

# The Effectiveness of Emotional Schema Therapy in Reducing Anxiety Sensitivity and Body Checking Behaviors in Adolescent Girls with Social Anxiety Disorder

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## Abstract

**Background:** Social anxiety disorder (SAD) is highly prevalent among adolescent girls and significantly interferes with their social and emotional development. It can lead to impaired coping mechanisms and maladaptive behaviors, such as anxiety sensitivity and body checking. This study aimed to evaluate the efficacy of Emotional Schema Therapy (EST) in mitigating anxiety sensitivity and body checking behaviors among adolescent girls with SAD.

**Methods:** A quasi-experimental design with a pretest-posttest-two months follow-up assessment was employed. The study participants were 25 adolescent girls aged 15 to 18 years with a diagnosis of SAD in the city of Ramshir, Iran, in 2023. Adolescent girls in the experimental group participated in ten weekly, 90-minute Emotional Schema Therapy sessions. The participants were selected using a multi-stage cluster random sampling technique and completed standardized measures of social phobia, anxiety sensitivity, and body checking behaviors at the beginning, end, and follow-up of the intervention. To analyze the data, repeated measures analysis of variance (ANOVA) was conducted using SPSS version 27.

**Results:** Participants in the EST group exhibited a significant reduction in anxiety sensitivity (pretest:  $53.80 \pm 2.85$ ; posttest:  $34.67 \pm 3.01$ ; follow-up:  $35.00 \pm 3.35$ ) and body checking behaviors (pretest:  $85.67 \pm 3.63$ ; posttest:  $50.87 \pm 4.24$ ; follow-up:  $49.47 \pm 3.50$ ) over time ( $P < 0.001$ ). The positive effects of EST on anxiety sensitivity and body checking behaviors were maintained at follow-up ( $P < 0.001$ ).

**Conclusions:** The findings suggested that EST can be an effective intervention for reducing anxiety sensitivity and body checking behaviors in adolescent girls with SAD.

**Keywords:** Schema therapy, Anxiety, Body image, Girls

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## 1. Introduction

Social anxiety disorder (SAD), one of the most prevalent chronic anxiety disorders, is particularly common among adolescent girls. It is often referred to as a “hidden disorder” due to its underrecognition and the significant impairment it causes in both occupational and social functioning (1). Girls with SAD are characterized by an intense fear of being judged negatively by others. This fear leads to avoidance of situations that involve social interaction, such as public speaking, giving presentations, attending parties, socializing with strangers, and even eating in public places (2). These situations are highly distressing for individuals with SAD as they anticipate being scrutinized, humiliated, and evaluated negatively by others, often leading to feelings of inadequacy and worthlessness (3). This avoidance and fear

can result in significant impairment in various aspects of life including family relationships, work performance, and academic achievement. It is important to note that anxiety sensitivity, a cluster of cognitive and personality factors, plays a crucial role in the maintenance of SAD (4).

Anxiety sensitivity, a cross-cutting factor, has been increasingly identified as a key contributor to the onset and persistence of various emotional disorders, such as panic disorder, social anxiety disorder, generalized anxiety disorder, post-traumatic stress disorder, health anxiety, and depression (5). Khakpoor and colleagues (6) conceptualized anxiety sensitivity as the tendency to perceive and interpret anxiety-related cues as threatening and dangerous, believing that these cues will lead to negative consequences such as illness, humiliation, or harm. This notion is

further supported by the expectancy theory of anxiety, which suggests that anxiety sensitivity is characterized by the belief that anxiety will lead to adverse outcomes such as heart attacks, mental illness, and embarrassment (7). Consequently, individuals with high anxiety sensitivity become preoccupied with the fear of becoming anxious, which in turn exacerbates their anxiety symptoms (8). This highlights the importance of understanding anxiety sensitivity in the context of emotional disorders and developing effective treatment interventions (9).

Body checking behaviors, characterized by the excessive and repetitive monitoring of one's physical appearance, can be a significant manifestation of anxiety, particularly among adolescent girls (10). The transition from childhood to adolescence and young adulthood represents a crucial developmental stage for girls, marked by significant changes in their bodies, thoughts, and social relationships (11). During this period of growth and maturation, girls tend to be more preoccupied with their weight and body shape than boys due to various cultural and social factors (12). One of the key challenges faced by adolescent girls is the development of a distorted body image, as they experience rapid physical and psychological changes, including increased height, weight gain, and the emergence of secondary sexual characteristics (13). Body checking behaviors play a pivotal role in maintaining a negative body image, as they intensify the individual's focus on perceived flaws and contribute to negative self-perceptions (14).

Despite the availability of various treatment approaches, including cognitive behavioral therapy (CBT) and pharmacotherapy, SAD remains a challenge to be effectively treated, with many individuals experiencing residual symptoms or relapsing after treatment (15). This highlights the need for innovative and comprehensive treatment approaches to address the complex nature of SAD. Schema therapy is an integrative psychotherapy approach that aims to address the limitations of traditional CBT by incorporating concepts and techniques from various theoretical frameworks, including attachment theory, object relations theory, Gestalt therapy, constructivism, and psychoanalysis (16, 17). The core concept of schema therapy is the identification and modification of early maladaptive schemas, which are rigid, dysfunctional patterns of thought, emotion, and behavior that originate in childhood and

continue to influence individuals' experiences and relationships throughout their lives (18, 19). Leahy's (20) Emotional Schema Therapy (EST) model further extends schema therapy by integrating emotional processing theory and metacognitive concepts (21). EST posits that emotional disorders arise from maladaptive beliefs, interpretations, and coping strategies related to emotional experiences, which are conceptualized as emotional schemas (22). According to EST, all individuals experience negative and painful emotions; however, what differentiates individuals is how they interpret and respond to these emotions, shaped by their emotional schemas (23, 24). Research findings have consistently demonstrated the efficacy of EST in alleviating symptoms among individuals with SAD (25-28).

In the realm of anxiety disorders, there has been a growing recognition of the importance of considering underlying factors in the development and maintenance of these conditions. Overlooking these factors can potentially hinder treatment outcomes and hinder a comprehensive understanding of the disorders themselves. A deeper understanding of the underlying mechanisms of SAD can inform the development of more diverse treatment approaches and tailored interventions that meet the unique needs of individuals. This highlights the need for more effective and comprehensive treatment approaches that address the multifaceted nature of SAD. EST, a comprehensive and integrative psychotherapy approach, targets the identification and modification of EMS, which are rigid, dysfunctional patterns of thought, emotion, and behavior that contribute to emotional distress and maladaptive coping strategies. In line with this perspective, the present study aimed to investigate the efficacy of EST in addressing anxiety sensitivity and body checking behaviors among adolescent girls with SAD.

## 2. Methods

This study employed a quasi-experimental design with assessments at pre-intervention, post-intervention, and two months after the intervention. The target population included all female high school students in Ramshir, Iran, aged 15 to 18, who were diagnosed with Social Anxiety Disorder in 2023. A multi-stage cluster random sampling technique was used to select the participants.

Three female high schools were randomly selected, and all students completed the Social Phobia Inventory (SPIN). From an initial pool of 319 students, those who scored above the mean on SPIN were identified. This resulted in a sample of 56 students. Subsequently, a random selection process was employed to choose 25 participants for the study. A sample size of 25 participants with social anxiety disorder was determined using G\*Power software. This calculation was based on a desired power of 0.95, and a significance level of 0.05. Anxiety sensitivity's mean and standard deviation in the pretest and posttest phases were  $53.80 \pm 2.85$  and  $34.67 \pm 3.01$ , respectively (29). To be included in this study, participants had to be female high school students aged 15 to 18, score above average on the Social Phobia Inventory, and provide informed consent. Participants were excluded if they missed more than one therapy session or did not complete all questionnaire items.

### 2.1. Procedure

Before starting the study, ethical approval was granted by the institutional review board (code: IR.IAU.AHVAZ.REC.1403.013). All participants provided informed consent, confirming their understanding of the study's objectives, potential risks, and benefits. Participants were assured that their responses would be kept confidential. Before the commencement of intervention sessions, all participants completed the study questionnaires as a pre-test. EST was implemented within the framework of Leahy's model (20) over 10 weekly 90-minute sessions. A summary of the session content is presented in Table 1. Upon completion of the intervention sessions, participants were asked to complete the questionnaires again as a post-test to assess any changes. A follow-up assessment was

conducted two months after the conclusion of the intervention program to evaluate the long-term effects of the intervention.

### 2.2. Research Instrument

#### 2.2.1. Social Phobia Inventory (SPIN)

The Social Phobia Inventory (SPIN) is a well-established self-reported measure designed to assess SAD severity (30). This 17-item instrument uses a five-point Likert scale and is structured into three subscales: avoidance, fear, and physiological symptoms. Total scores range from 0 to 68, with higher scores reflecting greater levels of social anxiety. Previous studies have demonstrated the reliability of SPIN, with subscales exhibiting strong internal consistency as indicated by Cronbach's alpha coefficients exceeding 0.70 (31). In the present study, SPIN maintained acceptable internal consistency, with a Cronbach's alpha of 0.83. Furthermore, the content validity of SPIN was supported by high scores on the Content Validity Index (CVI=0.89) and Content Validity Ratio (CVR=0.90) (31).

#### 2.2.2. Anxiety Sensitivity Index (ASI)

The Anxiety Sensitivity Index (ASI) serves as a well-validated self-report measure for assessing anxiety sensitivity, a cognitive factor linked to various anxiety disorders (32). This 16-item instrument uses a five-point Likert scale to capture an individual's perception of the unpleasantness and potential negative consequences associated with anxiety symptoms. Higher scores on ASI reflect greater anxiety sensitivity. The measure comprises three subscales: physical concerns, cognitive control, and social evaluation. Prior

**Table 1:** Summary of emotional schema therapy sessions

Sessions	Content
1	Introduction, building rapport, pretest administration, establishing group rules, and clarifying group therapy goals
2	Overview of emotional schema therapy, emotional description, and emotional education
3	Emotional normalization, addressing shame and guilt-related schemas
4	Emotional validation and emotional labeling
5	Cognitive restructuring, introducing the evidence review technique, and addressing rumination schema
6	Compassionate mindfulness, describing and imagining the compassionate self
7	Examining troublesome invalidation styles, exploring adaptive strategies for overcoming invalidation
8	Teaching the advocate technique to counter self-defeating thoughts in social situations
9	Introducing and practicing the mixed emotions tolerance technique, and completing the mixed emotions advantages and disadvantages worksheet
10	Reinforcing newly learned skills by discussing obstacles and setbacks, discussing therapy termination and feelings about it, and administering the posttest

research has established the reliability of ASI, with Cronbach's alpha exceeding 0.90 (33). Furthermore, the authors (33) reported a CVR of 0.98 and a CVI of 0.85 for ASI. Consistent with these findings, the present study demonstrated adequate internal consistency for ASI, reflected by a Cronbach's alpha of 0.84.

### 2.2.3. Body Checking Questionnaire (BCQ)

The Body Checking Questionnaire (BCQ), developed by Reas and co-workers (34), measures body checking behaviors. This 23-item self-report questionnaire assesses three dimensions of body checking: general appearance checking, specific body part checking, and idiosyncratic checking rituals. The participants' statements were rated on a 5-point Likert scale, ranging from "never" to "very often." Total scores range from 23 to 115, with higher scores indicating more frequent body checking. BCQ has shown good internal consistency, with Cronbach's alpha coefficients consistently above 0.70 in multiple studies (35). Additionally, the authors (35) found that BCQ demonstrated strong content validity, with a CVR of 0.93 and a CVI of 0.94. In the present study, the internal consistency of BCQ was further confirmed, with a Cronbach's alpha of 0.81.

### 2.3. Data Analysis

A repeated-measures ANOVA was conducted to evaluate the efficacy of EST for reducing anxiety sensitivity and body checking behaviors in adolescent girls with SAD. Prior to analysis, the assumptions

of normality and homogeneity of variance were verified. Post-hoc LSD tests were employed to examine specific changes across time points. Data analysis was done using SPSS version 27.

### 3. Results

The study sample consisted of 25 female high school students with a mean age of  $16.46 \pm 2.59$  years. These participants were assigned to an experimental group and evaluated using the Anxiety Sensitivity Index (ASI) and Body Checking Questionnaire (BCQ). The sample was distributed across two age categories: 15-16 years (52.0%,  $n=13$ ) and 17-18 years (48.0%,  $n=12$ ). Of the participants, six (26.0%) were in the tenth grade, nine (36.0%) in the eleventh grade, and ten (40.0%) in the twelfth grade. Descriptive statistics (means and standard deviations) for anxiety sensitivity and body checking behaviors are presented in Table 2. The study revealed significant reductions in anxiety sensitivity and body checking behaviors among adolescent girls with SAD ( $P < 0.001$ ). As shown in Table 2, mean anxiety sensitivity scores decreased from  $53.80 \pm 2.85$  at pretest to  $34.67 \pm 3.01$  at posttest and  $35.00 \pm 3.35$  at follow-up. Similarly, body checking behaviors significantly declined, with mean scores dropping from  $85.67 \pm 3.63$  at pretest to  $50.87 \pm 4.24$  at posttest and  $49.47 \pm 3.50$  at follow-up.

According to the results of repeated-measures ANOVA, the intervention yielded statistically significant effects for both anxiety sensitivity and body checking behaviors ( $P < 0.001$ ). To further

**Table 2:** Means and standard deviations (SD) of anxiety sensitivity and body checking behaviors at the pretest, posttest, and follow-up stages

Variables	Pretest	Posttest	Follow-up	P (within-group comparisons)
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Anxiety sensitivity	53.80 $\pm$ 2.85	34.67 $\pm$ 3.01	35.00 $\pm$ 3.35	0.001
Body checking behaviors	85.67 $\pm$ 3.63	50.87 $\pm$ 4.24	49.47 $\pm$ 3.50	0.001

**Table 3:** Results of LSD for paired comparison of the anxiety sensitivity and body checking behaviors across time series

Variables	Phase A	Phase B	Mean difference (A-B)	SE	P
Anxiety sensitivity	Pretest	Posttest	10.80	1.11	0.001
		Follow-up	10.36	1.13	0.001
	Posttest	Follow-up	-0.43	0.79	0.588
Body checking behaviors	Pretest	Posttest	20.90	2.12	0.001
		Follow-up	21.93	2.39	0.001
	Posttest	Follow-up	1.03	1.11	0.361

LSD: Least Significant Difference; SE: Standard Error

investigate the observed changes in anxiety sensitivity and body checking behaviors across the pretest, posttest, and follow-up stages, a post-hoc LSD test was conducted (Table 3). The analysis revealed a significant difference between pretest and posttest scores for anxiety sensitivity ( $P < 0.001$ ). This finding suggested that EST intervention effectively reduced anxiety sensitivity in the participants. Additionally, the significant difference between pretest and follow-up scores for body checking behaviors ( $P < 0.001$ ) indicated the intervention's sustained effect in reducing these behaviors. These post-hoc findings provide further support for the effectiveness and long-lasting impact of EST in alleviating anxiety sensitivity and body checking behaviors among adolescent girls with SAD.

#### 4. Discussion

The present study aimed to investigate the efficacy of EST in reducing anxiety sensitivity and body checking behaviors in adolescent girls with SAD. The first major finding revealed that EST was effective in diminishing anxiety sensitivity among adolescent girls with SAD at both post-test and follow-up stages. This finding aligns with the results of previous studies (21, 28).

The effectiveness of EST in reducing anxiety sensitivity among adolescent girls with SAD can be attributed to its comprehensive approach that specifically targets the underlying maladaptive emotional schemas. EST aims to modify these schemas and equip adolescents with enhanced skills to manage their emotions and anxiety responses. Maladaptive emotional schemas are enduring patterns of negative thoughts and feelings that develop during childhood and adolescence and can contribute to social anxiety and anxiety sensitivity. In EST, therapists help adolescents to identify maladaptive schemas and begin to challenge and modify them (28). This process involves understanding the origins and causes of these schemas and subsequently reforming and replacing them with healthier and more functional patterns.

EST empowers adolescents with effective coping skills to manage their anxiety and emotional responses. These skills encompass relaxation techniques, meditation, breathing exercises, and mindfulness practices. By learning and practicing these techniques, adolescents can better regulate

their emotional reactions and reduce the intensity of their anxiety when confronted with social situations. A crucial aspect of EST lies in fostering self-awareness and a deeper understanding of emotions and anxiety responses (20). Through the acquisition of various techniques, adolescents can gain a more profound understanding of their emotions, enabling them to effectively manage them. This enhanced self-awareness can lead to a reduction in anxiety sensitivity and an increased sense of control and confidence in social settings. Furthermore, EST promotes improvements in interpersonal relationships and enhances access to social support (21). This support network can play a significant role in alleviating social anxiety and fostering a sense of security and comfort in social settings (28). Adolescents learn to establish healthier and more effective communication patterns with others, enabling them to leverage emotional and social support in coping with their anxiety (19).

Our findings further revealed that EST was effective in improving body checking behaviors among adolescent girls with SAD at both post-test and follow-up stages. No prior research directly aligned with this finding. One possible explanation for this result is that using EST as a new method for addressing anxiety disorders could lead to beneficial outcomes in decreasing body checking behaviors among adolescents with SAD. These behaviors, which involve repeatedly checking one's body, appearance, or health due to concerns about social judgments, are often employed as a means to alleviate anxiety. In this regard, several key aspects of the effectiveness of EST are examined (24). During therapy, adolescents learn to identify and understand their emotions. This awareness empowers them to detach from their thought patterns, particularly when confronted with fears and anxieties (21). With enhanced emotional recognition, adolescents can provide more appropriate responses to their emotions rather than attempting to control them through body checking behaviors (26).

Adolescents exhibiting body checking behaviors often harbor distorted thoughts that fuel intense worries. EST tackles these underlying issues by challenging distorted thoughts, guiding adolescents to identify and replace negative and self-critical beliefs with more rational perspectives (20). This shift in mindset can effectively reduce

the perceived need for body checking behaviors. By acquiring effective coping strategies for managing problems and challenges, adolescents gain a greater sense of control over their lives. This enhanced sense of control can contribute to a reduction in social anxiety and its associated behaviors. As adolescents feel more capable of navigating social situations, the reliance on body checking to alleviate anxiety diminishes. EST empowers adolescents to enhance their social skills (26). Establishing healthy and positive connections with others fosters a sense of security in social settings. This newfound security can lead to a decline in body checking behaviors as adolescents shift their focus from concerns about judgment to meaningful interactions (4). The therapy also promotes the development of a positive self-image and increased self-esteem. This positive self-perception can contribute to a reduced need for constant body checking, as adolescents become less preoccupied with external judgments and more focused on their own well-being (16).

#### 4.1. Limitations

As with any research endeavor, this study had certain limitations. The findings may not be fully generalizable to adolescent girls and boys with SAD in other cities or cultural contexts due to the study's focus on adolescent girls in Ramshir, Iran. Additionally, the study did not control for socioeconomic factors such as family structure or parental education, which could have influenced the outcomes. Furthermore, the absence of a control group and the use of self-report questionnaires may introduce potential biases.

## 5. Conclusions

The present study demonstrates the effectiveness of EST in reducing anxiety sensitivity and body checking behaviors in adolescent girls with SAD. This is evidenced by the significant decrease in anxiety sensitivity scores from the pretest to posttest, suggesting a positive and immediate effect of the intervention. Furthermore, the sustained decrease in body checking behaviors observed between pre-test and follow-up assessments highlights the long-lasting effects of EST in managing these anxiety-related symptoms in this population. These findings contribute to the growing body of research supporting the use of EST as a beneficial intervention for adolescents struggling with SAD and associated anxieties.

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## Authors' Contribution

Seyede Fazileh Alboushoke: Substantial contributions to the conception and design of the work, the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Sahar Safarzadeh: Substantial contributions to the conception and design of the work, the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Fariba Hafezi: Substantial contributions to the conception and design of the work, the acquisition, analysis, and interpretation of data for the work, reviewing the work critically for important intellectual content. Parvin Ehteshamzadeh: Substantial contributions to the conception, drafting the work and reviewing it critically for important intellectual content; All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

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## Ethical Approval

The study was approved by the Ethics Committee of the Islamic Azad University-Ahvaz Branch with the code of IR.IAU.AHVAZ.REC.1403.013. Also, written informed consent was obtained from the participants.

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