

Role of resilience in psychological adjustment and satisfaction with life among undergraduate students in Turkey: A cross-sectional study

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Abstract

Introduction: Cultivation of resilience is shown to reduce mental health problems and improve well-being. The effect of resilience on psychological adjustment problems and satisfaction with life is however not adequately discussed. This study investigated the predictive effect of resilience in psychological adjustment and satisfaction with life among undergraduate students during the second wave of the COVID-19 pandemic in Turkey.

Methods: In this cross-sectional study, a convenience sampling method was utilized to recruit undergraduate students from a public educational institution in Turkey. Psychometric valid tools, such as the *Brief Resilience Scale (BRS)*, *Brief Psychological Adjustment-6 (BASE-6)* and *Satisfaction with Life Scale (SWLS)* were used to measure the primary outcomes of the study. Data were analyzed using the independent samples t-test, one-way ANOVA, Pearson correlation, and hierarchical multiple regression.

Results: Of total 224 undergraduates participated in this study, nearly 74% were males and the mean age of the sample was 21.03±1.66 years. More than half of the participants had average socioeconomic status (53.57%) followed by above-average (40.18%) and below-average (6.25%). The results indicated that males and individuals who had low socioeconomic status reported greater psychological maladjustment problems. Furthermore, the resilience negatively predicted the psychological maladjustment ($\beta = -0.31, p < 0.01$) and positively predicted satisfaction with life ($\beta = 0.17, p < 0.05$) after controlling for age, gender, and perceived socioeconomic status.

Discussion: These results shed light on the relationship of resilience with psychological outcomes in terms of satisfaction with life and psychological adjustment during the COVID-19 pandemic. The findings of this study point to the potential role of resilience in improving satisfaction with life and psychological adjustment among undergraduate students in Turkey. Additionally, efforts by practitioners and policymakers should be made in developing resilience-building interventions to foster post-traumatic growth among students.

Take-home message: The current findings will serve as preliminary evidence to develop innovative preventative intervention programs aiming at reducing psychological adjustment problems and promoting satisfaction with life among undergraduate students in Turkey.

Keywords: COVID-19 pandemic; Psychological adjustment; Resilience; Satisfaction with life.

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INTRODUCTION

The novel Coronavirus disease 2019 (COVID-19) has caused various negative physical sequelae both short-term (i.e. cough, fatigue, and upper respiratory infection) and long-term (i.e. long COVID) since its first appearance in December 2019 [1]. In addition to such physical effects, the pandemic has caused many undesirable negative psychological effects ranging from negative emotions, including fear, anxiety, anger, and loneliness [1] to the precipitation of mood disorders such as depression and anxiety [2]. Such negative psychological effects of the disease have led studies to examine individual and social factors that protect individuals from the negative effects of stressful life events. Therefore, in this study, we aimed to examine the relationship between resilience, which not only has a protective function but also has positive psychological results, with psychological adjustment problems and satisfaction with life during the disease.

Psychological adjustment problems reflect the individual's subjective emotional distress and the effects of emotional distress in daily life [3]. Individuals with high psychological adjustment engage in more functional behaviors in daily life. Psychological maladjustment is associated with burnout among healthcare workers [4], and poor satisfaction with life among men with prostate cancer [5]. Studies provide evidence that poor psychological adjustment may be associated with several undesirable conditions, from psychosocial problems [6] to psychopathological problems [7]. For instance, Arslan et al. [8] found that coronavirus anxiety positively predicted psychological

adjustment problems in Turkish university students. More importantly, Yıldırım and Solmaz [9] revealed that psychological adjustment problems positively predicted anxiety, depression and stress, and negatively predicted satisfaction with life.

Satisfaction with life is the cognitive dimension of subjective well-being and defines the general evaluation of one's own life [10,11]. Therefore, satisfaction with life is not limited to specific areas of life, and changes in living conditions or personal standards affect satisfaction with life. Therefore, satisfaction with life is a dynamic structure. Although the degree of consistency of life with expectations is the most important determinant of satisfaction with life, individual factors such as meaning, optimism, physical health, economic status, security, relationships, and resilience affect satisfaction with life [11,12]. Since satisfaction with life is an important component of subjective well-being. Individuals with high satisfaction with life have high levels of well-being, adapt to changing conditions, are open to development and change, have positive social relationships, and are more resistant to stressful life events [13,14]. Satisfaction with life is positively correlated with positive social relationships [15], optimism [16], health-promoting behaviors [17], and negatively correlated with depression [18], stress [19], and fear of happiness [20].

Resilience is an important concept that is the subject of interest to not only psychology but also several different disciplines, including sociology, medicine, public health, and economics. Resilience is the ability to rebound from the adversity that increases the chance of reducing the negative psychological effects of stressful life events. Therefore, it has a vital role in the field of positive psychology. Psychological resilience is the capacity to adapt to stress and maintain functionality and mental health despite challenging conditions [21]. In other words, it is the capacity to repair oneself after negative life events [22]. For this reason, resilience protects individuals against the negative effects of stressors, facilitates individuals' adaptation to their social environment, and causes that even negative life events are handled in a way that contributes to personal development. The studies carried out during the COVID-19 pandemic have revealed the functionality of resilience. It has been observed that resilience is negatively associated with depression and anxiety [23], loneliness [24], and positively associated with satisfaction with life [25] during the disease. Resilience was also studied in the pre-pandemic era, for instance, Liu et al. [26] revealed that resilience was positively associated with psychological adjustment. Previous studies have generally addressed resilience with negative traits, such as, stress, adversity, or trauma [27]. Moreover, several studies related to psychological adjustment have been conducted with patient samples [28,29]. For this reason, there was a need for studies in which resilience could be studied with both positive as well as negative psychological characteristics, and psychological adjustment among the non-patient samples, which the current study sought to investigate.

In the light of literature and the theoretical frameworks, the present study will investigate the relationship between resilience, satisfaction with life, and psychological adjustment problems in a Turkish sample of students during COVID-19. The authors of this study hypothesized that resilience will have a significant predictive effect on both satisfaction with life and psychological adjustment upon controlling for age, gender, and perceived socioeconomic status (used as covariates, Figure 1).

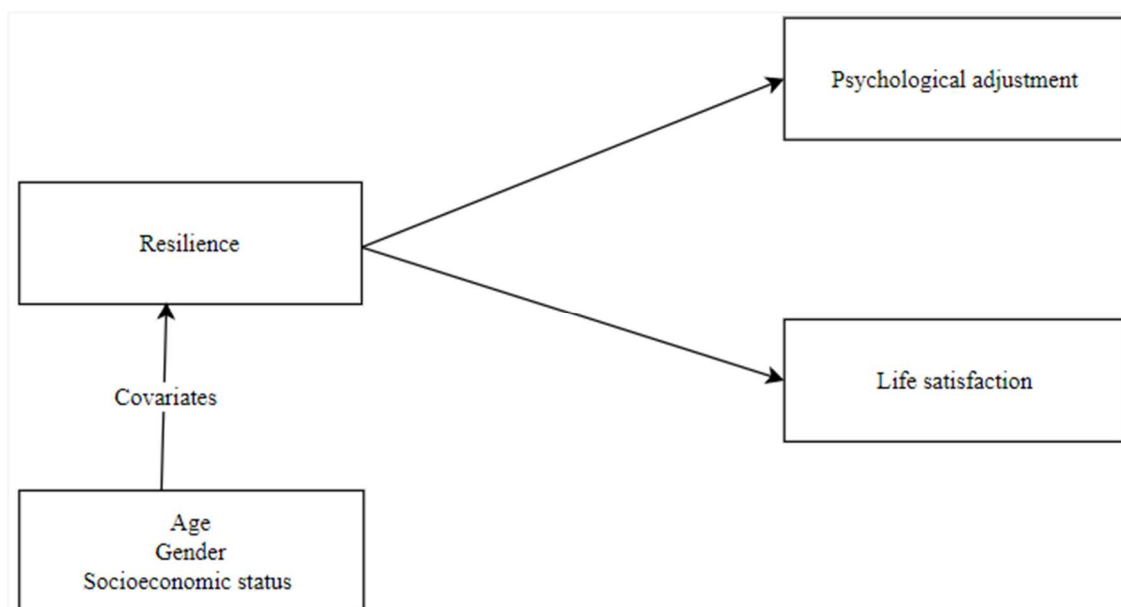


Figure 1. Proposed theoretical model used in the current study.

METHODS

Study design and procedure

This cross-sectional study utilized a web-based survey. Google forms used to collect the data for this study. A secure link was generated and distributed via social networking sites, such as Instagram, Twitter, and WhatsApp. Those who took part in the study were also encouraged to share the survey link with their family and friends. Then, participants electronically gave their informed consent provided on the first page of the survey.

Study participants and sampling

This study employed a convenience sampling (snowballing technique) approach to recruit eligible participants from a public institution in Turkey. Participants, who were enrolled as undergraduate students and were at least 18 years of age, were invited to participate. Additional inclusion criteria include the ability to provide informed consent and to understand Turkish language. The study was conducted during the second-wave of the pandemic in Turkey.

Study instruments

Brief Resilience Scale (BRS) was used to measure the ability to “bounce back” or recover from setbacks, adversities, and failures [21]. The BRS includes six items scored on a 5-point Likert type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A sample item is “I tend to bounce back quickly after hard times”. Higher scores show a higher ability to bounce back from adversity. Turkish adaptation of the scale showed good evidence of reliability and validity [30]. In this study, the internal consistency coefficient for the BRS was 0.77.

Brief Psychological Adjustment-6 (BASE-6) was used to measure general psychological adjustment in the past week [3]. The BASE-6 includes six items answered on a 7-point Likert-type scale, ranging from 1 (not at all) to 7(extremely). A sample item is “To what extent have you felt irritable, angry, and/or resentful this week?”. A high score indicates a greater level of psychological adjustment problems. Good evidence of reliability and validity for the BASE-6 has been reported in Turkish undergraduate students [9]. In this study, the internal consistency coefficient for the BASE-6 was 0.86.

Satisfaction with Life Scale (SWLS) was used to assess individuals' cognitive evaluation of their lives [31]. The SWLS comprises five items rated on a 7-point Likert-type scale, varying from 1 (strongly disagree) to 7 (strongly agree). A sample item is "I am satisfied with my life". A high score refers to greater satisfaction with life. The SWLS has indicated good reliability and validity in earlier research on the Turkish population [32]. In this study, the internal consistency coefficient for the SWLS was 0.85.

Data analysis

Before examining the impact of resilience on psychological adjustment and satisfaction with life, we firstly reported descriptive statistics, distribution of the variables, comparison analysis, and correlation coefficients. Categorical variables were presented as frequencies and proportions, whereas continuous variables were presented as means and standard deviations. Independent sample t-tests were conducted to compare gender across the study variables, while one-way ANOVA was used to compare perceived socioeconomic status across the study variables. The distribution of the continuous variables was investigated utilizing skewness and kurtosis statistics and their cut-off points [33]. The Pearson's product-moment correlation coefficient was computed to explore the correlations between the variables of the study. Following these analyses, two separate hierarchical multiple regression analyses were carried out to investigate the role of resilience in predicting psychological adjustment and satisfaction with life, after controlling for gender and age. Before performing the hierarchical multiple regression, the main assumptions such as linearity, multicollinearity, homoscedasticity, and normal distribution of error terms were assessed. All analyses were performed using SPSS version 25 (IBM Corp. Armonk NY, USA) for Windows. P values less than 0.05 were considered statistically significant.

Ethical aspects

All participants voluntarily completed the Turkish versions of the scales used in this study. Participating in the study was free, confidential, and anonymous. All participants were given necessary information concerning the study purposes and their rights during and after their involvement in the research. For instance, they were informed that they could discontinue at any time point. The presentation of the measures was the same for all participants. All procedures in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

RESULTS

A total of 224 participants (age range = 18-25 years; mean = 21.03 ± 1.66 years) from undergraduate students studying at a public university in Turkey were recruited. There were 74.11% males and 25.89% females. More than half of the participants belonged to average socioeconomic status (53.57%) followed by above-average (40.18%) and below-average (6.25%). Preliminary findings showed that skewness values ranged from -.01 to .28 and kurtosis scores were between -.61 and -.25, suggesting that all main variables had relatively normal distribution [33], as presented in Table 1. Higher perceived socioeconomic status was related to lower psychological adjustment problems and greater satisfaction with life. Resilience had a significant negative correlation with psychological adjustment problems and a significant positive correlation with greater satisfaction with life. Psychological adjustment problems had a significant negative correlation with satisfaction with life, as reported in Table 1.

Table 1. Descriptive statistics, and correlation between the variables.

Variable	M	SD	Skew	Kurt	α	1.	2.	3.	4.	5.
1. Age	21.15	2.21	3.02	17.60	—	—	-.03	.06	-.12	.14*
2. Perceived socioeconomic status	—	—	—	—	—	—	—	.09	-.17**	.23**
3. Resilience	18.85	4.90	-0.01	-0.25	0.77			—	-.35**	.21**
4. Psychological adjustment problems	24.34	8.97	0.09	-0.61	0.86				—	-.17**
5. Satisfaction with life	17.98	6.55	0.28	-0.34	0.85					—

Note 1. *. $p < 0.05$; **. $p < 0.01$; Skew = skewness; Kurt = kurtosis; Higher scores refer to higher levels of perceived economic status.

An independent sample t-test was conducted to compare the resilience, psychological adjustment problems, and satisfaction with life by gender and perceived socioeconomic status. The results indicated that males had more psychological adjustment problems than females. The results of ANOVA alongside post-hoc analysis showed that participants whose perceived socioeconomic status was below the average had more psychological problems than participants whose perceived socioeconomic status was average and above the average. Also, participants, whose perceived socioeconomic status was average, reported more psychological problems than participants whose perceived socioeconomic status was above the average. The results are presented in Table 2 and Figure 2.

Table 2. Comparison of gender and socioeconomic status across the study variables.

Variable	Gender	N	Mean	SD	T	p
Resilience	Male	166	18.59	5.06	-1.33	0.18
	Female	58	19.59	4.38		
Psychological adjustment problems	Male	166	25.23	8.87	2.54	0.01
	Female	58	21.79	8.85		
Satisfaction with life	Male	166	17.53	6.49	-1.76	0.08
	Female	58	19.28	6.60		

Variable	Socioeconomic status categories	N	Mean	SD	F	p
	Average	120	18.55	4.52		
	Above average	90	19.41	5.22		
Psychological adjustment problems	Below average	14	31.21	7.58	5.54	<0.001
	Average	120	24.63	8.72		
	Above average	90	22.90	9.06		
Satisfaction with life	Below average	14	17.50	9.30	9.91	<0.001
	Average	120	16.34	5.78		
	Above average	90	20.24	6.43		

Note: P values less than 0.05 are considered statistically significant.

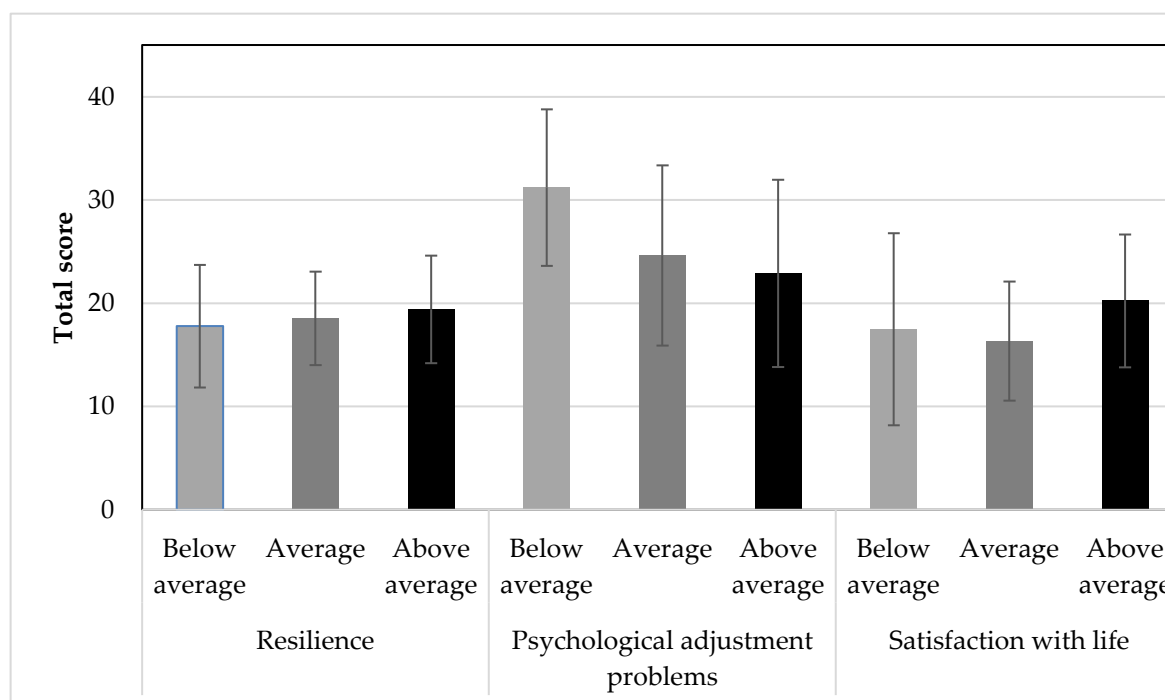


Figure 2. Comparison of socioeconomic status across the study variables.

The proposed model was tested using two separate hierarchical multiple regression analyses models. In both the regression models, age, gender, and perceived socioeconomic status were considered covariates and entered in Step 1, while resilience was considered as the main predictor and included in Step 2. Satisfaction with life and psychological adjustment problems were treated as outcome variables in two separate models. A summary of these two regression models is presented in Table 3. The results showed that age ($\beta = .15, p < 0.05$) and socioeconomic status ($\beta = .26, p < 0.01$) significantly predicted satisfaction with life by explaining 10% of the total variance in satisfaction with life. Resilience ($\beta = .17, p < 0.01$) predicted a significant amount of additional variance (3%) in satisfaction with life over and above the effects of demographic factors. Furthermore, gender ($\beta = -.16, p < 0.05$) and socioeconomic status ($\beta = -.21, p < 0.01$) significantly predicted psychological adjustment problems by accounting for 8% of the total variance in psychological adjustment problems. Moreover, resilience ($\beta = -.31, p < 0.01$) predicted a significant amount of additional variance (10%) in psychological adjustment problems after controlling for the effects of demographic factors.

Table 3. Hierarchical multiple regression predicts satisfaction with life and psychological adjustment problems.

Predictor	Satisfaction with life					Psychological adjustment problems				
	B	SE	β	T	p	B	SE	β	T	p
Step 1	$F(3, 223) = 7.90, p < 0.01, R = .31, R^2 = .10, \text{Adj } R^2 = .09$					$F(3, 223) = 6.46, p < 0.01, R = .29, R^2 = .08, \text{Adj } R^2 = .07$				
Age	0.44	0.19	0.15	2.29	0.02	-0.47	0.27	-0.12	-1.77	0.08

Gender (1=male)	1.61	0.97	0.11	1.66	0.10	-3.30	1.34	-0.16	-2.47	0.01
Socioeconomic status	2.88	0.71	0.26	4.05	0.00	-3.15	0.98	-0.21	-3.20	0.00
Step 2	$F(4, 223) = 7.80, p < 0.01, R = .35, R^2 = .13, \text{Adj } R^2 = .11, \Delta R^2 = .3$					$F(4, 223) = 11.75, p < 0.01, R = .42, R^2 = .18, \text{Adj } R^2 = .16, \Delta R^2 = .10$				
Age	0.41	0.19	0.14	2.17	0.03	-0.40	0.25	-0.10	-1.58	0.12
Gender (Reference= male)	1.39	0.96	0.09	1.45	0.15	-2.75	1.27	-0.13	-2.16	0.03
Perceived Socioeconomic status	2.67	0.71	0.24	3.79	0.00	-2.63	0.94	-0.17	-2.80	0.01
Resilience	0.22	0.09	0.17	2.62	0.01	-0.57	0.11	-0.31	-5.05	0.00

DISCUSSION

Psychological health problems are prevalent among Turkish undergraduate students [8], and students with high levels of mental health problems appear to be more susceptible to severe psychosocial and emotional problems. This study aimed to examine the role of resilience in predicting psychological adjustment problems and satisfaction with life of Turkish undergraduate students. The results typically showed that resilience was able to explain a modestly significant amount of variance in predicting psychological adjustment problems and satisfaction with life.

The results of this study indicated that male students reported greater levels of psychological adjustment problems compared to female students. Inconsistent results have been reported regarding gender differences in psychological adjustment problems. While some studies showed that females reported more psychological adjustment problems [34], others showed that males experienced more psychological adjustment problems than females [35]. Different socioeconomic backgrounds of males and females employed in this study and those of previous studies could have resulted in different research outcomes. Furthermore, significant differences were found in the scores of perceived socioeconomic status. Individuals with low socioeconomic status reported more psychological adjustment problems and lower satisfaction with life. Earlier research showed that perceived poor socioeconomic status was associated with greater psychological adjustment problems represented by internalizing and externalizing problems [36]. Higher-income was found to be related to greater subjective well-being [37] and global psychological well-being alongside its indices, namely self-acceptance, positive relationships, autonomy, environmental mastery, purpose in life, and personal growth [38].

Most importantly, in the present study, we examined the relationship between resilience, which is associated with important positive psychological consequences [39], psychological adjustment problems, and satisfaction with life among undergraduate students during the COVID-19 pandemic. For this purpose, we hypothesized that resilience would be a significant predictor of both psychological adjustment problems and satisfaction with life, even when age and gender variables were controlled. The results revealed that resilience positively predicted satisfaction with life, supporting our hypothesis though modestly. These findings are consistent with previous study results showing that resilience is positively associated with satisfaction with life [16,40]. In parallel

with this finding of our study, Yildirim et al. [12] conducted a study with Syrian refugees during COVID-19 and revealed that resilience predicted satisfaction with life even when socioeconomic status was controlled. Another important result of the present study was that resilience negatively predicted psychological adjustment problems. The result was consistent with the findings of a study by Liu et al. [26] showing that resilience is associated with psychological maladjustment. These results indicate that individuals with high levels of resilience may be more likely to have high satisfaction with life and low psychological adjustment problems during COVID-19. Earlier studies highlighted the importance of understanding factors contributing well-being and mental health of students in the context of schools [41–46].

Like many other studies, our study has several limitations. First of all, our study used a cross-sectional design, which does not allow us to investigate causal relationships. For this reason, future studies should be conducted with research designs that can establish causal relationships. The second limitation stemmed from the sample of our study. Our sample consisted of undergraduate students and was relatively small. In future studies, expanding the samples beyond undergraduate students, consisting of individuals from different countries and different backgrounds, and increasing the number of participants may allow the generalization of research findings. In addition, since the findings of the study are based on self-report data, the possibility of social desirability answers should not be forgotten. For this reason, it is recommended to carry out studies in which behavioral and implicit measurements are taken that minimize such biases. Last, some of the variables (e.g. type of degree course, study major, working status, race/ethnicity, study year) were left unmeasured in this study, which might have caused residual confounding. Future studies can be planned measuring these variables to overcome confounding effect.

However, despite all these limitations, our study is a unique study in which resilience is handled together with both positive features such as satisfaction with life and negative features such as psychological adjustment problems during the pandemic, and deals with psychological adjustment outside of the patient sample. In addition, our study revealed that resilience can explain both increases in positive psychological characteristics such as satisfaction with life and decreases in negative psychological characteristics such as psychological adjustment problems during COVID-19.

CONCLUSION

In conclusion, this study found that the male gender and individuals who had low socioeconomic status had higher scores on psychological adjustment problems. Furthermore, the low scores of resilience may be an important risk factor for predicting individuals' psychological adjustment problems and poor satisfaction with life. The current findings would be useful in tailoring prevention and intervention programs aiming to reduce mental health problems and promote the well-being of students during stressful times.

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Ethics Approval and Consent to Participate. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with

the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Consent was obtained from all participants included in the study.

Data Availability Statement: Some or all data and models that support the findings of this study are available from the corresponding author upon reasonable request.

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