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Effectiveness of Schema Therapy and Compassion-Focused Therapy on Emotional Self-Awareness, Hostile Attribution, and Critical Thinking in Adolescents with Bulimia Nervosa

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A B S T R A C T

Objective: The primary aim was to examine the impact of these two therapeutic approaches on improving cognitive and emotional aspects of individuals.

Method: The research employed an experimental method with a pretest-posttest design and a control group. The statistical population included adolescents with bulimia nervosa in the city of Azarshahr. Participants were selected through convenience sampling and randomly assigned to two therapeutic groups (15 participants in each group). The first group received schema therapy, while the second group underwent compassion-focused therapy. Measurement instruments included the Binge Eating Scale developed by Gormally et al. (1982), the Hostile Attribution Questionnaire by Arntz et al. (2003), the Self-Reflection and Insight Scale by Grant et al. (2002), and the Critical Thinking Disposition Questionnaire by Ricketts (2003).

Results: The results indicated that both therapies had a significant effect on increasing emotional self-awareness and reducing hostile attribution and critical thinking deficits. However, compassion-focused therapy demonstrated greater effectiveness in reducing hostile attribution and improving critical thinking.

Conclusion: These findings suggest that both approaches can be used as effective interventions in the treatment of bulimia nervosa in adolescents, although compassion-focused therapy may be more effective in certain domains.

Keywords: *Hostile attribution, bulimia nervosa, critical thinking, emotional self-awareness.*

1. Introduction

Adolescence is one of the most critical periods in human life, accompanied by extensive changes. These changes encompass physical, psychological, and social dimensions (Tal-Saban et al., 2022). In the early years of puberty, due to biological disequilibrium, deep transformations occur in the individual's organism. The shape and volume of the body undergo significant changes and experience various developments (Nourse et al., 2022). In fact, the transformations that occur in the body, brain, and behavior of adolescents expose them to environmental risks and vulnerabilities, one of which is bulimia nervosa (Gul & Koç, 2025; Prince et al., 2025). According to the American Psychiatric Association (2021), bulimia nervosa is defined as the consumption of unusually large amounts of food along

with the experience of a loss of control during the eating episode. From this perspective, binge eating disorder can lead to impairments in daily functioning, including sleep problems (Bray et al., 2022), and be a contributing factor to various physical illnesses and gastrointestinal issues (Mohajan & Mohajan, 2023). Linardon (2021) also states that these issues can reduce quality of life and result in considerable economic costs for affected individuals (Linardon, 2021).

One of the contributing factors to eating disorders is emotional self-awareness. This concept, defined by Huggins et al. (2020) as the ability to understand one's own emotions and those of others, includes five levels: awareness of bodily sensations, action tendency, singular emotions, dependent emotions, and integrated understanding of complex emotional experiences. This ability enables individuals to respond quickly and appropriately to environmental changes, thereby enhancing psychological well-being (Trentini et al., 2022). In this regard, difficulties in emotional self-awareness play a key role in the development and maintenance of binge eating disorder. Many individuals who struggle with regulating emotions, especially negative ones, use binge eating as a coping and soothing strategy (Vasiliu, 2023). Moreover, explanatory models of bulimia nervosa suggest that painful emotions are among the primary accelerating and maintaining factors in eating disorders (Colle et al., 2023).

In individuals with psychological disorders, including bulimia nervosa, cognitive patterns can play a central role in perpetuating maladaptive behaviors, as they increase social stress and reduce self-efficacy in managing emotions and relationships. One such cognitive pattern is hostile attribution. This cognitive bias refers to the tendency of individuals to interpret others' behaviors as intentionally hostile, threatening, or aggressive—particularly in ambiguous social situations. People with this bias attribute others' actions to the worst possible motives (Khajeh Hasani Rabari et al., 2024) and often assume malevolent intent in unclear situations (Yang et al., 2017). Research has also linked this bias to psychological factors contributing to reactive aggression, including anger and revenge motivation (Van Bockstaele et al., 2020).

Among adolescents with bulimia nervosa, a deficiency in critical thinking can hinder the identification and correction of dysfunctional beliefs related to eating and thereby contribute to the continuation of maladaptive patterns such as binge eating. Critical thinking, as the ability to analyze logically, evaluate evidence, and make informed decisions, plays a fundamental role in emotional regulation and adaptive behavior (Khadivizand et al., 2022). These individuals, due to their inability to accurately assess stimuli and the consequences of their actions, are more likely to resort to unhealthy strategies for managing stress or negative emotions.

One therapeutic approach that has shown promising results in various domains is schema therapy. In psychology, schema therapy can often serve as a framework for understanding a person's life experiences. Young's (1990) schema therapy involves evaluating schemas through a structured treatment protocol. Young posits that a schema is a stable and enduring pattern that originates in childhood and persists into adulthood. Individuals view the world through these schemas. Typically, these schemas do not change outside the therapeutic context (Pilkington et al., 2021). Even major life successes often fail to alter them. In this regard, therapy may involve helping individuals accept their schemas and shift them toward more adaptive aspects (Grabowski, 2023).

Another approach used in this domain is compassion-focused therapy (CFT). CFT is a significant intervention aimed at reducing negative symptoms, pain, suffering, worry, and depression and aligns with various third-wave psychological approaches. Compassion training involves confronting suffering, offering assistance for solving personal and others' problems, and cultivating care and compassion for oneself and others during challenging times (Öcalan et al., 2024). Research has shown that compassion-focused therapy can reduce binge eating behaviors by enhancing self-kindness and decreasing negative emotions. A comprehensive study (Kelly & Carter, 2015) demonstrated that compassion-based interventions significantly reduced the severity of binge eating and the associated feelings of shame. Additionally, another study by Goss et al. (2022) showed that this therapy positively impacted reducing self-criticism and enhancing emotional regulation in individuals with bulimia nervosa (Goss & Kelly, 2022).

Bulimia nervosa not only affects physical health but also causes emotional and cognitive difficulties such as impaired emotional self-awareness, hostile attributions, and weakened critical thinking. These problems may contribute to the persistence of the disorder and the intensification of its symptoms. Therefore, comparing the effectiveness of schema therapy and compassion-focused therapy in improving these aspects among adolescents with bulimia nervosa is essential. The present study was conducted to

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compare the effectiveness of schema therapy and compassion-focused therapy on emotional self-awareness, hostile attribution, and critical thinking in adolescents with bulimia nervosa.

2. Methods and Materials

2.1. Study Design and Participants

The research design was quasi-experimental, utilizing a pretest-posttest format with a control group and a follow-up phase. The study population consisted of adolescents diagnosed with bulimia nervosa who had referred to health and wellness centers in the city of Azarshahr, with a reported total of 250 individuals. To determine the required sample size, G*Power software version 3.1 was used, which calculated the necessary sample to be 45 participants. These individuals were selected through purposive non-random sampling and randomly assigned into three groups (15 participants per group), including two experimental groups (schema therapy and compassion-focused therapy) and one control group. Inclusion criteria were: a clinical diagnosis of bulimia nervosa by a specialist physician, informed and voluntary consent to participate, and the ability and willingness to attend treatment sessions. Exclusion criteria included lack of cooperation during therapy sessions and incomplete questionnaire responses. Ethical considerations included obtaining informed consent, ensuring confidentiality of participant data, and providing the control group with free access to the intervention after the study.

2.2. Measures

2.2.1. Cognitive Emotion Regulation

Binge Eating Scale (BES): This scale was developed by Gormally et al. (1982). It includes 14 four-option items and 2 three-option items, with a score range from 0 to 46. Scores below 17 indicate the absence of bulimia nervosa, while higher scores suggest the presence of the disorder (cutoff point = 17). The scale assesses bulimia across two factors: cognitive-emotional (e.g., guilt, preoccupation with restrictive eating) and behavioral (e.g., eating rapidly, eating alone) components (Gormally et al., 1982). Yan et al. (2023) examined the validity using confirmatory factor analysis and reported internal consistency with a Cronbach's alpha of 0.87. The Iranian version of the scale was administered by Motabi et al. (2009) to a sample of sixty participants, yielding a concurrent validity (sensitivity index) of 0.85 and reliability using Cronbach's alpha of 0.72. In the present study, the reliability of the questionnaire was confirmed with a Cronbach's alpha of 0.81.

2.2.2. Hostile Attribution

This questionnaire was developed by Arntz et al. (2003) to measure hostile attribution and consists of 20 items, each rated on a 5-point Likert scale (from "Strongly agree" to "Strongly disagree"). To reduce response bias, some items are reverse-scored. Validity was examined using both exploratory and confirmatory factor analysis, and results indicated that all 20 items loaded significantly on a single underlying factor. Reliability was assessed via test-retest method, revealing a significant positive correlation of 0.79 between test phases. In the Iranian sample, reliability was calculated using internal consistency, test-retest, and split-half methods, yielding reliability coefficients of 0.93, 0.95, and 0.97, respectively. Cronbach's alpha reported by Akhundi et al. (2023) was 0.87.

2.2.3. Self-Reflection and Insight

This scale, designed by Grant et al. (2002), measures emotional self-awareness. It consists of 30 items rated on a five-point Likert scale (ranging from "Never" to "Very much"), assessing the individual's level of emotional self-awareness. Scores range from 30 to 150, with higher scores indicating greater emotional self-awareness. The scale includes five subscales: recognition, identification, transformation or connection, environmental orientation, and problem-solving or decision-making. Validity has been confirmed through factor analysis, and internal consistency has been reported with a Cronbach's alpha of 0.87. In a study by Mehna and Tale-Pasand (2016), content validity was confirmed by five experts, and reliability was reported with a Cronbach's alpha of 0.79. In the present study, reliability was confirmed with a Cronbach's alpha of 0.83.

2.2.4. Critical Thinking

This questionnaire includes 33 items and is composed of three subscales. The first part contains 11 items assessing the creativity dimension, the second includes 9 items for the maturity subscale, and the third has 13 items for the commitment subscale. It is scored on a five-point Likert scale. In a norming study conducted on a group of university students, reliability coefficients for the creativity, maturity, and commitment subscales were 0.75, 0.57, and 0.86, respectively.

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2.3. Interventions

2.3.1. Schema Therapy

The experimental group receiving schema therapy followed the protocol developed by Farrell, Shaw, and Webber (2018; as cited in Kordmirza Nikoozadeh et al., 2023).

The schema therapy intervention was conducted across ten sessions. In the first session, participants were introduced to group rules and objectives, engaged in rapport-building, and identified schema triggers through activities like the "safe bubble" worksheet and a pretest. The second session explored the five core emotional needs, their relationship with schemas, and assessed how these needs were met in childhood and are addressed currently. In session three, participants underwent case formulation focusing on repeated behavioral patterns, early unmet needs, biological and environmental influences, and activating events, using the healthy adult mode for intervention. Session four identified triggering situations, bodily sensations, core emotions, and maladaptive schemas, while assessing coping styles. Session five focused on identifying internalized parental messages and recognizing critical, demanding, guilt-inducing, and fear-instilling parent modes. The sixth session developed the healthy adult mode by encouraging assertive behaviors such as self-care and setting boundaries. Session seven involved recognizing child modes and corresponding needs, with role-plays and narrative writing to enhance connection with these modes. In session eight, participants practiced self-compassion through imagery involving vulnerable child scenarios, identifying associated emotions and unmet needs. Session nine involved experiential exercises replacing negative parental voices with nurturing messages. The final session emphasized play, mutual sharing of positive parental messages, and explored the impact of schema modes on current life experiences.

2.3.2. Compassion-Focused

Compassion-focused therapy was developed by Neff (2003). This intervention was implemented over eight sessions across eight weeks, with one 90-minute session conducted each week.

The compassion-focused therapy intervention included eight weekly 90-minute sessions. In the first session, group members and the therapist were introduced, study objectives and confidentiality were explained, and informed consent was obtained alongside a pretest. The second session focused on building therapeutic rapport and case conceptualization through introducing the concept and mechanisms of compassion. Session three introduced the three emotion regulation systems (threat, drive, and soothing) and the contrast between a threat-focused and a compassionate mind, with participants identifying their dominant emotional responses to distress. In session four, participants learned about the old, new, and aware brain, practiced calming breath techniques, and began mindfulness training, such as attentive listening and mindful eating. The fifth session covered the six core components of compassion—care for well-being, sensitivity, empathy, sympathy, distress tolerance, and non-judgment—and helped participants identify and cultivate these traits as part of developing a "compassionate self." Session six introduced compassionate reasoning and imagery exercises, including visualizing one's best self and practicing the two-chair technique (compassionate vs. self-critical self). Homework tasks encouraged participants to compare the experience of rumination with compassionate thinking and to challenge self-criticism using the compassionate chair technique.

2.4. Data Analysis

To analyze the research hypotheses, repeated measures analysis of variance (ANOVA) was conducted using SPSS version 26.

3. Findings and Results

The cognitive-behavioral group had a mean age of 16.8 with a standard deviation of 3.51, the schema therapy group had a mean age of 16.9 with a standard deviation of 3.46, and the control group had a mean age of 15.3 with a standard deviation of 3.9. The minimum age of participants in this study was 16, and the maximum age was 18. Moreover, since the significance level was greater than 0.05, there was no significant difference between the three groups in terms of age, indicating that the groups were homogeneous in terms of age.

Table 1

Central Tendency and Dispersion Indices for Research Variables in the Two Experimental Groups and the Control Group

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Variable	Group	Pretest (M ± SD)	Posttest (M ± SD)	Follow-up (M ± SD)
Emotional Self-Awareness	Schema Therapy	23.66 ± 4.29	15.60 ± 3.18	16.06 ± 3.38
	Compassion-Focused Therapy	25.33 ± 5.23	21.73 ± 4.27	20.33 ± 4.54
	Control	24.73 ± 6.27	23.20 ± 6.26	23.80 ± 6.20
Hostile Attribution	Schema Therapy	65.86 ± 14.74	53.53 ± 11.12	55.80 ± 11.68
	Compassion-Focused Therapy	66.58 ± 16.36	60.40 ± 14.57	59.72 ± 14.94
	Control	65.11 ± 15.59	64.53 ± 15.70	64.46 ± 15.77
Critical Thinking	Schema Therapy	18.16 ± 3.03	12.03 ± 2.67	12.40 ± 2.57
	Compassion-Focused Therapy	17.06 ± 3.92	14.40 ± 3.09	14.53 ± 3.04
	Control	18.26 ± 3.96	17.93 ± 3.93	17.51 ± 3.02

To examine the normality assumption, the Shapiro-Wilk test was used. The results showed that the obtained z values for the research variables were not significant at the 0.05 level. Therefore, it can be concluded that the distribution of data for the research hypotheses is normal, and the assumption of data normality is satisfied (Table 1).

The results of Levene's test for equality of variances indicated that the F values for all variables were not significant at the 0.05 level. Thus, the null hypothesis was not rejected, and the test was not significant, indicating no significant differences in the variances of the research variables across the experimental and control groups. Therefore, the assumption of homogeneity of variances across the two groups for the research variables is confirmed.

To evaluate the assumption of homogeneity of covariances for the dependent variables (posttest and follow-up scores) between the two experimental groups, Box's M test was used. The results confirmed that the assumption of homogeneity of covariances was met.

All significance levels in the multivariate tests were found to be significant at the 0.001 level, indicating that there were statistically significant differences between the schema therapy and compassion-focused therapy groups in terms of emotional self-awareness, hostile attribution, and critical thinking. Notably, Wilks' Lambda was 0.09, and the result of the F test was 19.44, demonstrating a statistically significant difference between the schema therapy and compassion-focused therapy groups ($p < 0.001$).

Table 2

Repeated Measures ANOVA for Comparison of Pretest, Posttest, and Follow-up Scores in the Experimental and Control Groups

Scale	Source of Effect	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance	Eta Squared
Emotional Self-Awareness	Time	67.28	1.46	46.46	160.63	0.001	0.85
	Time × Group	47.02	1.46	32.21	111.36	0.001	0.79
	Group	61.35	2	30.67	50.49	0.001	0.72
Hostile Attribution	Time	230.46	1.43	160.14	79.16	0.001	0.73
	Time × Group	150.02	1.43	104.24	51.53	0.001	0.64
	Group	284.57	2	142.28	29.77	0.001	0.76
Critical Thinking	Time	119.46	1.28	92.71	148.15	0.001	0.84
	Time × Group	93.95	1.28	72.91	116.52	0.001	0.80
	Group	176.58	2	88.29	32.17	0.001	0.62

The results in the table indicate that the ANOVA analysis for the within-subjects factor (time) and the between-subjects factor (group) is statistically significant. These results suggest that both the effects of time and group are significant. Furthermore, the interaction effect between group and time is also significant. Bonferroni post hoc tests were used for pairwise comparisons between the groups (Table 2).

Table 3

Bonferroni Post Hoc Test Results

Variable	Group 1	Group 2	Mean Difference	Significance
Emotional Self-Awareness	Schema Therapy	Compassion-Focused Therapy	-6.74	0.001

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		Control	-8.33	0.001
	Compassion-Focused Therapy	Control	-2.58	0.011
Hostile Attribution	Schema Therapy	Compassion-Focused Therapy	-7.17	0.001
		Control	-9.97	0.001
	Compassion-Focused Therapy	Control	-4.79	0.001
Critical Thinking	Schema Therapy	Compassion-Focused Therapy	-2.42	0.001
		Control	-5.52	0.001
	Compassion-Focused Therapy	Control	-3.10	0.001

The results in Table 3 show that, in terms of effectiveness, schema therapy had a greater impact on the research variables compared to compassion-focused therapy ($p < 0.01$).

4. Discussion and Conclusion

The present study was conducted to compare the effectiveness of schema therapy and compassion-focused therapy on emotional self-awareness, hostile attribution, and critical thinking in adolescents with bulimia nervosa. The findings of this study are consistent with previous research (Grabowski, 2023; Petrocchi et al., 2024) on the effectiveness of schema therapy in reducing hostile attribution and improving critical thinking; research (Fajrin, 2024; Pabst et al., 2024) on the effectiveness of compassion-focused therapy in enhancing emotional self-awareness; and studies (Hollett & Carter, 2021; Linardon, 2021; Millard et al., 2023; Steffen et al., 2021) which demonstrated that both approaches (schema therapy and compassion-focused therapy) lead to reductions in hostile attribution and improvements in critical thinking. The findings are also aligned with studies (Beaumont et al., 2016; Craig et al., 2020; Rasouli Saravi et al., 2020) which confirmed that both therapeutic approaches increase emotional self-awareness. No contradictory findings to the present study were identified in the reviewed literature.

The results indicated that schema therapy had a significant impact on emotional self-awareness. These results are consistent with studies (Linardon, 2021; Morvaridi et al., 2019; Rasouli Saravi et al., 2020). This can be explained by the nature of bulimia nervosa, an eating disorder commonly accompanied by unstable eating behaviors and emotional difficulties. In adolescents suffering from this disorder, problems related to emotional self-awareness, such as difficulty identifying and regulating emotions, are widely observed. Schema therapy, as a psychological approach, plays an important role in improving this condition. It is designed around identifying and changing maladaptive cognitive and behavioral patterns (Barahmand et al., 2023). In this approach, the therapist helps adolescents identify and modify the negative and self-defeating schemas that contribute to unhealthy behaviors such as binge eating. Through this process, adolescents learn to identify their emotions in a healthier and more effective way and manage the negative emotions that typically lead to binge eating during stressful situations. Research has shown that schema therapy can enhance emotional self-awareness by helping individuals gain a better understanding of their emotions and respond to them with more adaptive behaviors (Rasouli Saravi et al., 2020). Since emotional self-awareness plays a key role in managing stress and anxiety—and consequently in reducing binge eating—this approach can help alleviate symptoms of bulimia nervosa and improve the quality of life of affected adolescents.

The results also showed that schema therapy was effective in reducing hostile attribution and enhancing critical thinking. These findings are consistent with prior studies (Fajrin, 2024; Hollett & Carter, 2021; Roshany Golanbar & Smkhani Akbarinejhad, 2024). In explaining these results, it can be said that schema therapy has a positive effect on reducing hostile attributions and improving critical thinking in individuals with psychological disorders such as bulimia nervosa. Hostile attribution, especially in social contexts, can lead to retaliatory behaviors and difficulties in interpersonal interactions. Schema therapy helps individuals identify and modify negative and biased schemas that result in hostile interpretations of others' behaviors, thereby reducing hostile attributions (Fajrin, 2024). Additionally, this therapy strengthens critical thinking by teaching individuals to analyze situations more logically and realistically and avoid impulsive and erroneous judgments of others. Research shows that schema therapy can effectively enhance critical thinking and reduce hostile attribution, which in turn leads to improved social relationships and mental health (Hollett & Carter, 2021).

The findings also indicated that compassion-focused therapy had a significant effect on emotional self-awareness. These results align with the prior studies (Millard et al., 2023; Roshany Golanbar & Smkhani Akbarinejhad, 2024; Steffen et al., 2021). Compassion-focused therapy, as a psychological approach, has a substantial impact on

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emotional self-awareness. This therapy emphasizes the development of compassion skills toward oneself and others, helping individuals accept and support themselves in the face of negative emotions. In this process, individuals learn to experience their emotions without judgment and with a compassionate attitude, which can lead to greater emotional self-awareness (Roshany Golanbar & Smkhani Akbarinejhad, 2024). Emotional self-awareness enables individuals to identify and understand their emotions and find healthy ways to manage them. Compassion-focused therapy is particularly beneficial for those who tend toward self-criticism in response to negative emotions such as anxiety or depression, as it helps reduce such self-critical tendencies and increase emotional acceptance. Studies have shown that enhancing self-compassion contributes to improved emotional self-awareness and better psychological well-being.

Furthermore, the results showed that compassion-focused therapy had a significant effect on hostile attribution and critical thinking. These findings are consistent with research prior (Craig et al., 2020; Millard et al., 2023; Petrocchi et al., 2024). In explaining these results, it can be said that compassion-focused therapy has been widely used to improve hostile attribution and critical thinking. Hostile attribution refers to the negative and antagonistic interpretation of others' behaviors, which often leads to increased anxiety, stress, and interpersonal conflicts. This form of thinking can result in misinterpretations of situations and other people, potentially causing antisocial and aggressive behaviors. Compassion-focused therapy promotes self-compassion skills, helping individuals adopt a kinder and nonjudgmental attitude when facing negative emotions, particularly those arising from social tensions and conflicts. This therapeutic method encourages individuals to evaluate others' behaviors with more care and acceptance, thereby reducing hostile attribution (Petrocchi et al., 2024).

Additionally, compassion-focused therapy can strengthen individuals' critical thinking abilities. The findings are consistent with prior studies (Beaumont et al., 2016; Millard et al., 2023; Pabst et al., 2024; van der Schans et al., 2020). According to these studies, individuals learn through compassion-focused therapy to view situations and problems—both their own and others'—from a logical and less reactive perspective. This process allows individuals to make more balanced and fair assessments of situations and social behaviors. With improved critical thinking, individuals can better regulate their emotional and behavioral responses in social contexts and rely less on impulsive decisions, instead responding with thoughtful and analytical actions. This form of thinking, in turn, contributes to reduced hostile attributions and fewer negative social reactions (van der Schans et al., 2020). Research indicates that compassion-focused therapy can effectively decrease hostile attributions and enhance critical thinking. These findings suggest that when individuals face social challenges and emotional distress and apply self-compassion strategies, they are less likely to engage in hostile interpretations or harsh, inaccurate judgments. Instead, they approach issues with a more open and rational mindset, leading to improved interpersonal relationships and enhanced quality of life (Pabst et al., 2024).

In comparing the effectiveness of schema therapy and compassion-focused therapy in adolescents with bulimia nervosa, both approaches showed positive effects in enhancing emotional self-awareness, reducing hostile attribution, and improving critical thinking. However, schema therapy focuses more on identifying and modifying negative cognitive schemas and established behavioral patterns, while compassion-focused therapy emphasizes the development of self-compassion and emotional acceptance skills.

5. Suggestions and Limitations

Among the limitations of the present study is the lack of attention to individual differences among participants, which may influence the degree of therapeutic acceptance and session participation. Therefore, it is recommended that future studies consider matching study groups using personality and intelligence assessments. Another limitation was the inability to conduct follow-up assessments for some participants due to their nonattendance at treatment centers after the sessions concluded. Based on this limitation, it is suggested that future research include structured follow-up sessions. Furthermore, incorporating combined methods of schema therapy and compassion-focused therapy could lead to more effective and comprehensive interventions.

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.

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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

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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