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The Relationship between Childhood Traumatic Experiences and Social Anxiety Disorder Mediated by Cognitive Emotion Regulation in University Students

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A B S T R A C T

Purpose: This study aimed to investigate the relationship between childhood traumatic experiences and social anxiety disorder (SAD) among university students, with a specific focus on the mediating role of cognitive emotion regulation (CER).

Methodology: A cross-sectional design was employed, involving 367 university students from Islamic Azad University, Lahijan, Iran, during the academic year 2023-2024. Data were collected using validated self-report measures, including the Childhood Trauma Questionnaire (CTQ), the Cognitive Emotion Regulation Questionnaire (CERQ), and the Social Phobia Inventory (SPIN). Structural equation modeling (SEM) was used to analyze the direct and indirect effects of childhood trauma on SAD, with CER as a mediating variable.

Findings: The results indicated a significant positive relationship between childhood traumatic experiences and SAD. Furthermore, CER was found to play a significant mediating role in this relationship, with maladaptive CER strategies, such as rumination and self-blame, exacerbating the effects of childhood trauma on SAD. Conversely, adaptive CER strategies, such as positive reappraisal and acceptance, were found to mitigate the impact of childhood trauma, reducing the severity of SAD symptoms.

Conclusion: The findings highlight the critical role of CER in mediating the relationship between childhood trauma and SAD. These results suggest that interventions targeting CER strategies may be particularly effective in reducing social anxiety symptoms in individuals with a history of childhood trauma. The study underscores the importance of early intervention and culturally sensitive approaches in treating SAD among university students.

Keywords: *Childhood traumatic experiences, Social anxiety disorder, Cognitive emotion regulation, Structural equation modeling, University students.*

1. Introduction

Social anxiety disorder (SAD), characterized by an intense and persistent fear of social situations, is one of the most prevalent anxiety disorders, affecting millions globally (Stemberger et al., 1995; Walker & Kjernisted, 2000). Individuals with SAD often experience overwhelming anxiety in situations where they may be subject to scrutiny by others, leading to significant distress and impairment in social, occupational, and academic functioning (Otto et al., 2001). The etiology of SAD is complex, involving a confluence of genetic, neurobiological, and environmental factors (Spinelli et al., 2010). Among the environmental factors, childhood traumatic experiences have been increasingly recognized as crucial contributors to the development and exacerbation of SAD (Baryshnikov et al., 2017; Löchner et al., 2011).

Childhood trauma, encompassing physical, emotional, and sexual abuse, as well as neglect, has been consistently associated with various psychological disorders, including SAD (Karatzias et al., 2017). The impact of such early adversities on the developing brain and psyche can be profound, often resulting in maladaptive cognitive and emotional processes that predispose individuals to anxiety disorders later in life (Møller et al., 2020). Research has shown that individuals who have experienced childhood trauma are more likely to develop anxiety disorders, including SAD, due to alterations in stress response systems and neurobiological pathways, such as the serotonergic system, which is critical for mood regulation and anxiety (Güler & Demir, 2022; Spinelli et al., 2010).

One of the key mechanisms by which childhood trauma is thought to contribute to SAD is through its impact on cognitive emotion regulation (CER) strategies (Gündüz et al., 2018). CER refers to the processes by which individuals influence the emotions they experience, when they experience them, and how they express these emotions (Garieballa et al., 2006). Maladaptive CER strategies, such as rumination, self-blame, and catastrophizing, have been linked to higher levels of anxiety and depressive symptoms, including those seen in SAD (Bayram & Erol, 2014; Muris & Broeren, 2008). Conversely, adaptive CER strategies, such as positive reappraisal and acceptance, may buffer the effects of childhood trauma, reducing the risk of developing anxiety disorders (Schmitz et al., 2023; Simonelli & Sacchi, 2016).

The relationship between childhood trauma and SAD, mediated by CER, is an area of growing interest in the psychological literature (Baryshnikov et al., 2017; Löchner et al., 2011). Understanding this relationship is crucial for developing targeted interventions that address the underlying cognitive and emotional processes contributing to SAD. For instance, therapeutic approaches that enhance adaptive CER strategies may mitigate the adverse effects of childhood trauma, thereby reducing the severity of SAD symptoms (Nowak, 2023, 2024; Nowak et al., 2023). Moreover, identifying specific CER strategies that mediate the relationship between childhood trauma and SAD can inform the development of personalized treatment plans that cater to the unique needs of individuals with a history of trauma (Kong, 2024; Nowak, 2023, 2024; Nowak et al., 2023).

Despite the established links between childhood trauma, CER, and SAD, research in this area remains relatively underdeveloped, particularly in non-Western populations (Gąsior & Chodkiewicz, 2020; Kraan et al., 2017). Most studies to date have focused on Western populations, where cultural and societal norms surrounding trauma and mental health may differ significantly from those in other regions (Gehrt et al., 2022). This highlights the need for cross-cultural research to explore how these relationships manifest in diverse populations, such as students in different cultural contexts (Avramchuk et al., 2022).

In exploring these relationships, this study builds on the existing literature by integrating findings from various fields, including developmental psychology, cognitive neuroscience, and clinical psychology (Enayati Shabkolai et al., 2023; Löchner et al., 2011; Møller et al., 2020; Omale, 2024; Safikhani, 2022; Wang et al., 2024). For instance, developmental theories suggest that early trauma disrupts normal emotional development, leading to maladaptive CER strategies that increase vulnerability to anxiety disorders (Karatzias et al., 2017). Cognitive neuroscience research has identified specific neural circuits involved in CER and how these may be altered by childhood trauma, providing a biological basis for the observed psychological effects (Schmitz et al., 2023; Spinelli et al., 2010). Clinical studies have further elucidated how these cognitive and neural mechanisms manifest in symptoms of SAD, offering insights into potential therapeutic targets (Simonelli & Sacchi, 2016; Stemberger et al., 1995). The current study aims to address this gap by examining the relationship between childhood traumatic experiences and SAD, with a particular focus on the mediating role of CER, among university students in Iran.

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2. Methods and Materials

2.1. Study Design and Participants

This study, considering its objective, falls under the category of applied research. In terms of data type, it is quantitative, and regarding its nature, it is descriptive, specifically descriptive-correlational, with structural equation modeling. The statistical population includes all undergraduate students of Islamic Azad University, Lahijan, during the academic year 2023-2024, totaling 8,000 individuals. The sample size was determined using Cochran's formula, which resulted in a sample size of 367 participants. The sampling method employed in this study was cluster random sampling. Inclusion criteria included being an undergraduate student at Islamic Azad University, Lahijan, and having an interest in participating in the study. Exclusion criteria included the absence of chronic psychological disorders.

2.2. Measures

2.2.1. Social Anxiety

The Social Phobia Inventory (SPIN) developed by Connor is a self-report instrument consisting of 17 items and is divided into three subscales: fear (6 items), avoidance (7 items), and physiological discomfort (4 items). The scoring of this scale is based on a five-point Likert scale, with scores ranging from 1 (not at all) to 4 (extremely). According to the results, for score interpretation, a cutoff point of 40 with a diagnostic accuracy of 80% and a cutoff point of 50 with an accuracy of 89% can distinguish individuals with social phobia from those without it (Connor et al., 2000). This questionnaire has high reliability and validity. Its reliability using the test-retest method in groups diagnosed with social phobia was reported to be between 0.78 and 0.89, and its internal consistency (Cronbach's alpha) in a normal group was reported to be 0.94. Additionally, for the subscales, the reliability was reported as 0.89 for fear, 0.91 for avoidance, and 0.80 for physiological discomfort. The construct validity was examined by comparing the results of this test between two groups: individuals diagnosed with social phobia and a normal group without psychiatric diagnosis, showing a significant difference, indicating high validity (Eskandarnejhad et al., 2021). In this study, the Cronbach's alpha was found to be 0.773.

2.2.2. Cognitive Emotion Regulation

The Cognitive Emotion Regulation Questionnaire was developed by Garnefski et al. (2001) as a multidimensional self-report instrument consisting of 36 items. It has specific forms for adults and children. The CERQ assesses nine cognitive strategies: self-blame, acceptance, rumination, positive refocusing, planning refocusing, positive reappraisal, putting into perspective, catastrophizing, and blaming others. Garnefski et al. reported satisfactory reliability and validity for this questionnaire. The questionnaire consists of 36 items rated on a five-point scale (from always to never), with each four items assessing one factor, resulting in a total of nine factors: self-blame, other-blame, rumination, catastrophizing, positive refocusing, positive reappraisal, acceptance, and planning refocusing. The Persian version of this scale was validated by Samani and Jokar (2007). The Cronbach's alpha for the subscales in Samani and Jokar's study ranged from 0.71 to 0.81. To assess convergent and divergent validity, the Depression Anxiety Stress Scales (DASS-21), a 21-item scale with four-point responses (ranging from "completely like me" to "completely unlike me"), was used, assessing the three factors of depression, stress, and anxiety. In this study, the Cronbach's alpha was found to be 0.951 (Roghani et al., 2022).

2.2.3. Childhood Trauma

The Childhood Trauma Questionnaire (CTQ) was developed by Bernstein et al. (2003) to assess childhood abuse and trauma. This questionnaire is a screening tool designed to identify individuals with experiences of childhood abuse and neglect. It is applicable to both adults and adolescents and assesses five types of childhood maltreatment: sexual abuse, physical abuse, emotional abuse, and emotional and physical neglect. The CTQ contains 28 items, of which 25 assess the main components of the questionnaire, and 3 items are used to identify individuals who deny their childhood problems. In Bernstein et al.'s study, the Cronbach's alpha for the questionnaire was reported as 0.87, 0.86, 0.95, 0.89, and 0.78 for the dimensions of emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, respectively. Concurrent validity with therapist ratings of childhood trauma was reported to range from 0.59 to 0.78 (Bernstein et al., 2003). In Iran, Ebrahimi, Dezhkam, and Sagheh Salam reported the Cronbach's alpha for the five components of the CTQ ranging from 0.81 to 0.98. Before scoring the

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components, certain items (5, 7, 13, 19, 28, 2, and 26) must be reverse scored. High scores on the questionnaire indicate greater trauma or abuse, while lower scores indicate less childhood trauma or abuse. The score range for each subscale is 5 to 25, and the total score range for the questionnaire is 25 to 125. Scoring for each component of the questionnaire is provided below. Note that items 10, 16, and 22 are designed to assess validity or denial of childhood problems. If the sum of the responses to these items exceeds 12, the respondent's answers are likely invalid (Hadiyan et al., 2023).

2.3. Data Analysis

For analyzing the obtained data, descriptive statistics (e.g., frequency, percentage, mean, standard deviation, and standard error) were used. In the inferential statistics section, Pearson's correlation coefficient and structural equation modeling were employed using SPSS version 22 and Smart PLS version 3 software.

3. Findings and Results

The results show that, in terms of gender, 249 individuals (67.8%) of the study participants were female, 128 individuals (34.9%) were studying psychology, and 190 individuals (51.8%) were undergraduate students. Table 1 reports the descriptive statistics (mean and standard deviation) for the variables, including subcomponents of social anxiety, cognitive emotion regulation, and childhood traumatic experiences.

Table 1

Descriptive Statistics (Mean and Standard Deviation) for Research Variables in Students (N = 367)

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Fear	10.98	2.78	-0.505	0.384
Avoidance	18.69	3.77	0.607	-0.096
Physiological Discomfort	19.60	2.78	0.473	-0.531
Detachment	32.04	4.79	-0.644	0.197
Autonomy	29.16	4.79	0.598	0.213
Impaired Limitations	34.66	5.05	1.257	0.179
Directedness	27.82	4.26	1.409	2.211
Inhibition	34.23	5.72	0.140	-0.230
Self-Blame	15.96	0.35	1.816	2.229
Acceptance	16.04	1.55	0.003	0.256
Rumination	18.05	1.25	-0.136	0.608
Positive Refocusing	17.64	1.96	0.627	1.149
Planning Refocusing	12.69	3.77	0.607	-0.096
Positive Reappraisal	11.60	2.78	0.473	-0.531
Perspective Taking	12.04	0.79	-0.644	0.197
Catastrophizing	19.16	0.79	0.598	0.213
Blaming Others	14.66	0.05	1.257	0.179
Sexual Abuse	17.82	0.26	1.409	2.211
Physical Abuse	14.23	0.72	0.140	-0.230
Emotional Abuse	15.96	0.35	1.816	2.229
Emotional Neglect	16.04	1.55	0.003	0.256
Physical Neglect	18.05	1.25	-0.136	0.608
Social Anxiety	27.6	8.65	-0.572	-0.554
Cognitive Emotion Regulation	66.57	8.08	-0.529	0.625
Childhood Traumatic Experiences	62.71	15.10	-0.614	0.821

Table 2 presents the Pearson correlation results.

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Table 2

Correlation Matrix Between Predictor, Mediator, and Dependent Variables in the Final Model

Variable	1	2	3
1. Social Anxiety	1		
2. Cognitive Emotion Regulation	-0.79**	1	
3. Childhood Traumatic Experiences	0.82**	-0.90**	1

**p<0.01

According to the correlation matrix results, there is a significant relationship between cognitive emotion regulation and social anxiety (r = -0.79), as well as between childhood traumatic experiences and social anxiety (r = 0.82) (p < .001). Structural equation modeling (SEM) was used to analyze the data and examine the research model. Given the small sample size, PLS-3 based on the Partial Least Squares (PLS) method was employed, and regression coefficients for direct and indirect effects were reported for all model paths. The structural model was evaluated using determination coefficients (R^2), redundancy index (CV-red), communal validity index (CV-com), overall model fit index, and average variance extracted (AVE). The significance of path coefficients was assessed using bootstrapping.

Figure 1

Model with Standard Coefficients

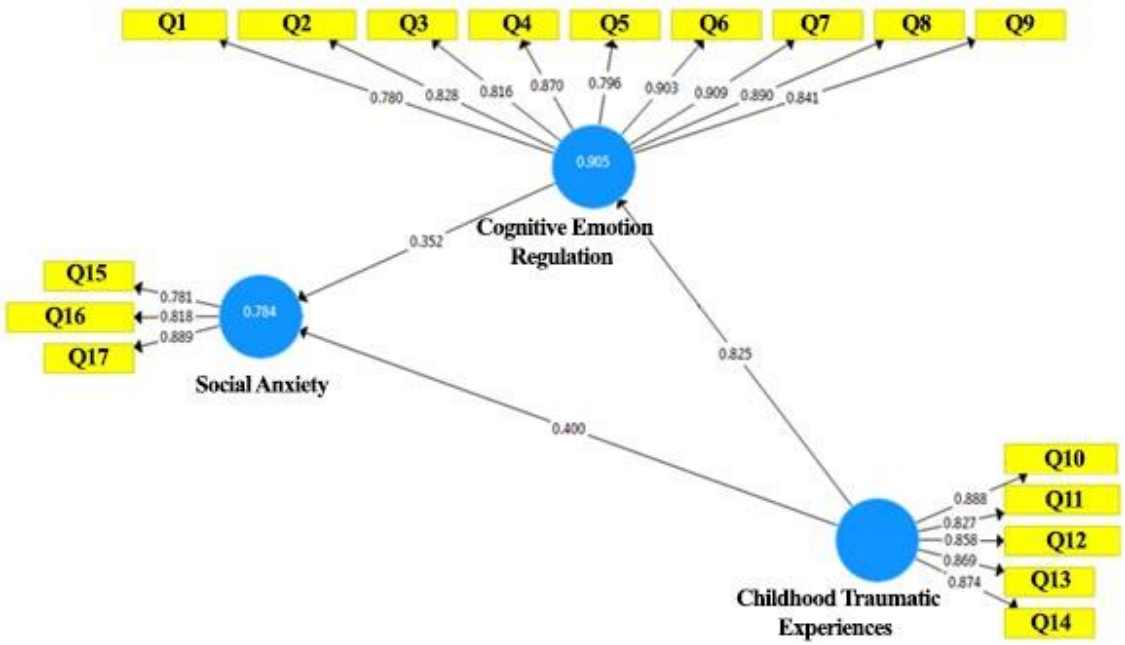

Figure 1 shows the structural model of the research based on standardized regression coefficients for students in the PLS software environment. In this figure, the variables of cognitive emotion regulation, childhood traumatic experiences, and social anxiety disorder are represented as latent variables (depicted by circles) and estimated using indicators (subscales) connected to the variables as rectangles.

Table 3

Structural Model Quality Indicators in the Student Group

Variable	R^2	Adjusted R^2	CV-red	CV-com	AVE	CR	Cronbach's Alpha
Cognitive Emotion Regulation	0.905	0.905	0.213	0.724	0.689	0.959	0.951
Social Anxiety Disorder	0.784	0.783	0.104	0.330	0.689	0.869	0.773
Childhood Traumatic Experiences	-	-	-	0.137	0.746	0.936	0.915

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According to Chin (1998), R^2 values of 0.67, 0.33, and 0.19 in structural equations are described as strong, moderate, and weak, respectively. The determination coefficients for the variables social anxiety disorder and cognitive emotion regulation are 0.78 and 0.90, respectively, indicating that all exogenous variables, i.e., childhood traumatic experiences, can predict 78% and 90% of the variance in social anxiety disorder and cognitive emotion regulation in students, respectively. This level of prediction is considered moderate.

The CV-red index indicates the structural quality of the model, and the CV-com index represents the communal validity of each hidden component. These indices were positive for all variables, indicating an appropriate model quality. The AVE values represent the average shared variance between the construct and its indicators, with Fornell and Larcker recommending a value greater than 0.5, meaning the construct explains 50% or more of the variance of its indicators. Therefore, AVE values also demonstrate good discriminant validity for all constructs in the model.

To assess the overall fit of the structural model, the goodness-of-fit (GOF) index, which equals the square root of the product of the average variance extracted and the determination coefficients of the dependent variables, was used. According to Tenenhaus et al. (2005), GOF values of 0.10, 0.25, and 0.36 are described as weak, moderate, and strong, respectively. The GOF index in this study was 0.765, which is considered strong according to the established criterion, confirming the overall fit of the model. Thus, the structural relationship between childhood traumatic experiences and social anxiety disorder through the mediation of cognitive emotion regulation in students is explained.

Table 4

Standard Regression Coefficients and t-values for Direct Effects of Variables

Path	B	t	Lower Bound Confidence Interval	Upper Bound Confidence Interval	p
Childhood Traumatic Experiences → Social Anxiety	0.40	4.48	0.208	0.561	<0.001

According to the results in Table 4, the path coefficient for the effect of childhood traumatic experiences on social anxiety disorder is calculated as 0.40, with a t-value of 4.48, which is higher than 1.96. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted with 95% confidence. Thus, a significant relationship exists between childhood traumatic experiences and social anxiety disorder in students. To examine the mediating effect in the relationship, the method of Nitzl et al. (2016) was used. In this method, the indirect effect is obtained by multiplying the direct effects, and the significance of the mediating effect is assessed using the bootstrap technique. Bootstrapping involves randomly drawing several subsamples (e.g., 5000) with replacement from the original data. In the PLS software, each subsample is used for estimation.

Table 5

Indirect Effects

Path	B	t	p	Lower Bound Confidence Interval	Upper Bound Confidence Interval
Childhood Traumatic Experiences → Cognitive Emotion Regulation → Social Anxiety	0.359	4.452	<0.001	0.293	0.412

The results of Table 5 indicate that the indirect effect of childhood traumatic experiences on social anxiety disorder mediated by cognitive emotion regulation is significant at 0.359 at the 0.05 level. Therefore, with 95% confidence, it can be stated that cognitive emotion regulation plays a mediating role in the relationship between childhood traumatic experiences and social anxiety disorder in students.

4. Discussion and Conclusion

The present study aimed to investigate the relationship between childhood traumatic experiences and social anxiety disorder (SAD) among university students, focusing particularly on the mediating role of cognitive emotion regulation (CER). The findings provide valuable insights into the complex interplay between these variables, shedding

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light on the mechanisms by which early life adversity contributes to the development and maintenance of SAD.

The results indicate a significant direct relationship between childhood traumatic experiences and SAD, consistent with a robust body of literature that highlights the long-lasting impact of early trauma on mental health (Baryshnikov et al., 2017; Karatzias et al., 2017). The study found that students who reported higher levels of childhood trauma were more likely to exhibit symptoms of SAD. This finding aligns with previous research demonstrating that early adverse experiences, such as emotional, physical, and sexual abuse, increase vulnerability to anxiety disorders, including SAD (Gehrt et al., 2022; Nowak et al., 2023). These results suggest that childhood trauma creates a fertile ground for the development of maladaptive psychological patterns that predispose individuals to social anxiety.

One of the critical contributions of this study is its examination of CER as a mediating factor between childhood trauma and SAD. The findings reveal that CER plays a significant mediating role, indicating that the way individuals regulate their emotions in response to trauma can influence the severity of social anxiety symptoms. Specifically, maladaptive CER strategies, such as rumination, self-blame, and catastrophizing, were found to exacerbate the impact of childhood trauma on SAD (Bayram & Erol, 2014). This is consistent with previous research suggesting that individuals who employ maladaptive CER strategies are more likely to experience heightened anxiety in social situations (Schmitz et al., 2023; Spinelli et al., 2010).

Furthermore, the study's findings on the indirect effects of CER underscore the importance of adaptive emotion regulation in mitigating the adverse effects of childhood trauma. Adaptive strategies, such as positive reappraisal and acceptance, were shown to buffer the impact of early trauma, reducing the likelihood of developing SAD (Møller et al., 2020; Simonelli & Sacchi, 2016). These results align with the broader literature, which emphasizes the protective role of adaptive CER in mental health, particularly in individuals exposed to high levels of stress and adversity (Kong, 2024; Nowak, 2023, 2024).

The study also contributes to the growing understanding of the mechanisms underlying SAD in a non-Western context, highlighting the cultural relevance of these findings. While most research on CER and trauma has been conducted in Western populations, this study provides evidence that these relationships hold in different cultural settings (Avramchuk et al., 2022). The findings suggest that, despite cultural differences, the fundamental processes linking childhood trauma, CER, and SAD may be universal, reflecting underlying psychological mechanisms that transcend cultural boundaries (Gąsior & Chodkiewicz, 2020).

Moreover, the use of structural equation modeling (SEM) in this study allowed for a comprehensive examination of the direct and indirect pathways linking childhood trauma to SAD, providing a nuanced understanding of how these variables interact. The high explanatory power of the model, as indicated by the strong R^2 values, suggests that CER is a critical mechanism through which childhood trauma exerts its effects on social anxiety (Ajdacic-Gross et al., 2016). This supports the notion that interventions aimed at improving CER may be particularly effective in reducing social anxiety symptoms in individuals with a history of childhood trauma (Masi et al., 2002).

Despite its significant contributions, this study is not without limitations. First, the cross-sectional design of the study limits the ability to draw causal inferences from the findings. While the SEM analysis provides insights into potential causal pathways, the lack of longitudinal data means that it is not possible to definitively determine the directionality of the relationships between childhood trauma, CER, and SAD (Kraan et al., 2017; Nowak, 2024). Future research should consider employing longitudinal designs to better understand how these relationships evolve over time.

Second, the study relied on self-report measures, which can be subject to biases such as social desirability and recall bias. Participants may underreport or overreport their experiences of childhood trauma and social anxiety symptoms, leading to potential inaccuracies in the data. Additionally, self-report measures of CER may not fully capture the complexity of emotion regulation processes, particularly in individuals with high levels of anxiety (Gündüz et al., 2018). Future studies could benefit from incorporating multiple methods of data collection, such as clinical interviews or physiological measures, to provide a more comprehensive assessment of the variables.

Third, the sample was limited to university students in a specific geographic region of Iran, which may limit the generalizability of the findings to other populations. While the study provides valuable insights into the experiences of this particular group, it is unclear whether the findings would apply to other cultural or demographic groups, such as older adults or individuals from different socioeconomic backgrounds (Alnæs & Torgersen, 1988; Kim et al., 2019). Future research should aim to replicate these findings in

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diverse populations to enhance the generalizability of the results.

Building on the findings and addressing the limitations of the current study, several avenues for future research are suggested. First, longitudinal studies are essential to establish the temporal sequence of the relationships between childhood trauma, CER, and SAD. By tracking individuals over time, researchers can better understand how early trauma influences the development of SAD and how changes in CER strategies might mitigate or exacerbate this relationship (Kraan et al., 2017; Nowak, 2024). Longitudinal designs would also allow for the examination of potential moderating variables, such as resilience or social support, which could influence the impact of childhood trauma on social anxiety (Spinelli et al., 2010).

Second, future research should explore the role of specific types of childhood trauma in the development of SAD. While the current study considered childhood trauma as a general construct, different types of trauma (e.g., emotional vs. physical abuse) may have distinct effects on CER and social anxiety (Karatzias et al., 2017; Schilling et al., 2014). Understanding these nuances could inform the development of more targeted interventions that address the unique needs of individuals who have experienced specific forms of trauma.

Third, it would be valuable to investigate the role of CER in other anxiety disorders and explore whether the findings of this study extend beyond SAD. Given that CER has been implicated in various psychological disorders, including generalized anxiety disorder and panic disorder, future studies could examine whether similar mediating mechanisms exist in these conditions (Löchner et al., 2011; Otto et al., 2001). Such research could contribute to a more integrated understanding of the role of emotion regulation in anxiety disorders and inform the development of transdiagnostic interventions that target common underlying processes (Masi et al., 2002; Schmitz et al., 2023).

Finally, cross-cultural research is needed to explore how cultural factors influence the relationships between childhood trauma, CER, and SAD. The current study highlights the importance of understanding these relationships in non-Western contexts, but more research is needed to examine how cultural norms, values, and practices shape emotion regulation strategies and their impact on social anxiety (Avramchuk et al., 2022; Gąsior & Chodkiewicz, 2020). Cross-cultural studies could also investigate whether certain CER strategies are more or less adaptive in different cultural contexts, providing insights into culturally sensitive approaches to treatment (Kong, 2024; Muris & Broeren, 2008).

The findings of this study have several important implications for clinical practice. First, the significant role of CER in mediating the relationship between childhood trauma and SAD suggests that interventions targeting emotion regulation may be particularly beneficial for individuals with a history of trauma (Güler & Demir, 2022; Simonelli & Sacchi, 2016). Cognitive-behavioral therapy (CBT) techniques that focus on enhancing adaptive CER strategies, such as cognitive restructuring and mindfulness, could help reduce social anxiety symptoms by improving individuals' ability to manage their emotions in social situations (Masi et al., 2002; Zaidi, 1994).

Second, the study underscores the importance of early intervention for individuals exposed to childhood trauma. Given the strong link between early trauma and the development of SAD, clinicians should prioritize the identification and treatment of trauma-related symptoms in young people, particularly those entering university, a period of significant social and academic stress (Kimmel et al., 2021; Kolaitis, 2017). Early intervention programs that focus on building resilience and adaptive CER strategies could help prevent the onset of social anxiety symptoms and improve long-term mental health outcomes (Draisey et al., 2019; Kraan et al., 2017).

Third, the findings suggest that clinicians should consider the cultural context when working with individuals from diverse backgrounds. As this study was conducted in a non-Western context, it highlights the need for culturally sensitive approaches to treatment that take into account the unique ways in which culture influences emotion regulation and the experience of social anxiety (Avramchuk et al., 2022; Gąsior & Chodkiewicz, 2020). Clinicians should be aware of cultural differences in CER strategies and adapt their interventions accordingly, using culturally appropriate techniques to enhance the effectiveness of treatment (Kim et al., 2019; Knoblauch et al., 2019).

Additionally, given the study's findings on the protective role of adaptive CER, clinicians should work with clients to develop these strategies as part of their treatment plan. Techniques such as positive reappraisal, acceptance, and mindfulness can be integrated into therapy to help clients reframe their traumatic experiences and reduce their social anxiety symptoms (Møller et al., 2020; Nowak et al., 2023). By fostering adaptive CER strategies, clinicians can empower clients to better manage their emotions and

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improve their overall psychological well-being (Schmitz et al., 2023; Simonelli & Sacchi, 2016).

Lastly, this study suggests that clinicians should consider using SEM or similar techniques in their clinical assessments to better understand the complex relationships between trauma, emotion regulation, and anxiety. By employing advanced statistical methods, clinicians can gain deeper insights into the underlying mechanisms of their clients' symptoms, leading to more personalized and effective treatment plans (Ajdacic-Gross et al., 2016; Schilling et al., 2014). Such approaches could enhance the precision of diagnosis and intervention, ultimately improving outcomes for individuals with SAD (Otto et al., 2001; Walker & Kjernisted, 2000).

In conclusion, the findings of this study underscore the importance of understanding the mediating role of CER in the relationship between childhood trauma and SAD. By addressing these factors in clinical practice, clinicians can develop more effective interventions that not only alleviate symptoms but also address the underlying cognitive and emotional processes contributing to social anxiety. This approach has the potential to significantly improve the quality of life for individuals affected by SAD, particularly those with a history of childhood trauma.

Authors' Contributions

All authors contributed equally.

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.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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