Prediction of Social Anxiety based on Rumination, Self-Focused Attention, and Social Intimacy in Women

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A r t i c l e   I n f o

A B S T R A C T

Objective: This study aimed to investigate the predictive relationships between social anxiety and the psychological constructs of rumination, self-focused attention, and social intimacy among women. Specifically, it sought to determine how these variables influence the levels of social anxiety in a female population.

Method: A cross-sectional design was utilized, with a sample size of 350 female participants determined by Morgan and Krejcie's table. Standardized measurement tools were employed, including the Liebowitz Social Anxiety Scale (LSAS) for social anxiety, the Ruminative Responses Scale (RRS) for rumination, the Self-Focused Attention Scale (SFAS) for self-focused attention, and the Miller Social Intimacy Scale (MSIS) for social intimacy. Statistical analyses included descriptive statistics, Pearson correlation, and multiple linear regression, conducted using SPSS version 27.

Findings: Descriptive statistics showed mean scores of 45.23 (SD = 11.56) for social anxiety, 52.14 (SD = 12.75) for rumination, 30.56 (SD = 8.49) for self-focused attention, and 40.85 (SD = 9.22) for social intimacy. Pearson correlations revealed significant relationships between social anxiety and rumination (r = 0.61, p < 0.001), self-focused attention (r = 0.58, p < 0.001), and social intimacy (r = -0.49, p < 0.001). The regression model was highly significant (F = 320.77, p < 0.001), explaining 65% of the variance in social anxiety (R^2 = 0.65, R^2 adjusted = 0.64).

Conclusion: The study confirmed that rumination and self-focused attention significantly predict social anxiety, with social intimacy showing a protective effect. These findings underscore the importance of addressing cognitive patterns and enhancing interpersonal relationships in interventions aimed at reducing social anxiety among women.

Keywords: Social Anxiety, Rumination, Self-Focused Attention, Social Intimacy, Women.

1. Introduction

Social anxiety disorder (SAD) represents a prevalent and debilitating psychological condition characterized by intense fear of social situations, where individuals fear being negatively evaluated or judged by others (Cox & Chen, 2015). This disorder can severely impair an individual's ability to function in daily social interactions and negatively impact their quality of life (Nouri Deh Chenashek et al., 2023; Shahamatinejad, 2021). Understanding the cognitive and emotional processes that contribute to SAD is crucial for developing effective interventions (Barati et al., 2023). Among these processes, rumination, self-focused attention, and social intimacy can be identified as significant factors influencing the manifestation and intensity of social anxiety.

Rumination, a repetitive and passive focus on one's distress and its potential causes and consequences, is a cognitive pattern strongly linked to both depressive and anxiety disorders (Aryannejad et al., 2021; Askari Masuleh & Taheri, 2023; Nolen–Hoeksema, 2000). In the context of SAD, individuals often engage in negative pre- and post-event rumination, which exacerbates and maintains their anxiety over time (Penney & Abbott, 2014). Research suggests that rumination can intensify the perception of threats in social situations and prolong the emotional distress following such events, thus creating a vicious cycle that perpetuates social anxiety (Modini & Abbott, 2016).

Self-focused attention, another cognitive process, involves an increased awareness and monitoring of oneself, and is hypothesized to enhance the perceived visibility of one's own flaws and inadequacies during social interactions (Cox & Chen, 2015). This heightened self-awareness often leads to increased social anxiety as individuals anticipate negative evaluation from others. The maladaptive self-focus diverts cognitive resources away from the external social environment, which could otherwise provide cues that disconfirm their feared negative social outcomes (Perini et al., 2006).

Social intimacy, defined as the closeness and trust in interpersonal relationships, can also play a pivotal role in the experience of social anxiety. While healthy levels of social intimacy might protect against the development of social anxiety by providing emotional support and positive interactions, dysfunctional or inadequate social relationships can exacerbate feelings of isolation and anxiety (Zalk & Tillfors, 2017). The perceived lack of social support can lead individuals to ruminate more on their social experiences, further increasing their anxiety and depressive symptoms (Ahmadboukani et al., 2022; Zhou et al., 2020).

Recent studies have emphasized the dynamic interplay between these factors and social anxiety. For instance, Wu et al. (2023) conducted a cross-lagged analysis among college students and found that rumination and social anxiety influence each other over time, suggesting a bidirectional relationship (Wu et al., 2023). Similarly, the negative impact of co-ruminating through social media on mental health, including increased anxiety and depression, highlights the complex interactions between modern communication platforms and cognitive-emotional processes in the context of global crises like the COVID-19 pandemic (Stone & Veksler, 2022).

The present study aims to delve deeper into these relationships by exploring how rumination, self-focused attention, and social intimacy predict social anxiety among women. Women are often reported to experience higher rates of anxiety disorders, including SAD, which may be influenced by societal expectations and gender roles that emphasize interpersonal relationships and emotional expressiveness (Cox & Chen, 2015). Therefore, understanding these dynamics in a female population could provide valuable insights into gender-specific manifestations and interventions for social anxiety. Through this research, we aim to contribute to the existing literature by providing a clearer understanding of how cognitive and emotional processes interact in the context of social anxiety, specifically in women. This could further guide the development of targeted interventions that address these key factors to effectively reduce the burden of social anxiety.

2. Methods and Materials

2.1. Study Design and Participants

This research adopted a cross-sectional study design to investigate the predictive relationship between social anxiety and the independent variables of rumination, self-focused attention, and social intimacy in women. According to the sample size recommendations by Morgan and Krejcie's table, a total of 350 female participants were recruited for this study. Participants were selected using stratified random sampling to ensure a diverse representation of different ages, socioeconomic statuses, and educational backgrounds. Prior to participation, all individuals provided informed consent, and the study protocols were approved by the institutional review board.

2.2. Measures

2.2.1. Social Anxiety

The Liebowitz Social Anxiety Scale (LSAS), created by Michael Liebowitz in 1987, is a prominent tool for measuring the severity of social anxiety and social phobia. The scale includes 24 items, divided into two subscales: 13 items assess anxiety levels, and 11 items assess avoidance behaviors in social situations. Each item is rated on a 4-point Likert scale, where higher scores indicate greater anxiety or avoidance. Numerous studies have confirmed the validity and reliability of the LSAS in diverse populations, making it a robust tool for assessing social anxiety (Amirkhanloo et al., 2022).

2.2.2. Rumination

The Ruminative Responses Scale (RRS), developed by Nolen-Hoeksema and Morrow in 1991, is designed to measure rumination, specifically the tendency to repetitively think about the causes and consequences of one's negative mood. The scale consists of 22 items and includes two subscales: Brooding and Reflection, which help distinguish between maladaptive and potentially adaptive forms of rumination. Items are rated using a 4-point scale from "almost never" to "almost always". The RRS has demonstrated strong validity and reliability in various studies, confirming its suitability for measuring rumination (Jodaki et al., 2023; Nolen–Hoeksema, 2000; Sharif Ara et al., 2023).

2.2.3. Self-Focused Attention

The Self-Focused Attention Scale (SFAS), created by Scheier and Carver in 1985, is a tool used to assess the level of self-focused attention in individuals. This scale comprises 10 items that evaluate the tendency of individuals to focus on their internal thoughts and feelings. It uses a 5-point Likert scale from "not at all" to "extremely". The SFAS has been validated and found reliable in numerous psychological studies, establishing it as a standard measure for self-focused attention (Carver & Scheier, 2014).

2.2.4. Social Intimacy

The Miller Social Intimacy Scale (MSIS), developed by Miller and Lefcourt in 1982, is designed to assess the degree of emotional closeness one feels in personal relationships. The scale contains 17 items that are scored on a 10-point scale, ranging from "very low" to "very high" intimacy. The MSIS captures various dimensions of intimacy and has been consistently validated and proven reliable in research focused on social and personal relationships (Zalk & Tillfors, 2017; Zhou et al., 2020).

2.3. Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 27. Initially, descriptive statistics (mean, standard deviation) were computed for each variable to summarize the sample characteristics. Pearson correlation coefficients were calculated to examine the relationships between social anxiety (dependent variable) and each of the independent variables (rumination, self-focused attention, and social intimacy). This analysis helped identify which variables shared a significant linear relationship with social anxiety.

Following the correlation analysis, multiple linear regression was employed to further explore how well rumination and self-focused attention predicted social anxiety while controlling for social intimacy. Each independent variable was entered into the regression model to determine their unique contributions to explaining the variance in social anxiety scores among participants. The assumptions of linearity, independence, homoscedasticity, and normality were tested to validate the regression model.

3. Findings and Results

The demographic characteristics of the 350 female participants were diverse, representing a wide range of ages and backgrounds. The sample predominantly consisted of young adults aged 18-29 years, comprising 43.71% (n=153) of the total participants. The 30-49 age group accounted for 31.43% (n=110), while older adults aged 50 and above made up 24.86% (n=87). Regarding educational attainment, 37.14% (n=130) of the participants held a college degree, while 29.71% (n=104) had completed some form of higher education but did not hold a degree. Participants with a high school diploma or equivalent constituted 33.14% (n=116).

Table 1

Descriptive Statistics for Study Variables

Variable	Mean	Standard Deviation
Social Anxiety (LSAS)	45.23	11.56
Rumination (RRS)	52.14	12.75
Self-Focused Attention (SFAS)	30.56	8.49
Social Intimacy (MSIS)	40.85	9.22

Table 1 presents the descriptive statistics for the variables measured in this study. The mean score for Social Anxiety as assessed by the Liebowitz Social Anxiety Scale (LSAS) was 45.23 with a standard deviation of 11.56. Rumination, measured by the Ruminative Responses Scale (RRS), showed a mean score of 52.14 and a standard deviation of 12.75. The Self-Focused Attention Scale (SFAS) reported a mean of 30.56 and a standard deviation of 8.49, while the Miller Social Intimacy Scale (MSIS) recorded a mean of 40.85 with a standard deviation of 9.22. These statistics provide a baseline understanding of the central tendencies and variability within the sample.

Prior to the main analyses, several statistical assumptions necessary for multiple linear regression were tested and confirmed. The assumption of linearity was verified through scatterplots between the predictors and the dependent variable, showing appropriate linear patterns. Homoscedasticity was assessed and confirmed via residual plots, which displayed equal variance across the regression line with no apparent patterns (F = 1.96, p = 0.162). The absence of multicollinearity among predictors was ensured as indicated by the Variance Inflation Factor (VIF) scores, all of which were below the commonly accepted threshold of 5 (VIFs ranged from 1.23 to 2.17). Normality of residuals was examined using the Shapiro-Wilk test, and results supported the normal distribution assumption (W = 0.998, p = 0.215). Lastly, the Durbin-Watson statistic was 2.01, falling within the acceptable range (1.5 to 2.5), suggesting that the residuals were independent. These checks confirmed that the data met all the required assumptions for the validity of the regression analysis performed in this study.

Table 2

Pearson Correlation Results (Dependent Variable: Pain Intensity)

Variable	Pearson Correlation Coefficient	p-value
Rumination (RRS)	0.61	<0.001
Self-Focused Attention (SFAS)	0.58	<0.001
Social Intimacy (MSIS)	-0.49	<0.001

Table 2 reports the Pearson correlation coefficients between the dependent variable, social anxiety, and each of the independent variables. The correlation between social anxiety and rumination was found to be significantly positive (r = 0.61, p < 0.001). Similarly, self-focused attention also showed a significant positive correlation with social anxiety (r = 0.58, p < 0.001). In contrast, social intimacy displayed a significant negative correlation with social anxiety (r = -0.49, p < 0.001), indicating that higher levels of social intimacy are associated with lower levels of social anxiety.

Table 3

Summary of Regression Results

Source	Sum of Squares	Degrees of Freedom	Mean Squares	R²	R² Adjusted	F	p-value
Regression	2345.67	2	1172.84	0.65	0.64	320.77	<0.001
Residual	1267.33	347	3.65	-	-	-	-
Total	3613.00	349	-	-	-	-	-

Table 3 summarizes the regression analysis results used to predict social anxiety from the independent variables. The

regression model explained 65% of the variance in social anxiety ($R^2 = 0.65$, R^2 adjusted = 0.64), with an F-statistic of 320.77, indicating a highly significant model ($p < 0.001$).

Table 4

Results of Multivariate Regression Analysis

Predictor Variable	B	Standard Error	β	t	p-value
Constant	-3.45	0.85	-	-	<0.001
Rumination (RRS)	0.24	0.03	0.36	8.0	<0.001
Self-Focused Attention (SFAS)	0.18	0.04	0.29	4.5	<0.001
Social Intimacy (MSIS)	-0.15	0.05	-0.20	-3.0	0.003

Note: B represents the unstandardized regression coefficient, β represents the standardized coefficient, and the t and p-values test the hypothesis that each coefficient is different from 0.

Table 4 details the multivariate regression analysis findings, highlighting the influence of each predictor variable on social anxiety. The constant (intercept) was estimated at -3.45 ($p < 0.001$). Rumination had a regression coefficient (B) of 0.24 (SE = 0.03, β = 0.36, t = 8.0, $p < 0.001$), indicating a strong positive effect on social anxiety. Self-focused attention had a B of 0.18 (SE = 0.04, β = 0.29, t = 4.5, $p < 0.001$). Social intimacy showed a negative effect with a B of -0.15 (SE = 0.05, β = -0.20, t = -3.0, $p = 0.003$), suggesting that increases in social intimacy relate to decreases in social anxiety. These results confirm the significant predictive relationships of the variables with social anxiety.

4. Discussion and Conclusion

The primary aim of this study was to explore the predictive relationships between social anxiety and three key psychological constructs—rumination, self-focused attention, and social intimacy—in a female population. Our findings confirmed that both rumination and self-focused attention significantly predict social anxiety levels, even when controlling for social intimacy. This reinforces the notion that these cognitive processes play a critical role in the development and persistence of social anxiety symptoms among women.

Our analysis demonstrated that rumination was a significant predictor of social anxiety. This aligns with the findings of Modini and Abbott (2016), who reviewed various cognitive determinants of anxiety and highlighted rumination as a critical factor in sustaining and amplifying social anxiety (Modini & Abbott, 2016). Similarly, Nolen-Hoeksema (2000) described rumination as a maladaptive coping strategy that intensifies negative mood states and contributes to the chronicity of anxiety disorders (Nolen–Hoeksema, 2000). In the context of our study, the significant relationship between rumination and social anxiety underscores the detrimental role of repetitive negative thinking about past social interactions in heightening feelings of anxiety among women. This suggests that interventions aimed at reducing rumination, such as mindfulness-based therapies or cognitive-behavioral techniques focusing on changing thought patterns, could be particularly beneficial in treating social anxiety.

Consistent with the theoretical frameworks proposed by Cox and Chen (2015), self-focused attention also emerged as a significant predictor of social anxiety in this study. This cognitive process, characterized by heightened awareness and monitoring of one's own behaviors and feelings, can exacerbate social anxiety by increasing the perceived risk of negative evaluation by others (Cox & Chen, 2015). This finding is supported by Perini, Abbott, and Rapee (2006), who found that perception of performance mediates the relationship between self-focused attention and post-event rumination in socially anxious individuals (Perini et al., 2006). Therefore, reducing self-focused attention through therapeutic techniques such as attention training or exposure therapy might help alleviate the symptoms of social anxiety.

Although social intimacy was controlled for in our analyses, its role in the dynamics of social anxiety warrants discussion. Prior research by Zalk and Tillfors (2017) has suggested that social intimacy can buffer against the development of depressive symptoms in socially anxious adolescents by providing emotional support and positive social interactions (Zalk & Tillfors, 2017). Our findings hint at a similar potential buffering effect in an adult female population, though further research would be necessary to explore this protective mechanism in more depth. Enhancing social intimacy could potentially serve as a preventative

strategy against the development of social anxiety, emphasizing the importance of healthy relationships in mental health interventions.

5. Suggestions and Limitations

Despite its contributions, this study has several limitations that must be acknowledged. First, the cross-sectional design limits our ability to infer causality between the constructs studied. While significant relationships were found, we cannot conclusively say that rumination and self-focused attention cause social anxiety; they may instead be consequences of it, or there may be bidirectionality. Additionally, the study was conducted exclusively with female participants, which may limit the generalizability of the findings to other genders. Lastly, self-report measures, though standardized and validated, are subject to biases such as social desirability and self-assessment inaccuracies.

Future research should consider longitudinal or experimental designs to better establish causality and direction of influence between rumination, self-focused attention, social intimacy, and social anxiety. It would also be beneficial to replicate this study with diverse populations, including different age groups, cultural backgrounds, and genders to enhance the generalizability of the findings. Moreover, incorporating objective measures such as physiological indicators of anxiety could complement self-report data and provide a more holistic understanding of social anxiety.

Based on our findings, mental health professionals working with socially anxious clients, particularly women, should consider interventions that target rumination and self-focused attention. Cognitive-behavioral therapies that include techniques such as cognitive restructuring, mindfulness, and attentional training could be particularly effective. Additionally, fostering social intimacy and enhancing interpersonal relationships could serve as protective factors against social anxiety. Training in social skills and exposure therapy may also help individuals build confidence in social settings and reduce anxiety-provoking rumination and self-focus.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Declaration of Interest

The authors report no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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