Other studies, such as those by Shields et al. (2016) and Berthelsen et al. (2017), concludes that there is a positive relationship between high levels of stress, executive abilities, and cognitive regulation, which influence emotional responses ineffectively. It is supported that a higher stress level may reduce executive abilities as well as metacognitive skills, which in turn lead to an inability to regulate emotions. This means a high level of stress may lead to lower metacognitive skills and thus an inability to regulate emotions. Findings from the current study shows that there is a negative relationship between stress and metacognition. It is important to note that being exposed to stressful situations was seen to affect metacognitive abilities and skills negatively, causing their impairment and executive functions. They, therefore, assumed that with impaired executive functioning or metacognitive skills, stress would result in poorer cognitive abilities and an increased use of uncontrollable behaviors and emotional responses among students.

To sum up, the present study findings close a gap in the literature about metacognition, emotional regulation, and perceived stress levels among university students. The study results indicates that metacognitive abilities are important components of maintaining positive emotions and regulations. The present findings may provide a first step toward the possible development of a metacognitive understanding of the relationship between perceived stress and emotional regulation, with a view toward promoting better cognitive abilities through metacognitive modification and training.

The current study has some limitations that need to be acknowledged. The participants of the current study are university students who do not represent all young population. It would be a problem about the generalization of the findings because the sample size was small and from one University. A larger sample size may be needed to ensure higher representation of the population in the future studies. Also, social desirability, self-report biases, context effects, and poor recall may have contributed to errors in self-report measurements.

## Conclusion

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Metacognitive skills and emotional regulation are increasingly important subjects in students' lives as they are vulnerable to challenges and exposed to high levels of stress in new environments. Thus, it is important to support students in gaining certain skills to deal with stress and pressure from school and daily duties. Students should be offered interventions that promote stronger emotional regulation and metacognitive abilities. By providing workshops and resources, students may be prevented from experiencing a high level of stress, which may help academic achievement and balance course demands.

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