



RESEARCH ARTICLE

Investigation of the Serial Mediation Role of Life Satisfaction and Self-Esteem in the Relationship between Ruminative Thought and Forgiveness in University Students

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ABSTRACT

Frequent problems in human relationships cause rumination, which involves repetitive thoughts. The concept of forgiveness plays an important role in solving problems. In this context, life satisfaction and self-esteem, which are thought to have an important role in the relationship between forgiveness and rumination, are discussed. The purpose of the current study is to determine whether life satisfaction and self-esteem have a serial mediation role in the relationship between rumination and forgiveness. The current study employed the relational survey model. The study group is comprised of a total of 313 university students in the 2022-2023 academic year. The findings obtained from the analyses revealed that rumination predicted forgiveness negatively and significantly. Finally, it was determined that self-esteem played a mediator role in the relationship between rumination and forgiveness, while life satisfaction did not. However, it was found that while life satisfaction did not mediate by itself, it had a serial mediation role through self-esteem. The findings of the study were discussed in light of the literature. With these findings, it can be said that rumination, which has a negative effect on university students' forgiveness processes, can be reduced by increasing life satisfaction and self-esteem. On the basis of the findings, suggestions were made for researchers and practitioners.

Today, the rapidly increasing population and the globalizing world order have also increased interpersonal relations. People communicate with each other directly or indirectly and sometimes experience conflicts. Another group in which intense relations are established is university students. Young people from different cultures carry out many activities together while living together, having fun and studying. Of course, they may experience conflicts and problems during these processes.

People tend to avoid the violations against them or to take revenge by responding more severely. While both of these motivations are destructive, the tendency to take revenge often predominates (Snyder & Lopez, 2002). Individuals have formulated a range of potential remedies for the harmful consequences of interpersonal violations (Fry & Björkqvist, 1997). One of these approaches is forgiveness. Forgiveness suppresses people's

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natural negative reactions to violations and instead motivates them more to bring positive ones to life (McCullough & Worthington, 1999). According to McCullough (2000), forgiveness refers to a decrease in the desire to avoid the violator and to hurt or take revenge on that person, and an increase in the desire to behave positively towards that person. Similarly, Hargrave and Sells (1997) define forgiveness as renouncing the anger and desire to take revenge against the person who made the mistake, repairing the relationship and healing the internal emotional damage. Barnes et al. (2010) stated that forgiveness develops positive thoughts, feelings and behaviours towards the guilty party and other people, and that voluntarism, tolerance and altruistic behaviours increase with forgiveness.

The existing research on forgiveness has revealed that forgiveness is positively correlated with high empathy and self-esteem (Alpay, 2009; Gündüz, 2014), emotional intelligence (Kaya & Peker, 2016), secure attachment (Yıldırım, 2009), self-sensitivity (Asıcı & Karaca, 2014) and life satisfaction (Küçükler, 2016; Yalçın & Malkoc, 2014; Satıcı, 2016) while negatively with perfectionism (Bugay, 2010; Kaya & Peker, 2016).

Another concept studied with forgiveness is rumination. Studies have shown that there is a negative correlation between forgiveness and rumination (Barber et al., 2005; Berry et al., 2005; McCollough et al., 2007). Rumination activates negative feelings and thoughts, which prevents forgiveness (Schweers, 2012). In this context, rumination, which has a negative effect on forgiveness, is the independent variable in the current study.

Rumination is defined as repetitive thinking about a negative emotion or event (Robinson & Alloy, 2003). Rumination is a thinking pattern marked by persistent and uncontrollable repetitive thoughts. Rumination is the constant thinking of the negative emotional state and the symptoms, possible causes and consequences of this emotional state, but not taking action to solve the problem (Nolen-Hoeksema, 2000). Generally, rumination is also recognized as a state linked to depressive mood. Individuals who tend to ruminate continuously focus on their emotional state and express dissatisfaction with it (Brinker and Dozois, 2009). Moreover, ruminative thoughts are recurrent reflections on the occurrence and significance of a past event (Lyubomirsky et al., 1999).

When the existing research is reviewed, it becomes evident that individuals who engage in rumination tend to exhibit higher levels of pessimism, anger, hopelessness and anxiety (Nolen-Hoeksema, 2000). In another study, Kırıl (2011) determined a moderately negative correlation between rumination and life satisfaction. At the same time, a positive correlation was observed between life satisfaction and forgiveness (Rey and Extremera, 2016). In this context, life satisfaction is a mediator variable in the current study.

Generally, life satisfaction is described as individuals' evaluation of their own life (Pavot and Diener, 2008). According to Vara (1999), life satisfaction refers to the state of intense positive emotions such as happiness and morale. Diener et al. (1985) define life satisfaction as a person's often positive perception of life within the framework of his/her own criteria. Moreover, life satisfaction refers not only to the progress individuals achieve in particular areas of their lives but also to their overall growth across all aspects of life. (Avşaroğlu et al., 2005; Özer & Özsoy-Karabulut, 2003).

In studies on life satisfaction, the relationships between life satisfaction and forgiveness (Allemand et al., 2012; Bugay & Demir, 2011; Datu, 2014), between life satisfaction and happiness (Demir & Murat, 2017; Peterson et al., 2005), between life satisfaction and loneliness (Tuzgöl-Dost, 2007). In addition, Karremans et al. (2003) found a strong correlation between forgiveness and self-esteem as well as between forgiveness and life satisfaction. In this context, self-esteem, which has a positive correlation with forgiveness and negative correlation with rumination, was considered as another mediator variable of the current study.

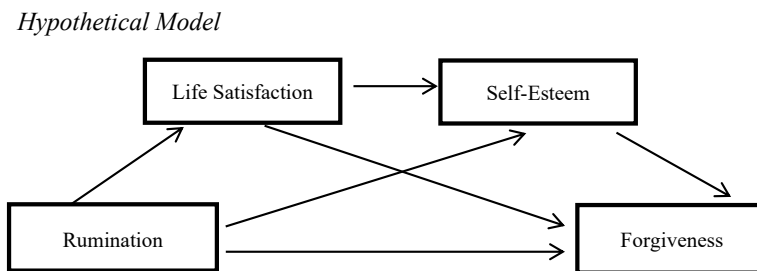
Rosenberg (1965) defines self-esteem as an individual's evaluation and perception of himself/herself. The concept of self-esteem refers to the positive emotional state that enables an individual to be content with himself/herself, to find himself/herself worthy of being loved and admired and to trust himself/herself without thinking that he/she is inferior or superior to what he/she really is (Yiğit, 2012). Studies have found that self-esteem and life satisfaction (Apaydın, 2020; Yıldırım, 2017) are positively correlated. Feeling unique,

demonstrating abilities, achieving success, gaining social acceptance, and embracing one's own physical traits are key factors in the development of self-esteem (Yörükoğlu, 2007).

Studies have found that self-esteem and problem-solving skills (Ünür, 2003), assertiveness (Dinçer & Öztunç, 2009) and life satisfaction (Apaydın, 2020; Dilmaç & Ekşi, 2008; Yıldırım, 2017) are positively correlated. A strong positive correlation between self-esteem and life satisfaction has been demonstrated by studies conducted in many cultures (Çivitci, 2007). In this context, given the observed positive correlation among the mediator variables in the study, it is hypothesized that life satisfaction might serve as a serial mediator in the connection between rumination and forgiveness through self-esteem. Hence, the objective of the study is to investigate if life satisfaction and self-esteem collectively serve as serial mediators in the relationship between rumination and forgiveness. With this study, it is thought that the effect of rumination, which is a serious obstacle to forgiveness, can be reduced through life satisfaction and self-esteem, and considering the effect of these mediator variables on each other, both variables together may have a stronger effect in series. In this context, it is crucial to clearly understand the role of life satisfaction and self-esteem in strengthening the forgiveness tendencies of university students who are obliged to live together with many people from different cultures. The results of this study can be an important source of reference, both to prevent rumination and to strengthen forgiveness.

In the literature, no study was found in which forgiveness, rumination, life satisfaction and self-esteem, which constitute the variables of the study, were examined together. However, some studies emphasized the relationship between these variables. In this context, examining these variables together is both unique in the field and important in terms of creating a comprehensive model about the forgiveness processes of university students who represent a large population in terms of their results.

Figure 1. Hypothetical model



H₁: There is a negative significant correlation between the ruminative thoughts and tendency to forgive of university students.

H₂: Life satisfaction plays a mediator role in the relationship between the ruminative thoughts and tendency to forgive of university students.

H₃: Self-esteem plays a mediator role in the relationship between the ruminative thoughts and tendency to forgive of university students.

H₄: Life satisfaction and self-esteem play a serial mediation role in the relationship between the ruminative thoughts and tendency to forgive of university students

Methodology

Research Model

Relational survey models are used to investigate whether there is a covariance between the variables or to

reveal the degree of this covariance as a result of examining more than one variable together (Karasar, 2003). Hayes (2018) model 6 was employed to calculate the mediation effect. In this model, the main aim to evaluate the indirect effect and come up with inferences (Gürbüz, 2020).

In cases where there is more than one mediating variable, multiple mediation analysis is performed. Multiple mediation analysis is divided into two as parallel multiple mediation and serial mediation model. In the parallel multiple mediation model, the causal relationship between the mediating variables is not considered, while in the serial mediation analysis, the relationship between the mediating variables is also considered (Koshksaray et al., 2015). Serial mediation refers to models that include at least three or more paths in series by creating a chain of mediating variables in the relationship between the independent variable and the dependent variable (Burt & Hampton, 2017; Chan et al., 2022). In this context, considering that life satisfaction, one of the mediating variables of the study, affects self-esteem, a serial mediation model was constructed in this study.

Study Group

The researchers chose to use a convenience sampling approach when selecting the study participants. In this method, a questionnaire can be applied to the participants reachable by the researcher (Balci, 2001). The study group is comprised of 313 university students attending different faculties and institutes at Burdur Mehmet Akif Ersoy University and 237(75.7%) of the students are females and 76(24.3%) are males. The average age of the participants is 22.34.

Data Collection Tools

Heartland forgiveness scale: The scale, originally created by Thompson et al. (2005). Later, Bugay and Demir (2010) adapted the scale into Turkish. This 7-point Likert type scale has 18 items and three sub-dimensions. The scale items consist of statements such as “Although I feel bad at first when I mess up, I can relieve myself over time”. The Cronbach α internal consistency coefficient is .64 for self-forgiveness, .79 for forgiveness of others, .76 for forgiving situation subscale and .81 for the whole scale. The fit indices from the Confirmatory Factor Analysis were deemed acceptable (GFI=.92, AGFI=.90, RMSEA=.06) by Bugay et al. (2012). The Cronbach alpha value calculated using the data of the current study was found to be .704 for the sub-dimension of forgiveness of self, .758 for the sub-dimension of forgiveness of others and .740 for the sub-dimension of forgiveness of situations and .834 for the whole scale.

Ruminative thought style scale: The scale was developed by Dozois (2009) and Karatepe (2010) adapted it to Turkish. The exploratory factor analysis performed on the uni-dimensional 20-item scale revealed that the scale explains 63.43% of the variance. Scale items consist of statements such as “I realize that my mind is constantly reviewing things over and over again.” The criterion reliability analysis revealed that the scale is valid. The reliability analysis revealed that internal consistency coefficient is .907. The reliability analysis run in the current study revealed that the Cronbach alpha value .is 943.

Rosenberg self-esteem scale: Developed by Rosenberg (1965), the scale consists of 63 items and 12 subscales. In Rosenberg's study on adolescents in the U.S.A., it consists of small subscales in order to evaluate self-esteem together with various other characteristics. The characteristics and evaluations measured by each subscale are different. Çuhadaroglu (1986) conducted a validity and reliability assessment of the scale originally developed by Rosenberg (1965) within the Turkish context. The Cronbach alpha value of the scale is 0.81. The scale has 12 sub-categories. In this study, the initial 10 items from the scale were utilized for assessing self-esteem. Scale items consist of statements such as “I find myself as valuable as other people”. Respondents can answer each item using a 4-point Likert-style scale. The reliability study revealed a Cronbach alpha value of .81. In this study, the Cronbach alpha value was found to be .889.

Life satisfaction scale: Köker (1991) conducted the initial adaptation study of the scale developed by Diener et al. (1985) into Turkish culture. There are five items in this 7-point Likert scale. Dağlı and Baysal (2016) conducted a subsequent adaptation of the scale into Turkish. The scale items consist of statements such as “If I were born again, I would change almost nothing in my life.” The Cronbach alpha value of the scale is 0.88.

The outcomes of the factor analysis demonstrated that, like the original scale, the Life Satisfaction Scale exhibited a unifactorial structure, comprising 5 items. The Cronbach alpha value was computed to be 0.873 in the current study.

Data Collection

At the stage of data collection, first, necessary permissions were obtained, Burdur Mehmet Akif Ersoy University Ethics Committee Approval (with the date of 07.12.2022 and number GO 2022/1017) was taken for the study. The study gathered data from university students during the 2022-2023 academic year, employing four distinct measurement instruments. The completion of the data collection tools took approximately 15 minutes. The data were collected face-to-face.

Data Analysis

In the univariate outlier analysis, the z-test was utilized, and given the participant count exceeded 100, the reference range for the z-score was established within the range of -4.00 to +4.00, and it was seen that there was no data remaining outside the range (Mertler & Vannatta, 2016). The Mahalanobis distance test was conducted to identify multivariate outliers, and the probability value (1 - ChiSquare) was calculated for each pattern based on the number of attributes. Büyüköztürk (2003) suggested considering a significance level of .01 or 0.001 if it is desired to be more conservative. The calculated probability values (1-ChiSquare) were analyzed according to the threshold value of .001 and those below .001 were considered to be outliers. According to the Mahalanobis distance coefficient, the responses of one participant were excluded from the data set (Tabachnick et al., 2007). To assess whether the dataset used in the research exhibited homogeneity in its distribution or not, the Kurtosis-skewness values were examined. Hair et al. (2009) stated that the normality threshold values should be (-+2.58) at the .01 significance level. The skewness values for each scale were found to range between -.348 and .237 and the Kurtosis values between -.366 and -.215 and thus the data set exhibited a normal distribution. Furthermore, correlation analysis revealed the absence of multicollinearity problem within the dataset. It can be confidently asserted that there was no multicollinearity problem as no correlations among variables reached or exceeded .90 (Cokluk et al., 2014). Mediation analysis was carried out with the Hayes process macro using the SPSS-22 package program on the data set consisting of the answers of 313 participants.

Results

Relationships between Forgiveness, Ruminative Thoughts, Life Satisfaction and Self-Esteem

Pearson correlation coefficient analysis was performed to investigate the correlations between forgiveness, ruminative thoughts, life satisfaction and self-esteem. Correlations are displayed in Table 1.

Table 1. Correlation Values between Forgiveness, Ruminative Thoughts, Life Satisfaction and Self-Esteem

Variables	n	Mean	Skewness	Kurtosis	1.	2.	3.	4.
1- Forgiveness	313	95.837	-.342	-.348	1			
2- Rumination	313	81.894	-.215	.237	-.483 ***	1		
3- Life Satisfaction	313	23.409	-.470	-.306	.275 ***	-.186 **	1	
4- Self-Esteem	313	31.204	-.366	-.318	.496 ***	-.424 ***	.377 ***	1

*p<.05, **p<.01, ***p<.001

Among university students, a significant negative correlation was found between their tendency to forgive and their ruminative thoughts ($r = -0.483$, $p < 0.001$). Moreover, there was a significant positive correlation between their tendency to forgive and both their life satisfaction ($r = 0.275$, $p < 0.001$) and self-esteem ($r = 0.496$, $p < 0.001$). Ruminative thoughts were discovered to exhibit a significant negative correlation with both

life satisfaction ($r = -.186$, $p < .01$) and self-esteem ($r = -.424$, $p < .001$). Furthermore, a significant positive correlation was identified between life satisfaction and self-esteem ($r = .377$, $p < .001$).

Findings Regarding the Serial Mediation Role of Life Satisfaction and Self-Esteem in the Relationship between Ruminative Thought and Forgiveness in University Students

Serial mediation analyses were conducted with the Process macro, Model 6 for SPSS version 3.4 (Hayes, 2018) to determine whether life satisfaction and self-esteem have a serial mediation role in the relationship between ruminative thought and forgiveness. In the analysis, 5000 resampling option was preferred with the bootstrap technique. The findings are displayed in Table2, Table3 and Figure2 below.

Table 2. Bootstrapping test regression analysis results

	M ₁ (Life Satisfaction)		M ₂ (Self-Esteem)		Y(Forgiveness)	
Predictor Variables	<i>b</i>	S.E.	<i>b</i>	S.E.	<i>b</i>	S.E.
Rumination (X)	-.0509**	.0153	-.0908***	.0122	-.2202***	.0340
M1			.2784***	.0445	.2270	.1210
M2					.8643***	.1455
Constant	28.2875	1.5097	33.3878	1.7295	70.7083	6.5741
	R=.0344		R=.2717		R=.3442	
	F(1; 311)=11.0948; p<.01		F(2; 310)=57.8156; p<.001		F(3; 309)=54.0538; p<.001	

*p<.05, **p<.01; ***p<.001, k=5000, S.E=Standard error, unstandardized beta coefficient (b) are reported

Rumination negatively and significantly predicts life satisfaction ($b = -.0509$, $SE = .0153$, $p < .01$) and self-esteem ($b = -.0908$, $SE = .0122$, $p < .01$). In addition, life satisfaction positively and significantly predicts self-esteem ($b = .2784$, $SE = .0445$, $p < .01$), but not forgiveness ($b = .2270$, $SE = .1210$, $p > .05$). Moreover, it was found that self-esteem positively and significantly predicted forgiveness ($b = .8643$, $SE = .1455$, $p < .001$).

As a result of the Bootstrapping analysis, the total and direct effects of rumination on forgiveness and its indirect effects on life satisfaction and self-esteem are given in Table 3 below.

Table 3. Indirect, direct, and total effect of rumination on forgiveness

Effect	Path	Bootstrapping		%95 CI	
		B	SE	LLCI	ULCI
Indirect Effects	R→LS→F (Indirect1)	-.0116	.0082	-.0303	.0015
	R→SE→F (Indirect2)	-.0785	.0169	-.1135	-.0478
Serial Indirect Effect	R→LS→SE→F (Indirect3)	-.0123	.0056	-.0253	-.0033
Total Indirect Effect	Indirect1+Indirect2+Indirect3	-.1023	.0202	-.1440	-.0651

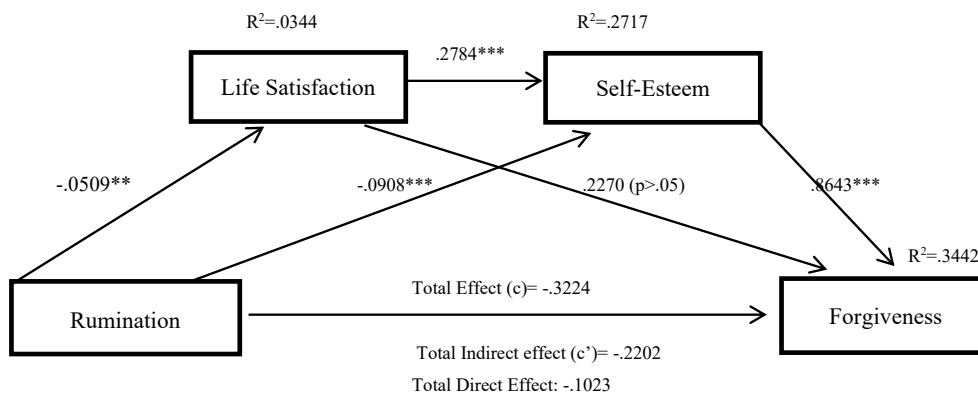
Table 3. (Continued)

Direct Effect	R→F	-.2202	.0340	-.2870	-.1533
Total Effect	Direct Effect+Total Indirect Effect	-.3224	.0331	-.3876	-.2573

n=313, k=5000

The total effect of rumination on forgiveness ($b = -.3224$, $SE = .0331$, 95% CI $[-.3876, -.2573]$) is negative and significant. The direct effect of rumination on forgiveness was found to be negative and significant ($b = -.2202$, $SE = .0340$, 95% CI $[-.2870, -.1533]$). Upon separate examination of the indirect effects of the mediator variables, it became evident that the indirect effect of self-esteem was statistically significant ($b = -.0785$, $SE = .0169$, 95% CI $[-.1135, -.0478]$), while the indirect effect of life satisfaction was not significant ($b = .0478$, $SE = .0082$, 95% CI $[-.0303, .0015]$). However, while the isolated indirect effect of life satisfaction was not significant, its serial indirect effect on self-esteem was determined to be statistically significant ($b = -.0123$, $SE = .0056$, 95% CI $[-.0253, -.0033]$). According to all these results, the overall indirect effect within the established model was identified as statistically significant ($b = -.1023$, $SE = .0202$, 95% CI $[-.1440, -.0651]$). Thus, life satisfaction and self-esteem had a serial mediation role in the reduction of the negative effects of rumination on forgiveness. The fully standardized effect size of the mediation effect is (CI $[-.2096, -.1019]$) $\beta = -.1533$) at the 95% confidence interval and this value is close to the medium mediation effect.

Figure 2. Illustrates the model concerning the serial mediation role of life satisfaction and self-esteem in the relationship between rumination and forgiveness



Discussion, Results and Suggestions

It was determined that rumination predicted forgiveness negatively and significantly. In addition, rumination predicted life satisfaction and self-esteem negatively and significantly. At the same time, it was determined that forgiveness had a positive and significant predictive relationship with self-esteem. However, it was determined that life satisfaction did not predict forgiveness at a statistically significant level. Furthermore, it was found that life satisfaction predicted self-esteem positively. Finally, it was established that self-esteem acted as a mediator in the connection between rumination and forgiveness, whereas life satisfaction did not play a mediating role. However, it was determined that while life satisfaction did not mediate by itself, it had a serial mediation role through self-esteem. The findings obtained from the study and the hypotheses of the study are discussed below.

Rumination was also found to predict forgiveness negatively and significantly. In the literature, there are studies showing that rumination is negatively correlated with both forgiveness of self (Graham et al., 2017; Onal & Yalçın, 2017) and forgiveness of others (McCullough et al., 2007; Özgür & Eldeleklioğlu, 2017; Wu et al., 2019). Rumination negatively affects the forgiveness process by causing compelling emotions such as anger, guilt and shame towards the individual's past mistakes to become chronic (McCullough et al., 1997). McCullough et al. (2007) emphasized that the increase in the level of rumination causes an increase in the desire to escape from the offender and to take revenge. Individuals who extend forgiveness to those who

commit errors tend to experience fewer mental health issues, including reduced levels of rumination, obsessive-compulsive disorder, generalized anxiety disorder, depression, and anger, compared to those who do not forgive as readily (Hanna, 2012). Therefore, it can be said that rumination negatively affects the forgiveness process by increasing thoughts such as rethinking the event, anger and taking revenge.

Rumination negatively predicted life satisfaction. In the existing research, a negative correlation is stated to exist between rumination and life satisfaction (Ysseldyk et al., 2007). Rumination with negative content leads to unhappy mood, while rumination with positive content leads to positive mood (Karatepe, 2010). On the other hand, rumination reduces the desire to engage in pleasurable activities and the sense of control over one's life, causes distorted interpretation of life events and pessimism towards the future (Lyubomirsky & Nolen-Hoeksema, 1993). Therefore, it can be said that the life satisfaction of the individual repetitive thoughts decreases.

As another predictor variable, life satisfaction was not found to predict forgiveness at a statistically significant level. There are also some studies reporting a positive correlation between life satisfaction and forgiveness (Altan & Çivitci, 2017; Ayten & Ferhan, 2016; Lawler-Row & Piferi, 2006; Thompson et al., 2005). As a result of violations in interpersonal relationships, individuals may avoid or seek revenge. Generally, the tendency to take revenge is predominant (Newberg et al., 2000; Snyder & Lopez, 2002). People have developed various potential solutions to the corrosive effects of interpersonal violations (Fry & Björkqvist, 1997). One of these is forgiveness. In this context, the individual who encounters violation may choose to forgive, take revenge or avoid. Considering the potential of the wide social networks of the university students who constitute the sample group of the study, they can also achieve life satisfaction by taking revenge or avoiding and developing different relationships. Therefore, it can be said that increased life satisfaction is not directly related to forgiveness tendencies.

Additionally, it was found that rumination negatively predicted self-esteem. Kalfa (2019) also reported a negative correlation between rumination and self-esteem. Focusing on the self-triggers rumination by perceiving the difference between the individual's positive and negative perceptions, evaluations and targeted self-perception (Yağmur, 2018). The deepening of the individual's thoughts about the self is associated with rumination and negatively affects psychological health (Ciesla & Roberts, 2002). In this context, it can be said that the increase in rumination in the individual causes the deepening of his/her feelings and thoughts about himself/herself, thus weakening his/her self-perception.

Additionally, self-esteem was identified as another predictor variable that positively predicts forgiveness. This finding concurs with the findings of some studies in the literature (Coates, 1996; Maltby et al., 2001; Woodyatt & Wenzel, 2013; Yıldırım-Kurtuluş et al., 2022). Self-esteem is defined as the recognition and acceptance of one's own positive traits and strengths (Pope & McHale, 1988). Rosenak and Harnden (1992) pointed out that if self-esteem is increased, the tendency of these individuals to forgive also increases. In this context, it can be said that individuals with high self-esteem are more inclined to forgive when they establish healthier relationships and are constructive. Therefore, university students with high self-esteem may be more forgiving.

Another discovery from the study revealed that life satisfaction did not act as a mediator in the relationship between rumination and forgiveness. While there is no direct result similar to this finding in the literature, some studies have found that irrational beliefs reduce life satisfaction (Çivitçi, 2009; Çivitçi & Tobaşoğlu, 2015). Bugay and Demir (2011) stated that forgiveness is a positive change process that occurs in an individual's emotions, thoughts and behaviors. In this context, it is seen that rumination decreases life satisfaction but has no direct relationship with forgiveness.

Therefore, it can be said that the increase in life satisfaction is not only dependent on forgiveness, but when we take into account the present circumstances of the university students who make up the study group, factors like success, social support, professional growth, and self-actualization may also influence life satisfaction. Therefore, given that life satisfaction is not a strong enough variable to predict forgiveness in the current model, it may not play a mediator role in the relationship between rumination and forgiveness.

Another notable finding from the study was the identification of self-esteem as a mediator in the relationship between rumination and forgiveness. Yörükoğlu (2007) stated that those with high self-esteem are more positive towards themselves and others, do not shy away from competition, have a sense of meaning in their lives and struggle against difficulties. Excessive stimulation of emotions such as anger, anxiety and sadness towards the perceived violation of the individual is perceived as a threat to the self-esteem of individuals (McCullough et al., 2001). Furthermore, for the offended individual, forgiveness has the role of preventing the harm that the perceived violation causes to his/her self-esteem (North, 1998). Therefore, considering that rumination poses a threat to an individual's self-esteem and that self-esteem promotes forgiveness, it can be concluded that self-esteem plays a mitigating role in reducing the negative impact of rumination on forgiveness.

While life satisfaction did not mediate on its own, it had a serial mediation role through self-esteem. When the predictors were considered one by one, it was determined that rumination predicted life satisfaction negatively, life satisfaction predicted self-esteem positively and self-esteem predicted forgiveness positively. Bugay and Demir (2012) found that forgiveness is negatively correlated with rumination and positively correlated with life satisfaction. Kirişoğlu (2016) discovered a positive relationship between life satisfaction and self-esteem. Therefore, it can be said that self-esteem mediated the negative effect of rumination on forgiveness and this role was serially increased through self-esteem strengthened by life satisfaction.

Limitations and Future Directions

The present study has certain limitations, such as the omission of independent variables such as family background, economic status, gender, age, class level, and similar factors concerning the participants. The following recommendations can be made to researchers and practitioners.

- Preventative interventions aimed at addressing rumination in university students can incorporate the concepts of life satisfaction, self-esteem, and forgiveness.
- Again, life satisfaction and self-esteem can be taken as reference in studies for strengthening forgiveness.
- Various organizations can be organized by the university administration to increase the life satisfaction of university students.
- The results obtained in the present study can be verified through the implementation of new research on diverse sample populations, including middle school students, high school students, and so on.
- The conclusions drawn from the current study can be subject to re-evaluation through the utilization of alternative research methodologies, such as experimental designs.
- Longitudinal studies on forgiveness, rumination, life satisfaction and self-esteem are recommended.

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Data Availability: Supplemental data for this article is available on request.

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