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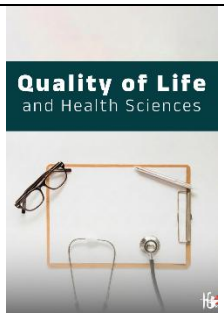

The Effectiveness of Self-Compassion Training on Perceived Stress, Body Image Distress, and Quality of Life Among Women With Polycystic Ovary Syndrome

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A B S T R A C T

Objective: This study aimed to determine the effectiveness of self-compassion training on perceived stress, body image distress, and quality of life among women with polycystic ovary syndrome.

Methods and Materials: The present study was conducted using a quasi-experimental design with a pre-test, post-test, and one-month follow-up, including an experimental group and a control group. The statistical population consisted of women with polycystic ovary syndrome who referred to gynecology and endocrinology clinics in Tehran, Iran. A total of 30 eligible women were selected through purposive sampling and assigned to two groups of 15 participants. The experimental group received eight weekly sessions of self-compassion training, while the control group received no psychological intervention during the study period and remained on the waiting list. Data were collected using the Perceived Stress Scale, the Body Image Concern Inventory, and the Polycystic Ovary Syndrome Health-Related Quality of Life Questionnaire. Data were analyzed using repeated-measures analysis of variance and Bonferroni post hoc tests.

Findings: The results showed a significant time effect, group effect, and time × group interaction for perceived stress, body image distress, and quality of life. The interaction effect was significant for perceived stress ($F = 37.18$, $p < .001$, $\eta^2 = .571$), body image distress ($F = 42.91$, $p < .001$, $\eta^2 = .605$), and quality of life ($F = 45.73$, $p < .001$, $\eta^2 = .620$). Bonferroni comparisons showed that the experimental group had significant reductions in perceived stress and body image distress and a significant increase in quality of life from pre-test to post-test and from pre-test to follow-up, while no significant changes were observed in the control group.

Conclusion: Self-compassion training was effective in reducing perceived stress and body image distress and improving quality of life among women with polycystic ovary syndrome. The stability of changes at follow-up suggests that self-compassion training can be used as a supportive psychological intervention in care programs for this population.

Keywords: *Self-compassion training; perceived stress; body image distress; quality of life; polycystic ovary syndrome; women.*

1. Introduction

Polycystic ovary syndrome is one of the most common endocrine and reproductive conditions affecting women of reproductive age and is increasingly understood as a multidimensional health condition rather than a disorder limited to ovarian function or menstrual irregularity. In addition to its reproductive and metabolic manifestations, polycystic ovary syndrome is associated with a wide range of psychological, emotional, social, and quality-of-life consequences. Women with this condition may experience irregular menstruation, infertility concerns, weight gain, acne, hirsutism, metabolic alterations, and persistent uncertainty regarding symptom management, all of which can shape their self-perception and emotional well-being. Contemporary approaches to polycystic ovary syndrome emphasize the need for person-centered care, integrated assessment, and attention to psychosocial functioning alongside medical management (Kalra et al., 2024). This broader perspective is important because women with polycystic ovary syndrome often report that clinical care focuses primarily on hormonal or reproductive outcomes while insufficiently addressing emotional distress, body image disturbance, self-stigma, and daily quality of life (Williams, 2023).

The psychosocial burden of polycystic ovary syndrome is especially evident in the relationship between physical symptoms and mental health. Visible symptoms such as excessive hair growth, acne, weight changes, and perceived physical unattractiveness may directly challenge women's sense of femininity, social confidence, and bodily control. A growing body of evidence shows that polycystic ovary syndrome is associated with psychological problems such as anxiety, depressive symptoms, reduced self-confidence, lower happiness, and diminished subjective well-being (Almhmoud et al., 2024; Erener, 2025). These difficulties are not merely secondary reactions to medical symptoms but may become persistent psychological patterns that affect social participation, intimate relationships, help-seeking behavior, and adherence to treatment. In this regard, polycystic ovary syndrome should be understood as a biopsychosocial condition in which endocrine symptoms, body-related distress, perceived stress, and quality of life continuously interact.

Perceived stress is one of the most important psychological variables in women with polycystic ovary syndrome. Women living with this condition frequently encounter stress related to diagnostic uncertainty, chronic symptom management, fertility concerns, appearance-related pressure, and social misunderstanding. Patient-centered research has shown that women with polycystic ovary syndrome often report challenges in diagnosis and care, including delayed recognition of symptoms, fragmented medical support, and insufficient attention to psychological needs (Sydora et al., 2023). These experiences may intensify the perception that life circumstances are unpredictable, uncontrollable, and overwhelming. Such stress can also increase vulnerability to emotional dysregulation, maladaptive coping, and self-critical thinking. Because stress is both an outcome of living with polycystic ovary syndrome and a potential contributor to poorer self-management, psychological interventions that reduce stress may play an important role in improving overall adjustment.

Body image distress is another central concern among women with polycystic ovary syndrome. Body image is not limited to satisfaction with physical appearance; rather, it includes emotional, cognitive, and behavioral responses to the body. In polycystic ovary syndrome, body image concerns may emerge from symptoms that are culturally and personally associated with femininity, attractiveness, and social acceptance. Research among adolescents with polycystic ovary syndrome and metabolic alterations has highlighted the importance of body image and mood vulnerabilities in this population (Barbagallo et al., 2024). Similarly, studies examining the relationship between body dissatisfaction, depression, self-esteem, and self-compassion among adolescents with polycystic ovary syndrome suggest that body-related distress may operate through deeper psychological mechanisms involving self-evaluation and emotional vulnerability (Huangfu et al., 2024). Therefore, body image distress in polycystic ovary syndrome should be considered a clinically meaningful outcome rather than a superficial or cosmetic concern.

The assessment of body image has become increasingly important in health psychology and women's health research. Instruments such as the Body Image Concern Inventory have been applied across diverse research settings to evaluate concern, distress, preoccupation, and functional impairment related to perceived appearance (Thomas & Kotian, 2024). Beyond measurement, recent scholarship has emphasized that body image distress is closely linked with shame, internalized stigma, social comparison, and culturally idealized body norms. Sociocultural perspectives suggest that idealized appearance standards may contribute to body dissatisfaction, while positive body image and self-

compassion can function as protective psychological resources (Mills et al., 2022). In women with polycystic ovary syndrome, this issue is particularly relevant because symptoms such as weight gain or hirsutism may increase exposure to stigma and self-blame, making appearance-related distress more intense and more difficult to regulate.

Weight-related stigma and self-stigma represent additional mechanisms through which polycystic ovary syndrome may affect psychological health. Women with polycystic ovary syndrome who experience weight gain or obesity may face judgment from others and may internalize negative beliefs about their bodies. Research on weight bias internalization among young women has shown that internalized stigma can be associated with shame, body dissatisfaction, and maladaptive self-evaluation (Friedman, 2023). This is especially important in polycystic ovary syndrome because weight and metabolic symptoms may be interpreted by affected women as personal failure, despite their biological and endocrine bases. Interventions targeting body image and weight self-stigma in women with polycystic ovary syndrome have shown that emotional support training can reduce body-related distress and improve psychological outcomes (Al-Maghaireh et al., 2024). These findings indicate that women with polycystic ovary syndrome may benefit from psychological approaches that directly address self-judgment, shame, and body-related self-criticism.

Quality of life is a comprehensive indicator of how polycystic ovary syndrome affects daily functioning, emotional well-being, social relationships, and perceptions of health. Studies have shown that depressive symptoms are associated with poorer quality of life among young women with polycystic ovary syndrome, indicating that psychological distress can substantially reduce well-being beyond the direct burden of physical symptoms (Peerwani et al., 2023). Quality of life in this population may be affected by menstrual problems, infertility concerns, emotional distress, body hair, weight concerns, sexual self-confidence, and perceived social acceptance. In women's health research more broadly, the use of standardized tools to measure quality of life has been emphasized as essential for understanding the lived impact of chronic and body-related conditions (Harerimana & McHunu, 2025). Therefore, interventions for polycystic ovary syndrome should not be evaluated only through symptom reduction but also through their capacity to improve subjective quality of life.

Recent work has increasingly supported the value of psychosocial and behavioral interventions for women with polycystic ovary syndrome. A feasibility trial showed that psychosocial intervention may be relevant not only for psychological functioning but also for biological and metabolic indicators among women with polycystic ovary syndrome (Yin et al., 2021). Mindfulness and meditation have also been examined as potentially useful approaches in the management of polycystic ovary syndrome, particularly because they may reduce stress, improve emotional regulation, and enhance acceptance of difficult internal experiences (Rao et al., 2024). In addition, a bio-psychosocial nursing intervention was found to improve emotional status, body image, and quality of life among women with polycystic ovarian syndrome, further supporting the need for integrated care models that include psychological components (Shereda et al., 2025). These findings suggest that structured psychological interventions can address important dimensions of polycystic ovary syndrome that are often overlooked in routine medical care.

Self-compassion has emerged as a particularly promising psychological construct for improving stress regulation, body image, and emotional well-being. Self-compassion involves responding to personal suffering with kindness rather than harsh self-judgment, recognizing suffering as part of common humanity rather than a sign of isolation, and holding painful experiences in mindful awareness rather than overidentifying with them. Mindfulness and self-care frameworks emphasize that compassionate awareness can help individuals relate differently to distressing thoughts, emotions, and bodily experiences (Shapiro et al., 2024). A meta-analysis of self-compassion interventions found that such interventions can reduce depressive symptoms, anxiety, and stress, indicating their relevance for populations experiencing persistent emotional distress (Han & Kim, 2023). In women with polycystic ovary syndrome, self-compassion may be especially valuable because it directly targets self-criticism, shame, and the tendency to interpret illness-related symptoms as personal inadequacy.

The relationship between self-compassion and body image has been explored across several clinical and non-clinical populations. Research on self-perceived and other-perceived body image has shown that mindfulness and self-compassion are important psychological factors in body-related perceptions and emotional adjustment (An et al., 2025). Similarly, studies of physical deformities and appearance-related difficulties suggest that self-compassion can influence how individuals evaluate and emotionally respond to bodily differences (Meiri et al., 2024). The development and validation of the Body Compassion Scale

in multiple sclerosis further demonstrates the growing recognition that compassion toward the body is a meaningful construct in chronic health conditions that affect physical identity and functioning (Mistretta et al., 2025). Although multiple sclerosis and polycystic ovary syndrome are clinically different conditions, both may involve changes in bodily experience, perceived control, and self-identity, making body compassion highly relevant to women with polycystic ovary syndrome.

Compassion-focused and self-compassion-based interventions may also be relevant for reducing body dissatisfaction, stigma, and disordered eating risk. A scoping study on compassion-focused therapy highlighted its potential role in addressing body dissatisfaction, stigma, and eating disorders (Dover & Clements, 2025). Reviews of disordered eating in emerging adults also emphasize the importance of prevention approaches that address emotional vulnerability, body dissatisfaction, and maladaptive self-evaluation (El-Jor et al., 2025). Similarly, virtual prevention programs for eating disorders in children, adolescents, and emerging adults indicate that psychological prevention can be delivered in structured ways to reduce risk factors linked to body dissatisfaction (Pellegrini et al., 2022). Although the present study is not focused on eating disorders, these findings are relevant because women with polycystic ovary syndrome may experience body dissatisfaction, weight concerns, and appearance-related shame, which can overlap with broader risk pathways for maladaptive eating and psychological distress.

Evidence from intervention studies further supports the relevance of self-compassion for body image and emotional functioning. Mindfulness-based interventions have demonstrated beneficial effects on body image dissatisfaction among clinical populations (Gopan et al., 2023), and mindfulness-based art therapy has been shown to improve body image among women with polycystic ovary syndrome (Bafghi et al., 2024). Digital interventions have also shown that body image and self-compassion can be improved through structured psychological programs, as demonstrated in a randomized controlled trial of a mental health application targeting young adults (Ong & Sündermann, 2022). Moreover, gratitude journal writing among women with polycystic ovary syndrome has been associated with changes in depression, anxiety, stress, self-criticism, and self-compassion (Jose, 2023). These studies collectively suggest that interventions targeting mindful awareness, emotional support, positive self-relating, and compassionate self-evaluation may improve psychological outcomes in women experiencing body-related distress.

Research has also highlighted the mediating and protective role of self-compassion in women with polycystic ovary syndrome. A cross-sectional study showed that regulatory emotional self-efficacy and self-compassion mediated relationships among anxiety, depression, body image distress, and subjective well-being in women with polycystic ovary syndrome (Wang et al., 2024). This evidence indicates that self-compassion is not only an outcome of psychological well-being but may also function as a mechanism through which women regulate distress and improve subjective quality of life. A web-based self-management support intervention for polycystic ovary syndrome also emphasized the need for accessible interventions developed from both patient and health professional perspectives (Percy et al., 2023, 2024). Such findings support the design of structured self-compassion training as a feasible and theoretically grounded intervention for women with polycystic ovary syndrome.

More broadly, positive psychological well-being has been identified as an important but underdeveloped area in women with obesity and related body concerns (Conradson et al., 2022). This is relevant because many women with polycystic ovary syndrome experience weight-related distress, metabolic symptoms, and reduced body acceptance. Models designed to promote resilience in women's weight stigma management emphasize the importance of body image resilience, adaptive coping, and psychological resources that protect individuals from the harmful effects of stigma (Dever et al., 2025). Tailored psychological interventions for body image have also been recommended in other women's health contexts, such as breast cancer survivorship, where bodily changes can strongly affect identity, confidence, and emotional adjustment (Sebri & Pravettoni, 2023). Compassion-focused and positive-oriented interventions have also been shown to affect body image among female adolescents with a history of self-injury, suggesting that improving the quality of self-relation may be beneficial in populations characterized by body-related vulnerability and emotional distress (Kashaniain et al., 2023).

Despite increasing recognition of the psychological burden of polycystic ovary syndrome, there remains a need for intervention studies that simultaneously examine perceived stress, body image distress, and quality of life. Many existing studies focus on either medical management, general mental health symptoms, or isolated body image

outcomes, while fewer studies evaluate whether self-compassion training can produce integrated improvements across stress-related, body-related, and quality-of-life domains. Primary care perspectives emphasize the importance of comprehensive assessment and management of polycystic ovary syndrome, including awareness of psychological and lifestyle-related concerns (Ee, 2023). Given the chronic and multifaceted nature of polycystic ovary syndrome, psychological interventions should help women not only reduce distress but also develop a more accepting, less self-critical, and more compassionate relationship with their bodies and lived experiences.

Therefore, the aim of the present study was to determine the effectiveness of self-compassion training on perceived stress, body image distress, and quality of life among women with polycystic ovary syndrome.

2. Methods and Materials

2.1. Study Design and Participants

This study was conducted using a quasi-experimental design with a pre-test, post-test, and follow-up assessment, including an experimental group and a control group. The statistical population consisted of women diagnosed with polycystic ovary syndrome who referred to gynecology and endocrinology clinics in Tehran, Iran. From this population, 30 eligible women were selected through purposive sampling based on the study inclusion criteria and were then assigned to two groups, with 15 participants in the experimental group and 15 participants in the control group. The inclusion criteria were being a woman aged 18 to 40 years, having a confirmed diagnosis of polycystic ovary syndrome based on clinical and medical records, willingness to participate in the study, ability to attend the training sessions regularly, and not receiving simultaneous psychological intervention during the study period. The exclusion criteria included absence from more than two intervention sessions, diagnosis of severe psychiatric disorder, use of psychiatric medication with unstable dosage during the study, pregnancy, and unwillingness to continue participation. Before the intervention, all participants completed the research questionnaires as the pre-test. The experimental group then received self-compassion training, while the control group received no psychological intervention during this period and remained on the waiting list. After completion of the intervention, both groups completed the post-test measures, and a follow-up assessment was conducted one month later to examine the stability of the intervention effects. Ethical considerations were observed throughout the study, including obtaining informed consent, ensuring voluntary participation, maintaining confidentiality of participants' information, and allowing participants to withdraw from the study at any stage without any consequences.

The self-compassion training program was implemented for the experimental group in eight weekly sessions, each lasting approximately 90 minutes. The intervention was designed based on the theoretical foundations of self-compassion, particularly the components of self-kindness, common humanity, and mindfulness. The sessions focused on helping participants recognize self-critical thoughts related to illness, body image, femininity, and quality of life, and replace them with a more accepting and compassionate attitude toward themselves. The training included psychoeducation about self-compassion, mindfulness exercises, compassionate breathing, identification of inner critical dialogue, development of kind self-talk, emotion regulation through compassionate awareness, acceptance of bodily changes, and applying self-compassion skills in daily stressful situations. Participants were also given practical exercises between sessions to strengthen the application of self-compassion in real-life experiences associated with polycystic ovary syndrome, perceived stress, and body image distress. The control group did not receive the intervention during the study period but was offered the opportunity to receive the training after completion of the research process.

2.2. Measures

The Demographic and Clinical Information Form was used to collect background information from the participants. This form included questions about age, marital status, educational level, employment status, duration of diagnosis with polycystic ovary syndrome, history of medical treatment, menstrual irregularity, body mass concerns, and previous psychological treatment. The purpose of this form was to describe the sample characteristics and ensure that participants met the inclusion and exclusion criteria of the study. Information obtained through this form was used only for research purposes and was kept confidential.

Perceived stress was measured using the Perceived Stress Scale developed by Cohen, Kamarck, and Mermelstein in 1983. This scale is one of the most widely used instruments for assessing the degree to which individuals perceive

situations in their lives as stressful, unpredictable, uncontrollable, and overwhelming. The 10-item version of the scale was used in the present study. Items are scored on a five-point Likert scale ranging from never to very often. Some items are reverse-scored, and the total score is obtained by summing all items after reverse scoring. Higher scores indicate greater perceived stress. The Perceived Stress Scale has been widely used in clinical and non-clinical populations, and its validity and reliability have been confirmed in previous studies. In the present study, this instrument was used to assess changes in perceived stress among women with polycystic ovary syndrome before and after self-compassion training and during follow-up.

Body image distress was assessed using the Body Image Concern Inventory developed by Littleton, Axsom, and Pury in 2005. This instrument evaluates distress, preoccupation, dissatisfaction, and functional interference related to perceived physical appearance. The inventory contains 19 items scored on a five-point Likert scale, with higher scores indicating greater body image concern and distress. The scale assesses cognitive, emotional, and behavioral aspects of body image disturbance, including dissatisfaction with appearance, excessive concern about physical features, avoidance behaviors, and the extent to which appearance-related concerns interfere with daily functioning. This tool was considered appropriate for the present study because women with polycystic ovary syndrome often experience appearance-related concerns associated with symptoms such as weight changes, acne, hirsutism, and menstrual irregularity. The validity and reliability of the Body Image Concern Inventory have been confirmed in previous research, and it was used in this study to evaluate the effect of self-compassion training on body image distress.

Quality of life was measured using the Polycystic Ovary Syndrome Health-Related Quality of Life Questionnaire developed by Cronin and colleagues in 1998. This questionnaire is a disease-specific instrument designed to assess quality of life among women with polycystic ovary syndrome. The questionnaire includes 26 items and evaluates several domains affected by polycystic ovary syndrome, including emotional problems, body hair, weight concerns, infertility concerns, and menstrual problems. Items are scored on a seven-point Likert scale, with lower scores indicating poorer quality of life and greater impairment, and higher scores indicating better quality of life. Because this questionnaire is specifically designed for women with polycystic ovary syndrome, it provides a more precise assessment of the psychosocial and clinical burden of the disorder compared with general quality of life measures. The validity and reliability of this questionnaire have been supported in previous studies, and it was used in the present study to measure changes in quality of life following self-compassion training.

2.3. Intervention

The self-compassion training protocol was implemented for the experimental group in eight weekly sessions, each lasting approximately 90 minutes. The intervention was designed based on the core components of self-compassion, including self-kindness, common humanity, and mindfulness, and aimed to help participants develop a more accepting and compassionate relationship with themselves, their bodies, and the psychological challenges associated with polycystic ovary syndrome. In the initial sessions, participants were introduced to the concept of self-compassion and its difference from self-pity, self-indulgence, and self-esteem, and they explored the role of self-criticism in perceived stress and body image distress. The following sessions focused on mindfulness of difficult emotions, recognition of automatic negative thoughts about the body, compassionate breathing, and reducing overidentification with illness-related concerns. Participants were then trained to replace harsh self-judgment with kind and supportive self-talk, recognize their suffering as part of shared human experience, and respond to body-related concerns such as weight changes, acne, hirsutism, and femininity-related worries with greater acceptance. Later sessions emphasized applying self-compassion skills in daily stressful situations, improving emotional regulation, strengthening body acceptance, and developing practical strategies for maintaining quality of life despite the chronic challenges of polycystic ovary syndrome. Each session included psychoeducation, group discussion, experiential exercises, guided practice, and between-session homework, and the final session reviewed the learned skills and focused on relapse prevention and continued use of self-compassion practices after the completion of the intervention.

2.4. Data Analysis

Data were analyzed using SPSS statistical software. Before conducting the main analyses, the data were screened for missing values, outliers, and accuracy of data entry. Descriptive statistics, including mean and standard deviation, were used to describe the study variables at the pre-test, post-test, and follow-up stages in the experimental

and control groups. Frequency and percentage were also used to describe demographic and clinical characteristics of the participants. The assumptions required for parametric analysis were examined before hypothesis testing. The normality of the distribution of the dependent variables was assessed using the Shapiro–Wilk test, homogeneity of variances was examined using Levene's test, and the assumption of sphericity was evaluated using Mauchly's test. When the assumption of sphericity was violated, the Greenhouse–Geisser correction was applied.

To evaluate the effectiveness of self-compassion training on perceived stress, body image distress, and quality of life, repeated-measures analysis of variance was used. This analysis examined the main effect of time, the main effect of group, and the interaction effect of time and group across the pre-test, post-test, and follow-up stages. The interaction effect was considered the main indicator of intervention effectiveness, as it showed whether changes over time differed significantly between the experimental and control groups. When significant effects were observed, Bonferroni post hoc comparisons were used to determine the differences between pre-test, post-test, and follow-up scores. The significance level was set at 0.05 for all statistical tests. The results were interpreted based on statistical significance, direction of mean changes, and the stability of the effects during the follow-up stage.

3. Findings and Results

The present study included 30 women with polycystic ovary syndrome who were assigned to an experimental group and a control group, with 15 participants in each group. The mean age of the participants was 29.86 years with a standard deviation of 5.21 years. The mean age was 29.60 ± 5.44 years in the experimental group and 30.13 ± 5.09 years in the control group, and the difference between the two groups was not statistically significant. Regarding marital status, 18 participants were married and 12 participants were single. In terms of educational level, 9 participants had a diploma or associate degree, 13 participants had a bachelor's degree, and 8 participants had a master's degree or higher. The mean duration of diagnosis with polycystic ovary syndrome was 4.38 ± 2.17 years. Comparison of the two groups in terms of age, marital status, educational level, employment status, and duration of diagnosis showed no statistically significant differences, indicating that the experimental and control groups were relatively homogeneous in terms of demographic and clinical characteristics before the intervention. Therefore, any changes observed in the dependent variables after the intervention could be more confidently attributed to the self-compassion training program.

Table 1

Descriptive statistics of perceived stress, body image distress, and quality of life in the experimental and control groups across three measurement stages

Variable	Group	Pre-test Mean ± SD	Post-test Mean ± SD	Follow-up Mean ± SD
Perceived stress	Experimental	29.07 ± 4.36	20.13 ± 3.91	20.67 ± 4.08
Perceived stress	Control	28.53 ± 4.22	27.80 ± 4.48	28.27 ± 4.35
Body image distress	Experimental	60.40 ± 8.31	45.67 ± 7.62	46.33 ± 7.89
Body image distress	Control	59.73 ± 8.07	58.80 ± 8.45	59.20 ± 8.26
Quality of life	Experimental	85.33 ± 11.42	108.47 ± 12.36	106.80 ± 12.18
Quality of life	Control	86.27 ± 10.95	88.13 ± 11.21	87.47 ± 11.05

As shown in Table 1, the pre-test scores of the experimental and control groups were close to each other in all three dependent variables, indicating that the two groups were comparable before the implementation of the intervention. In the experimental group, the mean score of perceived stress decreased from 29.07 at pre-test to 20.13 at post-test and remained relatively stable at 20.67 during follow-up. This pattern indicates a considerable reduction in perceived stress after self-compassion training, with the effect largely maintained one month after the intervention. In contrast, the control group showed only minor changes in perceived stress, with mean scores of 28.53, 27.80, and 28.27 at pre-test, post-test, and follow-up, respectively. A similar pattern was observed for body image distress. The experimental group showed a marked decrease from 60.40 at pre-test to 45.67 at post-test, and the follow-up mean of 46.33 suggested that the reduction in body image distress remained relatively stable over time. However, the control group showed no meaningful decrease in body image distress across the three stages. For quality of life, the

experimental group showed a clear increase from 85.33 at pre-test to 108.47 at post-test, with a follow-up mean of 106.80, indicating that self-compassion training was associated with an improvement in quality of life and that this improvement was largely sustained. In the control group, quality of life scores remained almost unchanged across time. Overall, the descriptive findings suggest that self-compassion training reduced perceived stress and body image distress and improved quality of life among women with polycystic ovary syndrome.

Before conducting repeated-measures analysis of variance, the assumptions of parametric analysis were examined. The Shapiro–Wilk test showed that the distribution of perceived stress, body image distress, and quality of life scores was normal in both groups across the pre-test, post-test, and follow-up stages. Levene's test also confirmed the homogeneity of variances between the experimental and control groups for all dependent variables. In addition, Mauchly's test of sphericity was not statistically significant for the study variables, indicating that the assumption of sphericity was met. Therefore, repeated-measures analysis of variance was considered appropriate for examining the effect of time, group, and the interaction between time and group on perceived stress, body image distress, and quality of life.

Table 2

Results of repeated-measures analysis of variance for perceived stress, body image distress, and quality of life

Variable	Source of Effect	df	F	p	Partial Eta Squared
Perceived stress	Time	2, 56	48.72	< .001	.635
Perceived stress	Group	1, 28	8.94	.006	.242
Perceived stress	Time × Group	2, 56	37.18	< .001	.571
Body image distress	Time	2, 56	55.84	< .001	.666
Body image distress	Group	1, 28	9.67	.004	.257
Body image distress	Time × Group	2, 56	42.91	< .001	.605
Quality of life	Time	2, 56	62.36	< .001	.690
Quality of life	Group	1, 28	12.58	.001	.310
Quality of life	Time × Group	2, 56	45.73	< .001	.620

The results presented in Table 2 indicate that the main effect of time was statistically significant for perceived stress, body image distress, and quality of life. This means that the scores of the dependent variables changed significantly across the pre-test, post-test, and follow-up stages. The main effect of group was also statistically significant for all three variables, showing that the experimental and control groups differed significantly when the overall scores across the three measurement stages were considered. Most importantly, the interaction effect of time and group was statistically significant for perceived stress, body image distress, and quality of life. The significant interaction effect indicates that the pattern of change over time was different between the experimental and control groups. In other words, the experimental group demonstrated meaningful improvement from pre-test to post-test and follow-up, whereas the control group did not show comparable changes. The partial eta squared values also showed large effect sizes for the interaction effects, with values of .571 for perceived stress, .605 for body image distress, and .620 for quality of life. These findings suggest that self-compassion training had a strong effect on reducing perceived stress and body image distress and increasing quality of life among women with polycystic ovary syndrome.

Table 3

Bonferroni post hoc comparisons of dependent variables across measurement stages in the experimental and control groups

Variable	Group	Comparison	Mean Difference	SE	p
Perceived stress	Experimental	Post-test – Pre-test	-8.94	1.12	< .001
Perceived stress	Experimental	Follow-up – Pre-test	-8.40	1.18	< .001
Perceived stress	Experimental	Follow-up – Post-test	0.54	0.61	1.000
Perceived stress	Control	Post-test – Pre-test	-0.73	0.79	1.000
Perceived stress	Control	Follow-up – Pre-test	-0.26	0.84	1.000

Perceived stress	Control	Follow-up – Post-test	0.47	0.58	1.000
Body image distress	Experimental	Post-test – Pre-test	-14.73	1.94	< .001
Body image distress	Experimental	Follow-up – Pre-test	-14.07	2.01	< .001
Body image distress	Experimental	Follow-up – Post-test	0.66	0.83	1.000
Body image distress	Control	Post-test – Pre-test	-0.93	0.88	1.000
Body image distress	Control	Follow-up – Pre-test	-0.53	0.91	1.000
Body image distress	Control	Follow-up – Post-test	0.40	0.62	1.000
Quality of life	Experimental	Post-test – Pre-test	23.14	2.76	< .001
Quality of life	Experimental	Follow-up – Pre-test	21.47	2.81	< .001
Quality of life	Experimental	Follow-up – Post-test	-1.67	1.05	.382
Quality of life	Control	Post-test – Pre-test	1.86	1.21	.427
Quality of life	Control	Follow-up – Pre-test	1.20	1.16	.941
Quality of life	Control	Follow-up – Post-test	-0.66	0.78	1.000

The Bonferroni post hoc comparisons presented in Table 3 provide more detailed evidence regarding the direction and stability of changes across the three stages of measurement. In the experimental group, perceived stress decreased significantly from pre-test to post-test and from pre-test to follow-up. However, the difference between post-test and follow-up was not statistically significant, indicating that the reduction in perceived stress achieved after the intervention remained stable during the follow-up period. In the control group, none of the pairwise comparisons for perceived stress were statistically significant, suggesting that perceived stress did not meaningfully change over time in the absence of self-compassion training. For body image distress, the experimental group showed a significant decrease from pre-test to post-test and from pre-test to follow-up, while the difference between post-test and follow-up was not significant. This finding indicates that self-compassion training produced a significant and stable reduction in body image distress among women with polycystic ovary syndrome. In contrast, body image distress did not significantly change across time in the control group. Regarding quality of life, the experimental group showed a significant increase from pre-test to post-test and from pre-test to follow-up. The difference between post-test and follow-up was not statistically significant, indicating that the improvement in quality of life was largely maintained after completion of the intervention. The control group showed no statistically significant changes in quality of life across the three measurement stages. Overall, the post hoc findings confirm that self-compassion training was effective in reducing perceived stress and body image distress and improving quality of life, and that these effects remained relatively stable at the follow-up stage.

4. Discussion

The present study aimed to determine the effectiveness of self-compassion training on perceived stress, body image distress, and quality of life among women with polycystic ovary syndrome. The findings showed that participants in the experimental group experienced a significant reduction in perceived stress from pre-test to post-test, and this reduction remained stable at the follow-up stage. In contrast, the control group did not show a meaningful change across the three measurement stages. The significant time-by-group interaction indicated that the observed reduction in perceived stress was attributable to the self-compassion training intervention rather than to the passage of time or repeated measurement. This finding suggests that self-compassion training can help women with polycystic ovary syndrome relate to illness-related concerns with greater emotional balance, less self-blame, and improved stress regulation. Polycystic ovary syndrome is often accompanied by uncertainty about symptoms, fertility, body changes, and long-term health, and these concerns can increase perceived stress and emotional vulnerability. The present finding is consistent with evidence showing that women with polycystic ovary syndrome experience substantial psychological burden and that integrated psychosocial approaches are needed alongside medical care (Almhmoud et al., 2024; Williams, 2023). It also aligns with research emphasizing the role of patient-centered and person-centered management in polycystic ovary syndrome, where attention to emotional distress and lived experience is considered essential for effective care (Ee, 2023; Kalra et al., 2024).

The reduction in perceived stress can be explained by the core mechanisms of self-compassion training. Self-compassion encourages individuals to respond to suffering through self-kindness, common humanity, and mindful

awareness rather than through self-criticism, isolation, and overidentification with distressing experiences. For women with polycystic ovary syndrome, this shift may reduce the psychological intensity of illness-related concerns by helping them recognize that bodily symptoms and emotional reactions do not represent personal failure. The present result is supported by meta-analytic evidence indicating that self-compassion interventions are effective in reducing stress, anxiety, and depressive symptoms (Han & Kim, 2023). It is also consistent with findings showing that mindfulness and meditation practices may be useful in the management of polycystic ovary syndrome by improving emotional regulation and reducing distress (Rao et al., 2024). Similarly, research on gratitude journal writing among women with polycystic ovary syndrome has shown improvements in depression, anxiety, stress, self-criticism, and self-compassion, suggesting that interventions targeting the quality of self-relation can reduce psychological distress in this population (Jose, 2023). From this perspective, the effectiveness of self-compassion training in the present study may be related to its capacity to weaken harsh self-evaluative processes and strengthen adaptive emotional coping.

The second finding of the study showed that self-compassion training significantly reduced body image distress among women with polycystic ovary syndrome, and this reduction was maintained at follow-up. This finding is particularly important because body image distress is one of the most clinically relevant psychological concerns in women with polycystic ovary syndrome. Symptoms such as hirsutism, acne, weight gain, menstrual irregularity, and infertility concerns can affect women's sense of femininity, attractiveness, bodily control, and social confidence. Previous research has shown that body image and mood vulnerabilities are prominent among individuals with polycystic ovary syndrome, especially when physical and metabolic symptoms are present (Barbagallo et al., 2024). The present finding is also aligned with research indicating that body dissatisfaction, self-esteem, self-compassion, and depression are interconnected among adolescents with polycystic ovary syndrome (Huangfu et al., 2024). Therefore, reducing body image distress through self-compassion training is theoretically plausible, because self-compassion directly modifies the emotional meaning attached to bodily imperfections, symptoms, and perceived deviations from idealized appearance standards.

Self-compassion training may reduce body image distress by helping participants move from body evaluation to body acceptance. In many women with polycystic ovary syndrome, the body may be experienced as unpredictable, defective, or socially unacceptable. Such experiences can generate shame, avoidance, appearance checking, comparison with others, and internalized stigma. The present results are consistent with sociocultural perspectives suggesting that body dissatisfaction is intensified by idealized body norms and shame, while positive body image and self-compassion may serve as protective resources (Mills et al., 2022). They also support findings that self-compassion is related to body image perceptions and can influence how individuals respond to appearance-related concerns (An et al., 2025; Meiri et al., 2024). Furthermore, the development of body compassion as a construct in chronic health conditions supports the idea that compassionate acceptance of the body is important when physical symptoms alter body-related identity and self-perception (Mistretta et al., 2025). In the present study, participants may have learned to respond to distressing body-related thoughts with less judgment and more emotional flexibility, thereby reducing the severity of body image distress.

The present finding regarding body image distress is also consistent with intervention studies in related populations. Mindfulness-based art therapy has been shown to improve body image among women with polycystic ovary syndrome, indicating that psychological interventions can positively affect appearance-related distress in this population (Bafghi et al., 2024). Emotional support training has also been found to reduce weight self-stigma and improve body image among women with polycystic ovary syndrome, further supporting the role of structured psychological interventions in reducing shame and negative self-evaluation (Al-Maghaireh et al., 2024). In addition, mindfulness-based interventions have been reported to improve body image dissatisfaction among clinical populations, suggesting that mindful awareness and acceptance can reduce maladaptive body-related preoccupation (Gopan et al., 2023). Compassion-focused therapy has also been discussed as a promising approach for body dissatisfaction, stigma, and eating-related concerns (Dover & Clements, 2025). These studies collectively support the present finding that self-compassion training can reduce body image distress among women with polycystic ovary syndrome by targeting self-criticism, stigma, shame, and overidentification with appearance-related concerns.

The third finding showed that self-compassion training significantly improved quality of life in the experimental

group, and this improvement remained relatively stable at follow-up. This result indicates that the benefits of self-compassion training were not limited to reducing negative psychological symptoms but extended to broader perceptions of well-being and daily functioning. Quality of life in women with polycystic ovary syndrome is influenced by emotional problems, menstrual concerns, body hair, weight concerns, infertility worries, and social functioning. Previous studies have shown that depressive symptoms are associated with poorer quality of life among young women with polycystic ovary syndrome (Peerwani et al., 2023). Evidence also indicates that standardized quality-of-life assessment is necessary for understanding the broader impact of chronic women's health conditions (Harerimana & McHunu, 2025). Therefore, the improvement in quality of life observed in the present study may reflect changes in participants' emotional adjustment, body acceptance, stress regulation, and perceived ability to cope with the psychosocial consequences of polycystic ovary syndrome.

The improvement in quality of life can be interpreted through the integrated effects of self-compassion on stress and body image. When women experience less perceived stress and less body image distress, they may also experience greater emotional stability, social confidence, and satisfaction with daily life. This interpretation is consistent with research showing that regulatory emotional self-efficacy and self-compassion mediate the relationships among anxiety, depression, body image distress, and subjective well-being in women with polycystic ovary syndrome (Wang et al., 2024). It also aligns with findings from a bio-psychosocial nursing intervention that improved emotional status, body image, and quality of life among women with polycystic ovarian syndrome (Shereda et al., 2025). Similarly, psychosocial intervention research suggests that psychological approaches may be relevant not only for mental health but also for broader adjustment among women with polycystic ovary syndrome (Yin et al., 2021). Thus, the present findings support the view that self-compassion training may be an effective psychological strategy for improving quality of life because it addresses multiple interconnected domains of distress.

The stability of the intervention effects at follow-up is another important aspect of the present study. The Bonferroni comparisons showed that perceived stress and body image distress decreased significantly from pre-test to post-test and from pre-test to follow-up, while post-test and follow-up scores did not differ significantly. Similarly, quality of life increased significantly from pre-test to post-test and from pre-test to follow-up, with no significant decline between post-test and follow-up. This pattern suggests that the participants retained the benefits of the self-compassion training after the completion of the sessions. The maintenance of effects may be due to the practical and repeatable nature of self-compassion exercises, such as compassionate breathing, mindful awareness, recognition of self-critical thoughts, and compassionate self-talk. These skills can be used independently in daily life, especially in moments of stress, body dissatisfaction, or illness-related concern. The findings are compatible with studies showing that digital or structured interventions can improve self-compassion and body image with sustained short-term benefits (Ong & Sündermann, 2022), and with work emphasizing the need for accessible self-management support interventions for women with polycystic ovary syndrome (Percy et al., 2023, 2024).

Overall, the findings of the present study contribute to the growing literature on psychological interventions for women with polycystic ovary syndrome. Previous research has emphasized that women with polycystic ovary syndrome often face diagnostic challenges, emotional distress, body-related concerns, stigma, and reduced quality of life (Erener, 2025; Sydora et al., 2023). The present study extends this literature by showing that self-compassion training can simultaneously reduce perceived stress and body image distress while improving quality of life. This is important because psychological difficulties in polycystic ovary syndrome are not isolated; rather, stress, body dissatisfaction, self-stigma, emotional symptoms, and quality of life are dynamically connected. The findings are also consistent with broader models of body image resilience and stigma management, which emphasize adaptive coping, compassionate self-relation, and resistance to internalized negative evaluations (Dever et al., 2025; Friedman, 2023). Therefore, self-compassion training can be regarded as a theoretically coherent and clinically relevant intervention for women with polycystic ovary syndrome.

5. Conclusion

The findings may be understood in relation to broader psychological intervention literature on body-related distress. Research in diverse women's health contexts has emphasized the value of tailored psychological interventions for managing body image concerns, particularly when bodily changes affect identity, confidence, and emotional adjustment (Sebri & Pravettoni, 2023). Positive

psychological well-being has also been identified as a meaningful domain in women with obesity and weight-related concerns, indicating the importance of focusing not only on symptom reduction but also on adaptive psychological resources (Conradson et al., 2022). In addition, compassion-focused and positive-oriented interventions have been found to improve body image among female adolescents with emotional and behavioral vulnerability (Kashaniain et al., 2023). The relevance of these studies to the present research lies in their shared emphasis on modifying self-relation, reducing shame, and strengthening psychological resilience in the face of body-related distress. In women with polycystic ovary syndrome, these mechanisms appear to be especially important because the condition often affects visible appearance, reproductive identity, and perceived bodily control.

6. Limitations & Suggestions

This study had several limitations that should be considered when interpreting the findings. First, the sample size was relatively small and included only 30 women with polycystic ovary syndrome from Tehran, which may limit the generalizability of the results to women from other cities, cultural contexts, age groups, or clinical backgrounds. Second, the study relied on self-report questionnaires, and participants' responses may have been affected by social desirability, response bias, or temporary emotional states. Third, the follow-up period was limited to one month, and therefore the long-term stability of the intervention effects could not be determined. Fourth, although the control group did not receive a psychological intervention during the study period, the use of a waiting-list control group does not fully control for nonspecific factors such as therapist attention, group support, expectancy effects, or participation in a structured program. Finally, medical variables such as hormonal profile, body mass index, medication use, infertility treatment status, and severity of polycystic ovary syndrome symptoms were not examined as moderators of treatment response.

Future studies are recommended to examine the effectiveness of self-compassion training with larger and more diverse samples of women with polycystic ovary syndrome from different geographical, cultural, and socioeconomic backgrounds. Researchers should consider using randomized controlled trial designs with active comparison groups to distinguish the specific effects of self-compassion training from general therapeutic attention and group participation. Future research should also include longer follow-up periods, such as three months, six months, or one year, to determine whether the improvements in perceived stress, body image distress, and quality of life remain stable over time. It would also be useful to examine mediating variables such as self-criticism, shame, mindfulness, emotional regulation, self-esteem, body appreciation, and illness acceptance, as these mechanisms may explain how self-compassion training produces psychological change. In addition, future studies could investigate whether clinical factors such as body mass index, infertility concerns, hirsutism severity, acne severity, menstrual irregularity, and treatment history influence the effectiveness of self-compassion training.

The findings of this study suggest that self-compassion training can be integrated into psychological and supportive care programs for women with polycystic ovary syndrome. Health professionals, including psychologists, counselors, nurses, midwives, gynecologists, and endocrinology care teams, should pay attention to the emotional and body-related experiences of women with this condition rather than focusing exclusively on medical symptoms. Self-compassion-based exercises can be used to help patients reduce self-blame, manage stress, respond more adaptively to body dissatisfaction, and improve their overall quality of life. Clinical programs for women with polycystic ovary syndrome may benefit from including sessions on self-kindness, mindful awareness of distress, compassionate self-talk, body acceptance, and coping with stigma. In practice, self-compassion training can be delivered individually, in groups, or through digital formats, making it a flexible and accessible approach for improving psychosocial adjustment among women living with polycystic ovary syndrome.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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