COGNITIVE FACTORS OF SOCIAL PHOBIA AMONG CHILDREN AND ADOLESCENTS

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Abstract

Social anxiety disorder (SAD) is a common mental disorder in childhood and adolescence that is chronic and persists into adulthood. The present study aimed to develop a therapeutic tool through virtual reality exposure, designed for use in treating social anxiety among children and adolescents. The virtual reality exposure tool is intended to assist in overcoming emotional and behavioral challenges while facilitating the development of social skills Furthermore, the study explored the cognitive model of social anxiety in children and adolescents using virtual reality. The experiment included 200 participants aged 8 to 16 years. In addition to completing self-report questionnaires, participants engaged in virtual self-presentation (during the initial exposure) and an unpredictable arithmetic task (during the subsequent exposure). Pulse measurements were taken at the study's outset, during each exposure session, and at the study's conclusion. Among children and adolescents with social anxiety, heightened levels of self-attention, rumination, and negative content in repetitive thoughts following social events were observed compared to their peers without social anxiety. Across the entire sample, subjective anxiety level and pulse rate were highest during the self-presentation task. The study found that there was an association between the experimental group membership and the negative interpretation of environmental stimuli.

Keywords: Social anxiety, virtual reality exposure, self-attention, rumination.

1. Theoretical framework

Social anxiety disorder is a prevalent mental health issue among children and adolescents, with its onset typically occurring between the ages of 8 and 15 (Rasouli, 2022). The essential characteristic of social anxiety is the fear of being evaluated, which the individual anticipates from their environment. Due to increased self-awareness, abstract thinking, and peer influence, adolescents become more vulnerable to social anxiety. However, this does not mean that social anxiety does not manifest during childhood. In children, social anxiety primarily manifests as behavioral and emotional difficulties, which in educational settings are often explained by the child's shyness. Social anxiety manifests in childhood through a fear of unfamiliar people, as at this age, the ability to perceive others' perspectives is not yet developed. In social anxiety, the individual avoids situations where social interaction is required or will occur, and there is an expectation that the person will be the focus of others' attention.

According to Clark and Wells' (1995) cognitive model, the central maintaining factor of social phobia is self-attention. Self-attention hinders the individual from adequately processing external information. The authors describe this feature as the process of transforming oneself into a social object, during which the individual relies on somatic sensations, thoughts, and emotions (Spurr, 2002). Avoidance of the anxiety-provoking situation does not alleviate negative self-related thoughts, and the individual interprets the interaction as a failure (Clark & Wells, 1995). Social failure is explained by attributing it to oneself, which is a function of self-attention (Woody, 1996).

2. Research objectives and questions

The central questions of the current study are:

- Is Clark and Wells' cognitive model of social anxiety valid for children and adolescents?
- Is the method of virtual reality exposure valid for studying social anxiety in children and adolescents?

Based on these questions, the following research hypotheses were developed:

H1: Children and adolescents with social anxiety will focus their attention on more irritants (social stimuli and high self-focus) compared to the control group.

H2: Children and adolescents with social anxiety will have a higher level of rumination compared to the control group.

H3: The thoughts of children and adolescents with social anxiety will be more negative in comparison to the control group.

H4: Children and adolescents with social anxiety will experience higher levels of subjective anxiety during virtual reality exposure compared to the control group.

3. Research method

The study involved 200 students aged 8 to 16 (M = 11.7, SD = 2.5). In the first phase, participants had their pulse measured and filled out self-report questionnaires: Liebowitz Social Anxiety Scale for Children (LSAS-CA; Masia-Warner et al., 2003) and Social Anxiety Scale for Children e Revised (SASC-R). Based on the results of the fear/anxiety subscale of the Liebowitz Social Anxiety Scale for Children (LSAS-CA; Masia-Warner et al., 2003), the participants were categorized into a control group and a risk group (cut-off score 29.5). Therefore, the grouping of participants was unknown in advance. The second phase represented the virtual reality exposure phase, which consisted of two stages: self-presentation and performing an unpredictable task in front of an audience, as well as measuring the pulse. After the exposure, participants filled out questionnaires assessing self-focus and rumination (The Focus of Attention Questionnaire (FAQ) 1984, Chambless and Glass; Thoughts Questionnaire for Children (TQ-C, 2003, Edwards). Additionally, the respondent indicated the level of subjective anxiety using the anxiety thermometer in all four phases of the study, and the pulse was measured again.

4. Data analysis and results

In the social anxiety risk group, 49 participants were assigned, while 151 participants were in the control group. To examine between-group and within-group differences, an independent-sample t-test and repeated measures analysis of variance (ANOVA) were used. The internal consistency of the instruments was found to be high and above average.

In the social anxiety risk group, participants focused their attention on more irritants (t(198) = -4.643, p < .001). They also exhibited a higher tendency for rumination (t(198) = -5.992, p < .001), more negative thought content (t(198) = -7.512, p < .001), and higher self-focus (t(198) = -4.644, p < .001) compared to the control group. Additionally, their subjective level of anxiety was higher during self-presentation (t(198) = -5.45, p < .001) and when performing the unpredictable task (t(198) = -4.78, p < .001) compared to the control group (p < 0.01). The average pulse rate was highest during self-presentation (M = 107) and when performing the unpredictable task (M = 100). The average pulse rate during self-presentation differed statistically significantly from all other conditions (p < .001).

The data analysis confirmed all four hypotheses.

		Ν	Mean	SD	Т	df	Sig 2 tailed/2
Social stimuli	control group	151	19.6	9.0	-4.64	198	.000
	Risk-group	49	26.3	8.1			
Rumination	control group	151	27.9	15.1	-5.99	198	.000
	Risk-group	49	42.1	12.3			
Intensity of negative thoughts	control	151	12.4	10.1	-7.51	198	.000
	Risk-group	49	24.6	8.9			
Self-focused attention	control	151	13.2	7.1	-4.64	198	.000
	Risk-group	49	18.5	6.5			
Level of anxiety during self presentation	control	151	4.9	2.9	-5.45	198	.000
	Risk-group	49	7.4	2.6			
Level of anxiety during arithmetic task	Control group	151	4.3	3.1	-4.78	198	.000
	Risk group	49	6.7	3.0			

Table 1. Differences between control and experimental groups based on independent samples (t)Test.

5. Discussion

The results showed that individuals in the social anxiety risk group exhibited higher levels of attention to stimuli (social stimuli and overall self-focused attention) compared to the control group. Self-focused attention is considered a primary central and maintaining cognitive factor in social anxiety, as individuals expect judgment from others and are highly focused on their performance. As a result, they rely on their feelings, thoughts, and somatic sensations (which are inherently unpleasant), drawing conclusions based on these, thereby creating a vicious cycle that reinforces negative experiences in social situations. Not only self-focus but also the overall level of attention to stimuli was higher among children and adolescents with social anxiety compared to their peers without social anxiety. On the one hand, the increased self-focus, and on the other hand, the social cues that the participants encountered in the exposure situation were somewhat ambiguous. Ambiguous stimuli are negatively interpreted in the case of social anxiety, and attention and memory are selectively biased toward negative stimuli. Therefore, ambiguous but negatively interpreted stimuli may attract attention and increase the perceived level of arousal. Furthermore, sensitivity is one of the traits of temperament (Rymanowicz, 2017). A low threshold of sensitivity is linked to social anxiety, and thus, individuals with social anxiety tend to notice more stimuli than their socially non-anxious peers. According to Arno et al. (2005), sensitivity also constitutes a vulnerability factor about shyness in adulthood (Hofmann, 2007).

Moreover, it was expected that the tendency for rumination would be higher among anxious individuals compared to non-anxious peers. Rumination is used as an emotional regulation strategy and a means of coping with stressful environments (Tamres et al., 2002). The primary function of emotional regulation is, of course, to process cognitive ideas; however, when attention is focused on unpleasant information, the process differs (Alici, 2023), leading to repetitive thinking. Gender differences in rumination were also expected, as research shows that rumination is more common in women (Tamres, 2002). Given the selective nature of attention and perception, it may also explain why the content of repetitive thoughts is more negative in socially anxious individuals.

Additionally, the subjective experience of anxiety was found to be higher among social anxiety participants in a virtual social environment. It is highly likely that self-focused attention constitutes the main cognitive component of subjectively perceived anxiety. It is also interesting to note that no significant difference was found between the control and risk groups in terms of pulse rate, suggesting that, within the scope of this study, pulse rate was not an objective measure of the intensity of social anxiety. However, this may be explained by the fact that subjective anxiety and heart rate do not always correlate, which again emphasizes the significant role of cognitive factors in maintaining social anxiety. This is also supported by the research of Mauss and Robinson (2009), which indicates that physiological measures do not represent the gold standard in the study of emotions.

6. Limitations of the study and future perspectives

In the study, individuals with a diagnosis of social anxiety were intentionally excluded, as there is no unified, standardized system for clinical diagnosis in Georgia. As a result, participants in the control and risk groups were unevenly distributed. However, the distribution of social anxiety in our accessible sample (N=200, 24.5%) does not differ significantly from the percentage rates observed in studies conducted in other countries with adolescents, as confirmed by the research findings of Alves (2022), Ernst (2022), and Salari (2024).

Future research will focus on the relationships between safety-promoting behaviors and the cognitive factors that maintain social anxiety in childhood and adolescence.

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