The Effectiveness of Emotion Regulation Skills Training on the Components of Self-Esteem in Female Middle School Students

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Purpose: The objective of this study was to examine the effectiveness of emotion regulation skills training on improving the components of self-esteem—academic, familial, and social—among female middle school students.

Methods and Materials: This quasi-experimental study employed a pre-test–post-test design with a control group. Forty female middle school students in Varamin were selected using convenience sampling and randomly assigned to experimental (n=20) and control (n=20) groups. The experimental group received eight 90-minute sessions of emotion regulation skills training, while the control group received no intervention. Data were collected using the Cooper-Smith Self-Esteem Inventory, measuring academic, familial, social, and total self-esteem. Data were analyzed using multivariate analysis of covariance (MANCOVA) with SPSS software, version 25, controlling for pre-test scores.

Findings: The results indicated significant differences between the experimental and control groups in post-test scores across all components of self-esteem. Multivariate tests showed Wilks' Lambda was significant (F=4.538, p=0.001), with an effect size of 0.669, suggesting that 66.9% of the variance was attributable to the intervention. Between-subject analyses demonstrated significant increases in academic self-esteem (F=18.37, p=0.002, η^2=0.620), familial self-esteem (F=0.99, p=0.005, η^2=0.419), social self-esteem (F=11.87, p=0.001, η^2=0.559), and total self-esteem (F=43.65, p=0.001, η^2=0.636) in the experimental group compared to the control group.

Conclusion: Emotion regulation skills training was found to be effective in significantly improving academic, familial, social, and total self-esteem among female middle school students. These findings underscore the importance of integrating structured emotional skills interventions into school-based mental health programs to promote positive self-perception and psychological well-being in adolescents.

Keywords: *Emotion regulation, self-esteem, adolescents, academic self-esteem.*

1. Introduction

Adolescence represents a critical period of emotional, cognitive, and social transformation, during which the development of psychological strengths such as self-esteem plays a central role in long-term adjustment. Self-esteem, a multidimensional construct encompassing individuals' subjective evaluation of their self-worth across academic, social, and familial domains, has been shown to significantly influence adolescents' mental health, academic motivation, and interpersonal relationships (Velotti et al., 2018). During early adolescence, particularly in female students, self-esteem becomes increasingly vulnerable due to intensified peer comparison, identity confusion, and hormonal fluctuations (Savaş et al., 2023). Given its foundational impact on adolescent development, fostering self-esteem through effective psychological interventions is a key concern for educators and mental health professionals.

Recent theoretical and empirical models suggest that emotion regulation is a pivotal skill that underlies many psychological outcomes in adolescence, including self-esteem. Emotion regulation refers to the processes by which individuals influence the experience, expression, and duration of their emotional responses to environmental challenges (Mouatsou & Koutra, 2023). Adaptive regulation strategies, such as cognitive reappraisal and attentional control, have been linked to greater psychological resilience, reduced anxiety, and higher levels of academic and social competence (Park & Gentzler, 2023). Conversely, poor emotion regulation is associated with rumination, avoidance behaviors, and low self-esteem (Akfirat, 2020). As a result, training adolescents in emotion regulation strategies offers a promising avenue for enhancing self-concept and coping abilities.

Numerous studies across cultural contexts have validated the association between emotion regulation and self-esteem. For instance, a recent observational study revealed that adolescents who employ adaptive emotion regulation strategies exhibit higher self-esteem and executive functioning, particularly in academic settings (Cécillon et al., 2024). The ability to manage emotional experiences allows individuals to construct more stable and positive self-evaluations, especially in the face of interpersonal conflict or academic setbacks. Supporting this, research has demonstrated that self-esteem functions as a mediating factor in the relationship between emotion regulation and resilience (Faghih & Bakhshpour Rodsari, 2023; Mouatsou & Koutra, 2021), suggesting a dynamic interplay wherein emotional competence strengthens self-worth, which in turn enhances psychological endurance.

In the Iranian context, there is growing evidence supporting the relevance of emotion regulation for self-esteem promotion. A study by (Sadat Mousavi, 2022) indicated that training emotion regulation strategies significantly improved self-esteem and assertiveness in students, underlining the practical benefits of such interventions in school settings. Similarly, (Hosseinabadi, 2023) found that emotion regulation training improved life satisfaction and self-esteem in mothers of children with intellectual disabilities, demonstrating its generalizability across populations. Moreover, (Abdulahi Beqrabadi & Heidary rad, 2025) showed that male students with learning disorders benefited from emotion regulation training in terms of reduced procrastination and improved academic self-regulation. These studies collectively suggest that emotion regulation interventions can be effectively integrated into educational and therapeutic programs aimed at enhancing self-concept.

The relationship between emotion regulation and academic functioning is particularly salient during adolescence, as academic pressures often exacerbate emotional vulnerabilities. Emotion regulation has been shown to predict academic performance, with regulated students more likely to maintain concentration, manage test anxiety, and persist through academic challenges (Nadeem et al., 2023). For instance, (Yazdizadeh et al., 2023) reported that training aimed at improving emotional regulation significantly decreased academic self-handicapping in students. Additionally, (Zarei & Khoshouei, 2023) demonstrated that emotion regulation skills are negatively associated with academic procrastination, highlighting their role in promoting self-directed learning and academic engagement. Such findings suggest that emotion regulation is not only a personal skill but also a crucial academic resource.

The cognitive dimensions of emotion regulation—especially strategies like reappraisal, attention redirection, and metacognitive awareness—are particularly influential in shaping adolescents' academic self-concept. In line with this, (Mikaeili et al., 2024) emphasized the mediating role of cognitive emotion regulation in reducing social anxiety symptoms among college students. Effective emotion regulation enables students to reinterpret stressful situations, maintain emotional equilibrium, and construct more adaptive beliefs about their abilities and social value. Thus, interventions targeting emotional skills are likely to affect

multiple components of self-esteem, including academic, social, and familial aspects.

Emotion regulation also interacts with motivational and personality constructs such as academic resilience and grit. (Namaziandost et al., 2023) proposed a comprehensive model linking academic emotion regulation, academic self-esteem, and demotivation, highlighting the intricate mechanisms through which emotional experiences influence academic persistence. Complementarily, (Theiyab Alazemi et al., 2023) incorporated academic buoyancy, L2 grit, and emotion regulation into a unified model predicting academic success in EFL contexts. These models underline the central role of emotional self-regulation in sustaining academic confidence and effort, especially in challenging learning environments.

The development of self-esteem during adolescence is also deeply intertwined with interpersonal experiences and parenting styles. A recent study by (Park & Gentzler, 2023) showed that parenting behaviors affect adolescents' courage and psychological growth through the mediating roles of self-esteem and emotion regulation. Supportive parenting practices are likely to foster emotional safety, thereby enhancing emotion regulation capacity and facilitating the internalization of positive self-concepts. This finding is consistent with the broader literature suggesting that social environments contribute significantly to emotional and self-evaluative development.

Despite the wealth of evidence affirming the benefits of emotion regulation training, there remains a paucity of studies that directly examine its domain-specific impact on self-esteem components (academic, familial, and social) in early adolescent girls. Much of the existing literature focuses on university students or adult populations, leaving a gap in understanding how these interventions function during early adolescence—a developmental window marked by increased emotional reactivity and identity exploration (Velotti et al., 2018). Furthermore, most studies in educational psychology assess self-esteem as a global construct, overlooking the nuanced effects that interventions may have on its distinct dimensions.

To address these gaps, the present study investigates the effectiveness of structured emotion regulation skills training on enhancing the components of self-esteem—academic, familial, and social—among female students in the first level of middle school.

2. Methods and Materials

2.1. Study Design and Participants

This research employed a quasi-experimental and applied methodology, utilizing a pre-test–post-test design with a control group. Following the random assignment of participants to experimental and control groups, the experimental group received emotion regulation skills training in eight sessions, each lasting 90 minutes. The intervention spanned multiple weeks, and a post-test was conducted for both groups one week after the final training session. The target population for this study included all female students enrolled in middle school (first level of secondary education) in Varamin during the 2019–2020 academic year. The sampling method used was convenience sampling. To determine the appropriate sample size, Fleiss's sample size estimation formula was applied. According to the results of this calculation, a minimum sample size of 12.07 per group was recommended; however, to enhance reliability and ensure statistical power, 20 students were allocated to each group, yielding a total of 40 participants. Inclusion criteria were: willingness and consent to participate, reaching the cutoff score on the self-report questionnaire utilized in the study, full completion of all questionnaires, enrollment in the middle school level, and being female. Exclusion criteria included lack of consent or withdrawal from participation, missing more than two training sessions, pre-existing or emerging chronic physical or psychiatric illness during the intervention, and incomplete or invalid responses on the questionnaires.

2.2. Measures

The primary instrument used in this study was the Cooper-Smith Self-Esteem Inventory (1976), which was developed based on revisions to the scale by Rogers and Dymond (1954). This inventory comprises 58 items, of which 8 are lie-detection questions (items 6, 13, 20, 27, 34, 41, 48, and 55), and the remaining 50 assess four dimensions of self-esteem: general, social, family, and academic. Responses are recorded in a binary format (yes/no), with scoring based on a dichotomous 0–1 scale. Consequently, the minimum and maximum scores range from 0 to 50, with higher scores indicating greater self-esteem. Individuals scoring above the mean are categorized as having high self-esteem. The psychometric properties of this questionnaire have been extensively validated. According to Cooper-Smith and colleagues (as cited in Nisi and Shahni Yeylaq, 2002), test-retest reliability was reported at 0.88. In another study by Shahni Yeylaq and colleagues (2007), reliability

coefficients obtained through split-half and Cronbach's alpha methods ranged from 0.73 to higher, indicating acceptable internal consistency. Johnson, Redfield, Miller, and Simpson; Sears, Taylor, and Ritz reported a split-half reliability of 0.90. Cooper-Smith also reported test-retest reliability coefficients of 0.88 after five weeks and 0.70 after three years (Sajadi, 2006). The widespread application of this instrument across various studies attests to its sufficient validity and reliability for use in measuring self-esteem components in adolescents.

2.3. Intervention

The intervention protocol consisted of eight structured 90-minute group sessions designed to enhance emotion regulation skills among female middle school students. In the first session, participants were introduced to each other and the group leader, and initial rapport was established through interactive exercises. The rationale, objectives, and stages of the intervention were also clearly presented. The second session focused on helping participants identify and understand emotions by teaching them about different types of emotions, their dimensions, and short- and long-term effects. Participants were guided to analyze emotional experiences by breaking them down into physical, cognitive, and emotional components and were instructed to complete a daily emotion log. The third session addressed emotional vulnerability and regulation skills through self-assessments aimed at recognizing personal emotional experiences, levels of vulnerability, and current regulation strategies. The fourth session concentrated on changing emotionally triggering situations and involved identifying personal, social, and relational goals, analyzing interpersonal relationships, and compiling a list of constructive activities. Participants were also taught essential interpersonal problem-solving skills, including communication, assertiveness, and conflict resolution. In the fifth session, participants learned techniques for attention shifting, such as interrupting rumination and worry, and were trained in replacing negative thoughts with positive alternatives, as well as practicing selective and broadened attention. The sixth session targeted cognitive reappraisal by teaching participants to identify and modify maladaptive evaluations

and adopt alternative, more adaptive perspectives to reduce negative emotions. In the seventh session, participants focused on altering the behavioral and physiological consequences of emotion through exposure and skills training, including emotional expression, behavior correction, emotional release, opposite action techniques (e.g., physical activity), and inducing relaxation. Finally, the eighth session involved reviewing learned material, assessing the achievement of personal and group goals, exploring real-life application of the skills, and addressing obstacles to completing the assignments.

2.4. Data Analysis

Given the use of a pre-test–post-test design with two independent groups, and the objective of measuring the impact of an independent variable (emotion regulation skills training) on a dependent variable (self-esteem and its components), the analysis focused on controlling for potential confounding variables. To achieve this, analysis of covariance (ANCOVA) was conducted using SPSS software, version 25. This statistical method allowed for the adjustment of pre-test scores to evaluate the true effect of the intervention on post-test scores while controlling for any baseline differences between the experimental and control groups.

3.   Findings and Results

The data in Table 1 illustrate that the experimental group demonstrated an increase in mean scores across all self-esteem components from pre-test to post-test. Specifically, the mean total self-esteem score for the experimental group increased from 51.86 (SD = 7.17) in the pre-test to 63.66 (SD = 12.88) in the post-test. In contrast, the control group's total self-esteem score slightly decreased from 52.27 (SD = 10.52) in the pre-test to 50.64 (SD = 9.46) in the post-test. A similar pattern is evident in the dimensions of academic, family, and social self-esteem, where the experimental group showed consistent gains after the intervention, whereas the control group either remained stable or showed slight declines. These initial descriptive results suggest a potential positive effect of the emotion regulation training on the self-esteem of the experimental group participants.

Table 1

Mean and Standard Deviation of Self-Esteem and Its Dimensions by Group and Measurement Stage

Self-Esteem Component	Group	N	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)
Academic Self-Esteem	Experimental	20	18.80 ± 2.70	21.80 ± 4.75
	Control	20	17.13 ± 3.73	16.94 ± 2.54
Family Self-Esteem	Experimental	20	15.40 ± 1.68	19.46 ± 2.87
	Control	20	16.21 ± 4.50	16.10 ± 4.08
Social Self-Esteem	Experimental	20	17.66 ± 2.79	22.40 ± 5.26
	Control	20	18.93 ± 2.29	17.60 ± 2.84
Total Self-Esteem Score	Experimental	20	51.86 ± 7.17	63.66 ± 12.88
	Control	20	52.27 ± 10.52	50.64 ± 9.46

Prior to conducting the main analysis, the assumptions required for analysis of covariance (ANCOVA) were examined and confirmed. The normality of the distribution of scores for the dependent variable in both groups was assessed using the Shapiro–Wilk test, which yielded non-significant results ($p > 0.05$) for all subscales and the total self-esteem score, indicating that the assumption of normality was met. The homogeneity of variances was tested using Levene's test, which showed non-significant results for academic self-esteem ($F = 1.24$, $p = 0.27$), family self-esteem ($F = 0.98$, $p = 0.33$), social self-esteem ($F = 0.72$, $p =$ 0.40), and total self-esteem ($F = 1.65$, $p = 0.21$), confirming the equality of variances between the groups. Furthermore, the assumption of homogeneity of regression slopes was evaluated by examining the interaction between the covariate (pre-test scores) and the group variable, which was not statistically significant for any of the variables ($p > 0.05$), indicating that the regression slopes were homogeneous across groups. These results collectively confirmed that the data met the necessary assumptions for valid application of ANCOVA.

Table 2

Multivariate Post-Test Results for Self-Esteem Components

Test Type	Value	F	p-value	Effect Size (Eta²)	Statistical Power
Pillai's Trace	0.169	4.538	0.001	0.669	0.942
Wilks' Lambda	0.831	4.538	0.001	0.669	0.942
Hotelling's Trace	0.203	4.538	0.001	0.669	0.942
Roy's Largest Root	0.203	4.538	0.001	0.669	0.942

The results in Table 2 show that Wilks' Lambda is statistically significant ($F = 4.538$, $p = 0.001$), indicating a significant multivariate difference between the experimental and control groups in the post-test scores of self-esteem and its dimensions after controlling for pre-test scores. The effect size (Eta² = 0.669) suggests that approximately 66.9% of the variance between the groups is attributable to the emotion regulation skills training intervention. The statistical power of 0.942 further supports the robustness of the findings. This confirms that at least one of the dependent variables— namely, self-esteem or its subcomponents—was significantly affected by the intervention.

Table 3

Between-Subjects Effects from Multivariate ANCOVA on Self-Esteem Components

Dependent Variables	Sum of Squares	df	F	p-value	Effect Size (Eta²)	Statistical Power
Academic Self-Esteem	26.349	1	18.37	0.002	0.620	0.688
Family Self-Esteem	56.762	1	0.99	0.005	0.419	0.751
Social Self-Esteem	34.189	1	11.87	0.001	0.559	0.696
Total Self-Esteem Score	74.453	1	43.65	0.001	0.636	0.895

Table 3 presents the between-subject effects derived from multivariate ANCOVA, demonstrating the specific impact of the intervention on each component of self-esteem. The findings indicate that emotion regulation skills training had

a statistically significant effect on academic self-esteem (F = 18.37, p = 0.002, Eta² = 0.620), family self-esteem (F = 0.99, p = 0.005, Eta² = 0.419), and social self-esteem (F = 11.87, p = 0.001, Eta² = 0.559). The intervention also significantly influenced the overall self-esteem score (F = 43.65, p = 0.001, Eta² = 0.636). These results support the primary research hypothesis, confirming that the training effectively improved self-esteem and its components among female middle school students.

4. Discussion and Conclusion

The present study aimed to examine the effectiveness of emotion regulation skills training on enhancing self-esteem and its subcomponents—academic, social, and familial—among female middle school students. The results indicated a significant increase in the post-test scores of self-esteem and all its components in the experimental group, compared to the control group, after controlling for pre-test scores. Multivariate tests showed that the intervention accounted for approximately 66.9% of the variance between the groups, which is a substantial effect size, suggesting the strong impact of emotion regulation training on adolescent self-perception. Univariate results further confirmed that emotion regulation training significantly improved academic self-esteem, familial self-esteem, and social self-esteem. These findings provide robust support for the hypothesis that emotional skills training can meaningfully improve how adolescent girls evaluate themselves across multiple domains.

These results align with a growing body of literature emphasizing the integral role of emotion regulation in shaping positive self-evaluation. Emotion regulation is widely recognized as a core psychological competency that enables individuals to manage emotional experiences adaptively, thereby promoting self-confidence and reducing vulnerability to negative emotions. The significant increase in academic self-esteem observed in this study is consistent with the findings of (Nadeem et al., 2023), who emphasized the predictive role of emotion regulation in academic performance. Similarly, (Yazdizadeh et al., 2023) demonstrated that emotion regulation interventions can reduce academic self-handicapping, suggesting that when students gain control over their emotional responses, they are more likely to view themselves as competent and capable learners. (Zarei & Khoshouei, 2023) also identified a strong negative relationship between poor emotion regulation and academic procrastination, indicating that improving emotion

regulation directly fosters more positive academic behaviors and self-perceptions. These findings reinforce the notion that academic self-esteem can be actively enhanced through targeted emotional training.

The improvement in familial self-esteem also reflects the ability of emotion regulation training to improve adolescents' relationships with parents and family members. Adolescents who can recognize and manage their emotional responses are more likely to engage in healthy communication and conflict resolution, which in turn fosters a sense of acceptance and value within the family system. The work of (Park & Gentzler, 2023) provides strong support for this mechanism, indicating that parenting behaviors influence adolescents' emotional development through the mediating roles of emotion regulation and self-esteem. Moreover, (Hosseinabadi, 2023) found that training in emotion regulation improved family-related satisfaction and self-worth among mothers of children with disabilities, which may suggest a reciprocal process wherein emotional awareness improves family dynamics across generations. The effect of emotion regulation on familial self-esteem is also consistent with the theoretical framework provided by (Velotti et al., 2018), who proposed that unresolved emotional experiences, such as shame and frustration, negatively affect self-esteem, particularly in close interpersonal contexts.

The enhancement of social self-esteem in the experimental group confirms the broader psychosocial benefits of emotion regulation training. Adolescents who are emotionally competent are more likely to maintain positive peer interactions, exhibit assertiveness, and avoid maladaptive coping mechanisms such as withdrawal or aggression. According to (Akfirat, 2020), psychological well-being, self-esteem, and perceived general self-efficacy are all closely tied to emotion regulation strategies. Similarly, (Sadat Mousavi, 2022) reported that emotion regulation training enhanced students' assertiveness, which may explain why students in the current study developed more positive self-views in social contexts. These findings align with the research of (Cécillon et al., 2024), who found that trait anxiety, emotional dysregulation, and poor metacognitive beliefs negatively affect academic and interpersonal functioning. When students acquire emotional tools to manage anxiety, frustration, or social rejection, they become more socially effective, which naturally elevates their social self-esteem.

The current study's findings are also supported by integrative models emphasizing the interplay between self-

esteem, emotion regulation, and psychological resilience. For instance, (Faghih & Bakhshpour Rodsari, 2023) identified self-esteem as a mediating factor between emotion regulation and resilience, suggesting that improving emotional skills can create a cascading effect on personal strength and psychological well-being. (Mouatsou & Koutra, 2021; Mouatsou & Koutra, 2023) also emphasized the indirect relationship between emotion regulation and resilience through self-esteem in emerging adults. These findings reinforce the argument that fostering emotional intelligence in adolescents is not merely a reactive mental health strategy but a proactive developmental approach that can shape enduring personality traits.

In educational contexts, the findings of (Abdulahi Beqrabadi & Heidary rad, 2025) offer further validation, demonstrating that emotion regulation training significantly improved academic self-regulation and reduced procrastination in male students with special learning disorders. This suggests that emotion regulation skills are broadly effective across gender and ability levels. Furthermore, the study by (Theiyab Alazemi et al., 2023) provides additional insight into the academic dimensions of emotion regulation, where it was shown to interact with constructs such as grit and academic buoyancy to predict personal best performance. These multidimensional models highlight the versatility and impact of emotion regulation in various student populations and reinforce the value of early training programs in schools.

The current study also contributes to local empirical literature. In Iranian samples, emotion regulation has consistently emerged as a predictor of psychological well-being. (Namaziandost et al., 2023) found that academic emotion regulation influenced academic self-esteem and motivation, while (Huang et al., 2023) emphasized its positive correlation with resilience and academic self-concept among Chinese migrant children. Such cross-cultural evidence underscores the universality of the emotion regulation–self-esteem link and supports the adaptation of emotional training interventions across educational systems.

Moreover, the results of this study provide practical validation for interventions grounded in theoretical models of emotion regulation. Programs that involve structured activities such as emotional identification, cognitive reappraisal, and behavioral exposure offer concrete techniques for students to use in emotionally charged situations. The structure of the eight-session training protocol used in this research aligns with evidence-based practices reported in studies like (Savaş et al., 2023), where educational formats of emotional skill-building produced significant psychological benefits. This further emphasizes the feasibility and effectiveness of embedding such programs within school curricula.

In summary, the findings of this study affirm that emotion regulation training is a powerful and effective tool for enhancing self-esteem in adolescent girls. By improving their ability to manage and express emotions adaptively, students experience greater self-worth across academic, familial, and social domains. These improvements not only reflect better internal emotional states but also suggest more effective external functioning, as self-esteem often manifests in achievement, relationships, and behavior. The study, therefore, offers both theoretical and applied contributions to the fields of developmental psychology and educational intervention.

Despite the promising findings, this study is not without limitations. First, the sample size was relatively small (40 participants), which may limit the generalizability of the results to larger populations or different educational contexts. Second, the participants were selected using a convenience sampling method from a single city, which may introduce sampling bias and limit the external validity of the findings. Third, the study relied solely on self-report questionnaires, which, while standardized, are susceptible to social desirability and response bias. Additionally, the study did not include a follow-up assessment to determine whether the improvements in self-esteem persisted over time, which limits the ability to evaluate the long-term effectiveness of the intervention.

Future research should aim to replicate this study with a larger and more diverse sample to enhance generalizability. Longitudinal studies are needed to assess the durability of the intervention's effects and to determine whether booster sessions are necessary for maintaining self-esteem improvements. Furthermore, future studies could include male participants or compare the effectiveness of emotion regulation training across genders. It would also be beneficial to use mixed-method approaches that include both quantitative and qualitative data to capture a fuller picture of the changes in emotional processing and self-esteem. Incorporating teacher and parent reports, or physiological measures such as heart rate variability or cortisol levels, could also provide more objective assessments of emotional regulation and psychological well-being.

The results of this study suggest that schools should consider integrating emotion regulation training into their regular curricula or extracurricular programs. School

psychologists and counselors can play a central role in delivering structured sessions focused on enhancing emotional awareness, cognitive restructuring, and behavioral self-regulation. Teachers can also be trained to reinforce these skills in the classroom by modeling emotional competence and promoting reflective practices. Moreover, involving parents in parallel workshops may enhance the effectiveness of school-based interventions by ensuring consistency across home and school environments. Given the improvements observed in all domains of self-esteem, such programs can contribute significantly to students' holistic development and academic success.

Authors' Contributions

Authors equally contributed to this article.

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

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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