

Effectiveness of Schema Therapy on Emotion Regulation and Self-Esteem in Single Women

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Purpose: The present study aimed to determine the effectiveness of schema therapy in improving emotion regulation and self-esteem among single women.

Methods and Materials: This study employed a quasi-experimental pretest–posttest design with an experimental group and a control group. The statistical population consisted of all single women aged 20–30 years who were seeking marriage and attended a counseling center in Fereydunkenar, Iran, during spring 2026. Initially, the self-esteem questionnaire was administered through convenience sampling, and 30 participants who obtained self-esteem scores below 11 and met the study inclusion criteria were selected. Participants were then randomly assigned to an experimental group ($n = 15$) and a control group ($n = 15$). Data were collected using the Emotion Regulation Questionnaire developed by Gross and John (2003) and the Eysenck Self-Esteem Questionnaire (1972). The experimental group received the schema therapy program based on Young et al. (2003) in ten 60-minute sessions, whereas the control group received no intervention. Data were analyzed using multivariate analysis of covariance (MANCOVA).

Findings: The inferential findings indicated a statistically significant difference between the experimental and control groups in posttest scores of emotion regulation and self-esteem after controlling for pretest scores. Schema therapy significantly improved both emotion regulation and self-esteem among single women. Comparison of the intervention effects further indicated that schema therapy produced a stronger effect on emotion regulation than on self-esteem.

Conclusion: Schema therapy appears to be an effective psychological intervention for enhancing emotion regulation and self-esteem among single women. Its comparatively greater effectiveness in improving emotion regulation suggests that schema-focused interventions may be particularly useful for modifying maladaptive emotional patterns and strengthening adaptive emotional functioning in this population. Accordingly, incorporating schema therapy into counseling and psychological services for single women may have important therapeutic implications.

Keywords: Emotion Regulation; Self-Esteem; Schema Therapy; Single Women

1. Introduction

Emotion regulation and self-esteem are among the central psychological constructs associated with adaptive functioning, interpersonal relationships, psychological well-being, and vulnerability to emotional disorders. Emotion regulation refers to the processes through which individuals monitor, evaluate, and modify emotional reactions in order to respond appropriately to environmental demands, whereas self-esteem reflects an individual's overall evaluation of personal worth and self-acceptance. Both constructs are especially relevant during late adolescence and early adulthood, when developmental transitions, social comparison, educational and occupational pressures, intimate relationships, and expectations concerning marriage can intensify emotional demands and self-evaluative concerns. Evidence from studies of girls and young women indicates that difficulties in emotion regulation and disturbances in self-esteem may be associated with a wide range of psychological, behavioral, interpersonal, and health-related outcomes, suggesting that these two variables should be considered important targets for psychological intervention (Ahmed et al., 2024; Sensoy Bahar et al., 2024; Zsigo et al., 2023).

Emotion regulation is not a single skill but a dynamic system involving the selection, modification, and implementation of strategies in response to changing internal and external conditions. Individuals differ in their ability to reinterpret emotional situations, suppress or express emotional responses, shift between regulation strategies, and obtain interpersonal support when emotions become difficult to manage. Research has increasingly shown that psychological adjustment depends not only on the use of specific strategies, but also on regulatory flexibility, contextual appropriateness, and the ability to change strategies when circumstances require it (McKone et al., 2024). Among girls, emotion regulation develops within an interpersonal context in which parents, peers, and broader social environments contribute to learning how emotions should be understood, expressed, and controlled. Maternal emotion socialization has been shown to influence the development of emotion regulation in girls, while parental acceptance and family processes are also associated with regulatory functioning (Berona et al., 2023; Vergara-Lopez et al., 2024). Similarly, family and parenting characteristics have been linked to neural systems underlying emotion regulation among girls with elevated internalizing symptoms, indicating that emotional development is shaped

by both relational and neuropsychological processes (Lin et al., 2024).

The interpersonal dimension of emotional functioning becomes particularly important during adolescence and young adulthood. Girls frequently use parents and peers as sources of interpersonal emotion regulation, and real-time patterns of seeking emotional support or co-regulation may be associated with depressive symptoms (Do et al., 2025). Perceived social support can also mediate the relationship between emotion regulation and adjustment, suggesting that social resources may strengthen or weaken the consequences of regulatory difficulties (Kitahara et al., 2020). Conversely, ineffective emotion regulation has been associated with multiple forms of psychological distress. Deficits in emotion regulation have been documented among adolescent girls experiencing major depression, anorexia nervosa, or comorbid presentations (Zsigo et al., 2023). Cognitive emotion regulation strategies have also been related to academic burnout, demonstrating that the consequences of maladaptive regulation extend beyond clinical symptoms to educational functioning and everyday adaptation (Vinter et al., 2021). At the neurobiological level, the capacity for prefrontal regulation of emotion has been associated with symptom severity and treatment-related change, further supporting emotion regulation as a clinically meaningful mechanism rather than merely a descriptive psychological characteristic (Raschle et al., 2025).

Self-esteem is similarly multidimensional in its determinants and consequences. It develops through repeated interpersonal experiences, social comparison, body-related evaluations, perceived competence, and broader cultural expectations. For girls and young women, self-esteem may be particularly sensitive to appearance-related standards, social evaluation, and relationship experiences. Longitudinal evidence has demonstrated that self-evaluative processes can be shaped by visible personal characteristics and socially constructed meanings attached to appearance (Adams et al., 2020). Body weight contingent self-worth and instability in self-esteem have also been implicated in depressive symptoms among adolescent girls, particularly in contexts involving sexual objectification and appearance-based evaluation (Ching et al., 2021). These findings are important because they indicate that low self-esteem is often maintained through recurrent cognitive and interpersonal processes rather than reflecting a temporary negative mood.

The clinical relevance of self-esteem is further supported by its association with disordered eating, body image, stress,

physical symptoms, and psychological well-being. Lower self-esteem has been linked to binge-eating tendencies through mechanisms involving body disinvestment (Cella et al., 2021), while depression, anxiety, and reduced self-esteem have been identified as significant concerns among adolescent girls with polycystic ovary syndrome (Li et al., 2024). Stress and self-esteem may also exert direct and indirect effects on somatic experiences such as primary dysmenorrhea, illustrating the broader biopsychosocial importance of self-evaluation (Lee & Kim, 2024). Moreover, appearance comparison and the internalization of appearance ideals have been proposed as mechanisms connecting depression, self-esteem, and disordered eating among adolescent girls (Malik et al., 2025). Patterns of social media use and sexualized online behavior have likewise been examined in relation to self-esteem, reflecting the increasingly complex social environments in which young women construct self-worth (Verrastro et al., 2023).

At the same time, self-esteem is positively associated with broader indicators of psychosocial adjustment. Research among girls has shown that self-esteem and self-concept are related to life satisfaction and attitudes toward school (Sensoy Bahar et al., 2024). Programs designed to improve girls' health and well-being have also produced favorable changes in body image, self-esteem, and enjoyment of physical activity, suggesting that self-esteem is responsive to structured interventions (Walters et al., 2023). Experimental work involving physical activity and exergames has similarly demonstrated that structured behavioral experiences can influence mood and self-esteem in young people (Andrade et al., 2020). Collectively, these studies suggest that self-esteem is both a developmental outcome and a modifiable psychological resource with implications for emotional and social functioning.

The significance of emotion regulation and self-esteem may become especially pronounced in single women seeking marriage. The transition toward marriage can activate beliefs concerning personal desirability, adequacy, attachment, rejection, intimacy, social expectations, and future security. Although not all single women experience psychological difficulty, women who enter counseling with low self-esteem may be particularly vulnerable to negative self-appraisals and maladaptive interpretations of interpersonal experiences. More broadly, women and girls may encounter social conditions that affect emotional safety, autonomy, and self-perception, including concerns regarding security in public environments and gendered experiences in everyday life (Kacharo et al., 2022). Physical

and reproductive health concerns may also interact with emotional functioning and self-evaluation, emphasizing the need to understand psychological well-being within a broader developmental and social context (Chen et al., 2025). These multidimensional pressures make interventions that address both deep cognitive-emotional structures and current regulation patterns especially relevant.

Schema therapy provides a potentially suitable framework for addressing such difficulties because it integrates cognitive, experiential, behavioral, and relational principles around the concept of early maladaptive schemas. Schema therapy proposes that enduring patterns of memories, emotions, cognitions, bodily sensations, and interpersonal expectations may develop when fundamental emotional needs are not adequately met. These schemas can become activated in later relationships and stressful situations, influencing how individuals interpret themselves and others. Contemporary theoretical reformulations of schema therapy have further emphasized schema modes, emotional needs, learning processes, and the interaction between maladaptive and adaptive psychological patterns (Arntz et al., 2021). Positive schemas have also received growing attention, highlighting that therapy should not merely weaken dysfunctional patterns but may also strengthen adaptive beliefs, positive self-representations, and psychological resources (Videler et al., 2020).

The relationship between maladaptive schemas and emotion regulation is particularly relevant to the present study. A recent systematic review and meta-analysis found consistent associations between early maladaptive schemas, difficulties in emotion regulation, and alexithymia, suggesting that schemas may contribute to emotional dysregulation through enduring patterns of interpretation and avoidance (Pilkington et al., 2024). In schema therapy, emotional problems are therefore addressed not only by teaching surface-level coping techniques but also by identifying the deeper beliefs, unmet needs, and schema-driven responses that repeatedly generate dysregulated emotion. Experiential methods, imagery, cognitive restructuring, behavioral pattern breaking, and work with schema modes are designed to help individuals recognize and modify these patterns. This approach is increasingly being discussed in relation to the neural and psychological mechanisms of emotion regulation, with ongoing work examining differential effects of emotion-focused and cognitive schema therapy interventions on emotion-regulation networks (Smesny et al., 2025). From this perspective, improvements in emotion regulation may occur

as individuals become better able to identify emotional triggers, reinterpret schema-consistent assumptions, tolerate affect, and replace maladaptive coping responses with more flexible alternatives.

Schema processes may also be closely connected to self-esteem. Positive schemas have been associated with psychological well-being, with self-esteem functioning as a potential mediating mechanism between adaptive schemas and well-being (Özhan, 2022). Conversely, maladaptive schemas involving defectiveness, failure, abandonment, subjugation, emotional deprivation, or unrelenting standards may contribute to negative self-evaluation and unstable self-worth. Schema therapy is therefore theoretically well positioned to improve self-esteem by modifying core beliefs concerning inadequacy, lovability, competence, and personal value. Clinical schema therapy resources emphasize the identification and transformation of persistent negative patterns in order to promote emotional well-being and healthier self-perception (Blackwood, 2024). For individuals whose low self-esteem is maintained by long-standing patterns rather than isolated situational factors, such depth-oriented cognitive and experiential work may be particularly beneficial.

Empirical evidence concerning schema therapy has expanded substantially across different clinical populations. A systematic review and meta-analysis reported evidence supporting schema therapy for personality disorders, demonstrating significant therapeutic effects across a range of symptom domains (Zhang et al., 2023). At the same time, systematic reviews have shown considerable heterogeneity in how schema therapy is conceptualized and delivered, including variation in treatment format, populations, duration, and outcome measures (van Dijk et al., 2023). Delphi research on schema therapy priorities has therefore emphasized the importance of refining evidence regarding mechanisms, indications, implementation, and comparative effectiveness (Pilkington et al., 2023). These findings support continued investigation of schema therapy beyond traditional personality disorder contexts and in populations with specific emotional and self-evaluative difficulties.

Evidence is also emerging for schema therapy in anxiety-related conditions, trauma, autism spectrum disorder, eating disorders, forensic settings, and younger populations. A systematic review examining schema therapy for anxiety disorders, obsessive-compulsive disorder, and post-traumatic stress disorder found promising findings while also identifying methodological limitations and the need for stronger controlled studies (Peeters et al., 2022). A scoping

review of schema therapy among adults with autism spectrum disorder similarly highlighted growing clinical interest but limited high-quality evidence (Vuijk et al., 2024). In eating disorders, a systematic review suggested that schema therapy may be relevant because persistent maladaptive schemas and coping styles are often intertwined with emotional and behavioral pathology (Joshua et al., 2023). More recently, a systematic review of applications of schema therapy in young people indicated increasing interest in adapting schema-based approaches for developmental populations, while also underscoring the need for more rigorous effectiveness studies (Joshua et al., 2025).

Schema therapy has also been examined in forensic and high-risk populations. Systematic evidence suggests that it may have therapeutic utility among individuals who have committed crimes, particularly where entrenched maladaptive schemas and emotional states contribute to problematic behavior (Sousa et al., 2024). Research comparing emotional states associated with sexual and violent offending has further applied a schema therapy perspective to understand how specific modes and emotional patterns may influence behavior (Keulen-de Vos et al., 2024). Although such populations differ substantially from nonclinical single women, these studies contribute to the broader evidence that schema therapy is capable of addressing persistent emotional and behavioral patterns across heterogeneous groups.

More directly relevant evidence has begun to emerge regarding women, young adults, emotion regulation, and self-esteem. Fathi and Mokhtari reported that schema therapy was associated with improved emotion regulation among incarcerated women, providing support for its effects on emotional functioning in female populations (Fathi & Mokhtari, 2025). Ravan and Moshtaghi found that emotional schema therapy reduced difficulties in emotion regulation among female students with a history of romantic breakup, a finding particularly relevant to women coping with emotionally salient interpersonal experiences (Ravan & Moshtaghi, 2024). Sadati and Mohtashami also reported beneficial effects of cognitive behavioral group therapy and schema therapy on psychological well-being, emotional processing, and cognitive emotion regulation among university students with a history of romantic breakup (Sadati & Mohtashami, 2025). In relation to self-esteem, Javidan and Moraveji found that group schema therapy improved self-esteem and body image dissatisfaction among adolescent girls (Javidan & Moraveji, 2024). These findings collectively suggest that schema-based interventions may

simultaneously influence emotional regulation processes and self-evaluative functioning.

Despite these developments, an important gap remains. Much of the existing schema therapy literature has focused on diagnosed psychiatric disorders, personality pathology, eating disorders, forensic populations, adolescents, or individuals experiencing specific crises. Comparatively less attention has been given to single women in early adulthood who seek premarital counseling and present with low self-esteem but may not meet criteria for severe psychiatric disorders. This population is clinically relevant because marriage-related expectations and intimate relationship concerns may activate deeply rooted beliefs regarding self-worth, acceptance, abandonment, emotional deprivation, and interpersonal adequacy. Moreover, prior research often examines emotion regulation or self-esteem separately, although both may be influenced by overlapping schema-related mechanisms. Assessing them simultaneously may therefore provide a more integrated understanding of how schema therapy affects both emotional functioning and self-evaluation.

Accordingly, the present study aimed to determine the effectiveness of schema therapy on emotion regulation and self-esteem among single women aged 20–30 years seeking premarital counseling services.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental pretest–posttest design with an experimental group and a control group to investigate the effectiveness of schema therapy on emotion regulation and self-esteem among single women. The statistical population consisted of all 756 single women aged 20–30 years who were seeking marriage and had attended counseling centers in Fereydunkenar, Iran, for premarital counseling services during spring 2026. Given that a minimum sample size of 15 participants per group is generally considered adequate for intervention studies, an initial screening procedure was conducted among eligible individuals. The self-esteem questionnaire was administered using a convenience sampling approach, and 30 women who obtained a score below 11 on the self-esteem measure and met the inclusion criteria were selected for participation. The selected participants were subsequently assigned through simple random allocation to an experimental group ($n = 15$) and a control group ($n = 15$). The inclusion criteria were being a single woman seeking premarital counseling

services, having an active record at one of the counseling centers in Fereydunkenar, being between 20 and 30 years of age, having at least a high-school diploma, having no previous history of marriage, obtaining a self-esteem score below 11, having no diagnosed psychological or serious physical disorders according to the assessment of the counseling-center psychologist, and providing informed consent to participate in the study. The exclusion criteria included incomplete completion of the study instruments, absence from two consecutive intervention sessions, and voluntary withdrawal from the study at any stage. Before data collection, the necessary permissions were obtained from the affiliated university and the relevant counseling centers in Fereydunkenar. The researcher subsequently coordinated with the participating centers, and the study procedures and therapeutic sessions were conducted during spring 2026 by a qualified psychologist. Before enrollment, the general objectives and procedures of the study, the intended use of the collected data, confidentiality of responses, protection of privacy, voluntary participation, and the participants' right to withdraw from the study at any time without adverse consequences were fully explained. Participants were also provided with sufficient opportunity to ask questions and clarify any uncertainties before signing the informed consent form. After enrollment and random assignment, both groups completed the study questionnaires as pretest measures. The experimental group then received the schema therapy intervention, whereas the control group received no psychological intervention during the study period. Following completion of the therapeutic sessions, both groups completed the same questionnaires as posttest measures to assess changes in the study outcomes.

2.2. Instruments

The Emotion Regulation Questionnaire developed by Gross and John (2003) was used to assess participants' emotion regulation strategies. The instrument consists of 10 items and measures two major dimensions of emotion regulation: cognitive reappraisal and expressive suppression. The cognitive reappraisal subscale comprises Items 1, 3, 5, 7, 8, and 10, whereas the expressive suppression subscale includes Items 2, 4, 6, and 9. All items are rated on a seven-point Likert scale ranging from 1, indicating “strongly disagree,” to 7, indicating “strongly agree.” After appropriate reverse scoring of the suppression-related items according to the scoring procedure applied in the present study, higher total scores represent more adaptive

or favorable emotion regulation. Gross and John (2003) provided evidence supporting the construct and content validity of the instrument and reported Cronbach's alpha coefficients of 0.79 for cognitive reappraisal and 0.73 for expressive suppression. In an Iranian study conducted by Elmi (2020), the construct and concurrent validity of the questionnaire were also supported, and Cronbach's alpha coefficients ranging from 0.80 to 0.83 were reported, indicating satisfactory internal consistency.

The Eysenck Self-Esteem Questionnaire, developed in 1972, was used to assess the participants' level of self-esteem. The questionnaire consists of 30 items, to which respondents answer "Yes," "No," or "I do not know." Responses are scored as 1 for "Yes," 0 for "No," and 0.5 for "I do not know," with higher total scores indicating higher levels of self-esteem. According to the scoring criteria of the instrument, scores of 11 or lower indicate low self-esteem, scores between 11 and 21 indicate a moderate level of self-esteem, and scores above 21 indicate high self-esteem. The original developer reported satisfactory construct and content validity for the questionnaire and a Cronbach's alpha reliability coefficient of 0.92. In an Iranian validation study, Hormozinejad (2001) reported validity coefficients of 0.74 for female university students and 0.79 for male university students. The reliability of the questionnaire was further supported by a Cronbach's alpha coefficient of 0.88 and a split-half reliability coefficient of 0.87, demonstrating acceptable internal consistency and stability for the assessment of self-esteem.

2.3. *Intervention*

The experimental group received a schema therapy program based on the model developed by Young et al. (2003), delivered by a qualified psychologist in ten 60-minute sessions held once per week in a quiet and suitable counseling environment. No therapeutic intervention was provided to the control group during the study period. The first session focused on establishing rapport, introducing the rationale and objectives of schema therapy, strengthening motivation for participation, reviewing the structure and expectations of the sessions, explaining group rules such as confidentiality, mutual respect, attentive listening, and privacy, conducting an initial assessment, and administering the pretest measures. The second session introduced the concept of schema therapy and early maladaptive schemas, including their major characteristics, developmental origins, and the examination of current and past life evidence that

supported or contradicted maladaptive schemas. The third session introduced cognitive techniques, particularly schema validity testing, and included an overview of schema domains, early maladaptive schemas, their biological and psychological foundations, schema functions, and preliminary hypothesis formation regarding participants' maladaptive patterns. The fourth session concentrated on identifying early dysfunctional schemas, schema domains, schema-related processes, maladaptive behavioral patterns, and coping styles and on conceptualizing participants' problems within the schema therapy framework. The fifth session involved assessment of cycles of thoughts and behaviors and education regarding cognitive distortions; participants learned to identify antecedents and consequences of their thoughts, distorted cognitions, compulsive responses, avoidance patterns, and underlying core beliefs. The sixth session focused on attributional work by connecting schema-confirming evidence to childhood experiences and dysfunctional parenting practices and facilitating dialogue between maladaptive schemas and the healthy aspect of the self. During the seventh session, the rationale for experiential techniques was presented, and techniques such as imagery dialogue and experiential confrontation were applied to identify unmet emotional needs and strengthen efforts to challenge maladaptive schemas. The eighth session emphasized cognitive restructuring through critical evaluation of evidence supporting maladaptive schemas, identification of evidence inconsistent with such schemas, and the use of position-counterposition techniques. The ninth session focused on emotional change techniques, including discussion of significant past experiences, imagery-based dialogue with parents or other significant figures, examination of current emotionally salient events, guided imagery, emotional expression, imaginary conversations, and imagery related to distressing or traumatic experiences. The tenth and final session emphasized behavioral change techniques, including elimination of schema-maintaining behaviors, behavioral modification, motivation enhancement, review of the advantages and disadvantages of continuing maladaptive behavioral patterns, practice of healthier alternative behaviors, consolidation of treatment gains, preparation for termination of the sessions, and administration of the posttest measures. Attendance and active participation were monitored throughout the intervention period, and participants who missed two consecutive sessions were considered to have met the study exclusion criterion.

2.4. Data Analysis

Data obtained from the questionnaires administered to the experimental and control groups at the pretest and posttest stages were analyzed using descriptive and inferential statistical procedures. Descriptive statistics, including the mean and standard deviation, were calculated to summarize the distributions of the study variables across the two groups and measurement occasions. To evaluate the effectiveness of schema therapy on emotion regulation and self-esteem while controlling for baseline differences, multivariate analysis of covariance (MANCOVA) was applied, with the posttest scores of emotion regulation and self-esteem entered as dependent variables and their corresponding pretest scores treated as covariates. The relevant statistical assumptions required for covariance-based analyses were considered before interpreting the inferential results. All statistical analyses were performed using SPSS software, version 18. The level of statistical significance was set at $p < 0.05$, and the statistical power criterion was considered to be 0.95.

3. Findings and Results

The demographic characteristics of the participants showed that the experimental and control groups were comparable at baseline. In the experimental group, 6 participants (40.0%) were aged 20–25 years and 9 participants (60.0%) were aged 26–30 years, whereas the corresponding frequencies in the control group were 5 (33.3%) and 10 (66.7%), respectively. Regarding educational attainment, 7 participants (46.7%) in the experimental group and 8 participants (53.3%) in the control group had a high-school diploma, while 8 participants (53.3%) in the experimental group and 7 participants (46.7%) in the control group held a bachelor's degree or higher. In terms of employment status, 6 participants (40.0%) in the experimental group and 7 participants (46.7%) in the control group were unemployed, whereas 9 participants (60.0%) and 8 participants (53.3%), respectively, were employed. Chi-square analyses indicated no statistically significant differences between the two groups in age, educational attainment, or employment status (all $p > 0.05$), indicating demographic comparability between the experimental and control groups.

Table 1

Descriptive Statistics for Emotion Regulation and Self-Esteem in the Experimental and Control Groups

Variable	Measurement	Experimental Group, Mean	Experimental Group, SD	Control Group, Mean	Control Group, SD
Emotion Regulation	Pretest	24.36	5.09	24.31	5.87
Emotion Regulation	Posttest	30.55	6.87	24.56	5.57
Self-Esteem	Pretest	10.50	1.31	10.47	1.18
Self-Esteem	Posttest	14.96	2.05	10.66	1.46

As shown in Table 1, the mean emotion regulation score in the experimental group increased from 24.36 (SD = 5.09) at pretest to 30.55 (SD = 6.87) at posttest, whereas the control group showed only a negligible change from 24.31 (SD = 5.87) to 24.56 (SD = 5.57). A similar pattern was observed for self-esteem, with the experimental group increasing from a pretest mean of 10.50 (SD = 1.31) to a posttest mean of 14.96 (SD = 2.05), while the control group changed only slightly from 10.47 (SD = 1.18) to 10.66 (SD = 1.46). Thus, descriptive findings indicated a marked improvement in both emotion regulation and self-esteem in the experimental group, whereas no substantial change was observed in the control group.

Before conducting the inferential analysis, the assumptions required for multivariate analysis of covariance were examined. The Shapiro–Wilk test indicated that the

distributions of the study variables did not significantly deviate from normality ($p \geq 0.05$). Box's M test was also nonsignificant, Box's M = 1.652, $F = 1.508$, $df_1 = 3$, $df_2 = 546341.000$, $p = 0.677$, confirming the homogeneity of the variance–covariance matrices across groups. Levene's test further supported the assumption of homogeneity of error variances for emotion regulation, $F(1, 28) = 4.073$, $p = 0.053$, and self-esteem, $F(1, 28) = 3.425$, $p = 0.076$. In addition, the group-by-pretest interaction was nonsignificant for emotion regulation, $F = 0.031$, $p = 0.862$, and self-esteem, $F = 1.185$, $p = 0.286$, thereby supporting the assumption of homogeneity of regression slopes. Accordingly, the major assumptions for covariance analysis were satisfied. The omnibus multivariate test also indicated a statistically significant overall group effect after controlling for pretest scores, Wilks' Lambda = 0.115, $F(2, 25) = 96.103$, $p < 0.01$,

with Pillai's Trace = 0.885, Hotelling's Trace = 7.688, and Roy's Largest Root = 7.688, confirming that the intervention

had a significant multivariate effect on the combined dependent variables.

Table 2

Analysis of Covariance for the Effects of Schema Therapy on Emotion Regulation and Self-Esteem

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	p	Partial η^2	Power
Group	Emotion Regulation	265.380	1	265.380	113.308	<0.01	0.813	1.00
Group	Self-Esteem	137.731	1	137.731	57.499	<0.01	0.689	1.00

As presented in Table 2, after controlling for the corresponding pretest scores, schema therapy had a statistically significant effect on both dependent variables. For emotion regulation, the group effect was significant, $F = 113.308$, $p < 0.01$, partial $\eta^2 = 0.813$, with a statistical power of 1.00, indicating that a substantial proportion of the variance in posttest emotion regulation scores was associated with the intervention. The group effect was also significant for self-esteem, $F = 57.499$, $p < 0.01$, partial $\eta^2 = 0.689$, with a statistical power of 1.00. These findings demonstrate that participants who received schema therapy showed significantly greater improvements in both emotion regulation and self-esteem than those in the control group. Comparison of the effect sizes further showed that the intervention produced a larger effect on emotion regulation than on self-esteem, indicating that schema therapy was comparatively more effective in improving emotion regulation.

4. Discussion and Conclusion

The present study investigated the effectiveness of schema therapy on emotion regulation and self-esteem among single women aged 20–30 years seeking premarital counseling services. The findings showed that, after controlling for pretest scores, schema therapy produced statistically significant improvements in both emotion regulation and self-esteem compared with the control condition. The intervention had a particularly strong effect on emotion regulation, with an effect size of 0.813, while its effect on self-esteem was also substantial, with an effect size of 0.689. These findings indicate that schema therapy can simultaneously influence emotional functioning and self-evaluative processes in single women with low self-esteem, although its impact appears to be comparatively stronger for emotion regulation. The overall multivariate analysis also confirmed that the combined pattern of change across the two psychological outcomes was significant, supporting the

effectiveness of the intervention as a multidimensional therapeutic approach.

The significant improvement in emotion regulation is consistent with previous evidence showing that schema-based interventions can modify maladaptive emotional patterns. Fathi and Mokhtari reported that schema therapy improved emotion regulation among incarcerated women, indicating that schema-focused treatment may be effective in populations characterized by persistent emotional difficulties (Fathi & Mokhtari, 2025). Similarly, Ravan and Moshtaghi found that emotional schema therapy reduced difficulties in emotion regulation among female students with a history of romantic breakup (Ravan & Moshtaghi, 2024). The findings also correspond with the results reported by Sadati and Mohtashami, who demonstrated that schema therapy was associated with improvements in cognitive emotion regulation, emotional processing, and psychological well-being among university students who had experienced romantic breakup (Sadati & Mohtashami, 2025). Although the populations and intervention contexts differed across these studies, the convergence of findings suggests that schema-based interventions may be particularly useful when emotional dysregulation is linked to interpersonal experiences, negative self-beliefs, and recurrent maladaptive cognitive-emotional patterns.

One explanation for the improvement in emotion regulation can be derived from the theoretical foundations of schema therapy. Early maladaptive schemas consist of enduring cognitive, emotional, and interpersonal patterns that may become activated by situations resembling earlier experiences of rejection, abandonment, inadequacy, emotional deprivation, or criticism. When activated, such schemas can intensify emotional reactions and lead individuals to rely on maladaptive coping styles, including avoidance, surrender, suppression, or overcompensation. Contemporary schema therapy theory emphasizes that these patterns are sustained by interactions among unmet emotional needs, schema modes, learned coping responses,

and habitual interpretations of emotionally salient situations (Arntz et al., 2021). By helping participants identify the origin and function of maladaptive schemas, evaluate evidence for and against schema-driven beliefs, recognize emotional needs, and develop healthier responses, schema therapy may reduce automatic emotional reactivity and promote greater regulatory flexibility.

This interpretation is strongly supported by the broader literature on schemas and emotional dysregulation. Pilkington et al. demonstrated through systematic review and meta-analysis that early maladaptive schemas are consistently associated with difficulties in emotion regulation and alexithymia (Pilkington et al., 2024). This relationship provides an important mechanism for understanding the present findings. Participants in the experimental group were not merely taught isolated techniques for controlling emotions; rather, they were guided to examine the deeper cognitive-emotional structures that shaped their responses. The use of experiential techniques, imagery, cognitive restructuring, discussion of unmet needs, and behavioral pattern breaking may therefore have addressed both the triggers and maintenance mechanisms of dysregulated emotion. Emerging research examining emotion-focused and cognitive components of schema therapy also reflects growing interest in the mechanisms through which schema therapy modifies neural and psychological emotion regulation processes (Smesny et al., 2025).

The comparatively larger effect of schema therapy on emotion regulation is also theoretically plausible because emotion-focused work is a central component of the treatment protocol. Several sessions in the present intervention were directly devoted to recognizing emotional triggers, examining the relationship between past experiences and current reactions, identifying maladaptive coping responses, engaging in imagery and experiential dialogue, and replacing dysfunctional reactions with healthier emotional and behavioral responses. These procedures may have produced relatively rapid change in participants' ability to reinterpret and manage emotional experiences. Research on adolescent girls indicates that emotion regulation is not static but involves context-sensitive selection and switching among strategies (McKone et al., 2024). From this perspective, schema therapy may enhance emotional flexibility by helping individuals recognize when habitual responses are schema-driven and by expanding the range of available regulatory strategies.

The findings are also compatible with developmental and interpersonal research emphasizing the relational foundations of emotion regulation. Emotion regulation develops partly through repeated interactions with caregivers and important social figures, and emotion socialization within the family can influence later patterns of emotional expression and control (Berona et al., 2023). Parental acceptance has similarly been associated with emotion regulation among girls (Vergara-Lopez et al., 2024), while family and parenting characteristics have been linked with neural processes involved in emotion regulation in girls with internalizing symptoms (Lin et al., 2024). Schema therapy directly addresses developmental experiences and the meanings assigned to them. Therefore, when participants reconsider earlier interpersonal experiences and differentiate past relational patterns from present situations, they may become less likely to automatically reproduce schema-based emotional reactions in current relationships.

The significance of these changes is especially relevant for women seeking premarital counseling because intimate relationships can activate highly salient emotional schemas. Expectations related to acceptance, rejection, intimacy, trust, abandonment, dependence, competence, and worthiness can become particularly pronounced when individuals are preparing for marriage or evaluating potential partners. Interpersonal emotion regulation has been shown to play an important role in emotional well-being, with girls and young women frequently relying on parents and peers to manage distress (Do et al., 2025). When interpersonal regulation is combined with maladaptive beliefs about the self or others, emotionally charged situations may become more difficult to manage. Schema therapy may reduce this vulnerability by promoting awareness of emotional needs and by encouraging more adaptive ways of interpreting and responding to relational experiences.

The present finding regarding emotion regulation is additionally supported by research linking regulatory difficulties to broader psychological problems. Emotion regulation deficits have been observed among girls with depression and eating disorders (Zsigo et al., 2023), while cognitive emotion regulation strategies have been associated with academic burnout (Vinter et al., 2021). Kitahara et al. also showed that emotion regulation contributes to psychological and social adjustment and that perceived social support can mediate this relationship (Kitahara et al., 2020). At a neuropsychological level, prefrontal emotion regulation has been associated with symptom severity and

subsequent treatment-related change among adolescent girls with conduct disorder (Raschle et al., 2025). These studies collectively indicate that enhancing emotion regulation may have effects that extend beyond immediate emotional control and may contribute to more adaptive functioning across interpersonal, academic, and psychological domains.

The second major finding of the present study was that schema therapy significantly increased self-esteem in the experimental group compared with the control group. This result is consistent with the study by Javidan and Moraveji, who reported that group schema therapy improved self-esteem and body image dissatisfaction among adolescent girls (Javidan & Moraveji, 2024). It is also theoretically consistent with research showing that positive schemas are associated with psychological well-being and that self-esteem can mediate the relationship between adaptive schemas and well-being (Özhan, 2022). Schema therapy seeks to weaken dysfunctional beliefs concerning defectiveness, failure, unlovability, dependence, rejection, or inadequacy while strengthening healthier representations of the self. Therefore, an increase in self-esteem following treatment is consistent with the core mechanisms proposed by schema theory.

Self-esteem is shaped by repeated experiences of interpersonal evaluation and by the meanings individuals attach to social and personal characteristics. Studies among girls have shown that self-esteem can be influenced by appearance-based evaluation, social comparison, body-related beliefs, and broader interpersonal contexts. Adams et al. demonstrated longitudinal associations between socially salient physical characteristics and self-esteem in girls (Adams et al., 2020), while Ching et al. found that body weight contingent self-worth and unstable self-esteem contribute to depressive symptoms in adolescent girls (Ching et al., 2021). Malik et al. similarly highlighted the roles of appearance comparison and internalization of appearance ideals in the relationship among depression, self-esteem, and disordered eating (Malik et al., 2025). These findings suggest that self-esteem is vulnerable when self-worth becomes dependent on external approval or comparison. Schema therapy may counteract such patterns by helping individuals identify deeply internalized negative beliefs and develop more stable, internally grounded evaluations of personal worth.

The effectiveness of schema therapy in improving self-esteem may also be understood through its emphasis on developmental origins. Negative self-beliefs often become consolidated through repeated experiences of criticism,

emotional neglect, rejection, inconsistent acceptance, or excessive demands. Once formed, these beliefs can function as schemas that bias attention and interpretation, causing individuals to selectively notice experiences that confirm inadequacy while discounting experiences that challenge it. Schema therapy explicitly addresses this process by encouraging participants to critically examine evidence supporting maladaptive schemas, identify contradictory evidence, understand the developmental origins of these beliefs, and strengthen healthier perspectives. Resources on schema therapy similarly emphasize transformation of persistent negative patterns as a route toward improved emotional well-being and self-perception (Blackwood, 2024). This may explain why self-esteem increased significantly after the intervention.

The present findings also align with broader evidence demonstrating that self-esteem is modifiable through structured intervention. Walters et al. found that a girls' health and well-being program improved self-esteem and body image (Walters et al., 2023), while Andrade et al. reported improvements in mood and self-esteem following structured exergame-based physical education activities (Andrade et al., 2020). Although these interventions differed considerably from schema therapy, they support the broader principle that self-esteem is responsive to psychologically meaningful experiences. The distinctive contribution of schema therapy may be that it addresses self-esteem at the level of core beliefs and long-standing cognitive-emotional patterns rather than solely through behavioral activation or positive experiences.

The clinical importance of improving self-esteem is also supported by studies linking low self-esteem with multiple psychological and physical difficulties. Cella et al. identified associations between self-esteem, body disinvestment, and binge eating among adolescents (Cella et al., 2021), while Li et al. reported that adolescent girls with polycystic ovary syndrome commonly experience depression, anxiety, and reduced self-esteem (Li et al., 2024). Lee and Kim also demonstrated that self-esteem can play an important role in the relationship between stress and physical health symptoms (Lee & Kim, 2024). In addition, self-esteem and self-concept are positively associated with life satisfaction and attitudes toward school among girls (Sensoy Bahar et al., 2024). These findings suggest that the observed improvement in self-esteem in the present study may have implications beyond self-perception alone and could potentially support broader psychological adjustment.

The significant improvement in both emotion regulation and self-esteem also fits with the increasingly broad evidence base for schema therapy. Systematic reviews and meta-analyses have supported schema therapy for personality disorders (Zhang et al., 2023), while reviews have also examined its applicability to anxiety disorders, obsessive-compulsive disorder, and post-traumatic stress disorder (Peeters et al., 2022), eating disorders (Joshua et al., 2023), autism spectrum disorder (Vuijk et al., 2024), and forensic populations (Sousa et al., 2024). Research from forensic settings has further demonstrated the relevance of schema-related emotional states in understanding persistent behavioral problems (Keulen-de Vos et al., 2024). Although the present sample was non-forensic and did not consist of individuals with severe psychiatric disorders, these findings collectively demonstrate that schema therapy can be adapted to diverse populations in which enduring emotional and cognitive patterns contribute to psychological difficulties.

At the same time, the current findings contribute to an area in which the literature remains methodologically heterogeneous. van Dijk et al. highlighted considerable variation across schema therapy studies in populations, treatment formats, intervention durations, theoretical implementation, and outcome measures (van Dijk et al., 2023). Pilkington et al. likewise identified the need to clarify treatment mechanisms, implementation procedures, and populations most likely to benefit from schema therapy (Pilkington et al., 2023). More recent evidence concerning applications of schema therapy in younger populations also indicates increasing therapeutic interest but emphasizes the need for further controlled studies (Joshua et al., 2025). The present study contributes to this literature by examining a relatively understudied population—single women seeking premarital counseling with low self-esteem—and by simultaneously evaluating two outcomes that are closely related to schema activation: emotion regulation and self-esteem.

The stronger effect observed for emotion regulation than for self-esteem may reflect differences in how quickly these psychological constructs respond to intervention. Emotion regulation strategies can potentially change through direct practice, cognitive reframing, awareness of emotional triggers, and experiential exercises. Self-esteem, by contrast, represents a broader and more consolidated evaluation of the self that may require longer-term corrective experiences before changes become fully stabilized. Positive schema development has been proposed as an important extension of schema therapy because successful treatment may require

not only weakening maladaptive beliefs but also actively strengthening adaptive schemas (Videler et al., 2020). Therefore, while ten sessions were sufficient to produce a substantial increase in self-esteem, longer interventions or follow-up periods might reveal further gains as positive self-schemas become more firmly established.

Overall, the findings suggest that schema therapy can be an effective intervention for single women with low self-esteem who seek premarital counseling. By targeting maladaptive schemas, emotional needs, cognitive distortions, emotionally charged memories, and schema-driven coping patterns, the intervention appears capable of improving both the regulation of emotional experiences and evaluations of personal worth. The larger effect on emotion regulation indicates that schema therapy may be particularly effective in changing the cognitive-emotional processes through which participants experience and respond to distress, while the substantial improvement in self-esteem suggests that these regulatory changes may be accompanied by meaningful restructuring of negative self-beliefs. Taken together, the findings support the use of schema therapy as an integrative intervention for addressing interconnected emotional and self-evaluative difficulties in young adult women.

Several limitations should be considered when interpreting the findings. First, the sample consisted of only 30 single women aged 20–30 years who attended counseling centers in Fereydunkenar and had low self-esteem; therefore, the findings cannot necessarily be generalized to women from other age groups, geographical regions, marital statuses, cultural backgrounds, or individuals who do not seek counseling services. Second, the relatively small sample size limits the precision of the estimated intervention effects, even though statistically significant differences and high statistical power were observed. Third, participants were initially screened using convenience sampling before random allocation to the experimental and control groups, which may have introduced selection bias. Fourth, the study relied primarily on self-report questionnaires, making the findings potentially susceptible to response bias, social desirability, and participants' subjective interpretations of the questionnaire items. Fifth, the study employed only pretest and immediate posttest assessments and did not include a follow-up period; therefore, it is not possible to determine whether improvements in emotion regulation and self-esteem were maintained over time. Finally, the control group received no active intervention, so nonspecific therapeutic factors such as therapist attention, group

participation, expectancy, and social interaction cannot be fully separated from the specific effects of schema therapy.

Future studies should replicate the present investigation with larger and more diverse samples drawn from multiple counseling centers, cities, and cultural contexts in order to improve external validity. Researchers are encouraged to include longer follow-up periods, such as three-, six-, and twelve-month assessments, to determine whether changes in emotion regulation and self-esteem are sustained after treatment ends. Comparative studies could examine schema therapy against active control conditions or other established approaches, including cognitive behavioral therapy, acceptance and commitment therapy, emotion-focused therapy, or mindfulness-based interventions. Future research could also investigate potential mediators and moderators of treatment response, such as early maladaptive schemas, schema modes, attachment patterns, rejection sensitivity, social support, relationship history, or baseline severity of emotional difficulties. The inclusion of clinician-rated measures, behavioral indicators, ecological momentary assessment, and physiological or neurocognitive measures could reduce reliance on self-report data and clarify the mechanisms underlying treatment effects. It would also be valuable to investigate whether specific schema domains are more strongly associated with changes in emotion regulation or self-esteem and whether longer or more intensive treatment produces stronger effects on relatively stable self-evaluative constructs.

Counseling centers and mental health professionals working with single women and individuals seeking premarital services may consider incorporating schema-focused assessment and intervention into routine psychological care, particularly when low self-esteem, emotional dysregulation, recurrent interpersonal difficulties, or persistent negative self-beliefs are evident. Practitioners can assess maladaptive schemas and coping styles at the beginning of counseling and tailor interventions to the individual's dominant patterns rather than focusing solely on current symptoms. Schema therapy techniques such as cognitive restructuring, imagery work, experiential dialogue, identification of unmet emotional needs, behavioral pattern breaking, and strengthening of the healthy adult mode may be especially useful when emotional reactions are closely connected to fears of rejection, inadequacy, abandonment, or interpersonal evaluation. Because emotion regulation showed the strongest response in the present study, clinicians may place particular emphasis on helping clients recognize schema-triggered

emotional states and practice flexible, adaptive responses in real interpersonal situations. At the same time, explicit work on positive self-beliefs, personal strengths, autonomy, self-acceptance, and stable sources of self-worth may help consolidate improvements in self-esteem and increase the practical value of schema therapy within premarital and individual counseling settings.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

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

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