The Effect of Fear of COVID-19 on Depression, Anxiety and Stress in Undergraduate Students during the Pandemic: The Mediating Role of Self-Regulation

OPEN ACCESS

Volume: 11

Special Issue: 1

Month: October

Year: 2023

E-ISSN: 2582-1334

Received: 07.08.2023

Accepted: 25.09.2023

Published: 01.10.2023

Citation:
Ay, İ. (2023). The Effect of Fear of COVID-19 on Depression, Anxiety and Stress in Undergraduate Students during the Pandemic: The Mediating Role of Self-Regulation. *Shanlax International Journal of Education*, 11(S1), 80–92.

DOI:
https://doi.org/10.34293/education.v11iS1-Oct.6652

İsmail Ay
Ataturk University, Turkey
https://orcid.org/0000-0001-8364-7149

Abstract
The World Health Organization declared the COVID-19 pandemic on March 11, 2020. Subsequent lockdowns and fatalities have significantly impacted individuals' lives, social relationships, and economic conditions. While pandemics affecting populations can lead to health issues, they also give rise to psychological disturbances such as anxiety, worry, panic, loneliness, depression, fear, and traumatic symptoms. Research has demonstrated that these symptoms are commonly observed across various segments of society. Self-regulation refers to individuals' efforts to modify their thoughts, emotions, desires, and actions in line with their desired goals. It emphasizes that individuals are active agents and decision-makers rather than passive observers in the face of events. Studies have found that self-regulation is associated with success, well-being, social competence, academic performance, peer bullying, depression, anxiety, obesity, and various psychopathological conditions. COVID-19 research has also identified relationships between emotional regulation and depression, anxiety, and trauma symptoms. Covid-19 has also been associated with educational problems such as decline in student achievement, learning losses, problems with continuing education and drop-outs. In this study, the relationships between COVID-19 fear and depression, anxiety, and stress are examined, focusing on the mediating role of self-regulation in university students. Structural equation modeling and mediation analyses were conducted using collected data. The results indicate that COVID-19 fear significantly predicts depression, anxiety, and stress during the pandemic. Self-regulation partially mediates this relationship, diminishing the impact of COVID-19 fear and reducing levels of depression, anxiety, and stress.
Keywords: Covid-19, Depression, Anxiety, Stress, Self-regulation.

Introduction

The Impacts of COVID-19 Pandemic

The coronavirus pandemic, known as COVID-19, was first identified in December 2019 in the city of Wuhan, China, and subsequently spread rapidly worldwide. The World Health Organization declared it a global health emergency on March 11, 2020. COVID-19 ranks the fifth deadliest pandemic in history (Wikipedia, n.d.). On May 5, 2023, the World Health Organization (WHO) removed the classification of COVID-19 as a "Public Health Emergency of International Concern", but it has indicated that the pandemic's impact continues, and the risk of emerging new variants persists (WHO, 2023).

During the COVID-19 pandemic, governments and local authorities implemented measures to reduce transmission and control the spread of the virus. These measures included urging people to stay at home, closing government offices, schools, workplaces, etc., and enforcing the mandatory use of masks and social distancing.

Outbreaks of infectious diseases that affect populations not only result in physical health issues within society but also give rise to mental health problems such as anxiety, worry, and panic due to problems stemming from the epidemic, such as the spread of disease, economic difficulties, and death cases. From this perspective, considering the global scope of COVID-19, it should be regarded not only as a medical health crisis but also as a mental health emergency (Aşkın et al., 2020). Research conducted during previous pandemics and the COVID-19 period has consistently identified widespread feelings of loneliness, anxiety, health concerns, depression, fear, stress, post-traumatic stress symptoms, and avoidance issues across various segments of society (Hawryluck et al., 2004; Wu et al., 2005; Mihashi et al., 2009; Asante, 2012; Aydın et al., 2022; Arslan et al., 2021; Parker et al., 2020; Özdin & Bayrak Özdin, 2020; Lee et al., 2020; Fancourt et al., 2020; Busch et al., 2021; Albery et al. 2021; Jones et al., 2023).

In a literature review, it has been determined that the psychological effects of quarantine include, primarily, depression, stress, and low mood, as well as trauma-related stress reactions, confusion, and anger (Brooks et al., 2020). Factors influencing psychological issues were identified as extended quarantine periods, fear of infection, boredom, disappointment, inadequate resources (such as nutrition and housing), and financial losses. Warnings were emphasized about the possibility of psychological symptoms persisting even after quarantine. Similar findings were also identified in a survey study involving participants from 59 countries. In this research, approximately 25% of participants reported moderate to severe levels of depression, while about 20% exhibited anxiety symptoms. Factors such as exposure to the virus, prolonged quarantine duration, work-related difficulties, and increased conflicts with household members due to staying at home were determined as significant predictors of depression and anxiety. The study concluded that changing routines and loss of social support make it difficult for individuals to cope with these symptoms. It was emphasized that governments should provide information and integrate mental health interventions into emergency plans to support individuals' coping skills and their ability to adapt their lives to changes (Alzueta et al., 2020).

In another literature review, it was found that there were significant increases in depression, anxiety symptoms, suicidal thoughts, and behaviors among children compared to before the pandemic (Pfefferbaum, 2021). In a relational study, moderate and high levels of correlations were identified between COVID-19 fear and somatization, obsessive-compulsive symptoms, and depression symptoms (Alın, 2022). Certain hospital-based studies also indicated that symptoms worsened in individuals with a pre-existing diagnosis of obsessive-compulsive disorder (OCD) before the pandemic (Tanir et al., 2020; Guzick et al., 2021), and OCD-like symptoms were observed in the general population (Guzick et al., 2021). Similarly, a comparative study determined that during the one year of the pandemic, compared to the preceding three-year period, young individuals seeking hospitalization exhibited increased symptoms, including depression, traumatic symptoms, suicidal thoughts and behaviors, and feelings of alienation. Those who received inpatient treatment during the pandemic showed higher symptom levels compared to those who received inpatient treatment before the pandemic (Millner et al., 2022). Given the widespread negative psychological effects of both COVID-19 and previous pandemics, it is important to consider preventive and supportive interventions to prevent these issues from extending beyond being just respiratory infections and causing more serious psychological and societal problems (Ashikkali et al., 2020). However, in a study using statistical and machine learning approaches, it was found that there was a significant relationship between students' mental health and the use of online educational tools during the COVID-19 pandemic, and this relationship showed a positive correlation with students' academic performance (Atlam et al., 2022). Similarly, Moscoviz and Evans (2022), in their meta-analytic study, mostly based on studies conducted in primary and secondary schools, identified serious learning losses in students and dropouts of up to 35%. It was stated that this situation is especially higher in students with low socioeconomic status, and school dropout is higher in girls. There are

also different studies supporting the findings that COVID-19 causes learning losses and negatively affects achievement (Skar et al., 2022; Goldfeld et al., 2022; Akhdan & Aminatun, 2022; Appleby et al., 2022). König and Frey (2022), on the other hand, found negative effects on the achievement of primary and secondary school students, but reported that this effect decreased towards the end of the pandemic. In the study, the fact that the achievement of especially younger children was more negatively affected by the pandemic was interpreted as younger children's lower self-regulated learning skills compared to older children and their greater need for teachers' support.

Self-Regulation and Mental Health

The concept of self-regulation is used to refer to individuals' efforts to change their thoughts, emotions, desires, and actions in line with the goals they aim to achieve (Vohs & Baumeister, 2004). In this context, self-regulation signifies that individuals are effective actors and decision-makers, expressing a significant aspect of adaptation to life without being helpless observers in the face of events (Baumeister, 2005). Self-regulatory processes naturally initiate when routine activities are blocked or when goal orientation becomes pronounced. If inconsistencies between a person's goals and current behaviors are identified, behavioral changes are made to achieve the goal (Febbraro & Clum, 2007). Miller and Brown (1991) have outlined the process of self-regulation in 7 stages: 1) Gaining information (related to a specific situation), 2) Self-evaluation, 3) Desire for change triggered by inconsistencies (when goals and current state do not align), 4) Searching for ways to reduce inconsistencies, 5) Making plans for change, 6) Implementing behavior change, and 7) Evaluating the process in line with the goal.

Current research indicates that self-regulation begins to develop from childhood onward, and the emergence of self-regulation during this period is considered an important indicator of later-life success (Montroy et al., 2016). It has also been stated that self-regulation forms the basis of well-being (Stevenson et al., 2019; De Berardis et al., 2020) and serves as a strong predictor for psychopathologies in adulthood (De Berardis et al., 2020; Martin et al., 1996; Moffitt et al., 2011; Inwood & Ferrari, 2018). In their meta-analysis, Robson et al. (2020) found that self-regulation is associated with social competence, school engagement, academic performance, peer victimization, aggression, delinquency, substance use, depression, anxiety, and obesity. They also determined that self-regulation predicts achievement, interpersonal behaviors, psychological well-being, and a healthy lifestyle. McClelland and Cameron (2011), Ergen and Kanadlı (2017), Dent & Koenka, (2016) particularly emphasized the contribution of self-regulation to academic achievement. Ay and Alver (2022) conducted a study on university students and found that self-regulation predicts subjective well-being and that increased self-regulation reduces the need for psychological help through subjective well-being mediation. Kocovski and Endler (2007) reported that self-regulation explains 62% of the variance in depression, and they obtained similar results for anxiety. Freidlin et al. (2017) reported that inadequate use of self-regulation is associated with social anxiety.

COVID-19 and Self-Regulation: The Researches

When examining research conducted during the COVID-19 pandemic regarding self-regulation, it becomes evident that nearly all studies have focused on the relationship between the negative psychological effects of the pandemic and emotion regulation, which is one aspect of self-regulation. A study conducted before the pandemic emphasized a strong relationship between emotional self-regulation and depression and anxiety (Garnefski & Kraaij, 2018). This same relationship was also identified by Young et al. (2019), but they noted that these relationships exhibit complex structures and require further investigation. In studies during the pandemic, similar to previous research, relationships were found between emotion regulation and depression, anxiety, and trauma symptoms in individuals (Siegel et al., 2021; Waterschoot et al., 2022; Scharf, et al., 2023; Niu et al., 2023; Chen et al., 2023; MacDonald, 2023; Polujanski et al., 2023). In a longitudinal study examining loneliness, depression, and emotion regulation, it was found that difficulties in emotion regulation predict depression, but these difficulties do not mediate between loneliness and

depression (Groark et al., 2021). Raghunathan et al. (2022) compared self-regulation levels of children aged 4-13 before and after the pandemic and identified a slight decrease in self-regulation due to the pandemic. However, they reported that there was no evidence suggesting that this decrease led to significant problems. Nevertheless, the researchers noted that this decrease could be an early signal for future negative emotional and behavioral problems.

Based on all of this information, it is expected that, just like in the general population, the COVID-19 pandemic will lead to psychological distress and disrupt psychological adaptation levels among university students. It is predicted that this negative emotional experience during the pandemic will impact students' levels of depression, anxiety, and stress (DAS). It is also believed that self-regulation can play a protective or ameliorating role against these negative effects of the epidemic and reduce this negative effects. Therefore, this study sought answers to the following questions:

1. Is there a relationship between COVID-19 and depression, anxiety, and stress during the pandemic?
2. Does fear of COVID-19 predict depression, anxiety, and stress during the pandemic?
3. Does self-regulation mediate the relationship between fear of COVID-19 and depression, anxiety, and stress?

Method

Participants and Procedure

The data for this study were collected during April and May 2021, a period marked by partial and complete lockdowns due to COVID-19 in Turkiye. Due to the pandemic, data was collected online using "Google Forms." After creating the forms, voluntary participation of university students was encouraged through email and social media platforms. In this manner, a total of 429 students completed the scales. However, following the "Mahalanobis Distance Values" analysis (Seçer, 2013), 70 individuals identified as outliers and disrupting the normal distribution were removed from the dataset. As a result, the analysis continued with a total of 359 individuals. Tabachnick and Fidell (2013) suggest that a minimum of 300 participants is appropriate for factor analysis. Among the participants included in the analysis, 288 (80.2%) were female, and 71 (19.8%) were male. The age range of participants falls between 18 and 28 years old. Students from 16 different universities participated in the study.

Data Collection Tools

Depression, Anxiety, and Stress Scale (DASS-21): The DASS-21 was created by selecting certain items from the original 42-item scale to shorten it (Lovibond & Lovibond, 1995). The Turkish adaptation of the scale was conducted by Sarıçam (2018) using samples of both normal and clinically diagnosed individuals. The internal consistency coefficients of the scale were α=.85 for depression, α=.80 for anxiety, and α=.77 for stress. The test-retest reliability coefficients obtained through the test-retest method in normal samples were r=.68 for depression, r=.66 for anxiety, and r=.61 for stress. In this study, the internal consistency coefficients were calculated as α=.89 for depression, α=.84 for anxiety, and α=.87 for stress.

COVID-19 Fear Scale: This scale was developed by Ahorsu et al. (2020) to measure individuals' fear related to the pandemic. The scale consists of 7 items and a single factor. The Turkish adaptation of the scale was done by Ladikli et al. (2020), and its internal consistency coefficient was α=.82, and test-retest reliability was r=.72. In this study, the internal consistency coefficient of the scale was calculated as α=.86.

Self-regulation Scale: The scale was originally developed by Brown et al. (1999) with 63 items and 7 factors. Carey et al. (2004) later created a short form consisting of 31 items and a single factor. The Turkish adaptation of the scale was conducted by Ay (2013). In the Turkish version, the scale was structured into 5 factors in line with the original scale. These factors are gathering information, focusing on alternatives, planning, implementation, and evaluation. The confirmatory factor analysis of the scale resulted in $\chi 2$= 953,25, sd=429, p<.01, $\chi 2$/sd=2,22, and fit indices of RMSEA=.064, CFI=.95, NNFI=.94, and RFI=.90. The internal consistency coefficient of the scale was determined to be α= .89, and the test-retest reliability was r= .78 for the Turkish version. For this study, the internal consistency coefficient of the scale was calculated as α= .92.

Research Design and Data Analysis

This study was conducted in accordance with the correlational survey model. Correlational survey models aim to determine the presence and/or degree of co-variation among two or more variables. While the correlational survey model does not provide a true cause-and-effect relationship, it enables the prediction of one variable based on the knowledge of the state of another variable (Karasar, 2014; Büyüköztürk et al., 2014).

Descriptive statistics and structural equation modeling were applied to the data analysis. The JASP v0.17 statistical program was used for the analyses. Firstly, outliers in the data were examined. Mahalanobis Distance Values (Seçer, 2013) were calculated, and 70 participant data points were excluded from the dataset. Subsequently, the kurtosis and skewness values of the data were checked. These values ranged from -1.01 to 1.10 for kurtosis and from -0.48 to 1.78 for skewness. As these values fell within acceptable ranges, normal data distribution was assumed (Gürbüz, 2021). To assess the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity values were examined. For data to be suitable for factor analysis, the Bartlett test should be significant ($p < .05$), and the KMO index should be at least .6, ranging from 0 to 1 (Tabachnick & Fidell, 2013). For this study, the Bartlett value was $p < .001$, and the KMO index was .94. Based on these results, it was determined that the available data was suitable for factor analysis.

Results

Correlation Analysis

The Pearson's Correlation test was conducted to observe the relationships between variables. In this analysis, it was found that during the pandemic period, COVID-19 fear had a moderately positive significant relationship with stress ($r=.34$, $p<.001$) and a moderately positive significant relationship with anxiety ($r=.38$, $p<.001$), as well as a weak positive significant relationship with depression ($r=.25$, $p<.001$). The relationship between COVID-19 fear and self-regulation was negative and statistically significant at a low level ($r=-.18$, $p<.001$). Self-regulation, on the other hand, exhibited moderately significant negative relationships with depression ($r=-.50$, $p<.001$), anxiety ($r=-.37$, $p<.001$), and stress ($r=-.34$, $p<.001$). The findings are presented in Table 1.

Table 1 Pearson's Correlations Between Measurement Tools

Variable	COVID19 Fear	Stress	Depression	Anxiety	Self-Regulation
1. COVID-19 Fear	—				
2. Stress	0.343 ***	—			
3. Depression	0.250 ***	0.776 ***	—		
4. Anxiety	0.384 ***	0.752 ***	0.654 ***	—	
5. Self-Regulation	-0.183 ***	-0.339 ***	-0.501 ***	-0.365 ***	—
*** p < .001					

Measurement Model

Before moving on to the structural model, it is recommended to examine the measurement model since evaluating the relationships between constructs without analyzing the observed variables is not considered appropriate (Bayar, 2022). The analysis results indicated that the model is consistent with the dataset. ($\chi 2/df=2.24$, CFI=.92, TLI=.91, NNFI=.91, IFI=.92, GFI=.98, RMSEA=.059, SRMR=.058)

Structural Model

The structural model examined the predictive effect of COVID-19 fear on DAS. When examining the obtained parameters from the analysis, it can be observed that all paths from COVID-19 fear to DAS are significant. When considering the goodness-of-fit indices of the model ($\chi 2/df=2.40$, CFI=.91, TLI=.90, NNFI=.90, IFI=.91, GFI=.92, RMSEA=.062, SRMR=.051), it can be stated that the indices are at acceptable levels, and the model is confirmed. When examining the regression coefficients, it was found that COVID-19 fear positively and significantly predicts depression ($\beta=.17$, $p<.001$), anxiety ($\beta=.16$, $p<.001$), and stress ($\beta=.26$, $p<.001$). According to the results, COVID-19 fear during the pandemic explains 8% of the variance in depression ($R^2=.081$),

26% of the variance in anxiety (R^2=.257), and 17% of the variance in stress (R^2=.172). The path diagram of the model is provided in Figure 1.

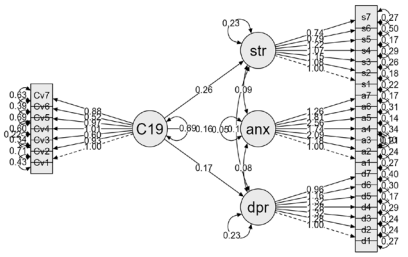

Figure 1 Predictive Role of COVID-19 on Depression, Anxiety and Stress

Mediating Model

In the final stage, a mediation analysis was conducted to determine whether self-regulation plays a mediating role between COVID-19 fear and DAS. The estimator "Maximum Likelihood" was chosen in the analysis, and the Bootstrap method (Biesanz et al., 2010) was applied.

Table 2 Direct Effects

					95% Confidence Interval	
	Estimate	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**
CovidFear → Anxiety	0.062	0.009	7.004	< .001	0.044	0.081
CovidFear → Depression	0.031	0.009	3.586	< .001	0.014	0.048
CovidFear → Stress	0.055	0.009	6.041	< .001	0.037	0.072
Note. Delta method standard errors, bias-corrected percentile bootstrap confidence intervals, ML estimator.						

Upon analyzing the results, it can be observed from the data in Table 2 that the direct effects between COVID-19 and DAS are positively and significantly related (p < .001). The fact that the Bootstrap 95% confidence interval values do not include 0 supports this finding.

Table 3 Indirect Effects

					95% Confidence Interval	
	Estimate	**Std. Error**	**z-value**	**p**	**Lower**	**Upper**
CovidFear → SelfReg → Anxiety	0.011	0.003	3.099	0.002	0.004	0.019
CovidFear → SelfReg → Depression	0.016	0.005	3.334	< .001	0.007	0.028
CovidFear → SelfReg → Stress	0.010	0.003	3.032	0.002	0.004	0.019
Note. Delta method standard errors, bias-corrected percentile bootstrap confidence intervals, ML estimator.						

Subsequently, the results concerning the indirect effects provided in Table 3 have been examined. In this case, where self-regulation serves as a mediator, it can be observed that there is a decrease in the regression coefficients of COVID-19 predicting depression, anxiety, and stress, and in each case, this mediation is statistically significant (p < .01). Furthermore, it is evident that the Bootstrap 95% confidence interval values are not equal to zero. This situation indicates that self-regulation mediates the relationship between COVID-19 fear and DAS. However, while the indirect effects are significant, the fact that the direct effects in the model are also significant suggests that the mediating effect of self-regulation is partial rather than full mediation. The path diagram related to the model is provided in Figure 2.

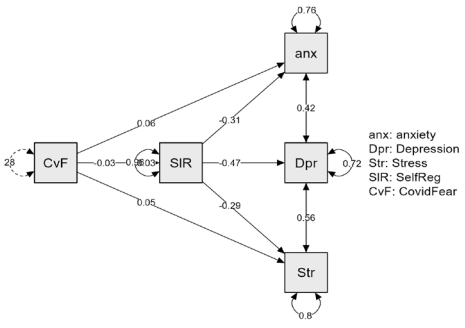

Figure 3 Path Diagram of Mediation Model

Discussion

In this study, the aim was to investigate the relationship between COVID-19 fear, related to

the spread of the disease during the COVID-19 pandemic, and depression, anxiety, and stress (DAS) among university students, as well as to determine whether self-regulation mediates this relationship. Firstly, as anticipated, positive correlations were found between COVID-19 fear and DAS. Yalçın et al. (2022) found moderate positive correlations between COVID-19 and DAS in their study. Alın (2022) also discovered a moderate correlation between COVID-19 fear and depression. Two separate meta-analytic studies conducted similarly revealed significant moderate relationships between COVID-19 and DAS (Erbiçer et al., 2022; Çıkrıkçı et al., 2022). In contrast to others, this study found a low-level relationship between depression and COVID-19 fear. This could be attributed to the timing of this study, as it was conducted in the later stages of the pandemic, implying that individuals might have gradually adapted to these challenging circumstances over time. However, across all studies, depression consistently exhibited the weakest relationship with COVID-19 fear. This suggests that COVID-19 fear may have a stronger impact on anxiety and stress, while its effect on depression might be related to other variables beyond a direct influence. Indeed, Çıkrıkçı et al. (2022) found in their study that anxiety serves as a significant mediator variable between COVID-19 fear and depression.

In the subsequent analysis of this study, it was found that COVID-19 fear significantly and positively predicted DAS. Similarly, Arslan et al., (2021) also found that COVID-19 fear significantly predicted DAS in their study. Odachi et al. (2022) discovered that fear predicted anxiety but not depression among nurses providing treatment to COVID-19 patients, and they explained this finding as being related to nurses' interpretations and coping strategies, which are influenced by their personality traits. In a study conducted with individuals with Multiple Sclerosis, it was found that COVID-19 fear predicted depression and anxiety, and this was attributed to the concern that patients would not be able to access the medication and treatments they needed due to lockdowns. Bakioğlu et al. (2021) also found a significant relationship between COVID-19 fear and DAS, and they emphasized that positivity played an important mediating role. Çıkrıkçı et al. (2022) stated that they found significant relationships between COVID-19 fear and DAS and that anxiety mediated the relationship between depression and COVID-19 fear. Mansueto et al. (2022) reported in their study that ongoing COVID-19 anxiety was associated with depression, general anxiety, and health anxiety, and it mediated emotional balance and psychological symptoms. The findings of all these studies are consistent with and support the results of this research.

In this study, finally, it has been determined that self-regulation partially mediates the relationship between COVID-19 fear and DAS. Accordingly, the effect between COVID-19 fear and DAS decreases when self-regulation comes in between as a mediator. This finding confirms our initial expectation. Studies focusing directly on self-regulation as a mediator in the relationship between COVID-19 fear and DAS have not been encountered. However, there are studies related to emotion regulation, which is a type of self-regulation. Siegel et al. (2021) reported that during the pandemic, death anxiety, anxiety sensitivity, and emotion regulation disorder predict peritraumatic stress symptoms, and as individuals' emotion regulation disorder scores increase, stress symptoms such as intrusive memories, avoidance, emotional symptoms, and hyperarousal also increase. Polujanski et al. (2023) stated that resilient individuals, those with high self-regulation components such as self-efficacy and cognitive self-regulation, are in the group without depression; the opposite indicates an increase in depression. Sayınta et al. (2022) also presented a similar finding. According to their findings, cognitive inflexibility serves as a full mediator between cognitive emotion regulation strategies and COVID-19-related psychological distress, and the less individuals use maladaptive strategies, the fewer problems they experience related to COVID-19. In a study examining the relationship between individuals' pre-pandemic and during-pandemic self-regulation, mental health, and well-being, it was found that low pre-pandemic self-regulation predicted high depression and traumatic distress during the pandemic. However, pre-pandemic self-regulation could not explain the trajectory of change over time. Raghunathan et al. (2022) identified a decrease in self-regulation in

children during the pandemic. They emphasized the need to investigate whether this decrease will lead to behavioral issues after the pandemic, as the psychological effects of the pandemic can persist beyond the pandemic period (Brooks et al., 2020).

All this information demonstrates that situations like COVID-19 pandemic, which lead to unwanted and significant changes in people's lives and impose restrictions, can negatively impact individuals' mental health and result in an increase in symptoms such as depression, anxiety, and stress. Negative mental health can also increase students' lack of participation in education, low academic achievement, and school attendance problems (Atlam et al., 2022; Appleby et al. 2022). The contribution of self-regulation to academic achievement has been known for a long time (McClelland & Cameron, 2011; Dent & Koenka, 2016; Ergen & Kanadlı, 2017). Again, supporting positive mental health can indirectly contribute to the achievement of students, as well as contribute to their attendance education under difficult conditions. Additionally, the inverse relationship of self-regulation with COVID-19 fear and DAS can mitigate this negativity. Practices that support self-regulation before and during the pandemic can function as protective and therapeutic measures in these challenging times. Scharf et al. (2023) determined that integrative emotion regulation predicts well-being in adolescents, while suppressive emotion regulation is associated with negative emotions and depression. They also highlighted how adolescents' accustomed emotion regulation strategies affect their adaptation to lockdown measures. Indeed, previous pandemics have shown that neglecting mental health research exacerbates psychological risks for those affected by the current pandemic, creating a gap (Zhang et al., 2020). Preventive and supportive interventions are important to prevent outbreaks from evolving beyond being merely infections and leading to serious psychological and societal issues (Ashikkali et al., 2020; Scott et al., 2021). Considering that self-regulation develops from an early age (Montroy et al., 2016), it is recommended that teachers and school psychological counselors plan and conduct activities that support students' self-regulation skills in schools, starting from pre-school education.

Limitations

This study was conducted during the later stages of the pandemic in Turkey when the most recent lockdowns occurred. However, individuals' initial levels of adaptation and the psychological distress they experience are likely to differ over time. To better understand these processes, similar studies can be designed as "longitudinal research," allowing for a more detailed examination of the effects of supportive variables such as self-regulation. Considering that self-regulation is a process that develops from childhood onwards, the fact that this study only encompasses university students is also a limitation. Similar studies could be carried out across a broader age range, including children and adolescents, to explore differences in terms of developmental stages. Furthermore, this study primarily focused on self-regulation, assuming that it could mitigate the negative impact of the pandemic. However, considering the circumstances, other variables that could support individuals during these situations, such as resilience, mindfulness, and hope, could also be examined separately or together to explore their relationships.

Acknowledge

This paper is an extended version of an oral presentation took place in 5th International COVID-19 and Current Issues Congress in 2021.

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Author Details

İsmail Ay, *Ataturk University, Turkey,* ***Email ID****: ismailay@atauni.edu.tr*