

Attachment Styles, Separation-Individuation and Social Anxiety among Youth: A Structural Relationship Model



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Abstract:

Introduction: Young adulthood is a crucial developmental period marked by increasing autonomy, identity formation, and social functioning. Emotional attachment styles and separation-individuation processes have been linked to social anxiety and broader psychological functioning in this population. This study aimed to examine the associations between attachment profiles, dimensions of separation-individuation, and domains of social anxiety among university students.

Methods: This cross-sectional study included 250 university students (125 males and 125 females), aged 18-24, recruited from AAB College in Pristina. Participants completed the UPIPAV-R (attachment), SITA (separation-individuation), and K-GSADS-A (social anxiety) questionnaires. Four attachment profiles were identified using cluster analysis. Associations among variables were examined using correlation analyses, Bayesian t-tests (BF10), and multiple regression models.

Results: Four attachment profiles were identified: secure, insecure-avoidant, insecure-preoccupied, and fearful/disorganized. Compared to the secure group, insecure profiles showed higher levels across all social anxiety domains (fear/anxiety, avoidance, affective distress). Several separation-individuation dimensions, including restrictive parental control, separation anxiety, and longing for childhood, were also positively associated with social anxiety. Regression analyses indicated that unresolved family trauma, negative models of others, and separation anxiety were significant predictors of social anxiety.

Discussion: The findings highlight the role of attachment-related patterns and separation-individuation difficulties in understanding social anxiety among young adults and support developmental models emphasizing the importance of interpersonal experiences in psychological functioning. In particular, difficulties related to autonomy, emotional connectedness, and insecure relational patterns may contribute to increased vulnerability to social anxiety symptoms during young adulthood.

Conclusion: The present study contributes to a better understanding of the developmental and interpersonal factors associated with social anxiety among university students. The observed associations between attachment dimensions, separation-individuation processes, and social anxiety underline the importance of incorporating relational and emotional factors into preventive and psychological intervention strategies for young adults.

Keywords: Emotional attachment style, Separation-individuation, Social anxiety, Psychological support, Preventive programs, Adolescence.

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1. INTRODUCTION

Late adolescence and young adulthood are critical developmental periods during which individuals face important challenges related to identity formation, self-awareness, autonomy, and the development of stable interpersonal relationships. Early childhood experiences play a central role in shaping mental health and psychological functioning in adulthood [1], particularly through caregiving quality, including love, attention, and responsiveness. These early relational experiences contribute to the formation of internal working models of the self and others [2, 3].

From a theoretical perspective, insecure attachment has been associated with heightened sensitivity to social threat, avoidance of interpersonal situations, and emotional discomfort, reflecting maladaptive internal working models and negative beliefs about the self and others. Attachment patterns are also closely related to separation-individuation processes, influencing emotional regulation, autonomy, and interpersonal functioning [4].

Separation-individuation, as described by Blos (1967) and Mahler (1975), represents a key developmental process involving the gradual development of autonomy, independence, and personal responsibility [5, 6]. It is considered a normative developmental task during adolescence and young adulthood, allowing individuals to maintain close relationships while developing a stable sense of self. Difficulties in this process may be associated with reduced autonomy and interpersonal difficulties [7, 8].

Social anxiety is an internalizing condition characterized by fear of negative evaluation, avoidance, and affective distress. It is commonly associated with interpersonal difficulties and maladaptive self-evaluations. Evidence suggests that insecure attachment is linked to broader psychological distress and interpersonal sensitivity, both of which are relevant to social anxiety [9].

These constructs appear to be conceptually interconnected, as attachment patterns may influence separation-individuation processes, which in turn are associated with vulnerability to social anxiety.

Given the conceptual overlap among these constructs, the present study aims to examine the relationships between attachment profiles, separation-individuation dimensions, and social anxiety in university students. However, limited research has simultaneously examined attachment profiles and separation-individuation processes in relation to multidimensional social anxiety in young adults. Therefore, this study aims to address this gap by examining these relationships in a non-clinical university sample.

1.1. Emotional Attachment

Emotional attachment is a central construct in developmental and clinical psychology that explains the dynamics of early affective relationships between children and caregivers. It provides a framework for understanding how variations in parental care influence socioemotional

development and mental health outcomes. According to Bowlby (1982), attachment is a lasting emotional bond between a child and their caregiver (typically the primary caregiver), which provides a secure base for exploration and autonomy [10]. Difficulties in attachment may arise when early caregiver-child interactions are disrupted or limited.

During early development, children gradually construct internal working models of the self and others through repeated interactions with caregivers [11]. These models guide emotional regulation, interpersonal expectations, and responses to social stress, and may contribute to vulnerability to social anxiety in adolescence and early adulthood, particularly in relation to fear of negative evaluation, avoidance of social situations, and affective distress. These cognitive-affective patterns form the basis of later interpersonal functioning and psychological adjustment.

The dominant attachment patterns, according to Ainsworth's "Strange Situation" method, include secure, insecure-avoidant, and insecure-ambivalent attachment styles, with a later fourth pattern, insecure-disorganized attachment, also identified [12]. These patterns reflect different strategies for emotional regulation and for seeking caregiver proximity in response to perceived threat or stress.

Children with a secure attachment model are more likely to develop into adults with greater self-confidence, better emotional regulation, and more adaptive interpersonal functioning [13]. In contrast, insecure attachment is associated with difficulties in trust, emotional regulation, and interpersonal sensitivity. Insecure-avoidant attachment is characterized by emotional distancing and reduced expression of affect, while insecure-ambivalent attachment is associated with heightened dependency and emotional instability. Insecure-disorganized attachment reflects inconsistent and often contradictory behavioral responses in attachment-related situations, frequently linked to underlying fear and confusion [14, 15].

Importantly, these insecure attachment patterns have been consistently associated with features of social anxiety, including increased sensitivity to social threat (fear of negative evaluation), greater avoidance of interpersonal interactions, and elevated affective distress in social contexts. Overall, attachment insecurity has been consistently associated with increased vulnerability to maladaptive interpersonal functioning in adolescence and young adulthood.

1.2. Separation-Individuation

While attachment theory explains early relational patterns, the process of separation-individuation further elaborates how autonomy and identity develop in later stages. The process of separation-individuation is a developmental phase in which the child gradually develops the capacity to experience the self as a distinct and autonomous entity. Separation refers to psychological differentiation and boundary formation from the primary

caregiver, while individuation involves the development of a coherent and autonomous sense of self that contributes to personality development [16]. In this context, individuation reflects the growing capacity for psychological independence while maintaining emotional connection with caregivers.

Separation-individuation is a normative developmental task in adolescence and young adulthood, reflecting a transition from dependence on parents as internalized figures toward increasing autonomy and self-definition [17]. Difficulties or delays in this process may result in persistent dependency, reduced autonomy, and increased vulnerability to features of social anxiety, particularly interpersonal fear, avoidance, and affective distress.

The reorganization of relationships with parents during adolescence enables the individual to establish meaningful relationships outside the family context and is supported by cognitive, emotional, and regulatory maturation. During this period, young people differentiate their own attitudes from those of their parents and develop a more autonomous identity. Impairments in this process may contribute to internalizing difficulties, including heightened interpersonal sensitivity and features of social anxiety [18].

Individuation allows the adolescent to overcome infantile introjections toward parents, thereby developing a self that is increasingly independent of others' influence. The process involves two dialectically related motives: the drive for autonomy and the drive for relatedness [19, 20]. A balance between these two motives is considered essential for healthy psychological development.

Difficulties in balancing autonomy and relatedness may contribute to fear of evaluation, avoidance behaviors, and emotional distress in social situations. Conversely, achieving this balance may be associated with a lower risk of social anxiety during adolescence and young adulthood.

1.3. Social Anxiety

Social anxiety is one of the most common anxiety disorders among young people, characterized by an intense fear of social situations, such as public performance, meeting new people, or engaging in social interactions [21]. It is typically defined by the fear of negative evaluation, behavioral avoidance, and affective distress in social contexts. These core domains (fear/anxiety, avoidance, and affective distress) are particularly salient during adolescence and young adulthood, periods marked by significant social and emotional transitions [22, 23]. Fear of negative evaluation is especially prominent during this developmental period, when individuals face increased interpersonal demands and identity-related challenges. Research indicates that approximately 10-15% of young people may experience symptoms of social anxiety that interfere with their daily functioning [24]. Social anxiety has been associated with insecure attachment and difficulties in separation-individuation, which may hinder the development of effective emotional regulation and coping strategies.

Social anxiety symptoms are typically conceptualized across cognitive, behavioral, emotional, and somatic domains. Cognitive symptoms involve negative self-evaluations and fear of being judged by others. Emotional symptoms include heightened negative affect and emotional instability. Behavioral manifestations include avoidance of social situations, withdrawal from interactions, and reluctance to engage in public speaking or unfamiliar social settings. Somatic symptoms include physiological reactions such as increased heart rate, muscle tension, and sweating.

These symptom domains correspond to the core dimensions assessed in this study (fear/anxiety, avoidance, and affective distress), thereby linking clinical manifestations of social anxiety with attachment insecurity and separation-individuation processes.

Individuals with social anxiety often hold negative self-beliefs and perceive themselves as socially inadequate, which can significantly impair quality of life and social functioning [25]. These difficulties highlight the importance of understanding the cognitive and emotional mechanisms underlying social anxiety in young adults.

1.4. Emotional Attachment, Separation-Individuation, and Social Anxiety in Young People

Emotional attachment, separation-individuation, and social anxiety are key constructs in the development of mental health in young people. The parent-child relationship plays a central role in this process [26], particularly during adolescence, a period marked by significant emotional and behavioral changes.

Attachment patterns formed through early caregiver relationships influence emotional regulation, coping, and social functioning. Secure attachment is associated with greater autonomy and adaptive functioning, whereas insecure attachment is linked to negative self-perceptions and higher levels of social anxiety [27-31].

Difficulties in separation-individuation may further increase vulnerability to social anxiety by hindering the development of autonomy, self-confidence, and a stable sense of self, contributing to emotional dependence and internalizing difficulties [32-35]. Overall, these findings suggest that attachment patterns and separation-individuation processes are jointly associated with vulnerability to social anxiety in young adulthood.

2. METHODS

2.1. Study Design and Participants

This study employed a quantitative, cross-sectional, correlational design to examine associations among emotional attachment patterns, dimensions of separation-individuation, and levels of social anxiety in young adults. Given the cross-sectional nature of the study, causal inferences cannot be made, and findings should be interpreted as associations rather than causal or directional effects. Data were collected through standardized psychometric instruments administered at a single time point.

The study sample consisted of 250 undergraduate students (125 males and 125 females), aged 18 to 24 years ($M = 21.5$, $SD = 2.2$), enrolled at the AAB College in Pristina, Republic of Kosovo, during the summer semester of the 2024/25 academic year. Participants were recruited using convenience sampling; no randomization was applied.

Eligibility criteria included active enrollment as a student, age between 18 and 24 years, and voluntary written informed consent. Exclusion criteria included any self-reported history of diagnosed mental disorder, inability to complete the questionnaires independently, and refusal to participate. Exclusion criteria were assessed *via* self-report; no formal clinical interviews were conducted. The term “inability” refers to any limitation in completing the study procedures or questionnaires. Minimal missing data (< 5%) were handled using pairwise deletion, and no imputation methods were applied. As this was a non-clinical sample, diagnostic classification was not performed.

The study received ethical approval from the Ethics Committee of AAB College, Pristina, Republic of Kosovo (Approval Number 748/25). All participants provided written informed consent, and the study adhered to the ethical principles outlined in the Declaration of Helsinki and followed Sager guidelines.

2.2. Instruments

No translated or culturally adapted versions were used, as all instruments were administered in their original validated English versions. Accordingly, participants completed standardized self-report measures in English.

2.2.1. Inventory for the Assessment of Interpersonal Attachment in Adolescents and Adults-Revised (UPIPAV-R)

The UPIPAV-R [36] consists of 77 items across seven scales that assess the quality of emotional attachment (predictor variables): fear of losing an external model of security, unresolved family trauma, negative working model of the self, negative working model of others, use of an external model of security, capacity for mentalization, and poor anger regulation. Each subscale has 11 Likert-type items (1-7). Subscale scores were calculated as the mean of items in each dimension, with higher scores indicating stronger expression of the respective attachment pattern. Possible score ranges for each subscale are 1-7, with 4 representing a moderate/neutral level. Cronbach's alpha for the subscales ranged from .79 to .86. Cluster analysis: For group identification, a two-step clustering procedure was applied. First, hierarchical cluster analysis using Ward's method and Euclidean distance was conducted to determine the optimal number of clusters. Second, k-means clustering was performed to refine cluster membership. All UPIPAV-R subscale scores were standardized (z-scores) prior to analysis. The standardized subscale scores were subsequently used as continuous predictors in correlation and regression analyses.

2.2.2. Separation-Individuation Test of Adolescence (SITA)

SITA [37] consists of 44 statements assessing the following dimensions of separation-individuation (predictor variables): denial of the need for others, restrictive parental control, healthy independence, longing for childhood, and separation anxiety. Respondents indicate their answers by circling the appropriate number on a Likert-type scale (1-5), and the total score is a linear combination of the assessment. Subscale scores were calculated as the mean of the items in each dimension, with higher scores indicating stronger expression of the respective separation-individuation dimension. Cronbach's alpha for the subscales ranged from .76 to .81.

2.2.3. The Kutcher Generalized Social Anxiety Disorder Scale for Adolescents (K-GSADS-A)

K-GSADS-A [38] consists of 47 statements, with responses scored from 0 (never) to 3 (always), and three subscales: fear and anxiety (18 items), avoidance (18 items), and affective distress (11 items). Subscale scores were computed as the sum of relevant items, with higher scores indicating greater levels of social anxiety. Total possible subscale scores are: fear/anxiety 0-54, avoidance 0-54, and affective distress 0-33. Cronbach's alpha ranged from .78 to .82. In the present study, the K-GSADS-A was administered to assess key symptom domains of social anxiety in participants aged 18-24 years. These domains served as the primary outcome variables. Importantly, the scale was used exclusively for dimensional assessment of social anxiety symptoms, and no formal clinical diagnosis of Social Anxiety Disorder was made.

2.3. Data Collection Process

The research was conducted during the summer semester (April-June 2025) at the university premises. All participants received standardized verbal and written instructions, were informed about the study purpose, and provided written informed consent. Participants could withdraw at any time without consequences. Data were collected in supervised group sessions, and responses were used solely for research purposes.

2.4. Data Analysis Technique

Statistical analysis of the data was performed using SPSS (Statistical Package for the Social Sciences, version 20). Descriptive statistics (mean, standard deviation, minimum, and maximum) were calculated for all variables, and normality was assessed using the Shapiro-Wilk test.

2.4.1. Cluster Analysis

A two-step cluster analysis approach was used. Hierarchical cluster analysis (Ward's method, Euclidean distance) was first applied to determine the optimal number of clusters, followed by k-means clustering to assign participants to attachment profiles. Cluster stability was examined through internal validation procedures.

2.4.2. Correlations

Pearson correlations were computed to examine the direction and strength of associations between attachment styles (UIPAV-R, predictors), separation-individuation dimensions (SITA, predictors), and social anxiety domains (K-GSADS-A, outcomes). One-tailed testing was applied where hypotheses were directional.

2.4.3. Bayesian Independent Samples *t*-tests

Comparisons between secure and insecure attachment groups were conducted across separation-individuation dimensions. Default priors were applied, and Bayes Factors (BF10) were interpreted using conventional thresholds: 1-3 = anecdotal evidence, 3-10 = moderate evidence, 10-30 = strong evidence, >30 = very strong evidence for differences between groups. Specific BF10 values are reported in the Results section where relevant.

2.4.4. Multiple Linear Regressions

Multiple regression analyses were conducted to identify significant predictors of social anxiety. Assumptions of linearity, normality of residuals, homoscedasticity, and multicollinearity (assessed *via* VIF and tolerance) were checked prior to analysis. No covariates were included in the main models; preliminary analyses including age and gender showed no significant effects.

Significance levels were set at $p < .05$ and $p < .01$. Given the cross-sectional design, all reported associations should be interpreted as correlational rather than causal. This analytical approach allowed for a comprehensive examination of the relationships among attachment styles, separation-individuation, and social anxiety, while ensuring robustness and transparency of the statistical analyses.

2.5. Bias

To minimize potential sources of bias, the study ensured the following:

- Questionnaires were administered to all participants using standardized instructions to maintain consistency.
- Anonymity and voluntary participation were ensured to reduce social desirability bias.
- Validated psychometric instruments (UIPAV-R, SITA, K-GSADS-A) were used to reduce measurement bias.
- Uniform distribution of questionnaires across participants to reduce selection bias.

2.6. Study Size

The sample size ($N = 250$) was determined based on practical constraints (availability of students during the summer semester) and previous literature indicating that similar studies with 200-300 participants are sufficient for correlational and regression analyses in cross-sectional designs. This sample size provides adequate statistical power to detect meaningful associations between attachment styles, separation-individuation dimensions, and social anxiety levels.

2.7. Quantitative Variables

- Attachment styles (UIPAV-R) and separation-individuation dimensions (SITA) were treated as continuous variables for correlation and regression analyses.
- Social anxiety scores (K-GSADS-A) were also treated as continuous outcomes. This approach is appropriate given the approximately normal distribution of the variables.
- When necessary, participants were categorized as secure vs. insecure attachment, based on a cluster analysis to facilitate group comparisons.
- The choice of groupings was based on theoretical considerations and empirical distributions of the data.

3. RESULTS

The study included 250 respondents, equally distributed by gender, aged 18-24 years, and enrolled in undergraduate studies at AAB College in Pristina. Descriptive analyses of attachment styles (UIPAV-R), separation-individuation dimensions (SITA), and social anxiety (K-GSADS-A) are presented in Table 1. All study variables showed acceptable distributional properties, with Shapiro-Wilk tests indicating approximate normality for all variables (all p values > .05 or marginally above .05).

For emotional attachment, higher mean scores were observed in subscales related to negative models of others and poor self-regulation. In separation-individuation, students scored highest on healthy independence, followed by denial of the need for others. Regarding social anxiety, avoidance showed the highest scores, followed by fear/anxiety and affective distress. The results indicate variability across attachment, separation-individuation, and social anxiety dimensions, with generally moderate to high scores in maladaptive domains. No diagnostic classification was performed, as the K-GSADS-A was used exclusively as a dimensional measure of social anxiety symptoms.

Cluster analysis on standardized Z-scores of the UIPAV-R subscales identified four distinct attachment profiles, based on theoretical interpretability and empirical clustering solutions:

- **Cluster 1 - Secure attachment:** This cluster was characterized by higher scores on positive attachment-related dimensions, including mentalization and use of an external model of security, and lower scores on negative dimensions.
- **Cluster 2 - Insecure-avoidant attachment:** This cluster showed higher scores on negative models of others and use of an external model of security, alongside lower scores on mentalization.
- **Cluster 3 - Insecure-preoccupied attachment:** This cluster was characterized by elevated scores on unresolved family trauma and poor anger regulation.
- **Cluster 4 - Insecure-fearful/disorganized attachment:** This cluster showed higher scores on unresolved family trauma, negative models of others, and negative self-related dimensions.

Table 2 presents the final cluster centers of the UPIPAV-R subscales in standardized Z-scores. Values above zero indicate higher-than-average scores, whereas values below zero indicate lower-than-average scores relative to the sample mean.

Table 3 presents the distribution of respondents across the four emotional attachment clusters identified *via* cluster analysis. The secure attachment model was the most prevalent, while the insecure patterns were less frequent. The secure attachment cluster included 140 participants (56%); insecure-avoidant 40 (16%); insecure-preoccupied 45 (18%); and insecure-fearful/disorganized 25 (10%).

Table 4 presents Pearson correlations between attachment styles, separation-individuation dimensions, and social anxiety dimensions. Secure attachment showed weak or non-significant associations with social anxiety dimensions. Insecure-avoidant attachment showed significant positive correlations with fear/anxiety ($r = .54, p < .05$), avoidance ($r = .64, p < .01$), and affective distress ($r = .41, p < .05$). Insecure-preoccupied attachment was positively correlated with fear/anxiety ($r = .75, p < .01$) and affective distress ($r = .68, p < .01$). Fearful/disorganized attachment showed significant positive correlations with fear/anxiety ($r = .62, p < .01$), avoidance ($r = .36, p < .05$), and affective distress ($r = .74, p < .01$).

Table 1. Descriptive statistics and normality tests of study variables.

Scales	Mean $\pm$ SD	Shapiro-Wilk Test	P
UPIPAV-R	-	-	-
Unresolved family trauma	48.56 $\pm$ 11.23	0.936	0.064
Fear of losing an external model of security	45.34 $\pm$ 10.12	0.871	0.154
Negative models of others	49.21 $\pm$ 13.05	0.958	0.114
Mentalization	46.18 $\pm$ 10.32	0.854	0.072
Use of an external model of security	48.01 $\pm$ 13.31	0.892	0.056
Poor self-regulation	46.23 $\pm$ 10.72	0.921	0.114
Poor anger regulation	51.60 $\pm$ 12.02	0.965	0.124
SITA	-	-	-
Restrictive parental control	21.24 $\pm$ 6.32	0.856	0.066
Denial of the need for others	25.26 $\pm$ 9.04	0.942	0.213
Healthy independence	29.25 $\pm$ 7.63	0.956	0.083
Longing for childhood	18.99 $\pm$ 5.72	0.934	0.074
Separation anxiety	23.12 $\pm$ 6.74	0.823	0.124
K-GSADS-A	-	-	-
Fear and anxiety	37.09 $\pm$ 10.54	0.932	0.081
Avoidance	41.22 $\pm$ 11.02	0.965	0.134
Affective distress	21.12 $\pm$ 6.42	0.834	0.065

Source: Authors' own elaboration / data collection (AAB College, Pristina).

Table 2. Final cluster centers of UPIPAV-R subscales (Z-scores).

Subscales	Clusters			
	Secure	Insecure-avoidant	Insecure-preoccupied	Insecure-fearful (disorganized)
-				
Unresolved family trauma	-0.314	-0.125	2.104	1.231
Fear of losing an external model of security	1.12	0.293	-0.23	-0.325
Negative models of others	-0.642	0.205	-0.086	0.379
Mentalization	1.456	-0.07	1.21	-0.875
Use of an external model of security	1.35	1.061	-0.137	0.142
Poor self-regulation	0.324	0.283	1.057	1.765
Poor anger regulation	-0.534	0.07	0.345	-0.321

Note: Z-scores represent standardized values of the UPIPAV-R subscales. Cluster descriptions are descriptive; causal interpretations are not implied.

Table 3. Distribution of attachment styles based on cluster analysis.

Attachment Styles	Frequency (n)	Percentage (%)
Secure	140	56.00
Insecure-avoidant	40	16.00
Insecure-preoccupied	45	18.00
Insecure-fearful (disorganized)	25	10.00

Note: Percentages are calculated based on the total sample (N=250).

Table 4. Pearson correlations between attachment styles, separation-individuation dimensions and social anxiety.

Variables	Fear and Anxiety	Avoidance	Affective Distress
Attachment styles	-	-	-
Secure	.45	.34	.21
Avoidant	.54*	.64**	.42*
Preoccupied	.75**	.21	.68**
Fearful (Disorganized)	.62**	.36*	.74**
Separation-individuation	-	-	-
Restrictive parental control	.55*	.52*	.46*
Denial of the need for others	.32	.21	-.26*
Healthy independence	.21	.34	.31
Longing for childhood	.56**	-.42**	.62**
Separation anxiety	.78**	.64*	.73**

Note: *Correlation is significant at the 0.05 level (1-tailed); **Correlation is significant at the 0.01 level (1-tailed).

Regarding separation-individuation dimensions, restrictive parental control was positively correlated with all three social anxiety dimensions. Denial of the need for others was negatively correlated only with affective distress. Longing for childhood was positively correlated with fear/anxiety and affective distress and negatively correlated with avoidance. Separation anxiety was positively correlated with all three social anxiety dimensions. Healthy independence was not significantly correlated with any social anxiety dimension.

Bayesian Independent Samples t-tests were conducted to examine differences between secure and insecure attachment groups on separation-individuation dimensions (Table 5). Bayes Factors (BF10) are reported alongside traditional frequentists t-tests and *p*-values; according to convention, BF10 > 3 indicates moderate evidence for group differences, while BF10 between 1 and 3 suggests anecdotal evidence. All *p*-values reported in Tables 6 and 7 are two-tailed; statistical significance is interpreted at *p* < .05. In cases of discrepancy between Bayes Factors (BF10) and *p*-values, interpretation was based primarily on *p*-values, while BF10 values are reported as supplementary evidence. For the secure attachment group, t-tests revealed differences in denial of the need for

others (BF10 = 0.48, *t*(138) = 2.41, *p* < .05), healthy independence (BF10 = 1.30, *t*(138) = 1.91, *p* < .05), and longing for childhood (BF10 = 1.86, *t*(138) = -1.70, *p* < .01). Other separation-individuation dimensions did not show statistically meaningful differences.

Bayesian Independent-Samples t-tests were conducted to examine differences between insecure attachment groups and separation-individuation dimensions (Table 6). Bayes Factors (BF10) are reported alongside frequentist t-tests and *p*-values to provide complementary evidence for group differences. BF10 values are interpreted as supplementary evidence, whereas statistical significance is primarily determined based on *p*-values (*p* < .05). Significant differences were identified for restrictive parental control (*t*(108) = 3.05, *p* < .01) and separation anxiety (*t*(108) = 1.98, *p* < .05) in the insecure attachment group. The remaining dimensions (denial of the need for others, healthy independence, and longing for childhood) did not show statistically significant differences (*p* > .05). All *p*-values reported in Table 6 are two-tailed. In cases where BF10 values and *p*-values diverge, BF10 is interpreted as supplementary evidence and does not override the *p*-value-based interpretation of statistical significance.

Table 5. Differences in separation-individuation dimensions for the secure attachment group (bayesian independent samples t-test).

Secure Attachment Styles	Mean Difference	Pooled Std. Error Difference	Bayes Factor ^b	t	df	Sig.(2-tailed)	p
Denial of the need for others	3.88	1.61	0.48	2.41	138	0.01	<0.05
Restrictive parental control	-2.56	1.42	1.61	-1.79	138	0.74	>0.05
Healthy independence	2.27	1.18	1.30	1.91	138	0.04	<0.05
Longing for childhood	-1.32	0.77	1.86	-1.70	138	0.00	<0.01
Separation anxiety	-4.02	1.36	0.12	-2.95	138	0.09	>0.05

Note: BF₁₀ values are reported as supplementary evidence, while statistical significance is based on *p*-values (*p* < .05).

Table 6. Differences in separation-individuation dimensions for the insecure attachment group (bayesian independent samples t-test).

Insecure Attachment Styles	Mean Difference	Pooled Std. Error Difference	Bayes Factor ^b	t	df	Sig.(2-tailed)	p
Denial of the need for others	-0.49	1.70	6.17	-0.28	108	0.77	>0.05
Restrictive parental control	4.70	1.53	0.09	3.05	108	0.00	<0.01
Healthy independence	-0.68	1.35	5.69	-0.50	108	0.61	>0.05
Longing for childhood	0.32	0.97	6.08	0.33	108	0.73	>0.05
Separation anxiety	0.07	1.43	6.41	1.98	108	0.03	<0.05

Note: BF₁₀ values are reported as supplementary evidence, while statistical significance is based on *p*-values (*p* < .05).

Table 7. Regression analysis for the criterion variable ‘social anxiety’ according to the K-GSADS-A questionnaire.

Predictors	β	p
Unresolved family trauma	-0.218	.03*
Fear of losing an external model of security	0.165	.001***
Negative models of others	0.321	.02*
Mentalization	0.287	.56 (n.s.)
Use of an external model of security	0.156	.72 (n.s.)
Poor self-regulation	0.328	.001**
Poor anger regulation	0.276	.01*
Restrictive parental control	0.374	.001***
Denial of the need for others	0.521	.32 (n.s.)
Healthy independence	0.354	.67 (n.s.)
Longing for childhood	0.564	.04*
Separation anxiety	0.268	.001***

Model statistics: R = .584, R² = .341, F = 2.156, *p* = .002.

Note: Significant predictors are marked with **p* < .05, ***p* < .01, ****p* < .001. Non-significant predictors are reported for transparency.

Bold “insecure attachment group” for consistency with previous section; Clarified that BF₁₀ values are reported, but *p*-values drive significance interpretation here.

A multiple linear regression analysis was conducted to examine whether attachment-related and separation - individuation variables predict social anxiety (Table 7). All UPIPAV-R and SITA subscales were entered as independent variables, while the total score of the K-GSADS-A served as the dependent variable. The overall

model was statistically significant, F (11, 238) = 2.156, *p* = .002, explaining 34.1% of the variance in social anxiety (R² = .341), indicating moderate explanatory power.

Significant predictors of social anxiety included unresolved family trauma, fear of losing an external model of security, negative models of others, poor self-regulation, poor anger regulation, restrictive parental control, longing for childhood, and separation anxiety. Among these, the strongest positive predictors were restrictive parental control (β = .374), poor self-regulation (β = .328), and separation anxiety (β = .268), suggesting that both impaired emotional regulation and difficulties in autonomy development play a central role in the prediction of social anxiety symptoms.

Mentalization, use of an external model of security, denial of the need for others, and healthy independence were not statistically significant predictors (*p* > .05). These findings indicate that not all attachment and separation-individuation dimensions contribute equally to social anxiety when shared variance among predictors is controlled in the model.

Notably, discrepancies were observed between zero-order correlations and regression coefficients, suggesting possible multicollinearity or suppression effects due to conceptual overlap among predictors. Therefore, the interpretation of individual predictors should be made with caution.

4. DISCUSSION

The main aim of this study was to examine the relationship between emotional attachment styles, dimensions of separation-individuation, and social anxiety

in young adults aged 18-24. Late adolescence and young adulthood are characterized by significant cognitive, emotional, and social transitions that influence autonomy, identity formation, and interpersonal functioning. Early attachment experiences play a crucial role in shaping these developmental outcomes [39, 40]. During this period, individuals gradually reduce dependence on attachment figures and achieve greater psychological autonomy. This developmental perspective is partially supported by the present correlational findings (Table 4), which demonstrated significant associations between attachment styles and social anxiety dimensions.

The associations between insecure attachment patterns and social anxiety can be explained through attachment theory, which proposes that early relational experiences shape internal working models of the self and others. Individuals with insecure attachment are more likely to develop negative self-evaluations and expectations of rejection, which in turn increase sensitivity to social threat and difficulties in emotion regulation within interpersonal contexts. This mechanism may account for the observed positive associations between insecure attachment dimensions and all domains of social anxiety (fear/anxiety, avoidance, and affective distress), and is consistent with evidence linking attachment insecurity to emotional dysregulation and interpersonal hypervigilance.

These findings should also be interpreted in relation to developmental characteristics of emerging adulthood, a period marked by ongoing identity consolidation and fluctuating autonomy. Insecure internal working models may intensify sensitivity to peers' evaluation and reinforce maladaptive coping strategies such as avoidance and emotional suppression. Similarly, difficulties in separation-individuation may hinder the establishment of psychological boundaries and limit the development of stable self-regulation capacities in social situations. This pattern suggests a degree of conceptual overlap between attachment insecurity and separation-individuation difficulties in explaining vulnerability to social anxiety, indicating that both constructs may operate through shared mechanisms of emotional regulation and interpersonal sensitivity. Both frequentist and Bayesian results converged in supporting the observed associations.

The results further suggest that attachment insecurity and separation-individuation difficulties are likely interrelated and may share overlapping mechanisms rather than functioning as fully independent constructs. Insecure attachment may foster expectations of rejection and interpersonal threat, while insufficient individuation may reduce the capacity for autonomous emotional regulation. Their combined influence may therefore amplify vulnerability to social anxiety, particularly in its affective and cognitive components. These findings indicate that developmental risk for social anxiety is likely multidimensional rather than attributable to a single psychological mechanism.

Cluster analysis identified four attachment profiles: secure, insecure-avoidant, insecure-preoccupied, and

fearful/disorganized. The predominance of secure attachment (56%) is consistent with previous research [41] and typological studies of attachment in adolescence and emerging adulthood [42]. Insecure attachment styles were less frequent but characterized by higher separation anxiety, restrictive parental control, and less adaptive internal working models, whereas secure individuals showed greater emotional regulation and healthy independence [43, 44].

In line with previous literature, insecure attachment styles were significantly associated with higher levels of social anxiety across all dimensions, whereas secure attachment showed no significant associations. These findings support Bowlby's theoretical framework [45-47] and are consistent with empirical studies linking attachment insecurity to fear of negative evaluation, social withdrawal, and emotional distress [48-50]. Moreover, existing evidence also highlights the role of early parenting experiences and trauma in shaping emotional and interpersonal functioning [51, 52].

Meta-analytic findings similarly confirm that insecure attachment is a robust predictor of social anxiety symptoms [53], while difficulties in separation-individuation have been associated with reduced autonomy and increased emotional dependence [54]. The present study extends this literature by demonstrating that both attachment insecurity and impaired individuation processes jointly contribute to social anxiety in a non-clinical university sample, suggesting a combined developmental risk pathway.

At the same time, some discrepancies with previous findings were observed, particularly regarding the strength of associations between specific attachment dimensions and individual components of social anxiety. These differences may reflect sample characteristics, cultural context, and the multidimensional assessment approach used in this study.

Separation-individuation dimensions also played an important role. Restrictive parental control, separation anxiety, and longing for childhood were positively associated with social anxiety, whereas healthy independence and denial of the need for others appeared to function as protective factors. However, these protective interpretations should be treated cautiously, as regression results suggest that not all of these variables remain significant when controlling for other predictors (possible overlap/suppression effects).

Multiple regression analysis further indicated that unresolved family trauma, negative internal working models, poor self-regulation, and separation-individuation difficulties significantly predicted social anxiety, jointly explaining 34.1% of the variance in social anxiety. However, this variance explanation should be interpreted cautiously, as the cross-sectional design does not allow causal inference. Notably, some predictors showed inconsistencies between zero-order correlations and regression coefficients, suggesting possible multicollinearity or suppression effects, which should be

acknowledged when interpreting individual predictors. These findings emphasize the influence of early relational experiences and ongoing autonomy development on social and emotional functioning in young adulthood [55-58]. The inclusion of both attachment-related and individuation-related predictors supports the idea that social anxiety emerges from interacting developmental systems rather than isolated risk factors.

Overall, the findings highlight the interconnected nature of emotional attachment, separation-individuation, and social anxiety. Secure attachment and healthier individuation processes appear to be associated with more adaptive psychological functioning and lower levels of social anxiety symptoms. However, these findings should be interpreted cautiously, given the cross-sectional and self-report nature of the data. They further suggest that interventions that address both relational security and autonomy development may be beneficial for reducing social anxiety and improving psychological adjustment in young adults [59, 60].

5. LIMITATIONS

Although the present study contributes to the understanding of the relationship between emotional attachment, separation-individuation, and social anxiety in young adults, several limitations should be acknowledged.

First, the study was conducted on a relatively homogeneous sample of 250 university students, which limits the generalizability of the findings to broader populations, such as non-students or clinical groups. Second, the cross-sectional design does not allow for causal interpretations or the examination of developmental changes over time.

Third, all data were collected using self-report measures, which may introduce response biases, including social desirability and common method variance. Although validated instruments were used, self-report measures remain a limitation in accurately capturing complex psychological constructs.

Additionally, the study did not include potential mediating or moderating variables, which could further explain the complexity of the relationships between attachment, separation-individuation, and social anxiety. Moreover, the study did not include explicit mediation or moderation analyses, which could further clarify indirect effects.

Future research should consider longitudinal designs, more diverse samples, and multi-method assessment approaches (*e.g.*, clinical interviews or behavioral measures) to provide a more comprehensive understanding of these constructs. In addition, future studies should incorporate mediator and moderator analyses to better capture indirect and conditional effects.

6. IMPLICATIONS

From a theoretical perspective, the results support attachment theory and separation-individuation frameworks by demonstrating that early relational experiences

and autonomy development are closely associated with social anxiety in young adulthood. The findings further suggest that social anxiety is better understood through an integrative developmental model that includes both interpersonal (attachment-related) and intrapersonal (individuation-related) processes, rather than through a single explanatory mechanism. The findings of this study have both theoretical and practical implications.

From a practical perspective, the results may inform psychological assessment and intervention strategies for young adults experiencing social anxiety. Specifically, interventions that focus on strengthening emotional regulation, improving interpersonal security, and supporting the development of autonomy may be beneficial. Therapeutic approaches that address maladaptive relational patterns, dependency issues, and fear of rejection could contribute to reducing social anxiety symptoms. Additionally, clinicians may benefit from assessing both attachment insecurity and separation-individuation difficulties when formulating case conceptualizations and treatment plans.

CONCLUSION

The present study examined the relationships between emotional attachment, separation-individuation, and social anxiety in young adults. The findings indicate that insecure attachment patterns and difficulties in autonomy development are associated with higher levels of social anxiety, whereas more adaptive relational and developmental characteristics are linked to lower levels of social anxiety symptoms. Research confirms that attachment styles, especially those formed in early childhood, have long-term effects on coping with separation-individuation processes [61].

Overall, the results suggest that social anxiety is a multidimensional construct influenced by both early relational experiences and ongoing developmental processes related to identity and autonomy formation. However, these findings should be interpreted as associative rather than causal due to the cross-sectional and self-report design of the study.

Despite these limitations, the study contributes to a more integrated understanding of the developmental factors underlying social anxiety and highlights the importance of considering both attachment and separation-individuation processes in future research and clinical practice.

These findings underscore the importance of early relational environments in shaping later psychological outcomes and suggest that strengthening emotional security and promoting healthy individuation may serve as protective factors in young adulthood. Although interpreted within the limitations of a cross-sectional and self-report design (as discussed in the Limitations section), the results provide useful insights for future research and the development of preventive and therapeutic approaches aimed at reducing social anxiety. Future studies using longitudinal and multi-method designs are recommended to further clarify these developmental mechanisms.

AUTHORS' CONTRIBUTIONS

The authors confirm their contribution to the paper as follows: A.A.: Data collection, analysis, and interpretation of results; G.S.: Draft manuscript. All authors reviewed the results and approved the final version of the manuscript.

LIST OF ABBREVIATIONS

UPIPAV-R	= Inventory for the Assessment of Interpersonal Attachment in Adolescence and Adults-Revised
SITA	= Separation-Individuation Test of Adolescence
K-GSADS-A	= Kutcher Generalized Social Anxiety Disorder Scale for Adolescents
BF	= Bayesian Independent Samples t-test

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval for this study was obtained from the Ethics Committee of AAB College, Faculty of Psychology, Pristina, Republic of Kosovo (Approval Number: 748/25).

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent was obtained from all participants prior to their participation in the study. No individually identifiable personal data, images, audio/video materials, or other identifiable information are included in the manuscript; therefore, no additional consent for publication is required.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study are available from the corresponding author [A.A] upon reasonable request. The data have not been deposited in a public repository due to participant confidentiality and ethical considerations.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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