

The Effectiveness of Compassion-Focused Therapy and Emotion-Focused Schema Therapy on Early Maladaptive Schemas and Anxiety Sensitivity in Women with Bulimia Nervosa

Fatemeh Momeni¹, Sasan Bavi^{1*}, Karim Sevari², Zahra Eftekhari Saadi¹, Ali Khalafi³

¹ Department of Psychology, Ahv.C., Islamic Azad University, Ahvaz, Iran

² Department of Psychology, Payame Noor University, Tehran, Iran

³ Department of Psychology, Shad.C., Islamic Azad University, Shadegan, Iran

*Corresponding Author: Sasan Bavi, Ph.D., Department of Psychology, Ahv.C., Islamic Azad University, Ahvaz, Iran. Tel: +98 (61)33348420, Email: sasan-bavi@iauhvaz.ac.ir

Received June 11, 2025; Accepted August 16, 2023; Online Published September 20, 2025

Abstract

Background: Bulimia nervosa is a complex eating disorder often associated with maladaptive schemas and anxiety sensitivity.

Objectives: This study investigated the effectiveness of Compassion-Focused Therapy (CFT) and Emotion-Focused Schema Therapy (EFT) individually on early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa.

Methods: This study employed a quasi-experimental, pretest-posttest control group design. The study population consisted of 75 female patients with a confirmed diagnosis of bulimia nervosa, recruited via convenience sampling from those seeking treatment at the Ahvaz Eating Disorders Association. Participants were assigned to one of three groups (n = 25 per group): two experimental groups and a control group. One experimental group received EFT (10 sessions, 90 minutes each), while the other received CFT (8 sessions, 90 minutes each). The control group received no intervention. The Early Maladaptive Schema Questionnaire and the Anxiety Sensitivity Index were used to assess outcomes. Data were analyzed using analysis of covariance (ANCOVA) within SPSS.

Results: Results indicated that both treatments significantly reduced early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa. EFT demonstrated greater efficacy, with larger reductions in early maladaptive schemas ($\eta = 0.80$, $P < 0.001$) and anxiety sensitivity ($\eta = 0.74$, $P < 0.001$) compared to CFT. The control group showed no significant changes in either outcome.

Conclusion: This study revealed that EFT and compassion-focused therapy reduce maladaptive schemas and anxiety sensitivity in women with bulimia nervosa, with the former showing greater efficacy. Future research should explore the mechanisms driving these differential effects and their long-term outcomes. These findings suggest that EFT may be prioritized in clinical settings to effectively target maladaptive schemas and anxiety sensitivity in women with bulimia nervosa.

Keywords: Self-Compassion, Schema Therapy, Anxiety, Bulimia Nervosa

1. Background

Bulimia nervosa is a serious eating disorder characterized by recurrent episodes of binge eating followed by inappropriate compensatory behaviors, such as self-induced vomiting, laxative use, or excessive exercise, aimed at preventing weight gain.¹ Eating disorders, including bulimia, arise from intricate psychosocial, biological, and genetic interactions, presenting overlapping physical and psychological symptoms such as maladaptive thoughts about food, weight, and shape, alongside behaviors like binge eating, restrictive dieting, and compensatory actions, leading to significant distress.^{2,3} These symptoms often disrupt physical health, including cardiovascular and gastrointestinal complications, and mental well-being, contributing to heightened anxiety and low self-esteem.⁴

This complexity highlights the role of early developmental factors in the onset and maintenance of bulimia nervosa. Childhood Traumatic Experiences (CTEs), such as physical, sexual, and emotional abuse, may drive overeating as a defense mechanism to cope with trauma, involving dissociative strategies like desensitization and amnesia.^{5,6} Specifically, in bulimia nervosa, CTEs may contribute to binge eating as a means to regulate overwhelming emotions or numb traumatic memories, reinforcing maladaptive coping patterns. In individuals with eating disorders and severe trauma, these mechanisms are heightened, suggesting disordered eating serves to disconnect from trauma's effects.⁷ For example, emotional abuse may foster feelings of worthlessness, leading to body image dissatisfaction and compensatory

behaviors like purging to regain control. This indicates CTEs influence overeating through specific psychological pathways. Additionally, the early maladaptive schemas theory suggests that childhood adversity fosters maladaptive schemas, contributing to dysregulated emotions and behaviors.⁸ These schemas, such as defectiveness or abandonment, may perpetuate bulimic behaviors by reinforcing negative self-beliefs and emotional dysregulation.⁹

Early maladaptive schemas are rigid cognitive structures comprising emotions, cognitions, somatic sensations, and memories, which are developed and reinforced by recurring patterns of adverse experiences.⁹ These schemas originate in early childhood and evolve into frameworks for processing incoming information, becoming increasingly detailed and stable across the lifespan.¹⁰ From this perspective, adequate fulfillment of core childhood needs by parents/caregivers is crucial for healthy adult development. Parental neglect or failure to meet these needs increases the likelihood of a child developing early maladaptive schemas.¹¹

Anxiety sensitivity is a feature observed in individuals with bulimia nervosa. It is defined as the belief that anxiety-related sensory arousal will lead to negative outcomes, such as death, psychological dysfunction, or social rejection. This belief, in turn, elicits fear in the form of heightened sensory arousal.¹² Thus, anxiety sensitivity serves as a relatively stable marker of an individual's fear levels.¹³ Beyond its role as a risk factor for anxiety disorders, anxiety sensitivity can also predict both anxiety and non-anxiety disorders, including suicidality, depression, and substance use.¹⁴

Compassion-Focused Therapy (CFT), developed by Gilbert¹⁵, is an emerging intervention for bulimia nervosa, targeting individuals with elevated shame and self-criticism who struggle with self-support in traditional therapy.¹⁶ CFT emphasizes four domains—past experiences, core fears, safety strategies, and unintended consequences—and aims to cultivate a compassionate mindset through explicit teaching and modeling of compassion skills. This shift from self-blame and judgment to an internal compassionate stance is a primary mechanism of change.^{17,18} Fatollahzadeh et al.¹⁹ found that CFT reduced psychological distress, enhanced self-perception, and boosted perceived social support, which may mitigate early maladaptive schemas like defectiveness and reduce anxiety sensitivity by fostering self-soothing and emotional regulation in individuals with eating disorders. Additionally, studies such as those by Gale et al.²⁰ and Dover et al.²¹ have demonstrated CFT's efficacy in reducing shame and self-criticism in eating disorder populations, suggesting its potential to address maladaptive schemas and associated anxiety in bulimia nervosa.

Emotion-Focused Schema Therapy (EFT), a key treatment for bulimia nervosa, provides a social-cognitive framework for understanding and managing emotions,

recognizing that while everyone experiences unpleasant emotions like anger or sadness, not all develop psychopathology.^{22,23} It posits that individual differences in implicit beliefs about emotion and regulation foster maladaptive strategies such as suppression, rumination, or avoidance.²⁴ Afzali et al.²⁵ showed that schema therapy significantly altered attentional bias toward food, cognitive flexibility, and cravings in overeaters, while Hassanzadeh and Mansouri²⁶ revealed that it reduced anger rumination and aggression in bulimia nervosa patients, underscoring its efficacy in addressing emotional and behavioral dysregulation.

Given the established roles of early maladaptive schemas and anxiety sensitivity in the maintenance and exacerbation of bulimia nervosa, and considering the potential benefits of both CFT and EFT in targeting these underlying issues, research investigating their comparative effectiveness is crucial. While both therapies have demonstrated efficacy in treating various psychological difficulties, their specific impact on bulimia nervosa, particularly regarding maladaptive schemas and anxiety sensitivity, warrants further investigation. Understanding which therapeutic approach, or a combination of them, yields the most significant improvements in these core psychopathological features and can eventually inform clinical practice and optimize treatment outcomes for women with this eating disorder.

2. Objectives

This study aims to examine and compare the effectiveness of CFT and EFT on early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa.

3. Methods

This quasi-experimental study utilized a pretest-posttest control group design in order to investigate treatments for bulimia nervosa. The population consisted of women (20-40 years) diagnosed with DSM-5 bulimia nervosa, recruited from the Ahvaz Eating Disorders Association (February-June 2023). Inclusion criteria specified female gender, absence of severe physical/mental illness, a minimum of high school education to ensure comprehension of self-report measures and therapy content, and no recent psychotherapy. Exclusion criteria involved missing more than two sessions (i.e., excessive session absence), concurrent therapy, or refusal to continue. A power analysis conducted prior to the study, assuming a medium effect size ($f = 0.25$), $\alpha = 0.05$, and power = 0.80, determined that a total sample size of 75 participants (25 per group) was sufficient to detect significant differences in the primary outcomes using ANCOVA. Participants were assigned to one of three groups ($n = 25$ per group: EFT, CFT, or control) using a stratified random assignment based on age and symptom severity (assessed via baseline Early Maladaptive Schema Questionnaire scores) to

ensure balanced groups. Both interventions were delivered in a group therapy setting, with each group consisting of 8-10 participants to facilitate interaction and support. Interventions were administered by licensed clinical psychologists with at least five years of experience in treating eating disorders and specialized training in CFT and EFT, certified through recognized professional training programs. The control group received no intervention during the study, but to address ethical concerns, participants in the control group were offered

access to either CFT or EFT after study completion to ensure they received appropriate care. This approach balanced the need for a control condition with ethical obligations to provide treatment access. Seventy-five participants were assigned to EFT (10 sessions), CFT (8 sessions), or a control group. The control group received no intervention during the study to serve as a baseline comparison, allowing assessment of the interventions' specific effects. Convenience sampling was employed. (See Tables 1 and 2 for session summaries).

Table 1. A Summary of EFT Sessions

Sessions	Content
1	Introduction, stating group rules, members explaining their goals for participating in the group and their concerns. Giving validity to emotions. Psychoeducation about generalized anxiety disorder.
2	Giving validity to emotions. Psychoeducation about emotion, differentiating it from thought and behavior, and EFT and its rationale. Discussing the function of emotions and their evolutionary course. Defining emotional schemas and explaining their impact on people's beliefs and behaviors. Explaining the role of schemas in people's anxiety.
3	Normalizing emotion. Giving validity. Teaching the muscle relaxation technique. Practice on the transience of emotion.
4	Giving validity. Defining the correct acceptance and its effects, explaining about accepting emotion, especially anxiety. Using the guest metaphor to accept anxiety and the riding the wave of anxiety technique.
5	Giving validity. Challenging beliefs about mixed feelings. Doing exercises about mixed feelings. Mindfulness training.
6	Giving validity. Challenging false beliefs about emotion and teaching the advocate technique to challenge them (control and rumination).
7	Challenging false beliefs about emotion and performing the examining evidence technique (rationalism). Encouraging members to give examples of the usefulness of using emotion alongside logic for decision-making. Examining the evidence for the impact of emotion on decisions.
8	Examining the problematic styles of invalidation. Performing the technique of giving validity to one's own emotions. Teaching how to properly receive validity from others. Performing the compassionate mindfulness technique.
9	Challenging false beliefs about emotion (guilt and superior values). Performing the climbing the ladder of values technique, positive and negative metaphors. Performing the examining evidence technique to challenge guilt about emotion.
10	Helping to consolidate the status of new learning through talking about obstacles and relapses. Talking about obstacles to continuing to do the exercises after the end of treatment and finding solutions to remove obstacles. Discussing ways that help maintain the results. Reviewing the goals and the extent to which they were achieved. Post-test administration.

Table 2. A summary of the CFT Sessions

Sessions	Content
1	Introduction to the Basic Principles of CFT: Initial acquaintance, establishing rapport, explaining the rules, briefly describing compassion and its elements, and teaching and implementing the rhythmic relaxation breathing exercise.
2	Familiarization with Self-Critical Thoughts and Behaviors: Teaching about self-criticism and its types, stating the causes of self-criticism and its consequences, providing strategies to reduce self-criticism, encouraging subjects to examine their personality as self-critical or compassionate, as well as brief explanations about guilt, its causes and consequences.
3	Familiarization with the Characteristics of Compassion and Understanding and Ability to Tolerate Difficult Situations: Brief explanation and the six characteristics of compassion (components after desire), including tolerating distress, being non-judgmental, empathizing, etc., teaching how to tolerate problems and overcome them, teaching acceptance of failure and unchangeable issues in life, examining the characteristics of people with high and low tolerance.
4	Mindfulness Training: Familiarization with mindfulness and its definition, referring to its benefits in life, and teaching mindfulness skills with seated meditation practice.
5	Accepting Mistakes and Forgiving Yourself or Others: Teaching acceptance of mistakes without judgment, examining people's reasons for not forgiving themselves and others, referring to misconceptions about forgiveness, stating the disadvantages and consequences of not forgiving, providing strategies for forgiving oneself and others (teaching ten steps to forgive).
6	Compassionate Imagery and Sensory Experience: Introducing the power of imagery for humans and its relationship with the three emotion regulation systems, teaching and implementing imagery to create a safe place with compassionate characteristics.
7	Compassionate Behavior: Referring to the concept of fear of compassion, explaining the meaning of compassionate behavior, generating ideas for compassionate behavior, as well as brief explanations about self-efficacy and its impact on life.
8	Review of Taught Topics: Teaching how to write a compassionate letter to oneself and implementing it in class, summarizing. Post-test administration.

3.1. Measurement Tool

The 75-item short form of the Early Maladaptive Schema Questionnaire was used to assess early maladaptive schemas. This self-report measure consists of 75 items rated on a six-point Likert scale ranging from 1 ("completely untrue about me") to 6 ("describes me perfectly"). Total scores can range from 75 to 450, with higher scores indicating greater schema activation. Each of the 15 schemas is represented by five items, with the mean score of those five items constituting the schema score.²⁷ The questionnaire has been adapted and normed for use in Iran, demonstrating strong internal consistency

(Cronbach's alpha = 0.87 for women and 0.98 for men).²⁸ In the present study, the Cronbach's alpha for the questionnaire was 0.83.

The Anxiety Sensitivity Index (ASI) is a well-established self-report measure designed to assess the degree to which individuals fear anxiety-related sensations and their perceived consequences. The 16 items are rated on a five-point Likert scale, with higher scores reflecting greater anxiety sensitivity. The ASI comprises three subscales: Physical Concerns, Cognitive Control, and Social Evaluation.²⁹ Prior research has consistently demonstrated strong reliability for the ASI,

with Cronbach's alpha coefficients above 0.90.³⁰ The present study's findings are consistent with this literature, yielding a Cronbach's alpha of 0.84.

3.2. Statistical Analysis

Data were analyzed using analysis of covariance (ANCOVA) within SPSS. Prior to ANCOVA, statistical assumptions were tested: normality of early maladaptive schema and anxiety sensitivity scores was confirmed using the Kolmogorov-Smirnov test ($P > 0.05$ for all groups), and homogeneity of variance was verified using Levene's test ($P > 0.05$ for both variables). Descriptive statistics, including means and standard deviations for all study variables, were calculated for each group at both pre- and post-test assessments. Post hoc analyses were

conducted using the Bonferroni correction for multiple comparisons.

4. Results

This study involved 75 women with bulimia nervosa, divided into three groups: EFT (mean age 33.68, SD = 5.43), CFT (mean age 31.75, SD = 4.80), and control (mean age 32.29, SD = 5.67). Table 3 details pre- and post-test descriptive statistics. Experimental groups showed changes in early maladaptive schemas and anxiety sensitivity means and standard deviations, unlike the control group, which exhibited minimal change (early maladaptive schemas: pre-test $M = 309.52$, $SD = 20.07$; post-test $M = 308.91$, $SD = 20.18$; anxiety sensitivity: pre-test $M = 56.47$, $SD = 6.23$; post-test $M = 55.42$, $SD = 7.21$).

Table 3. Descriptive Statistics for Research Variables across the Three Groups at both Pre- and Post-Test

Variables	Stage	EFT group	CFT group	Control group
		Mean \pm SD	Mean \pm SD	Mean \pm SD
Early maladaptive schemas	Pre-test	298.45 \pm 20.82	304.37 \pm 20.26	309.52 \pm 20.07
	Post-test	101.52 \pm 15.71	140.71 \pm 16.71	308.91 \pm 20.18
Anxiety sensitivity	Pre-test	51.60 \pm 6.07	53.31 \pm 7.63	56.47 \pm 6.23
	Post-test	23.65 \pm 7.54	30.80 \pm 8.30	55.42 \pm 7.21

Table 4. Results of ANCOVA on Post-Test Scores of Early Maladaptive Schema and Anxiety Sensitivity

Variables	SS	df	MS	F	P	η^2
Early maladaptive schemas	382.27	2	191.14	13.71	0.001	0.80
Anxiety sensitivity	491.19	2	245.79	16.34	0.001	0.74

The normality assumption for early maladaptive schema and anxiety sensitivity scores was confirmed using the Kolmogorov-Smirnov test for all groups. Levene's test verified the assumption of homogeneity of variance. Table 4 presents the ANCOVA results for post-test scores of both early maladaptive schemas and anxiety sensitivity across the experimental and control groups. As shown in Table 4, after controlling for the pretest, there was a significant difference between the CFT, EFT, and control groups in terms of the early maladaptive schemas and anxiety sensitivity variables (early maladaptive schemas: $F = 13.71$, $P < 0.001$, $\eta^2 = 0.80$; anxiety sensitivity: $F = 16.34$, $P < 0.001$, $\eta^2 = 0.74$).

Bonferroni post hoc tests (Table 5) identified significant pairwise differences in adjusted post-test mean scores for early maladaptive schemas, with EFT outperforming CFT

(mean difference = 39.23, $SE = 1.54$, $P < 0.001$, 95% CI [35.16, 43.30]) and both surpassing the control group (CFT vs. control: mean difference = -167.95, $SE = 3.37$, $P < 0.001$, 95% CI [-174.67, -161.23]; EFT vs. control: mean difference = -207.28, $SE = 3.89$, $P < 0.001$, 95% CI [-215.03, -199.53]). For anxiety sensitivity, EFT showed a greater reduction than CFT (mean difference = 8.69, $SE = 1.10$, $P = 0.014$, 95% CI [6.50, 10.88]), and both treatments significantly outperformed the control group (CFT vs. control: mean difference = -23.17, $SE = 3.03$, $P < 0.001$, 95% CI [-29.21, -17.13]; EFT vs. control: mean difference = -31.86, $SE = 3.78$, $P < 0.001$, 95% CI [-39.39, -24.33]). These findings highlight EFT's superior efficacy in reducing both early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa, with both therapies markedly improving outcomes compared to no intervention.

Table 5. Bonferroni Post-Hoc Test for Paired Comparison of the Early Maladaptive Schema and Anxiety Sensitivity

Variables	Groups	Mean difference	SE	P	95% CI
Early maladaptive schema	CFT - EFT	39.23	1.54	0.001	[35.16, 43.30]
	CFT - Control	-167.95	3.37	0.001	[-174.67, -161.23]
	EFT - Control	-207.28	3.89	0.001	[-215.03, -199.53]
Anxiety sensitivity	CFT - EFT	8.69	1.10	0.014	[6.50, 10.88]
	CFT - Control	-23.17	3.03	0.001	[-29.21, -17.13]
	EFT - Control	-31.86	3.78	0.001	[-39.39, -24.33]

5. Discussion

This study investigated and compared the efficacy of CFT and EFT in reducing early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa. The findings indicated that both CFT and EFT significantly reduced early maladaptive schemas in women with

bulimia nervosa. A statistically significant difference was observed between the two treatments, with EFT demonstrating greater efficacy in reducing these schemas. This result is consistent with prior research.^{31,32}

CFT emphasizes emotion regulation through diverse techniques like attentional training and cognitive rest-

ructuring, fostering self-compassion to counter negative thinking and support personal growth.³² This approach helps self-critical individuals accept vulnerabilities, potentially reducing early maladaptive schemas.³³ However, CFT's focus on emotional processing may overlook the role of past experiences in schema development, possibly limiting its effectiveness.¹⁵ CFT posits that internalizing external soothing elements is crucial for lasting change, leveraging the mind's response to internalized resources.

The emotion-focused schema model posits that emotional trajectories depend on interpretation, reaction, and regulation strategies following emotional arousal.³¹ Socially anxious individuals often engage in post-event processing, ruminating on perceived social failures, which heightens anticipatory anxiety for future interactions. Cognitive avoidance, such as suppressing worrisome thoughts, is commonly used to mitigate this anxiety but proves ineffective, offering only temporary relief. Over time, this avoidance exacerbates anxiety by reinforcing inadequacy and reducing control over negative emotions.³⁴

EFT outperformed CFT likely due to its targeted approach to modifying maladaptive schemas through cognitive restructuring and emotion regulation techniques that directly address the cognitive and emotional underpinnings of bulimia nervosa.²³ Unlike CFT, which primarily fosters self-compassion to mitigate shame and self-criticism, EFT integrates mindfulness, cognitive defusion, and acceptance strategies to challenge maladaptive beliefs (e.g., defectiveness or vulnerability to harm) and reduce cognitive avoidance. This structured focus on linking emotional schemas to specific maladaptive behaviors, such as binge eating or purging, may explain its larger effect sizes compared to CFT, as it directly targets the cognitive-emotional cycles perpetuating bulimia nervosa symptoms.²⁵

EFT targets maladaptive coping, such as post-event processing and cognitive avoidance, by employing emotion acceptance and mindfulness techniques to validate patients' emotions, reducing efforts to control thoughts and anxiety sensitivity.²³ Through mindfulness practices like detached awareness and cognitive defusion, it fosters radical acceptance and psychological flexibility, shifting individuals from suppression to observing emotions.²⁵ This approach encourages a non-judgmental stance, enhancing present-moment awareness and attention, which diminishes retrospective rumination and promotes an open, curious acceptance of current experiences, ultimately alleviating anxiety symptoms in individuals with bulimia nervosa.

In EFT, therapists address cognitive processes by highlighting ineffective coping strategies, distinguishing thoughts from emotions, and using techniques like decatastrophizing and the downward arrow to connect emotional schemas to maladaptive beliefs, promoting cognitive readiness for emotion acceptance.²³ This reduces

reliance on avoidance, enhancing emotional awareness and processing. The therapy aims to transform emotional processing, enabling clients to shift attention from anxiety and negative thoughts during social interactions to present-life events and adaptive regulation strategies, replacing cognitive avoidance with more effective approaches.

The findings indicated that both CFT and EFT significantly reduced anxiety sensitivity in women with bulimia nervosa. Moreover, EFT demonstrated greater efficacy in reducing anxiety sensitivity compared to CFT. These results are consistent with prior research.^{35,36}

CFT posits that internalizing soothing thoughts and behaviors fosters emotional calm and regulation, akin to responses to external stimuli.³⁷ It employs a multi-faceted emotion regulation model, integrating attentional training, cognitive restructuring, imagery, and behavioral interventions.¹⁵ CFT promotes self-compassion during negative thinking, aiding chronically self-critical individuals in personal growth and adaptive decision-making. By encouraging vulnerability acceptance over self-judgment, it gradually reduces anxiety sensitivity, driving therapeutic change.¹⁸ This underscores CFT's focus on cultivating specific regulatory patterns for psychological improvement.

Schemas, cognitive structures formed in childhood, can be maladaptive, influencing beliefs and emotions.²³ The vulnerability to harm schema, for example, fosters excessive fear of impending catastrophes. Schema-focused interventions aim to modify these maladaptive schemas, altering perceptions of self and world. Modifying schemas like vulnerability to harm can reduce fear related to physical symptoms, social anxiety, and perceived cognitive control, thereby decreasing anxiety sensitivity. This highlights the link between schema modification and reduced anxiety responses.

Anxiety sensitivity involves misinterpreting anxiety symptoms as imminent threats, creating a feedback loop of physical sensations, negative appraisals, and heightened anxiety.²⁹ The development of clinically significant anxiety pathology hinges on how individuals monitor and manage anxiety symptoms.¹² Tolerating negative cognitions and emotions mitigates the potential for problematic anxiety despite elevated sensitivity. EFT directly targets these issues through its therapeutic techniques, aiming to modify maladaptive interpretations and enhance emotional regulation.

This study's findings are limited by its female-only, single-site sample, restricting generalizability. While the study was conducted with Iranian women at the Ahvaz Eating Disorders Association, the core mechanisms of EFT and CFT—targeting maladaptive schemas and anxiety sensitivity—are likely applicable across diverse populations, as these constructs are rooted in universal cognitive and emotional processes.^{23,27} However, cultural factors, such as societal pressures around body image or

emotional expression, may influence treatment response, necessitating cross-cultural validation. Self-report measures for schemas and anxiety sensitivity may introduce response biases, despite their validation. Future research should incorporate objective measures, such as behavioral assessments of emotional regulation or physiological indicators of anxiety (e.g., heart rate variability), to mitigate self-report biases and enhance the robustness of findings. These factors necessitate cautious interpretation of the results.

The superior efficacy of EFT suggests that clinicians treating bulimia nervosa should prioritize interventions that directly target maladaptive schemas and cognitive avoidance, integrating mindfulness and acceptance-based techniques. For example, incorporating EFT into treatment plans may help patients develop adaptive emotion regulation strategies, reducing binge-purge cycles and associated anxiety. CFT remains valuable for addressing shame and self-criticism, particularly in patients with high self-directed negative affect, but may be used as a complementary approach when schema modification is a primary goal.

6. Conclusion

This study demonstrates that both EFT and CFT significantly reduce early maladaptive schemas and anxiety sensitivity in women with bulimia nervosa, with EFT showing greater efficacy. These findings highlight the potential of EFT as a primary intervention for targeting core psychopathological features in bulimia nervosa. Future research should investigate the mechanisms underlying its superior efficacy, explore objective measures to reduce self-report biases, and assess generalizability across diverse populations to optimize treatment outcomes.

Research Highlights

What Is Already Known?

Bulimia nervosa is linked to early maladaptive schemas and heightened anxiety sensitivity. Existing treatments like cognitive-behavioral therapy show efficacy, but the impact of CFT and EFT remains underexplored in this population.

What Does This Study Add?

This study demonstrates that both CFT and EFT significantly reduce maladaptive schemas and anxiety sensitivity in women with bulimia nervosa, with EFT showing superior efficacy, offering new insights for targeted interventions.

Author Contributions

FM: Conceptualized the study, designed the methodology, conducted data analysis, and drafted the manuscript. SB and KS: Assisted with study design, supervised intervention implementation, and reviewed the manuscript. ZES: Contributed to data collection, intervention delivery, and manuscript revision. AK: Provided statistical expertise, conducted secondary data analysis, and edited the

manuscript. All authors approved the final manuscript.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

This study was conducted in accordance with the ethical guidelines approved by the Ethical Committee of Islamic Azad University (IR.IAU.AHV.AZ.REC.1403.339).

Funding/Support

This research received no external funding.

References

1. Stankovska G, Memedi I, Nuhii N. Relationship between bulimia nervosa and psychological problems in period of adolescence: perfectionism, self-esteem, and beyond. *Eating Disorders*. Cham: Springer International Publishing. 2023. pp. 723-745.
2. Barakat S, McLean SA, Bryant E, Le A, Marks P, Touyz S, et al. Risk factors for eating disorders: findings from a rapid review. *J Eat Disord*. 2023;11(1):8. doi:10.1186/s40337-022-00717-4
3. Camacho-Barcia L, Giel KE, Jiménez-Murcia S, Pitti JÁ, Micali N, Lucas I, et al. Eating disorders and obesity: bridging clinical, neurobiological, and therapeutic perspectives. *Trends Mol Med*. 2024; 30(4):361-79. doi:10.1016/j.molmed.2024.02.007
4. Barakat S, Maguire S. Accessibility of psychological treatments for bulimia nervosa: a review of efficacy and engagement in online self-help treatments. *Int J Environ Res Public Health*. 2022;20(1):119. doi:10.3390/ijerph20010119
5. Ho GW, Chan AC, Chien WT, Bressington DT, Karatzias T. Examining patterns of adversity in Chinese young adults using the Adverse Childhood Experiences—International Questionnaire (ACE-IQ). *Child Abuse Negl*. 2019;88:179-88. doi:10.1016/j.chiabu.2018.11.009
6. Legendre M, Milot T, Rousseau M, Lemieux R, Garon-Bissonnette J, Berthelot N. Beyond abuse and neglect: validation of the childhood interpersonal trauma inventory in a community sample of adults. *Front Psychiatry*. 2024;15:1358475. doi:10.3389/fpsy.2024.1358475
7. Groth T, Hilsenroth M, Boccio D, Gold J. Relationship between trauma history and eating disorders in adolescents. *J Child Adolesc Trauma*. 2020;13(4):443-53. doi:10.1007/s40653-019-00275-z
8. Paone E, Di Trani M, Visani E, Di Monte C, Campedelli V, Silecchia G, et al. Childhood traumatic experiences in people with obesity with and without eating disorders who are seeking bariatric surgery: the role of attachment relationships and family functioning. *Eat Weight Disord*. 2024;29(1):9. doi:10.1007/s40519-024-01638-8
9. Sojta K, Strzelecki D. Early maladaptive schemas and their impact on parenting: do dysfunctional schemas pass generationally?—A systematic review. *J Clin Med*. 2023;12(4):1263. doi:10.3390/jcm12041263
10. Chodkiewicz J, Wydrzyński M, Talarowska M. J. Young's Early Maladaptive Schemas and Symptoms of Male Depression. *Life*. 2022;12(2):167. doi:10.3390/life12020167
11. May T, Younan R, Pilkington PD. Adolescent maladaptive schemas and childhood abuse and neglect: A systematic review and meta-analysis. *Clin Psychol Psychother*. 2022;29(4):1159-71. doi:10.1002/cpp.2712

12. Velkoff EA, Rubino LG, Liu J, Manasse SM, Juarascio AS. Early reduction in anxiety sensitivity predicts greater reduction in disordered eating and trait anxiety during treatment for bulimia nervosa. *Int J Eat Disord.* 2024;57(8):1791-6. doi:10.1002/eat.24207
13. Espel-Huynh HM, Muratore AF, Virzi N, Brooks G, Zandberg LJ. Mediating role of experiential avoidance in the relationship between anxiety sensitivity and eating disorder psychopathology: A clinical replication. *Eat Behav.* 2019;34:101308. doi:10.1016/j.eatbeh.2019.101308
14. Salek Ebrahimi L, Mousavi SE, Gharraee B, Mohammadi Bytamar J, Saberi Isfeedvajani M. Cognitive errors and psychological resilience in patients with social anxiety and obsessive-compulsive disorder: A cross-sectional study. *Hosp Pract Res.* 2019;4(1):25-30. doi:10.15171/hpr.2019.04
15. Gilbert P. *Compassion focused therapy: Distinctive features.* Compassion focused therapy: Distinctive features. New York, NY, US: Routledge/Taylor & Francis Group; 2010.
16. Majidzadeh R, Rezaei S, Akbari B. Self-Compassion Reduces the Destructive Effects of Perceived Stress on Psychological Well-Being and Self-Care Behaviors: Results from Type II Diabetes Mellitus Patients. *Iran J Diabetes Obes.* 2022;14(4):189-201. doi:10.18502/ijdo.v14i4.11226
17. Lau-Zhu A, Vella L. A Compassion-Focused Therapy group for young people who live in foster, adoptive or kinship care: Initial development, reflections, and ways forward. *Adopt Foster.* 2023;47(4):400-14. doi:10.1177/03085759231207397
18. Mousavi S, Mousavi S, Shahsavari MR. Effectiveness of compassion-focused therapy on social anxiety and rumination among female heads of households. *J Clin Res Paramed Sci.* 2023;12(2):e139058. doi:10.5812/jcrps-139058
19. Fatollahzadeh S, Kianimoghadam AS, Bahri R, Khesali M, Aghaei ZP, Arani AM. The Effectiveness of Compassion-Focused Therapy on Resilience, Shame, Internal Self-criticism, and Quality of Life of Patients with Vitiligo. *Iran J Psychiatry Behav Sci.* 2023;17(4):e137483. doi:10.5812/ijpbs-137483
20. Gale C, Gilbert P, Read N, Goss K. An evaluation of the impact of introducing compassion focused therapy to a standard treatment programme for people with eating disorders. *Clin Psychol Psychother.* 2014;21(1):1-12. doi:10.1002/cpp.1806
21. Dover S, Clements F. Body dissatisfaction, stigma and eating disorders: a scoping study on the role of compassion focused therapy. *J Eat Disord.* 2025;13(1):145. doi:10.1186/s40337-025-01292-0
22. Pugh M. A narrative review of schemas and schema therapy outcomes in the eating disorders. *Clin Psychol Rev.* 2015;39:30-41. doi:10.1016/j.cpr.2015.04.003
23. Leahy RL. Introduction: Emotional schemas and emotional schema therapy. *Int J Cogn Ther.* 2019;12(1):1-4. doi:10.1007/s41811-018-0038-5
24. Faustino B, Vasco AB, Silva AN, Marques T. Relationships between emotional schemas, mindfulness, self-compassion and unconditional self-acceptance on the regulation of psychological needs. *Res Psychother.* 2020;23(2):442. doi:10.4081/ripppo.2020.442
25. Afzali R, Ehteshamzadeh P, Asgari P, Naderi F. The Effectiveness of Schema Therapy on Food Cravings, Cognitive Flexibility and Food Attentional Bias in People with binge Eating Disorder. *Health Psychol.* 2022;11(41):27-46. doi:10.30473/hpj.2022.57289.5091
26. Hassanzadeh MR, Mansouri A. Effectiveness of Schema Therapy on Anger Rumination and Aggression in Men with Binge Eating Disorder. *J Res Behav Sci.* 2022;20(1):1-8. doi:10.52547/rbs.20.1.1
27. Glaser BA, Campbell LF, Calloun GB, Bates JM, Petrocelli JV. The early maladaptive schema questionnaire-short form: A construct validity study. *Meas Eval Couns Dev.* 2002;35(1):2-13. doi:10.1080/07481756.2002.12069043
28. Didevar R, Zarqam E, Andalib Kourayem M. Young Positive Schema Questionnaire (YPSQ): Psychometric properties and factor structure of Persian version. *J Appl Fam Ther.* 2022;3(4):366-87.
29. Floyd M, Garfield A, LaSota MT. Anxiety sensitivity and worry. *Pers Individ Dif.* 2005;38(5):1223-9. doi:10.1016/j.paid.2004.08.005
30. Foroughi AA, Mohammadpour M, Khanjani S, Pouyanfard S, Dorouie N, Parvizi Fard AA. Psychometric properties of the Iranian version of the Anxiety Sensitivity Index-3 (ASI-3). *Trends Psychiatry Psychother.* 2019;41(3):254-61. doi:10.1590/2237-6089-2018-0078
31. Salasi B, Shoghi B. The Effectiveness of Schema Therapy on Early Maladaptive Schemas, Emotional Regulation and Consumed Methadone Dose in Patients Undergoing Methadone Maintenance Treatment. *Res Clin Psychol Couns.* 2022;12(1):79-99. doi:10.22067/tpccp.2022.73062.1185
32. Nasirharand M, Makvandy B, Bavi S, Pasha R. Comparison of the effectiveness of schema therapy and compassion-focused therapy on marital life satisfaction and maladaptive schemas married women students of Ahvaz Azad University. *Psychol Achiev.* 2022;29(2):105-28. doi:10.22055/psy.2022.39426.2765
33. Sayghalzananmashhad N, Mashhadi A, Shareh H. The Effectiveness of Integrated Mindfulness and Schema Group Therapy on Self-Compassion and Early Maladaptive Schemas on Women with Interpersonal Problems. *J Clin Psychol.* 2023;15(2):1-13. doi:10.22075/jcp.2023.30465.2628
34. Taylor CD, Bee P, Haddock G. Does schema therapy change schemas and symptoms? A systematic review across mental health disorders. *Psychol Psychother: Theory Res Pract.* 2017;90(3):456-79. doi:10.1111/papt.12112
35. Alboushoke SF, Safarzadeh S, Hafezi F, Ehteshamzadeh P. The effectiveness of emotional schema therapy in reducing anxiety sensitivity and body checking behaviors in adolescent girls with social anxiety disorder. *Women's Health Bull.* 2024;11(4):272-80. doi:10.30476/whb.2024.103485.1302
36. Sadeghi ZH, Yazdi-Ravandi S, Pirnia B. Compassion-focused therapy on levels of anxiety and depression among women with breast cancer: A randomized pilot trial. *Int J Cancer Manag.* 2018;11(11):e67019. doi:10.5812/ijcm.67019
37. Bronsi F, Golmakani ZB, Mansouri A, Del AZ. The effectiveness of compassion focused therapy on distress tolerance, difficulty in emotion regulation and anxiety sensitivity in patients with cardiovascular disease. *Soc Determ Health.* 2020;6:e16. doi:10.22037/sdh.v6i1.32208