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Examining Social Anxiety Symptoms with Early Maladaptive Schemas: The Mediating Role of Mindfulness and Self-Compassion

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ABSTRACT

Objective: This study aims to determine early maladaptive schema domains that significantly predict social anxiety symptoms in university students and to examine whether mindfulness and self-compassion play mediating roles in the correlation of these schema domains with social anxiety symptoms.

Method: 440 students from various departments of universities participated in the study. Liebowitz Social Anxiety Scale, Young Schema Questionnaire-Short Form 3, Five Facets Mindfulness Questionnaire, and Self-Compassion Scale were used to evaluate social anxiety, early maladaptive schema domains, mindfulness, and self-compassion, respectively.

Results: The hierarchical regression analyses demonstrated that maladaptive schemas in the domains of disconnection, impaired autonomy, and unrelenting standards significantly predicted the increase in social anxiety symptoms. It was found that the level of mindfulness mediated the correlations between these three schema domains and social anxiety symptoms. Moreover, self-compassion mediated the correlations between the schema domains of impaired autonomy and unrelenting standards and social anxiety symptoms.

Conclusion: Findings indicate the importance of both specific schema domains and the level of mindfulness and self-compassion in explaining social anxiety symptoms in university students. The results' possible causes and clinical implications were discussed in light of the current literature.

Keywords: Social Anxiety, Early Maladaptive Schemas, Mindfulness, Self-Compassion

INTRODUCTION

The common proposition of cognitive models explaining social anxiety is that individuals experiencing social anxiety have dysfunctional core beliefs about themselves and their correlations with others and that these beliefs are triggered by social environments (Clark and Wells 1995, Heimberg et al. 2010, Hofmann 2007). However, Young et al.'s (2003) schema-oriented approach elaborates the concept of schema in cognitive theory, underlining that early maladaptive schemas are the most important factor that paves the way for psychological problems such as anxiety. According to this approach, early maladaptive schemas arising from basic needs that have not been met since early in life consist of memories, emotions, cognitions, and bodily sensations based on the individual's self and correlations with others and often disrupt the individual's functionality. Young et al. (2003) propose 18 "universal" early maladaptive schemas clustered under five basic schema domains (see Table 1). Indeed, studies conducted with different cultures and divergent sample groups have provided empirical evidence for the universality of early maladaptive schemas, although early maladaptive schemas might be clustered differently to form schema domains across cultures (e.g., Cecero et al. 2004, Lee et al. 1999). For example, a study comparing Korean and Australian samples of university students (Baranoff et al. 2006) found that similar schema structures were present in both cultures, but these structures were not the same as the schema domains determined by Young (1999). Borges et al. (2020) found a similar structure to the schema domains identified in the original study when studying adolescents in Portugal and Brazil. Supporting the idea that there may be cultural differences in schema clusters, study (Soygüt et al. 2009) conducted with university students to determine early maladaptive schemas and schema domains in Turkey has shown some differences in schema domains, as well as

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some overlaps with the original structure. Taken together, these findings indicate that the schema structures and their relationship with each other may vary across different cultures and samples. The original schemas and schema domains (Young 1999) in comparison to the schemas and schema domains determined in Turkey and referenced in the current study are given in Table 1.

Relevant literature has revealed that early maladaptive schemas are linked to various psychopathologies (e.g., Chen and Chang 2019, Kim et al. 2014, Meneguzzo et al. 2020, Soyaslan and Özcan 2019). However, it is noteworthy that the correlations between social anxiety and early maladaptive schemas are understudied (Boden et al. 2012). The available limited studies have found that early maladaptive schemas or some schema domains, especially disconnection/rejection, impaired autonomy, and other-directedness schema domains (Calvete 2014, Calvete et al. 2018, Eldoğan and Barışkın 2014, Mairet et al. 2014, Orue et al. 2014, Parsons et al. 2017), positively predicted social anxiety (González-Díez et al. 2015, Mairet et al. 2014, Pinto-Gouveia et al. 2006).

Individuals with high social anxiety process themselves as a social object (Clark and Wells 1995) and have significant difficulty objects accepting their inner experiences and thoughts without judging (Clerkin et al. 2017). It is stated that the attention focus of these individuals is mainly on their internal experiences, which leads to a decrease in the awareness of external social cues and interpretation of the external world as threatening (Clark and Wells 1995). Clark and Beck (2010) indicated that individuals with high social anxiety have negative schemas towards threats and danger triggered in social environments, and it is such a schema activation that brings an increased attentional bias toward the threat and an excessive focus on internal experiences. For these reasons, it might be suggested that individuals with high social anxiety may have low levels of mindfulness. Mindfulness, in its most basic form, means that the individual is open to momentary experiences without judging, and can accept them with awareness (Çatak and Ögel 2010, Sauer et al. 2013). Relevant literature indicates that social anxiety symptoms are more common in individuals with low levels of mindfulness (Clerkin et al. 2017, Rasmussen and Pidgeon 2011, Schmertz et al. 2012). This suggests that increased mindfulness may be a protective factor against psychological problems such as social anxiety.

Self-compassion is another important psychological concept that is thought to protect one from psychological problems. Having its roots in Buddhist philosophy, self-compassion refers to the individuals' ability to approach themself, their pain, and mistakes without judging, criticizing, or punishing, as well as to the ability to evaluate their experiences as a "human experience" even if they include error, defect, failure, or pain (Neff 2003). Neff (2003) defined self-compassion with three overlapping and complementary components: self-kindness, common humanity, and mindfulness. Individuals with high social anxiety are critical of themselves and feel that other people will be similarly critical of them (Clark and Wells 1995). These individuals also have biased thoughts that they are the only ones who experience the anxiety they feel in social environments. In addition, as their attention is constantly on their internal processes and threat-related environmental

Table 1. Comparison of Schema Domains and Early Maladaptive Schemas

Young (1999)		**Soygüt et al. (2009)**	
Schema Domains	Early Maladaptive Schemas	Schema Domains	Early Maladaptive Schemas
Disconnection and Rejection	Abandonment Mistrust Emotional Deprivation Defectiveness Social Isolation	Disconnection	Emotional Deprivation Emotional Inhibition Social Isolation/Mistrust Defectiveness
Impaired Autonomy and Performance	Dependence Enmeshment Vulnerability to Harm Failure	Impaired Autonomy	Enmeshment/Dependence Abandonment Failure Pessimism Vulnerability to Harm
Impaired Limits	Entitlement Insufficient Self-Control	Impaired Limits	Entitlement /Insufficient Self-Control
Other-Directedness	Self-Sacrifice Subjugation Approval-Seeking	Other-Directedness	Self-Sacrifice Punitiveness
Overvigilance and Inhibition	Pessimism Emotional Inhibition Unrelenting Standards Punitiveness	Unrelenting Standards	Unrelenting Standards Approval-Seeking

cues, they are less likely to be aware of momentary experiences (Heimberg et al. 2010). These characteristics of social anxiety suggest that individuals with high social anxiety may exhibit a pattern directly opposite to the three components used in the definition of self-compassion. According to an analysis of the pertinent literature, people with low self-compassion have higher levels of social anxiety than people with high self-compassion do (Makadi and Koszycki 2020). They also have greater fears of being judged by others, both favorably and unfavorably (Harwood and Kocovski 2017, Werner et al. 2012).

Among the main goals that the schema theory addresses are guiding individuals to become aware, recognize, and accept themselves, as well as their emotional and physical needs (Young et al. 2003). In its most general form, schema therapy aims to enable individuals to cope with schema-triggering situations more effectively and to accept their experiences as a part of being human. When their schemas are activated, individuals with high social anxiety may bias their internal and external cues, avoid experiences, and make destructive criticisms against themselves for their faults and mistakes (Thimm 2017). It is seen that schema therapy makes room for third-wave therapy concepts such as mindfulness and self-compassion in its conceptualization and application processes (Arntz et al. 2009), and some modes defined by the schema therapy may be evaluated as connected to these concepts. The detached protector mode, for instance, in which individuals cut off contact with themselves to avoid negative emotions and experiences (Arntz and Jacob 2017), is similar to low mindfulness. According to schema theory, individuals may feel empty while in the detached protector mode, are not consciously aware of their inner experiences, and thereby avoid the negative emotions (such as pain, sadness, and grief) that will arise from the negative experiences (Arntz and Jacob 2017). People with high levels of mindfulness can produce reasonable, appropriate, and healthier responses instead of giving automatic, impulsive and ingrained reactions when their schemas are activated (Thimm 2017). Following mindfulness-based interventions, individuals' insight about their schemas increases, and they can better cope with the schema-triggering situations they experience (Roediger 2012).

Similarly, schema therapy aims to enable people to realize their experimental and emotional avoidance and give context-appropriate responses in the face of schema-triggered situations. These responses, which are conceptualized as healthy adult behaviors (Young et al. 2003), qualitatively cover the concept of self-compassion. In cases of mistakes, defects, and shortcomings, the healthy adult side of the person will be able to show the person the compassion and understanding they require and will be able to view the negativity as a human experience. Furthermore, people with low self-compassion have attitudes toward themselves that are similar to attitudes (e.g., intolerance for errors, being accusatory) observed in situations where the internalized demanding/punitive parent mode is active (Arntz and Jacob 2017).

Overall, one may suppose that mindfulness and self-compassion are concepts to be linked with schemas, and they may help researchers and clinicians to better understand psychopathologies such as social anxiety. Although the associations of mindfulness and self-compassion with social anxiety have been revealed in literature, no previous study has modeled these concepts together with schemas. As a result, the current study seeks to uncover the links between schema domains and social anxiety symptoms in a Turkish sample, as well as to investigate the mediating roles of mindfulness and self-compassion in these correlations. In other words, this research seeks an answer to the question that whether mindfulness and self-compassion are the mechanisms explaining the association of schema domains with social anxiety symptoms. It is expected that as the individuals' scores from early maladaptive schema domains increase, their mindfulness and self-compassion levels will decrease, and thus, an increase in the severity of the social anxiety symptoms will occur.

METHOD

Sample

The sample of the study consists of university students living in Turkey and continuing their education as associate, undergraduate, master's or doctorate students. The criteria for participation in the present study were voluntary participation and studying at a university in Turkey. The exclusion criterion was to have any psychiatric/neurological disorder that would make it difficult to understand or answer the questionnaires. Participants were recruited using convenience and snowball sampling and responded to questionnaires sent via the internet. Initially, 453 people signed up for the study, and 13 participants who declared that they graduated were removed from the data. After the exclusion of the graduates, analyzes were performed on a total of 440 university students with an average age of 23.20 (SD=4.89, range 17-46), including 73.9% (n=325) women, and 26.1% (n=115) men. While 90.4% (n=395) of the participants were single, 24.5% (n=108) were actively working, 53.4% (n=235) had a low-income level (less than 1000TRY/mo), and 19.5% (n=89) had received psychological or psychiatric support at some point in their lives for reasons such as exam anxiety, relationship problems, and depressive symptoms, regardless of whether they received a clinical diagnosis or not. Participants completed all questionnaires without missing values.

Instruments

Sociodemographic Information Form: It was designed by the researchers to obtain information about the participant's

age, gender, department, class, university, place of residence, monthly income, employment status and whether they receive psychological or psychiatric support. There are twelve questions in the relevant form.

Liebowitz Social Anxiety Scale (LSAS; Liebowitz 1987): It is a 24-item, 4-point (0=no fear/never avoid, 3=severe fear/usually avoid) scale and consists of two subscales, namely fear/anxiety and avoidance, in which the same questions evaluate the fear/anxiety and avoidance reactions that people may experience in the social interaction and performance environments they encounter. The scale can give a total social anxiety score, and subscales can be evaluated separately as well, and the increase in the scores obtained from the scale indicates an increase in social anxiety symptoms. The LSAS was adapted into Turkish by Soykan et al. (2003). For the convergent validity of the scale, correlations with the Beck Anxiety Inventory were examined, and it was shown that anxiety scores were positively correlated with the social fear/anxiety subscale (r=0.26), the avoidance subscale (r=0.21) and the whole scale (r=0.25). The Cronbach alpha internal consistency coefficients of the scale were determined as 0.96 for the fear/anxiety subscale, 0.95 for the avoidance subscale and 0.98 for the whole scale.

Young Schema Questionnaire-Short Form 3(YSQ-SF3; Young 1999): It is a 90-item, 6-point rating (1=completely untrue of me, 6=describes me perfectly) instrument that evaluates five schema domains and a total of 18 schemas based on the contents of schema therapy. The adaptation study of the scale into Turkish was performed by Soygüt et al. (2009). Early maladaptive schemas and their schema domains determined in the original study and adaptation study are given comparatively in Table 1. In order to evaluate the convergent validity of the scale, the correlations among subscales and psychological symptoms were examined. It was observed that the scale shows significant positive correlations with anxiety, depression, and interpersonal sensitivity. Moreover, findings regarding discriminant validity indicated a significant statistical difference between the clinical and the normal samples in terms of YSQ-SF3's early maladaptive schemas and schema domains. Cronbach's alpha internal consistency coefficients were determined to be between 0.63 and 0.80 for early maladaptive schemas and between 0.53 and 0.81 for schema domains. It was also reported that the test-retest reliability coefficients varied between 0.66 and 0.82 for early maladaptive schemas, and between 0.66 and 0.83 for schema domains.

Five Facets Mindfulness Questionnaire (FFMQ; Baer et al. 2006): It is a 39-item and 5-point rating (1=never true, 5=always true) scale constituted by items from different instruments that measure the mindfulness levels of individuals. It has five sub-dimensions named observing, describing, acting with awareness, nonjudging of inner experience, and non-reactivity to inner experience. A total score can also be obtained from the scale. The Turkish adaptation study of the scale was carried out by Kınay (2013) with university students. As a result of the factor analysis, the scale revealed a five-factor structure in the Turkey sample as similar to the original scale, apart from the 4th item that loaded on a factor different from that of the original. It was reported that the item-factor loadings of the scale were between 0.38 and 0.79. In addition, the Cronbach alpha coefficients of the sub-dimensions were between 0.67 and 0.85, and the test-retest correlation coefficients were between 0.23 and 0.71.

Self-Compassion Scale (Neff 2003): It is an instrument consisting of 26 items and six sub-dimensions (self-kindness, self-judgment, common humanity, isolation, mindfulness, over-identification) developed to determine the self-compassion levels of individuals. A total score can be obtained from the instrument, and respondents rate their answers on a 5-point rating scale (1=almost never, 5=almost always). The Turkish version of the scale adapted by Akın et al. (2007) was used in the present study. The item-factor loadings of the adapted scale were between 0.41 and 0.88, the corrected item-total correlations ranged between 0.48 and 0.71, and all differences between the mean scores of the 27% upper and lower groups were significant. In addition, Cronbach's alpha consistency coefficients ranged from 0.72 to 0.80, while test-retest reliability coefficients ranged from 0.56 to 0.69.

Procedure

A survey set was formed through Google Forms after obtaining the necessary permission from the Ethics Committee of the Faculty of Literature of Dokuz Eylül University. Participants were mostly recruited through social media and official university community pages. Prior to the survey set, an Informed Consent Form including necessary details of the research was presented to the participants and their approvals were obtained. The questionnaires took approximately 30 minutes to complete. Instruments were presented to all participants in the same order.

Statistical Analyses

Before the basic analyses, it was determined that the data transferred to the SPSS 23.0 program met the normality and linearity assumptions. In line with the purposes of the study, the mean and standard deviation values of the basic variables were calculated. In addition, since the distribution of men and women in the sample was not equal, independent samples t-test and multivariate analysis of variance (MANOVA) were used to determine if the mean scores of the variables differed according to gender. While MANOVA was performed for schema domains consisting of five dimensions, independent samples t-tests were conducted

to see the differences for gender in terms of the total scores of social anxiety, mindfulness, and self-compassion levels. Regarding exploratory purposes, correlations among variables were examined not only for schema domains but also for all individual schemata. In order to determine the schema domains that significantly predict the social anxiety symptoms, a hierarchical regression analysis in which the schema domains having significant correlations with social anxiety were entered as a block after controlling for gender was performed before the mediation analyses. Only schema domains were used in this regression analysis since examination of all individual schemas together in this model was not possible due to the sample size. Finally, parallel multiple mediation analyses were performed using Hayes' (2013) PROCESS Macro 3.4 version to examine the role of mindfulness and self-compassion for each schema domain that were found as significant predictors of social anxiety. To test the significance of the indirect effects, the bias-corrected (BC) bootstrap method with a sample size of 5000 and a confidence interval of 95% was employed. According to the BC bootstrap analysis condition in the simulation created by Fritz and MacKinnon (2007), the sample size of the study has sufficient power for the mediation analysis, since the required sample size to detect even small mediating effects with an acceptable statistical power (0.8) should be between 368-462.

RESULTS

Descriptive Statistics, Independent Samples t-test, MANOVA, and Correlation Analysis

Table 2 shows the mean, standard deviation, and Cronbach's alpha values of all variables that constitute the mediation models to be examined, as well as the independent samples t-test and MANOVA findings to inspect the differences for gender. First, it was observed in the t-tests that homogeneity of variance was met according to Levene's test for social anxiety, mindfulness, and self-compassion ($p>0.05$). The results of these t-tests indicated that the social anxiety ($p=0.55$), mindfulness ($p=0.08$), and self-compassion ($p=0.21$) levels of women and men were not significantly different. Before examining the differences in terms of schema domains, the equality of variances was tested with the Box M test and it was seen that the assumption was met ($M=15.63$, $p=0.42$). In addition, Levene's test results revealed that homogeneity of variance was present for all dimensions ($p>0.05$). According to the MANOVA results, the model was significant (Pillai's Trace=0.062, $F_{(5,438)}=5.70$ $p<0.001$, $\eta^2_{partial}=0.062$, power=0.99), indicating that the scores of men and women differed significantly in terms of schema domains. In order to avoid the Type 1 error in the interpretation of the follow-up ANOVAs to determine which schema domains are different between genders, the critical p-value of the significance level was calculated as 0.01 (0.05/5) using the Bonferroni correction. When the impaired autonomy scores were examined, it was determined that women ($M=2.33$, $SD=0.94$) scored lower than men ($M=2.77$, $SD=1.00$) ($p<0.001$). It was also observed that the disconnection levels of women ($M=2.41$, $SD=1.01$) were lower than men ($M=3.02$, $SD=1.13$) ($p<0.001$). Finally, it was determined that the other-directedness score of women ($M=3.39$, $SD=0.93$) was lower than that of men ($M=3.68$, $SD=0.89$) ($p=0.004$). However, no significant differences were found in schema domains of unrelenting standards ($p=0.02$) and impaired limits ($p=0.04$). Due to the significant differences in the schema domains, the effect of gender was controlled for in all analyses.

Table 2. Means, Standard Deviations (SD) and Cronbach's Alpha Values of Variables and Independent Samples t-test, MANOVA Results (N = 440)

	Whole Sample			Gender						
Variables				**Women (n = 325)**		**Men (n = 115)**				
Schema Domains	α	**M**	**SD**	**M**	**SD**	**M**	**SD**	**F**	**p**	η^2
Disconnection	0.94	2.57	1.07	2.42	1.01	3.02	1.13	28.31	0.000	0.061
Impaired Autonomy	0.95	2.45	0.97	2.33	0.93	2.77	1.00	17.53	0.000	0.038
Impaired Limits	0.74	3.71	1.02	3.65	1.04	3.88	0.98	4.30	0.039	0.010
Other-Directedness	0.80	3.46	0.92	3.39	0.93	3.68	0.89	8.18	0.004	0.018
Unrelenting Standards	0.77	3.43	0.97	3.36	0.98	3.61	0.92	5.50	0.019	0.012
Other Scales								**t**	**p**	
Mindfulness	0.83	3.20	0.44	3.22	0.44	3.14	0.42	1.76	0.08	
Self-Compassion	0.93	2.99	0.72	3.02	0.75	2.92	0.66	1.25	0.21	
Social Anxiety	0.96	2.10	0.58	2.11	0.57	2.07	0.60	0.59	0.55	

Table 3. Correlations among Variables

Early Maladaptive Schemas	Mindfulness	Self-Compassion	Social Anxiety
Disconnection	**-0.44**	**-0.56**	**0.40**
Emotional Deprivation	-0.37	-0.44	0.32
Emotional Inhibition	-0.29	-0.38	0.29
Social Isolation/Mistrust	-0.35	-0.55	0.40
Defectiveness	-0.50	-0.53	0.35
Impaired Autonomy	**-0.47**	**-0.54**	**0.43**
Enmeshment/Dependence	-0.43	-0.39	0.38
Abandonment	-0.37	-0.43	0.30
Failure	-0.51	-0.52	0.39
Pessimism	-0.34	-0.55	0.34
Vulnerability to Harm	-0.27	-0.41	0.38
Impaired Limits	**-0.02**	**-0.14**	**0.23**
Entitlement /Insufficient Self-Control	-0.02	-0.14	0.23
Other-Directedness	**-0.15**	**-0.29**	**0.29**
Self-Sacrifice	-0.11	-0.18	0.25
Punitiveness	-0.14	-0.31	0.25
Unrelenting Standards	-0.15	-0.30	-0.31
Unrelenting Standards	**-0.07**	**-0.24**	**0.21**
Approval-Seeking	-0.22	-0.31	0.33
Social Anxiety	-0.35	-0.37	

Note. Values of 0.14 and above are significant at the p<0.01 level, the value of 0.11 is significant at the p<0.05 level, values of 0.07 and below are not significant (p>0.05).

The relationship patterns among variables obtained from the correlation analysis are shown in Table 3. When these were examined, it is seen that all early maladaptive schemas and schema domains were significantly and positively correlated with social anxiety. In addition, the relationship patterns of early maladaptive schemas and schema domains with other variables were similar. It is observed that all early maladaptive schemas and schema domains, other than the impaired limits and unrelenting standards domains, were significantly and negatively correlated with mindfulness; and all early maladaptive schemas and schema domains showed significant and negative correlations with self-compassion. Similarly, it was determined that social anxiety was significantly and negatively correlated with mindfulness and self-compassion.

Hierarchical Regression Analysis

The effect of gender was controlled for in the first step of the hierarchical regression analysis, and the five schema domains having a significant correlation with social anxiety were included in the second step. These variables together explained 20% of the variance (R^2=0.20, $F_{(6,433)}$=19.74, p<0.001). When the first step of the model was examined, it was determined that gender (1=women, 2=men) was a significant predictor of social anxiety (β=-0.11, $t_{(433)}$=-2.49, p<0.05, pr^2=0.01). After controlling for the effect of gender, it was observed that disconnection (β=0.16, $t_{(433)}$=2.04, p<0.05, pr^2=0.01), impaired autonomy (β=0.24, $t_{(433)}$=2.88, p<0.01, pr^2=0.02) and unrelenting standards (β=0.12, $t_{(433)}$=2.13, p<0.05, pr^2=0.01) significantly and positively predicted social anxiety. For this reason, mediation analyses were performed using these three schema domains that were significant predictors of social anxiety.

Mediation Analyses

Three parallel multiple mediations analyses were conducted to examine the mediating role of both mindfulness and self-compassion in the same analysis, after controlling for the effect of gender. These parallel multiple mediation models are given in Figure 1. It was determined that the first multiple mediation model, which focuses on the mediating role of mindfulness and self-compassion between the relationship of the disconnection schema domain with social anxiety was

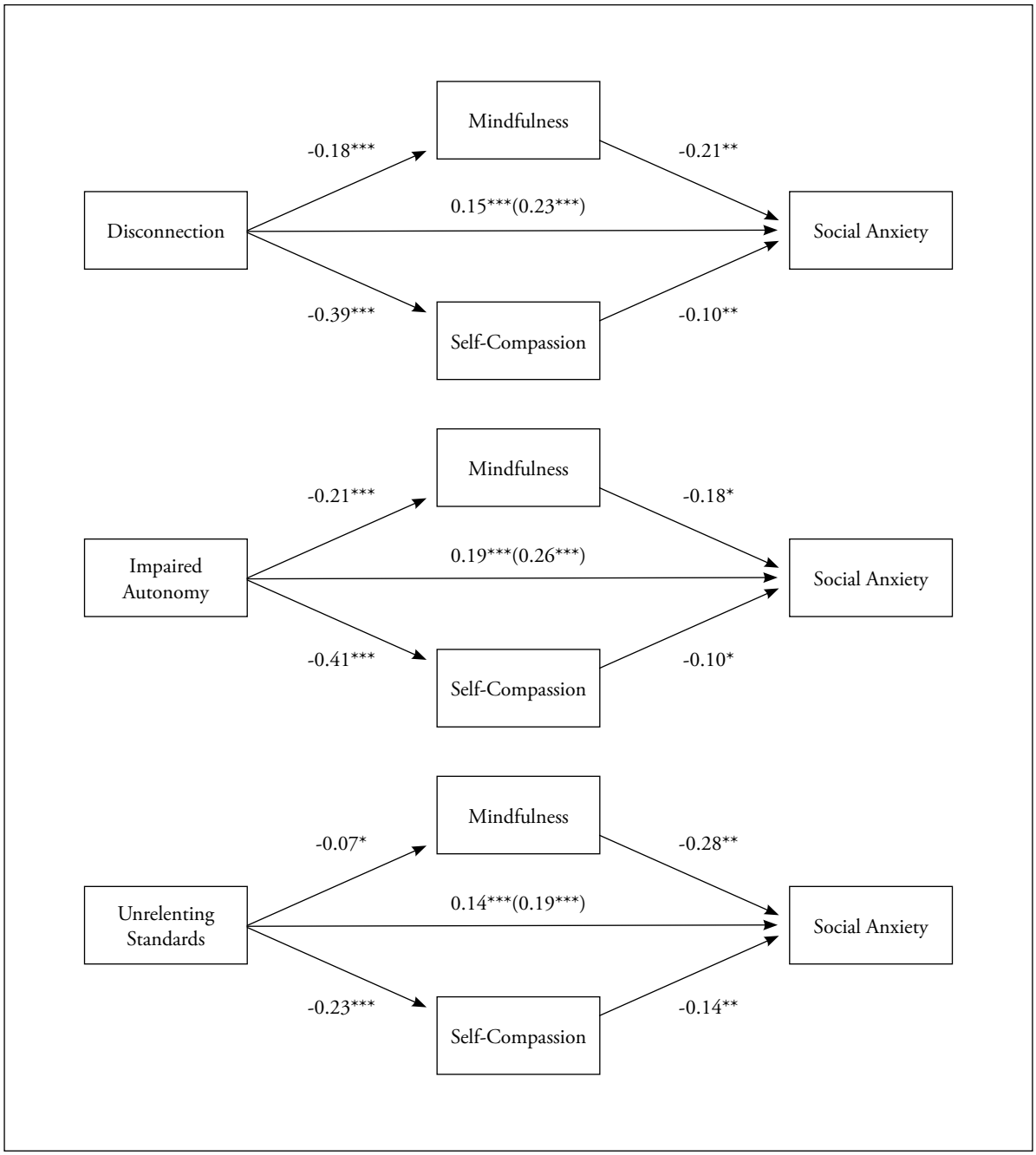

Figure 1. Mediation Models
***p < 0.**05, **p < 0.01, ***p < 0.001

significant (R^2=0.21, $F_{(4,435)}$=29.53, p<0.001), and that the full model explained 21% of the variance in social anxiety. Accordingly, the total effect of the disconnection schema domain on social anxiety was significant (B=0.23, SE=0.02, t=9.46, p<0.001). When the mediator variables are not in the model, the disconnection schema domain explains 17% of the variance in social anxiety (R^2=0.17, $F_{(2,437)}$=44.75, p<0.001). When the effects of mindfulness and self-compassion were examined, it was determined that the direct effect of the disconnection schema domain on social anxiety was significant (B=0.15, SE=0.03, t=5.30, p<0.001). When the direct connections in the model are examined, it is seen that the direct effects of the disconnection schema domain on mindfulness (B=-0.18, SE=0.02, t=-9.95, p<0.001) and self-compassion (B=-0.39, SE=0.03, t=-14.22, p<0.001) were negative and significant. In addition, after controlling for the effect of other variables in the model, it was determined that the direct effect of mindfulness (B=-0.21, SE=0.07, t=-3.03, p<0.01) and self-compassion (B=-0.10, SE=0.05, t=-2.09, p<0.01) on social anxiety was negative and significant. Examinations of bootstrapping analysis, intended to determine the significance of the indirect effects arising

from the disconnection schema domain on social anxiety, through the mindfulness and self-compassion variable set were significant (B=0.08, SE=0.02, 95% CI 0.04 to 0.11). When the specific indirect effects of the variables were examined, it was determined that the specific indirect effect of the disconnection schema domain on social anxiety was significant through mindfulness (B=0.04, SE=0.01, 95% CI 0.01 to 0.07); and the specific indirect effect on social anxiety through self-compassion (B=0.04, SE=0.02, 95% CI -0.0002 to 0.08) was not significant.

In the second parallel multiple mediation model, the mediating role of mindfulness and self-compassion in the relationship of the impaired autonomy schema domain with social anxiety was examined. The results indicated that the model was significant (R^2=0.23, $F_{(4,435)}$=31.73, p<0.001), the variables in the model together explained 23% of the variance in social anxiety, the impaired autonomy schema domain alone explained 19% of the variance (R^2=0.19, $F_{(2,437)}$=51.12, p<0.001), and the direct effect of the impaired autonomy schema domain on social anxiety was significant (B=0.19, SE=0.03, t=5.96, p<0.001) after the effect of the mediating variables was controlled for. In addition, it was observed that the direct effects of the impaired autonomy schema domain on mindfulness (B=-0.21, SE=0.02, t=-10.86, p<0.001) and self-compassion (B=-0.41, SE=0.03, t=-13.35, p<0.001) were negative and significant, and the direct effects of mindfulness (B=-0.18, SE=0.07, t=-2.55, p<0.05) and self-compassion (B=-0.10, SE=0.04, t=-2.23, p<0.05) on social anxiety were negative and significant, after controlling for the effect of other variables in the model. Bootstrapping analysis indicated that the total indirect effect of the impaired autonomy schema domain on social anxiety through mindfulness and self-compassion was significant (B=0.08, SE=0.02, 95% CI 0.04 to 0.12). The specific indirect effects of the variables were also examined, and the impaired autonomy schema domain's specific indirect effect on social anxiety was found to be significant through mindfulness (B=0.04, SE=0.02, 95% CI 0.01 to 0.07) and self-compassion (B=0.04, SE=0.02, 95% CI 0.002 to 0.08). The results of the pairwise comparisons indicated that the specific indirect effects of mindfulness and self-compassion were not statistically different from each other (B=0.003, SE=0.03, 95% CI -0.06 to 0.07).

In the third parallel multiple mediation model, the mediating roles of mindfulness and self-compassion on the effect of the unrelenting standards schema domain on social anxiety was examined. It was determined that the proposed model was significant (R^2=0.21, $F_{(4,435)}$=29.25, p<0.001), the full model explained 21% of the variance in social anxiety, the unrelenting standards schema domain alone explained 10% of the change in social anxiety (R^2=0.10, $F_{(2,437)}$=24.26, p<0.001), and when the effects of mediating variables were controlled, direct effect of the unrelenting standards on social anxiety continued to be significant (B=0.14, SE=0.03, t=5.21, p<0.001). In addition, the di'ect effects of the unrelenting standards schema domain on mindfulness (B=-0.07, SE=0.02, t=-3.07, p<0.05) and self-compassion (B=-0.23, SE=0.03, t= -6.58, p<0.001) were negative and significant, and after the effects of other variables in the model were controlled, the direct effects of mindfulness (B=-0.28, SE=0.07, t=-4.08, p<0.01) and self-compassion (B=-0.14, SE=0.04, t=-3.23, p<0.01) on social anxiety were negative and significant. As a result of the bootstrapping analysis, it was seen that the total indirect effect of the unrelenting standards schema domain on social anxiety through mindfulness and self-compassion variables was significant (B=0.05, SE=0.01, 95% CI 0.02 to 0.08). When the specific indirect effects of the variables were examined, it was seen that the specific indirect effect of the unrelenting standards schema domain on social anxiety was significant through mindfulness (B=0.02, SE=0.01, 95% CI 0.004 to 0.04) and self-compassion (B=0.03, SE=0.01, 95% CI 0.01 to 0.06). A pairwise comparison was made to determine whether there was a significant statistical difference between the specific indirect effects of mindfulness (B=0.02) and self-compassion (B=0.03) as significant mediators, and it was observed that the specific indirect effects did not differ statistically (B=0.01, SE=0.02, 95% CI -0.02 to 0.04).

DISCUSSION

The current study, conducted with university students, began by determining which schema domains predict social anxiety symptoms, and then moved on to investigate the mediating roles of mindfulness and self-compassion in the association between schema domains that had a significant predictive effect and social anxiety symptoms. The findings of the study demonstrated that disconnection, impaired autonomy, and unrelenting standards schema domains positively predicted social anxiety. This result is in line with research findings in the literature (Calvete et al. 2018, Diez et al. 2012, Drummond and Gatt 2018, Orue et al. 2014, Parsons et al. 2017, Pinto-Gouveia et al. 2006). However, the clustering of the schema domains differently in national and international literature makes the results difficult to compare. When the studies conducted in Turkey were examined, it was found that one study had concluded that disconnection, impaired autonomy, and impaired limits schema domains positively predict social anxiety (Eldoğan and Barışkın 2014). Another study in which the depressive symptom levels of the participants were controlled determined that disconnection, impaired autonomy, other-directedness, and unrelenting standards schema domains positively predicted social anxiety (Bintaş-Zörer 2015). As can be seen, the association of disconnection and impaired autonomy schema domains with social anxiety

is consistent between the present study and the other two studies conducted in Turkey. In addition, the unrelenting standards schema domain is a common schema domain that predicts social anxiety symptoms between this study and Bintaş-Zörer's study (2015). Although they exhibited significant positive correlations with social anxiety, the impaired limits and other-directedness schema domains that are significant in the other two studies were not significant predictors in the present study. This controversy might be explained by the differences in the sample characteristics, in the models tested, and in the statistical analysis among these three studies.

The schemas in the disconnection schema domain are characterized by not expressing any emotion, feeling insecure, and thinking that they are unlovable and defective (Young et al. 2003). It is seen that people with this schema domain have cold, indifferent, or refusing parents; their basic needs, such as protection, being loved, and unconditional acceptance, are not met. This situation may lead to the view of social environments as unsafe and open to negative evaluation by others (Clark and Beck 2010). Since the need to gain competence and differentiation from others is not met in people with schemas of impaired autonomy domain, intense feelings of inadequacy, low self-confidence, and a tendency to view themselves as unsuccessful can be seen (Young et al. 2003). These people may interpret the outside world as threatening, have achievement-oriented dysfunctional thoughts, and create catastrophic scenarios related to social mishaps (Hofmann 2007). Finally, people with high social anxiety may have high expectations and perfectionistic tendencies toward their performances in social environments (Levinson et al. 2015). These people can determine criteria that are difficult to meet, have low error tolerances, and interpret ordinary life situations, such as errors, defects, and deficiencies as disastrous (Hofmann 2007). In addition, it is known that people with social anxiety have the desire to be approved, accepted, and avoidance from being rejected by others more than other people (Leary and Kowalski 1997). This information in the literature explains why these three schema domains predict social anxiety.

In the present study, it was determined that women scored lower than men in disconnection, impaired autonomy, and other-directedness schema domains. Since our sample is predominantly women, this may have biased the results. In a systematic review study conducted by Nicol et al. (2020), the correlations between youths' (between the ages of 12-25) psychological status and early maladaptive schemas were examined. It is noteworthy that only three of the 58 studies included in this systematic review focused on early maladaptive schemas on a gender basis. It was determined in two of these three studies (Calvete et al. 2013, Orue et al. 2014) that early maladaptive schemas and schema domain scores of women were higher than those of men, and in one study (Cámara and Calvete 2012) that men had higher emotional deprivation and abandonment schema scores than women. In this systematic review study, although it was concluded that there was a gender difference between the scores, it was also stated that the relationship patterns with psychopathologies were similar for both genders. When studies focusing on early maladaptive schemas conducted in Turkey are examined, it is seen that early maladaptive schemas were not examined in terms of gender differences (Eldoğan and Barışkın 2014, Soygüt et al. 2009). The neglect of the gender effect in studies conducted within the scope of schema theory might be a result of the assumption that early maladaptive schemas originated from parental attitudes rather than gender (Young et al. 2003). However, it is also known that in some cultures parents may exhibit different attitudes towards boys and girls (e.g., giving more autonomy to the son), or similar parental attitudes may lead people to develop different psychopathologies. Therefore, it is thought that addressing psychopathologies based on the concept of gender is a broad field of research that should include many possible variables such as cultural codes, number/order of siblings, gender roles, or gender-oriented attitudes.

When the findings obtained from the proposed mediation models are evaluated, it is seen that all three schema domains the effects of which on social anxiety are examined predicted mindfulness significantly and negatively. Negative correlations between these schema domains and mindfulness are in line with the findings of the literature (Janovsky et al. 2019, Shorey et al. 2015, Thimm 2017). This implies that mindfulness features of people with higher scores of relevant schema domains have decreased mindfulness features. The schema domains that people have may in turn lead them to the tendency to be less aware and be able to stay in the moment. When it comes to the correlations between mindfulness and social anxiety in the tested models, it is seen that mindfulness significantly and negatively predicted social anxiety symptoms. This finding is consistent with the results of other studies in the literature (Norton et al. 2015, Parsons et al. 2017). The low levels of mindfulness may contribute to the triggering of social anxiety by leading to biased evaluation of the internal and external cues, resulting in failing to notice the environmental cues, which is a common phenomenon that occurs in social anxiety.

In the proposed mediation models, it is seen that all three schema domains predicted self-compassion negatively. Similarly, in the study conducted by Thimm (2017), it was determined that there was a negative relationship between all schema domains and self-compassion levels. The cognitive structures of the individual may bring along a negative self-image, being critical of oneself, not being able to tolerate

imperfections, mistakes, deficiencies, and inadequacies, or not seeing negative experiences as human experiences (Clark and Beck 2010). The examination regarding the correlations between self-compassion and social anxiety in our models, identified that self-compassion also predicted social anxiety symptoms negatively. In the study conducted by Werner et al. (2012), it was concluded that the fear of positive and negative evaluation was higher in individuals with low self-compassion. In another study, the relationship between self-compassion and post-event processing, which means ruminative thinking about the experience after exposing anxiety-provoking social environments, was examined. The results demonstrated that people with low self-compassion engaged in more post-event processing upon being exposed to social environments (Blackie and Kocovski 2018). In a longitudinal study with adolescents, it was shown that training individuals for the skills of accepting their defects and on being compassionate and kind to themselves, which are among the main components of self-compassion, brought about a decrease in adolescents' social anxiety symptoms during their transition to adulthood period (Ştefan 2019). In addition, several research indicate that self-compassion has an adaptive value by acting as an effective emotion regulation strategy in the face of stressful life events or situations (Diedrich et al. 2014, Leary et al. 2007). As it is known, people with high social anxiety interpret social environments as stressful and threatening and are unable to use effective emotion regulation strategies after going through negative experiences (Eldoğan and Barışkın 2014). The above-mentioned studies conducted on different indicators of social anxiety reveal that low self-compassion might be a risk factor for social anxiety.

In our parallel multiple mediation models, it was determined that mindfulness had a mediating role in the correlations between all three schema domains tested and social anxiety symptoms and that self-compassion had a mediating role in the correlations between the two schema domains and social anxiety symptoms, except for the disconnection schema domain. Accordingly, the expectation that mindfulness and self-compassion will have mediating roles in the correlations between schema domains and social anxiety is confirmed, except for the disconnection schema domain for self-compassion. These findings indicated that mindfulness and self-compassion are important mechanisms mediating the effect of various schema domains on social anxiety symptoms. That is, early maladaptive schemas positively predict social anxiety, and the likelihood of experiencing social anxiety is enhanced by the mediating effects of low levels of mindfulness and self-compassion. The decrease in mindfulness may be a cognitive way of avoiding negative emotions and experiences evoked by the active maladaptive schemas, and a way of coping with such experiences using an ineffective "detached protector" mode. Similarly, low level of self-compassion causes the person to not be able to support himself/herself in the face of negativities, encountered by every person in social environments, as if serving to maintain internalized demanding/accusatory parental voice. The results obtained from the current study suggest that the decrease in mindfulness and self-compassion may create a predisposition to social anxiety as maladaptive coping or emotion regulation strategies employed to deal with the effects of schemas and that the increase in mindfulness and self-compassion may play a protective role against social anxiety. In situations where schemas are triggered by any stimulus or experience, the main objectives of schema therapy include increasing one's insight to recognize and define what is happening at that moment and preparing the basis for self-protection by showing understanding towards oneself, experiences, and mistakes (Young et al. 2003). From this point of view, it is possible to claim that mindfulness and self-compassion are concepts related to schema theory.

When the literature is reviewed, it is evident that the mediating roles of mindfulness and self-compassion are examined in different samples and in terms of different psychological structures. Examples include studies examining the mediating roles of mindfulness and self-compassion in the correlations between anxiety and impulsivity (Mantzios 2014), between early maladaptive schemas and psychological distress (Thimm 2017), and between early maladaptive schemas and psychological needs (Faustino et al. 2020). In addition, it is possible to observe that mindfulness interventions are integrated into schema therapy in clinical practice (Bricker and Labin 2012, van Vreeswijk et al. 2014) or meditative practices aiming to increase self-compassion are included in the therapeutic processes and theoretical approaches (Bricker and Labin 2012). According to the recent recommendations, in this direction, incorporating the short or long-term mindfulness and self-compassion techniques into psychotherapy processes and teaching clients under what conditions, when and how to use these techniques would be valuable (Bricker and Labin 2012, Thimm 2017). Supportingly, the findings of our research point to the inclusion of mindfulness and self-compassion contents in the psychotherapy process, and to the use of intervention techniques aimed at developing mindfulness and self-compassion. In addition, it is seen in the literature that connections similar to the findings of our study have been obtained in different clinical groups, too. For example, a negative correlation was found between post-traumatic stress disorder (PTSD) symptoms and self-compassion in a sample diagnosed with PTSD (Karatzias et al. 2019); men with a diagnosis of a substance use disorder reported lower levels of mindfulness if they have stronger early maladaptive schemas (Shorey et al. 2015); and individuals with a diagnosis

of borderline personality disorder have lower levels of mindfulness and self-compassion compared to those without any diagnosis (Salgó et al. 2021). The findings of the relevant literature indicate that self-compassion and mindfulness are important concepts in understanding both different psychological structures and psychopathologies.

Schema therapy protocols in clinical practice are extensively used for various personality disorders, in particular for borderline personality disorder (Hilden et al. 2020, Khasho et al. 2019). Although the main target of schema therapy was personality disorders in its earlier development phase, the effectiveness of this approach in different psychopathologies has been proven over time (Calvert et al. 2018, Kopf-Beck et al. 2020). However, it is worth noting that the number of studies and psychotherapy protocols on the correlations between early maladaptive schemas and social anxiety disorder is very few. Determining which schema domains or individual schemas explain social anxiety is also of great importance in terms of psychotherapy studies to be carried out for the treatment of social anxiety disorder. Therefore, it is thought that the present study which is conducted on a Turkey sample contributes significantly to the literature. The strong and unique aspect of the current study is that it is the first to examine the mediating role of mindfulness and self-compassion in the possible correlations between schema domains and social anxiety symptoms. It is thought that the findings obtained from this research may be beneficial for clinicians and researchers working with individuals who experience social anxiety symptoms. It seems important to address the early maladaptive schemas of individuals with social anxiety problems and to plan intervention programs for improving mindfulness and self-compassion.

This research has some limitations as well as the above-mentioned strengths and clinical implications. The present cross-sectional study was conducted using self-report scales on university students who had access to the internet and were not clinically diagnosed with social anxiety disorder. Since the experimental design was not used, a cause-effect relationship cannot be established between the variables, and the findings of the research cannot shed light on the temporal and developmental processes between the relevant variables. Since the current findings were obtained from a nonclinical sample, it is also a matter of curiosity whether these relational patterns will apply to people with social anxiety disorders. For these reasons, the findings should be interpreted cautiously, and the results should be replicated on clinical samples using longitudinal or experimental designs in future studies. In addition, the schema domains that predict social anxiety were determined first and the basic analyzes were carried out using these schema domains in this study. The intercorrelations among the variables have shown that all individual schemas have relationship patterns with research variables similar to that of schema domains, however, the effect of schemas on mediation analysis has not been examined individually. In future studies, examination of the associations of each individual maladaptive schema with social anxiety and proposing mediation models depending on these correlations will ensure more interpretable and useful conclusions.

Finally, schema theory states that early maladaptive schemas are implicit structures and the data collected by self-report tools are not the only accurate way of detecting of schemas (Young et al. 2003). For this reason, a multi-facet evaluation approach is preferred in clinical practice where information obtained from the clinical interview, experiential techniques, and therapeutic relationship-specific observations are used together as well as self-report scales (Young et al. 2003). In future research, the inclusion of multi-faceted clinical evaluation procedures that include such qualitative methods is important for the detection of schemas accurately and for a more holistic understanding of their correlation with psychopathologies.

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