Social Anxiety among College Students: Predictive Roles of Attachment Insecurity and Emotional Schemas

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ARTICLE INFO	ABSTRACT
	The associations between social anxiety, attachment insecurity, and emotional schemas were investigated among college students in the current study. A correlational design was used, and 502 college students (64.7% female, 35.3% male) participated in the study. In data collection, the Experiences in Close Relationships Scale (ECR), Social Anxiety Scale (SAS), and Leahy Emotional Schema Scale (LESS) were used. In data analysis, the Pearson correlation and hierarchical regression analysis were used. Before conducting hierarchical regression analysis, multivariate outliers, multicollinearity, and normality were assessed. Results revealed that female students had higher scores on the dimension of social avoidance. Moreover, attachment insecurity (avoidant and anxious) and emotional schemas were significant predictors of social anxiety of college students.

1. Introduction

Defined as constant fear and embarrassment in social situations and society (Diagnostic and Statistical Manual of Mental Disorders V, DSM-V), social anxiety refers to individuals' concerns and fears in situations that will result in embarrassment (Stein & Stein, 2008). Social anxiety disorder is an anxiety disorders that affects adolescents and adults (Ollendick & Hirshfeld-Becker, 2002). People with social anxiety have intense fears about being evaluated and monitored by others (Stein & Stein, 2008). Their expectations toward positive life events are also lower than others (Gilboa-Schechtman, Franklin, & Foa, 2000). Being interviewed for a job or speaking in public may create anxiety among people, but these anxiety symptoms are temporary and manageable for most individuals (Antony & Swinson, 2008). However,it is difficult to manage these situations for socially anxious people, affecting their daily lives and routines (Vertue, 2003).

Social anxiety generally appears in intimate, peer, or authority relationships characterised by distress (Beidel & Turner, 2007; Leary & Kowalski, 1997; Turk, Heimberg, Magee, & 2001). Negative cognitions (e.g., Blanco & Joorman, 2017), shyness (e.g., Blöte, Miers, Van den Bos, & Westenberg, 2019), or dysregulated social emotions (e.g. Nikolic, 2020) play an important role in social anxiety disorder. Moreover, socially anxious people have lower peer relations (Su, Pettit & Erath, 2016) and intimacy with partners (Sparrevohn & Rapee, 2009). These impairments in intimate relationships among socially anxious people may be explained from an "Attachment" framework to understand social anxiety better. Vertue (2003) proposed a theoretical framework that attachment systems may have an important role in developing social anxiety. Bowlby (1973) developed the "Attachment Theory", conceptualising how attachment patterns shape and develop our intimate relationships. According to Bowlby (1973), infants' birth with an evolutionary system to maintain

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contact with their caregivers toward a world which later shapes future relationships. Based on our interactions with our primary caregivers, we humans develop internalised working models of others and self about worthiness and dependency. Bowlby theorised that (1969, 1973) attachment figures area haven if the infant perceives them as available, responsive, and caring. On the other side, uncertainty about the attachment figure may lead infants to develop anxiety.

After Bowlby's theory of attachment in infants, several researchers extended and classified this theory to adult intimate relationships (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; Main, Caplan, & Cassidy, 1985). Hazan and Shaver (1987) classified attachment styles into three categories. According to their classification, the secure attachment style refers to positive, friendly, and caring relationship experiences. On the other side, the anxious attachment includes ambivalent love experiences in which people desire to be closer to their partners. Furthermore, a fear of intimacy characterizes the avoidant attachment style.

Bowlby (1969, 1973) presented "The internal working model" in his theory, if children start to develop cognitive schemas based on their attachment figures at the ages of two or three. These working models are presented in the perception of self and others. Vertue (2003) argued that negative internal working models of self are associated with social anxiety, whereas negative internal models of others are related to social avoidance, leading to dependence. Studies revealed significant associations between social anxiety and insecure attachment in recent years (e.g., Adams, Wrath, Mondal, & Asmundson, 2018; Yu, Liu, Song, Fan, & Zhang, 2019) and that internal working models of self and others which infants develop during the developmental period might have a prominent role in the development of social anxiety.

Emotions have an important role in human functioning as classification, emotion-cognition, and emotion-regulation processes (Izard, 2007). Even labelling or differentiating emotions are the first steps in emotional processing; people also differ in their interpretations of their own emotions (Leahy, 2007). Individuals differ according to their emotion regulation strategies called "Emotional schemas" (Leahy, 2002) and respond to emotions that include cognitive strategies (Leahy, Tirch, & Napolitano, 2011). Emotional schemas provide a framework for interpreting emotions (Leahy, Tirch, & Melwani, 2012). The events and their related emotions may activate emotional schemas. For example, Silberstein, Tirch, Leahy, and McGinn (2012) stated that one might feel anxious and sad after a break-up, activating their negative emotional schemas. These negative emotional schemas may then lead to problematic coping strategies (Leahy et al., 2012). Leahy (2002) proposed a theory of emotional schemas by revealing different emotional schemas. These are validation by others, comprehensibility, guilt, simplistic view of emotion, higher values, control, and numbness.

Leahy (2007) stated that each anxiety disorder involves interpretations and strategies of emotions (emotional schemas) based on controlling anxiety from the perspective of social anxiety disorder. Thus, negative interpretations of emotions might especially play a dominant role in the development of social anxiety.

1.1. The Present Study

In the current study, we aim to reveal the predictive role of insecure attachment and emotional schemas on social anxiety among college students. We hypothesise that anxious and avoidant attachment and emotional schemas significantly predict college students' social anxiety levels. Attachment styles have been studied in numerous studies in recent years with different variables in the context of close relationships such as anxiety (e.g. Dilmac, Hamarta, & Arslan, 2009; Nielsen, Lønfeldt, Wolitzky-Taylor, Hageman, Vangkilde, & Daniel, 2017), problem-solving (e.g. Arslan, Arslan, & Arı, 2012; Lovimi, Nazarzadeh, Moini, Aminyazdi, & Rostaee, 2018), nomophobia (e.g. Arpacı, Baloglu, Kozan, Kesici, &2017), and social anxiety (e.g. Chen, Li, Zhang, & Liu, 2020; Manning, Dickson, Palmier-Claus, Cunliffe, & Taylor, 2017; Yu, Liu, Song, Fan, & Zhang, 2019). Vertue (2003) argued the theoretical model of attachment and social anxiety, emphasising that the internal working model of self and others may play a crucial role in developing social anxiety. Moreover, emotional schemas (Leahy, 2002) –how we interpret emotions and develop strategies to regulate them– may have predictive roles in people's social anxiety levels. People interpret and regulate their emotional schemas to deal with anxiety. We expect that attachment styles and emotional schemas predict the social anxiety levels of college students in the current study. We assume that the predictive roles of attachment orientations and emotional schemas on social anxiety would bring insight to understand the roots of anxiety disorders in the literature. Current research will bring a unique contribution to the literature in close relationships. When we tackle Vertue (2003)'s model, internal working models have a significant role in developing social anxiety.

Internal working models that the child develops (who the attachment figure is and how to find them) (Bowlby, 1973) and emotional schemas (how we handle and interpret our emotions) (Leahy, 2002) is important in predicting social anxiety. Cognitions play an important role in social anxiety, such as self-evaluation in social situations or negative interpretations (Rape & Heimberg, 1997). These cognitions also have a crucial role in developing attachment styles and emotional schemas in close relationships. Thus, we assume that the current study provides a link between these variables in the literature of psychology.

2. Methodology

2.1. Research Model

The correlational research design was used in the current study. Correlational research designs measure the statistical relationship between two variables or more variables (Karasar, 2008).

2.2. Participants

A total of 502 college students studying at Necmettin Erbakan University in Konya participated in the study voluntarily. Of the group, 64.7% (325 women) were women, and 35.3% (177 men) were men. Their age ranged from 18 to 48, and their age mean was 22.80 years (SD=3.96). Students in the Faculty of Education and students who got a teaching formation participated in the study. Students participated in the study from different majors such as Counseling Psychology (55.5%), History (13.2%), Literature (7.3%), Philosophy (7.9%), Health (5.7%), English (4.5%), and Art (5.9%).

2.3. Data Collection Tools

In addition to the personal information form, the Experiences in Close Relationships Scale (ECR), Social Anxiety Scale (SAS), and Leahy Emotional Schema Scale (LESS) were used in the data collection process. ECR was used to assess participants' attachment patterns, SAS was used to evaluate their social anxiety levels, and LESS was used to their emotional schemas.

2.3.1. Experiences in Close Relationships Scale (ECR). Experiences in Close Relationships Scale was developed by Brennan, Clark, and Shaver (1998) to assess individuals' attachment patterns. The scale was adapted into Turkish by Sümer (2006). It is a self-report scale with two subscales: Anxiety ("I worry a lot about my relationships") and avoidance ("I get uncomfortable when a romantic partner wants to be very close"). The scale is a 7-point Likert type ranging from 1 (strongly disagree) to 7 (strongly agree). Higher points refer to higher avoidant and anxious attachment levels. In the current study, we found the Cronbach alpha coefficients as .84 for avoidance and .87 for anxiety. For the total, a .84 Cronbach alpha coefficient was found, which was acceptable.

2.3.2. Leahy Emotional Schema Scale (LESS). The Emotional Schema Scale was developed by Leahy (2002). The scale was adapted to Turkish by Yavuz, Türkçapar, Demirel, and Karadere (2011). The scale includes 50 items with Likert type. The scale has fourteen subscales called control, emotions against weakness, comprehensibility, acceptance of feelings, rumination, ignoring emotions, duration, discrepancy, validation, consensus, rational, seeing emotions as dangerous guilt, and avoidance of feelings. These factors explain 56.88% of the total variance, and the test-retest correlations were ranged between .37 to .75. In the current study, the Cronbach alpha coefficient was found .80.

2.3.3. Social Anxiety Scale (SAS). The Social Anxiety Scale was developed by Özbay and Palancı (2001) to reveal college students' social anxiety levels. This 30 item 5-Likert type scale has three sub-dimensions: social avoidance, criticism anxiety, and self-depreciation, respectively. These three sub-dimensions explain 32.9% of the total variance. The Cronbach alpha coefficient was found .89 in the adaptation study. In the current study, the Cronbach alpha coefficient was .93.

2.4. Procedure and Data Analysis

College students were informed about the study before data collection, and all voluntary students participated in the study. All procedures in the current study were suitable with the ethics committee and with the Belmont Report-1979. The data collection process lasted approximately 40 minutes. In the analysing process, first, the data were screened for incorrect or incomplete coding. Multivariate outliers and normality of variances were tested before the analysis. At the beginning of the study, we had 505 data; after calculating

Mahanalobis distances,502 data remained. Before conducting hierarchical regression analysis, multivariate outliers, multicollinearity, and normality were assessed. Skewness and kurtosis, VIF, and TV scores were assessed, and the data was suitable for the hierarchical regression analysis.

3. Findings

In this section, the correlation matrix and hierarchical regression results were presented. Table 1 below gives the results of correlations between social anxiety, attachment styles, and emotional schemas. There are significant positive correlations between the dimensions of social anxiety (social avoidance, criticism anxiety and self-depreciation) and attachment styles (anxiety and avoidance). Moreover, there are significantly positive and negative correlations between the dimensions of social anxiety and emotional schemas (Please see Table 1 below for more information).

Table 1. *Correlation Matrix for Social Anxiety, Attachment Styles, and Emotional Schemas*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SAS																			
1. Social avoidance	-	.77**	.72**	.35**	.30**	.39**	.29**	-.32**	.03	.10*	-.32**	.24**	.32**	-16**	.08	-.04	.05	.28**	.30**
2. Criticism anxiety		-	.74**	.46**	.25**	.45**	.36**	-.36**	.15**	.14**	-.20**	.37**	.33**	-.12**	.11**	-.01	.09*	.30**	.31**
3. Self-depreciation			-	.40**	.24**	.41**	.31**	-.35**	.02	.06	-.28**	.26**	39**	-.14**	.10*	-.05	.12**	.25**	.37**
ECR																			
4. Anxiety				-	.07	.44**	.42**	-.35**	.07	.01	-.05	.43**	.29**	-.05	.17**	-.03	-.08	.15**	.18**
5. Avoidance					-	.25**	.16**	-.28**	.02	.25**	-.34**	.06	.16**	-.06	.16**	-.07	.00	.20**	.22**
LESS																			
6. Control						-	.49**	-.62**	.12**	.28**	-.23**	.49**	.53**	-.16**	.19**	.05	-.01	.47**	.35**
7. Emotions toward weakness							-	-.47**	.18**	.17**	-.04	.52**	.40**	-.12**	.11**	.02	-.00	.27**	.19**
8.Comprehensibility								-	-.14**	-.25**	.18**	-.50**	-.49**	.14**	-.15**	-.04	.05	-.30**	-.32**
9. Avoidance of feelings									-	.30**	.20**	.25**	.10*	-.04	.06	.15**	.04	.19**	.01
10. Rationale										-	.11**	.20**	.19**	-.00	.11*	.01	.07	.23**	.20**
11. Acceptance of feelings											-	.10*	-.20**	.09*	-.05	.09*	.03	-.10*	-.17**
12. Rumination												-	.36**	-.04	.11*	.06	-.01	.24**	.21**
13. Discrepancy													-	-.13**	.05	-.00	-.03	.29**	.29**
14. Ignoring emotions														-	.00	-.07	-.10*	-.13**	-.10*
15. Duration															-	.05	-.01	.06	.10*
16. Validation																-	.17**	.24**	.02
17. Consensus																	-	.09*	.09*
18. Seeing emotions as dangerous																		-	.25**
19. Guilt																			-
Mean	17.59	15.97	9.37	68.81	63.60	18.08	18.54	10.45	21.60	14.59	22.57	15.32	14.38	7.54	6.97	6.49	5.10	6.30	7.36
SD	9.33	7.33	5.84	18.32	16.92	6.64	5.01	3.95	4.46	4.35	3.91	4.15	4.37	1.68	1.96	2.09	2.41	2.69	2.98

*p<.05, **p<.01, (SAS= Social Anxiety Scale, ECR= Experiences in Close Relationships, LESS= Leahy Emotional Schema Scale).

Table 2 below represents the hierarchical regression results for social anxiety dimensions. Three hierarchical regression analyses were run and given in Table 2. In each analysis, gender and age were entered in the first step as control variables, attachment styles (avoidance and anxiety) were entered in the second step, and emotional schemas were entered in the third step for each dimension of social anxiety.

For social avoidance, demographical variables –gender and age– were entered in the first step as control variables and explained 1% of the total variance. It revealed a main effect for gender -β=-.11, p<.05-. Women's social avoidance levels were higher than men. In the second step, attachment orientations were entered into the analysis, and a 19% increase in the R^2 was provided. Both anxiety -β=.33, p<.001- and avoidance -β=.26, p<.001- had a main effect (participants who had higher scores on anxiety and avoidance also had higher scores on social avoidance). Regression analysis for social avoidance was revealed as the main effect for acceptance of feelings -β=-.20, p<.001-, seeing emotions as dangerous -β=.12, p<.01-, and guilt -β=.12, p<.01-; suggesting that acceptance of feelings are related to less social avoidance, whereas seeing emotions as dangerous and guilt are related to more social avoidance.

Table 2. *Hierarchical regression analysis predicting social anxiety*

Predictors	Social avoidance		Criticism anxiety		Self-depreciation	
	ΔR^2	B	ΔR^2	β	ΔR^2	β
Step 1 (Control variables)	.01*		.00		.00	
Gender		-.11*				
Age						
Step 2 (Attachment)	.19***		.27***		.21***	
Anxiety		.33***		.45***		.38***
Avoidance		.26***		.22***		.21***
Step 3 (Emotional schemas)	.13***		.12***		.17***	
Control						
Emotions ag. weak.						
Comprehensibility						
Avoidance of feelings				.09*		
Rational						
Acceptance of feelings		-.20***		-.11**		-.13**
Rumination						
Discrepancy						.15***
Ignoring emotions						
Duration						
Validation						-.08*
Consensus				.11**		.15***
Seeing emotions as dangerous		.12**		.09*		
Guilt		.12**		.12**		.18***
TOTAL R^2	**.33*****		**.39*****		**.38*****	

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

For criticism anxiety, demographical variables were entered into the model in the first step as control variables and had no main effect. In the second step, attachment orientations were entered into the model and provided an increase of 27% in the R^2. Anxiety -β=.45, p<.001- and avoidance -β=.22, p<.001- had a main effect, suggesting that the participants who had higher scores on anxiety and avoidance also had higher scores on criticism anxiety. In the third step, emotional schemas were entered into the model and provided a 12% increase in the R^2. It revealed a main effect for the avoidance of feelings -β=.09, p<.05-, acceptance of feelings -β=.11, p<.01-, consensus -β=.11, p<.01-, seeing emotions as dangerous -β=.09, p<.01-, and guilt -β=.12, p<.01-. Participants who had higher scores on avoidance of feelings, consensus, seeing emotions as dangerous, and guilt also had higher scores on criticism anxiety. On the other side, participants who had higher scores on acceptance of feelings had lower scores on criticism anxiety.

For self-depreciation, demographical variables –gender and age– were entered into the model in the first step as control variables, but they had no main effect. Insecure attachment dimensions were entered into the model in the second step and provided a 21% increase in the R^2. Participants who had higher scores on anxiety -β=.38, p<.001-, and avoidance -β=.21, p<.001- also had higher self-depreciation scores. In the third step, emotional schemas were entered into the model and provided a 17% increase in the R^2. Acceptance of feelings -β=.13, p<.01-, discrepancy -β=.15, p<.001-, validation -β=.08, p<.05-, consensus -β=.15, p<.001- and guilt -β=.18, p<.001- had a main effect suggesting that participants who had higher scores on discrepancy, consensus, and guilt also had higher scores on self-depreciation. On the other hand, participants who had higher scores on acceptance of feelings and validation had lower scores on self-depreciation.

4. Discussion

In the current study, the predictive roles of attachment insecurity and emotional schemas on social anxiety levels of college students were revealed. We found significant positive correlations between the dimensions of social anxiety (Social avoidance, criticism anxiety, and self-depreciation) and attachment styles (anxiety and avoidance). There were significant positive and negative correlations between the dimensions of social anxiety and emotional schemas in the correlation analysis. In the hierarchal regression analysis, demographical variables –gender and age– were entered into the model as control variables. We found that only gender has a significant role in social avoidance. Female students' social anxiety levels were higher than male students. Different results were discussed in the literature; females' social anxiety scores were higher than males in general (e.g., Desalegn, Getinet, & Tadie, 2019; MacKenzie & Fowler, 2013; Ohayon & Schatzberg, 2010),but different studies revealed that men's scores were found higher than females (e.g. Baloglu, Özteke-Kozan, Kesici, 2018). Additionally, according to DSM-V, women's social anxiety disorder scores are higher than men (American Psychiatric Association, 2013), supporting our study findings. In a longitudinal study, Beesdo et al. (2007) found a larger decrease in men's scores of social anxiety disorder than women.

Attachment insecurity was found to be a significant predictor of the social anxiety level of college students. Students who had higher scores on attachment anxiety and avoidance also had higher scores on social anxiety dimensions. In a recent systematic review study investigating associations between attachment and social anxiety, Manning, Dickson, Palmier-Claus, Cunliffe, and Taylor (2017) found that of the 30 studies, 28 showed positive associations between attachment insecurity and social anxiety, addressing that attachment was a key factor in the development of social anxiety. In a longitudinal study by Brumariu and Kerns (2008), the ambivalent attachment was found the most consistent variable related to social anxiety. Özteke-Kozan and Hamarta (2017) examined the predictive role of attachment insecurity on social appearance anxiety in a group of Turkish college students. They revealed significant associations between these variables similar to our findings. Vertue (2003) stated that people who want to make good impressions on others mighthave a high need for approval. In the attachment system, Bowlby (1969, 1972) also emphasises the interaction of caregiver and child in developing the internal working model. Thus, children whose attachment figure was insufficient to satisfy their needs may have a higher need for approval in later life, which may be a factor in the development of social anxiety because socially anxiety mostly occurs in situations that require contact with people and display performance (Beidel & Turner, 2007; Mattick & Clarke, 1998).

In the third step, we included emotional schema dimensions to the model, and schemas had a predictive role in college students' social anxiety levels. Of all the schemas, "Acceptance of feelings" and "Guilt" were significantly predicted all the social anxiety dimensions. College students who had higher scores on "Acceptance of feelings" had lower social anxiety dimensions. Participants who had higher scores on "Guilt" also had higher scores on social anxiety. Moreover, participants who had higher scores on "Avoidance of feelings", "Discrepancy", "Consensus", and "Seeing emotions as dangerous" also had higher scores on social anxiety. Some studies corroborate our study findings. Negative emotional schemas were significantly correlated with depression and anxiety in Leahy (2002)'s study. When we think about emotion regulation as a part of emotional schemas (Leahy, 2002), studies are reporting the association between social anxiety and maladaptive emotion regulation processes (e.g. Farmer & Kashdan, 2012; Mennin, McLaughlin, & Flanagan, 2009; Werner, Goldin, Ball, Heimberg, & Gross, 2011). For example, Farmer and Kashdan (2012) found that people with high social anxiety revealed more positive emotion suppression in reverse to people with low social anxiety levels. Similarly, Werner et al. (2011) found that people with social anxiety disorders use more avoidance strategies in their social life. Individuals with social anxiety disorders have a limited emotion regulation repertoire (Rusch Westermann Lincoln, 2012). They avoid social and performance situations, predict future events, and use negative emotional responses to these events. Furthermore, safety behaviours maintain anxiety and negative schemas (Jazaieri, Morrison, Goldin, & Gross, 2015).

Eventually, in the current study, we found that attachment insecurity and emotional schemas were significant predictors of college students' social anxiety levels. Participants who had higher scores in insecure attachment also had higher scores on social anxiety. Insecurity attachment styles may be a risk factor in developing social anxiety. Our internal working models (Bowlby, 1969, 1972) may contribute to developing cognitions related to social anxiety in childhood. It may be shaped according to caregivers and

parents' attitudes during the development of children—both the features of the child and primary caregiver affect the attachment orientations.

Moreover, positive and negative emotional schemas had different effects on social anxiety. Positive emotional schemas negatively correlated with social anxiety, whereas negative emotional schemas positively correlated with social anxiety. Additionally, emotional schemas developed from childhood to adult life may contribute to social anxiety disorder. Especially our negative emotional schemas may be effective to maintain safety and avoidant behaviours in social and performance situations. In sum, insecure attachment styles and negative emotional schemas may be risk factors in social anxiety. On the other hand, developing security attachment and positive emotional schemas may be a protective factor for social anxiety. Thus, it is important to help children in developing secure attachment and positive schemas for families.

5. Limitations and Suggestions

The current study has a few limitations. Firstly, this study is limited to specific variables, and future studies should be conducted with different variables in investigating social anxiety. Secondly, it is limited to college students with a correlational model. Different samples with different methods –longitudinal or experimental- could be used for future studies. The correlational model only shows associations; thus, no causality would be interpreted from the results. Thirdly, only self-report measures were used; thus, common method bias would have occurred. Moreover, qualitative studies could be employed for future research.

Our study findings demonstrated that attachment insecurity and emotional schemas were significant predictors of social anxiety disorder. Thus, psychologists, counsellors, and psychiatrists may include attachment-based and cognitive therapy methods in dealing with social anxiety disorders. Also, experimental studies would be helpful to reveal the effectiveness of these therapies.

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