RESEARCH ARTICLE / ARAŞTIRMA YAZISI

Influence of Perceived Social Support on Forgiveness in University Students: Examining The Mediator Role of Cognitive Flexibility and Moderator Role of Gender

Üniversite Öğrencilerinde Algılanan Sosyal Desteğin Affetmeye Etkisi: Bilişsel Esnekliğin Aracı Rolü ile Cinsiyetin Düzenleyici Rolünün İncelenmesi

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Abstract:

The current literature needs to include studies examining the path from social support to forgiveness. This study aimed to examine cognitive flexibility as a mediator between social support and forgiveness in university students and gender as a moderator of this pathway. Data were collected through online by a sample of 243 students, 204 (84%) female and 39 (16%) male, chosen by a convenient sampling method and voluntarily filled in the scales. Cognitive flexibility was found to be a significant mediator in bootstrapped tests of indirect effects, and this mediation effect was moderated by gender. In the relationship between social support and forgiveness, male participants forgive more as their perceived social support increases; female participants forgive more regardless of their perceived social support level. In light of the literature, these findings were addressed.

Keywords: Social support, cognitive flexibility, forgiveness, gender

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Öz:

Mevcut literatürde sosyal destek ile affetme arasındaki yolu veya ilişkiyi inceleyen araştırmalara ihtiyaç duyulmaktadır. Bu araştırma, üniversite öğrencilerinde sosyal destek ve affetme arasında bir aracı olarak bilişsel esnekliği ve bu ilişkinin bir moderatörü olarak cinsiyet değişkeninin etkisini incelemektedir. Veriler, kolayda örnekleme yöntemiyle seçilen ve ölçekleri gönüllü olarak dolduran 204 (%84) kadın ve 39 (%16) erkek olmak üzere 243 öğrenciden çevrimiçi olarak toplanmıştır. Bilişsel esnekliğin, bu ilişkide aracı rolü anlamlıdır ve bu aracılık etkisine cinsiyet düzenleyici etki yapmaktadır. Sosyal destek ve affetme arasındaki ilişkide, erkek katılımcılar algıladıkları sosyal destek arttıkça daha çok başkalarını affetmektedir; öte yandan, kadın katılımcıların affetme durumunu algıladıkları sosyal destek düzeyi etkilememektedir. Bu bulgular, literatür ışığında tartışılmaktadır.

Anahtar Kelimeler: Sosyal destek, bilişsel esneklik, affetme, cinsiyet

Introduction

Forgiveness is defined as giving up negative emotions that are harmful to oneself and the environment and neutralizing or transforming these emotions into positive ones. It is crucial for continuing human relations as a social being (Enright, 1996; McCullough et al., 2000; Rye & Pargament, 2002). The literature has emphasized that interpersonal conflict is likely to occur in large social networks and that the capacity to forgive can help mitigate its negative effects and increase social support (Toussaint et al., 2015). Social support is a concept that includes emotional, social, informational, and practical assistance that people can get from their environment when they need it. We can refer to it as the result of our social relationships (Cohen & Wills, 1985; Cohen, 2004). Social support resources include people who play a significant role in the individual's life, such as their parents, partners, lovers, friends, family, teachers, relatives, neighbours, and specialists (Sorias, 1988). It has been proven that having a strong social support network can help people deal with challenging circumstances and solve their sociological and psychological problems (Kaziasty, 2005). Studies have shown that as the perceived social support score increases, problem-solving skills (Büyükşahin Çevik et al., 2016), coping with stress (Demirtaş, 2007), self-efficacy (Taş & Öztosun, 2018) and hope (Kemer & Atik, 2005) scores increased. People will try to overcome any obstacles they may face when entering social gatherings as the amount of social support they receive from their family and environment increases, leading to greater success (Bandura, 1997). Some scholars have also emphasized that interpersonal conflict is likely to occur in large social networks and that the capacity to forgive can help lessen its negative effects and increase social support (Toussaint et al., 2015). According to McCullough (2000), the proclivity to forgive others is associated with health, resulting in fewer stressful social interactions and encouraging social support.

Some researchers believe that assessing and constructively minimizing life s negative experiences and offering social support will significantly improve one' s physical and mental health, particularly during adolescence (Bayın & Kaya, 2021). For instance, Bayın and Kaya's (2020) study found a favourable and significant correlation between forgiveness and adolescents' perceptions of social support. As a result, having social support positively affects the forgiveness process.

The ability to alter one's approach or way of thinking about a task is called cognitive flexibility, defined as the capacity of an individual to alter cognitions in response to shifting environmental conditions (Dennis & Vander Wal, 2010). People with high cognitive flexibility are better at making changes on the fly and more easily than people with low cognitive flexibility (Cox, 1980). An individual with cognitive flexibility, on the other hand, is aware of options, able to deal with novel and challenging situations, produce alternate thoughts and ideas, and is better able to adapt to novel situations (Bilgin, 2009; Buğa et al., 2018; Martin & Rubin, 1995; Stahl & Pry, 2005).Some results of studies have shown that cognitive flexibility is related to the perceived stress level of cognitive flexibility (Buğa et al., 2018), problem-solving skills (Bilgin, 2009), anger (Diril, 2011), self-compassion (Martin et al., 2011), academic performance and openness to change (Lin, 2013), consciousness (Moore & Malinowski, 2009) and post-traumatic stress disorder, experiential escape and depression (Palm & Follette, 2011).

Thompson and Shahen (2003) have argued that a person with these problem-solving skills should demonstrate cognitive flexibility. They have also stated that it is important to develop alternate solutions to the problems encountered in the past and to put these solutions into practice during the forgiveness process. Katovsich (2007) has found that forgiveness predicts cognitive flexibility in interpersonal communication, supporting the idea that cognitive flexibility plays a role in the forgiveness process' individual and interpersonal dimensions. Hodgson and Wertheim (2007) have discovered that the relationship between emotion regulation and forgiving others is mediated by looking at things from a different perspective, a sub-dimension of cognitive flexibility. Therefore, one can suggest that those with greater cognitive flexibility forgive more readily and that cognitive flexibility greatly influences forgiveness.

Given the flexibility literature, one of the important variables that should be considered is gender which influences both the degree and the manner of forgiveness. In this context, numerous studies looking at the relationship between gender and forgiveness found that females had a higher propensity to forgive than males did (Miller et al., 2008). Furthermore, studies have found that the levels of forgiveness do not differ significantly by gender (Ercan & Alp, 2011; Önal & Yalçın, 2017). Given these inconsistent findings, new studies are required to illuminate the interaction effect between gender and flexibility.

Explaining possible mediator and moderator variables in the forgiveness process is necessary. The literature needs to pay more attention to this issue. Few studies have shown moderately positive relationships between social support and forgiveness regarding health and life satisfaction (Green et al., 2012; Zhu, 2015). In the literature, social support is almost a mediating mechanism in the view of buffering hypothesis developed by Cohen and Wills (1985). Accordingly, social support performs the buffer function that reduces the negative effect of stress. Social support can also have a maintenance role. Social support can serve the maintenance of forgiveness. In a situation where social support predicts forgiveness, the mechanism that mediates this relationship needs to be explained. However, the literature does not provide evidence for the mediator and moderator variable between social support and forgiveness. Is everyone with strong social support more likely to forgive? Could cognitive flexibility act as a mediator in this relationship? Is there a gender difference in the relationship between social support and forgiveness? There needs to be more research on the subject from this perspective. Only one study found a link between flexibility and forgiveness (Thompson et al., 2005). Given these considerations, this study's reasonable results may contribute to the literature on the issue and lay the groundwork for future investigation. As a result, this research is considered a unique study in illuminating the possible mechanisms underlying the relationship between forgiveness and social support.

Aim of the Research

Several studies have reviewed above mentioned relationships between cognitive flexibility, social support, and forgiveness. Cognitive flexibility may mediate the relationship between social support and forgiveness. This subject is important to understand the behaviour of forgiveness, which is necessary for the continuity of social relations, and to reveal which personal characteristics are affected by it. In addition, gender may moderate the relationship between social support and forgiveness. Unfortunately, literature findings are inconsistent concerning gender. Determining how being a woman or a man can affect this relationship will be important to shape forgiveness-based psychological intervention programs according to gender for their effectiveness. Based on this, the current study used self-reported scales to explore the relationship between the four variables.

In summary, this study looks at the function of cognitive flexibility as a mediator and gender as a moderator in the link between perceived social support and forgiveness among university students.

Hypotheses

Based on the preceding discussions, the hypotheses developed by the purpose of the research were as follows:

H1: Social support and forgiveness would be positively related.

H2: Cognitive flexibility and forgiveness would be positively related.

H3: Cognitive flexibility would have a mediating role in the relationship between social support and forgiveness.

H4: Gender would have a moderator role in the relationship between social support and forgiveness

These hypotheses were examined using the relational screening model. The hypothesis model is shown in Figure 1.

Methods

Participants

Based on a sensitivity power analysis with this sample, a statistical power of 80%, and p<.05, the smallest detectable effect is f = 0.05. Sample-size estimates were made with G*Power (Version 3.1; Faul et al., 2009). The minimum number of samples required for this analysis was 223. The study sample consisted of 243 students enrolled in various Bolu Abant Izzet Baysal University departments, reached by convenience sampling method. The age range of the participants was 19-41 (M= 22.16, SD = 1.87). The sample was mostly women, with 204 (84%) female participants and 39 (16%) male. 232 (95.4%) of the participants were psychology department students, and 100 (41.2%) of them indicated that they were in their third year of study.

Measures

Consent form

The participants were given a consent form that included information about the research and who conducted it and a statement that their participation in the study was entirely voluntary.

Demographic Information Form

The participants were asked to fill out a form with demographic information like age, gender, department, and class.

Multidimensional Scale of Perceived Social Support (MSPSS)

Eker and Arkar (2001) conducted a Turkish validity and reliability study of the Zimmet et al. (1988) scale. Construct validity was determined to be 27. It consists of 12 items on a 7-point Likert scale. There are three types of sources of support, each of which includes four items: family, friends, and a particular person (teacher, lover, relative, etc.). A high score indicates that you have a lot of social support. The reliability coefficients of the scale were found to have high consistency levels ranging from.80 to.95 in Eker and Arkar's study. The scale's reliability coefficients were found to be.75 for the family sub-support,.72 for the friend support, .80 for the particular person, and.90 for the total scale in this study.

Cognitive Flexibility Inventory (BEE)

The scale was designed by Dennis and Vander Wal (2010) to measure people's ability to produce alternate, harmonic, suitable, and balanced ideas amid hardship. The 20-item 5-point Likert-type scale is separated into two sub-dimensions: alternatives and control. The capacity to Perceive Potential Alternatives to Life Situations and Human Behaviors sub-dimension examines the capacity to develop several solutions to difficult challenges. The control sub-dimension assesses the propensity to perceive difficult situations as manageable. It is believed that as the scale's scores increase, so does cognitive flexibility. The Turkish scale adaptation was finished in 2012 by Gülüm and Dağ. Concerning the overall score, the options sub-dimension, and the control sub-dimension, Cronbach's alpha was determined to be .90, .89, and .85, respectively. Within the parameters of this investigation, the scale's Cronbach's coefficient was discovered to be.90.

Heartland Forgiveness Scale (HAS)
It was created by Thompson et al. (2005) to measure university students' degrees of forgiveness toward oneself, others, and situations. On a 7-point Likert scale, there are 18 items on the scale. The original scale's three sub-dimensions are forgiveness of oneself, forgiveness of others, and forgiveness of circumstance. Bugay and Demir (2010) were able to successfully integrate Turkish culture. The Cronbach's alpha internal consistency coefficient for the Turkish version of the scale was.64 for self-forgiveness,.79 for forgiving individuals, and.76 for forgiving situations. Cronbach's alpha was determined to be.81 for the full scale. Within the limits of this investigation, the Cronbach's coefficient of the scale was determined to be.85.

Procedure
The online survey link created through online forms was directed to the participant's e-mail addresses, which were reached with the convenience sampling method. First, a text containing information about the study's content and purpose was presented to the participants, followed by the submission of a voluntary consent form for their consent to participate in the study voluntarily. Following this, participants were asked to complete the 12-item "Multidimensional Scale of Perceived Social Support." The "Cognitive Flexibility Inventory" of 20 items was then presented. Following this stage, participants were asked to rate their forgiveness using the 18-item "Heartland Forgiveness Scale.". Finally, a Demographic Information Form was given to the participants, asking for personal information such as age, gender, department, and class. After completing the measurements, the study was concluded by thanking all the participants for their participation and support. On March 29, 2021, 2021/111 number, the Human Research Ethics Committee of Bolu Abant Izzet Baysal University approved this study. Before administering the online questionnaire, students provided informed consent online. Data were collected using online forms in June 2021 and July 2021 (www.psytoolkit.org). Findings were analyzed using the SPSS 21.0 analysis program.

Results

The relationship between the variables was measured by obtaining the Pearson correlation coefficient. A significant relationship was found between forgiveness, cognitive flexibility and social support variables (Table 1).

Table 1. Relationships between variables

	Forgiveness	Social Support	Cognitive Flexibility
Forgiveness	-		
Social Support	.209**	-	
Cognitive Flexibility	.394**	.282**	-

*Note. **p<.01*

Due to the significant relationships between the variables, mediation-moderation analysis was performed using Process Macro (model 5) developed by Hayes (2018) (Fig 1).

Figure 1. Gender's regulatory-cognitive flexibility's mediator role in the effect of social support on forgiveness
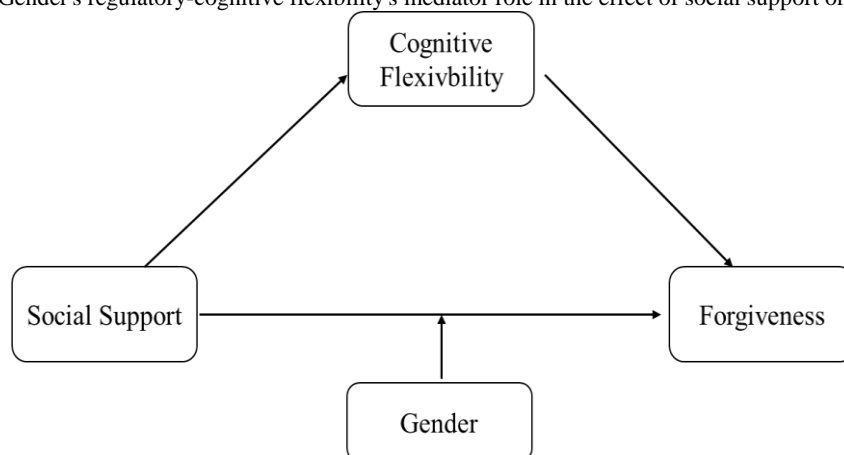
A mediation-moderated analysis was carried out using Process Macro (model 5) to test the moderator role of gender and the mediator of cognitive flexibility in the relationship between perceived social support and forgiveness. The analysis combined mediation and moderator analysis to predict the indirect effect of social support mediated by cognitive flexibility on forgiveness through gender. The analyses showed that the model was significant, $F_{(4,233)}= 12.99$, $p<.001$, accounted for 18 % of the total variance ($R^2= .18$). According to the findings, social support significantly predicted forgiveness behaviour, $b= .74$, $t(233)= 2.25$, $p =.02$.

*Pehlivan, N. N. & Coşkun, H. (2023).*

Table 2. Findings on the mediating effect of cognitive flexibility on the effect of social support on forgiveness

Direct Effect (Social support-> Forgiveness)	Relationship	Indirect Effect	Confidence Interval		Conclusion
			Lower Bound	Upper Bound	
.738(.025)	Social support->Cognitive flexibility->Forgiveness	.1048	.05	.17	Partially Mediator

Social support also had a significant predictive effect on cognitive flexibility, b=.19, t(236)=4.51, p = .000. Cognitive flexibility also significantly predicted forgiveness, b=.55, t(233)=5.90, p < .001. Finally, the model for the moderator effect of gender was examined. Findings also demonstrated that cognitive flexibility mediated the relationship between social support and forgiveness, indirect = .10, se = .03, 95% CI [.05, .17]. In addition, the direct effect of social support on forgiveness was found to be significant in the presence of cognitive flexibility as a mediating variable (b = .738, p < 0.05). Accordingly, cognitive flexibility partially mediated the relationship between social support and forgiveness. The mediation summary is presented in Table 2. According to the analysis, the moderator effect of gender was significant in the effect of social support mediated by cognitive flexibility on forgiveness, b=-.34, t(233)=-1.97, p = .04. The results showed that the effect of social support on forgiveness was weakened in women. In other words, increased social support for females does not lead to a significant change in forgiveness. Also, the graph shows a steeper slope for the male condition. The effect of social support on forgiveness is much stronger for men than femalesfor . Therefore, as the perception of social support increases, males forgive more (Gender Coding; 1=male, 2=female) (coefficients reported in Figure 2).

Figure 2. Gender's regulatory-cognitive flexibility's mediator role in the effect of social support on forgiveness.
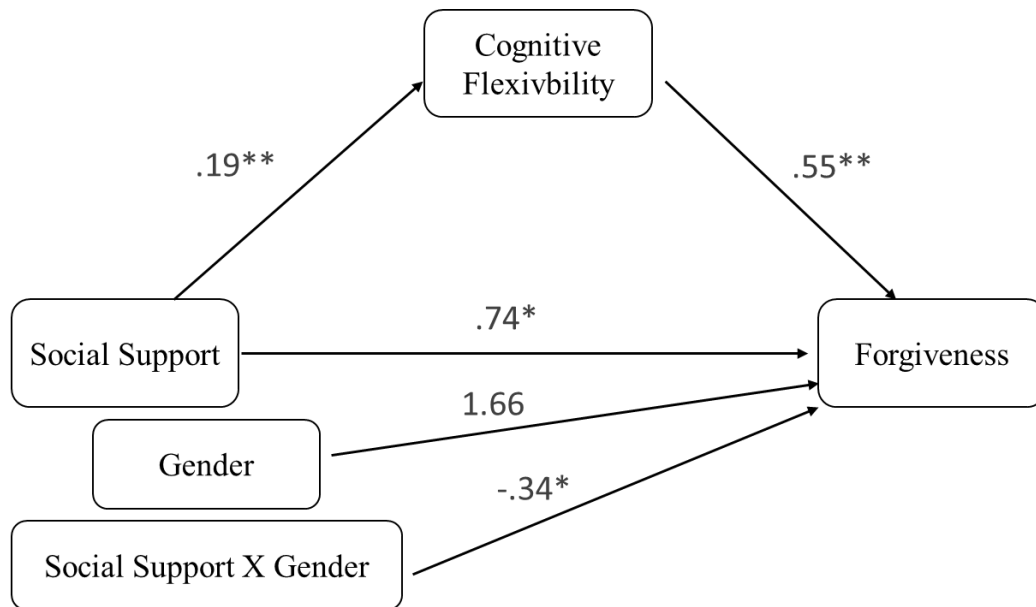
*Note: ** p<0.01, * p<0.05*

The 95% confidence intervals for gender in the slope analysis showed that they were significant in the male condition (indirect effect =.40, se =.16, 95% CI [.08,.72]) but not in the female condition (indirect effect =.05, se =.07, 95% CI [-.08,.19]). As a result, men are seen to benefit from social support in terms of forgiving others. In other words, men are more likely to forgive when they have more social support. Accordingly, men forgive more as the perception of social support increases (see Chart 1). As a result of the findings, the model predicted by the research was supported.

Chart 1. The conditional effect of social support on forgiveness according to the male and female condition
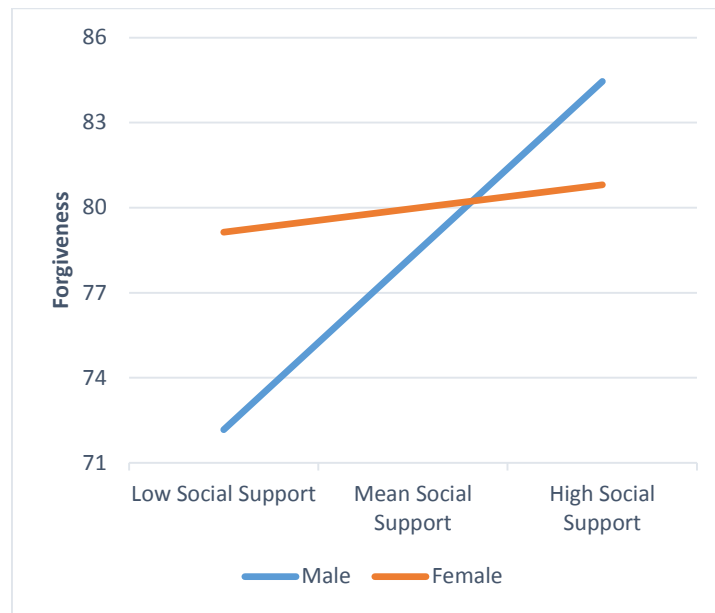
Discussion

This study aimed to uncover the relationship between forgiveness, an important concept in social relationships, social support, and cognitive flexibility. Another study's goal was to investigate the mediators of cognitive flexibility and gender regulatory mechanisms in the relationship between forgiveness and social support.

The findings of this study showed that cognitive flexibility was related positively to forgiveness. The participants with higher cognitive flexibility were more forgiving than those with a low one. This finding is consistent with previous research, indicating a positive relationship between flexibility and forgiveness (Thompson et al. (2005). On the other hand, Thompson and Shahen (2003) stated that in the forgiveness process, generating and implementing alternate solutions to earlier difficulties is vital. The individual with such problem-solving skills should exhibit cognitive flexibility. Katovsich (2007) proposed that cognitive flexibility influences both the individual and interpersonal dimensions of forgiveness, and she discovered that forgiveness predicts cognitive flexibility in interpersonal communication. Hodgson and Wertheim (2007) discovered in their research with college students that the ability to see things from a different perspective is a sub-dimension of cognitive flexibility that mediates the relationship between forgiveness of others and emotion management. As a result, it can be said that people with cognitive flexibility can forgive more easily, and cognitive flexibility plays an important role in the forgiveness process. In his qualitative study on forgiveness, Flanigan (1998) reported that individuals who can forgive see the world differently after the forgiveness experience. In other words, it can be said that those who can forgive have greater cognitive flexibility than those who cannot.

This study's discovery of a positive relationship between forgiveness and social support is consistent with previous research. The findings of this study indicate that people forgive more as their perception of social support grows. This finding confirms previous research findings published in the literature (Lawler et.al., 2005; Lawler-

Row & Piferi, 2006; Green et.al., 2012; Weinberg, 2013; Tian & Wang, 2020). Studies reporting that social support causes people to be more willing to forgive also support our current finding (Worthington et al., 2001; Worthington & Scherer, 2004). In their study, Green et al. (2012) found a moderately positive relationship between social support and forgiveness (r =.30). However, although the relationships were positive in this study, the relationship was weaker (r=.209). This situation may be due to the sample of university students. In other words, students state that social support is important but not a priority for forgiveness, which is required for human relations to continue. The majority of the sample consisted of students studying in the psychology department, and it can be said they believe that other parameters can be used in forgiveness in addition to the perception of social support in relationships since many important points about human relations are taught to these students.

Another finding of this study was that the relationship between social support and forgiveness was mediated by cognitive flexibility. This finding suggests that social support's ability to induce forgiveness is explained by moderate cognitive flexibility. Put another way, those with much social support and cognitive flexibility are more forgiving. When examining the literature, some mechanisms are established about forgiveness with various variables, but there is no mediator mechanism model on forgiveness like in this study. For example, Lawler-Row and Piferi (2006) found that social support mediated the relationship between forgiveness and depression. A study conducted with university students revealed that looking from a different perspective, a sub-dimension of cognitive flexibility mediates the relationship between emotion regulation and forgiveness of others (Hodgson & Wertheim, 2007). The literature also studies the relationship between cognitive flexibility and social support. In their study, Akbarvand et al. (2021) discovered the role of social support as a mediator between cognitive flexibility and Covid-19 anxiety. In a different study, the relationship between social support, cognitive flexibility, and academic well-being was examined in

relation to the function of psychological resilience as a mediator (Nasab et al., 2022). However, all these studies examined the variables separately and missed out on an investigation of the relationship between social support, flexibility and forgiveness. In the current study, flexibility played a moderately strong mediator role between social support and forgiveness. This finding indicates that not all social support recipients are forgiving. In other words, some of those who receive social support show forgiveness because they are flexible. This shows that cognitive flexibility is an important variable that must be considered in order to understand the relationship between these two variables. A researcher may also think that social support can be a mediator between cognitive flexibility and forgiveness. However, this study found no mediator role of social support between these two variables. This research finding expands the social support model in the buffering hypothesis proposed by Cohen and Wills (1985). In addition, social support can provide a maintenance role for forgiveness. Social support appears to have these two roles for forgivess. This research illuminates a potential mechanism between social support and forgiveness. Cognitive flexibility is a moderate mediator variable between social support and forgiveness. This situation indicates that not every individual who receives social support always shows forgiveness; on the contrary, it indicates that individuals who receive social support and are flexible show more forgiveness.

The present study determined that gender played a moderator role in the relationship between social support and forgiveness. Accordingly, the increase in social support for women does not lead to a significant change in forgiveness. However, the effect of social support on forgiveness is much stronger in men. As the perception of social support increases, men forgive more. Studies in the literature (Aliyev & Tunç, 2017) show that the perceived social support score favours men, which supports the study's findings. However, regardless of the level of social support for women, while forgiveness is high in any case, studies (Bayolu & Purutçuolu, 2010; Akar & Karataş, 2012; Tosun, 2018; Poots & Cassidy, 2020; McLean et al., 2022) on the importance of social support for women can be found in the literature. However, some research (Berry et al., 2001; Brose et al., 2005; Cohen et al., 2006) reported no gender differences in forgiveness proclivity. As a result, gender differences in forgiving deserve to be addressed more explicitly. As a result, it can be stated that the perception of social support for forgiveness differs or does not differ between genders. However, in this study, men are more forgiving if they have a perception of social support.

Although women show more forgiveness than men in this research, men show more forgiveness when social support is high. A meta-analytic study demonstrated that men are more self-centred than female (Meyers-Levy & Loken, 2015). It seems plausible that men who receive social

support show more forgiveness, as do women who are always supported or who are always more socially supported. On the other hand, the situation of forgiveness of women does not change in the case of an increase in social support in women who always receive more support. According to the selectivity hypothesis, women pay attention to all the details, while men pay attention to what is important in the environment (Meyers-Levy & Loken, 2015). The presence of social support in the environment may attract the attention of men who suffer from a lack of social support more than women since females have been already motivated.

Limitations
The study's limitations can be collecting data online under pandemic conditions, presenting information based on the self-reports of university students participating in the research, and the inability to confirm the accuracy of this information.

Conclusions
The present study makes the study unique and essential in illuminating the possible mediator and regulatory mechanisms on the way to the forgiveness process. It will provide outputs such as revealing the variables related to the forgiveness process and contributing to forgiveness-based psychological intervention studies for the future. In particular, based on the research findings, training modules or psychological counselling sessions related to each variable can be organized.

In future studies, examining the cognitive flexibility for each of the sub-dimensions of perceived social support and the sub-dimensions of forgiveness, and the mediating roles of the sub-dimensions of cognitive flexibility in these relationships, will further illuminate the nature of existing relationships.

Declarations

Ethics Approval and Consent to Participate
On March 29, 2021 2021/111 number, the Human Research Ethics Committee of Bolu Abant Izzet Baysal University approved this study. Before administering the online questionnaire, students provided informed consent online.

Consent for Publication
Not applicable

Availability of Data and Materials
Not applicable.

Competing Interests
The author declares that no competing interests in this manuscript.

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Not applicable.

Authors' Contributions
NNP and HC contributed to finding the topic, planning and reviewing the literature, collecting data, statistical analysis, writing and interpreting the article. The study was, in part, produced from NNP's thesis. The thesis advisor is HC. All authors have read and approved the final version of the article.

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