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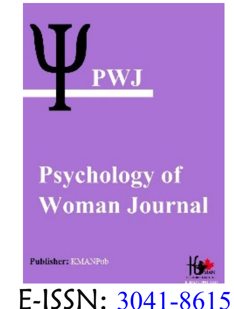
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Comparison of the Effectiveness of Group-Based Acceptance and Commitment Therapy and Compassion-Focused Therapy on Psychological Capital in Infertile Women

Sara. Yadolahi[1], Seyed Hassan. Mirzaei[2*], Ali Akbar. Soleimanian[3]

[1] PhD Student of Psychology, Faculty of Basic Sciences and Humanities, Boj.C., Islamic Azad University, Bojnord, Iran
[2] Assistant Professor, Department of Psychology, Faculty of Basic Sciences and Humanities, Boj.C., Islamic Azad University, Bojnord, Iran
[3] Associate Professor, Department of Counseling, Faculty of Humanities, University of Bojnord, Bojnord, Iran

*** Corresponding author email address**: Yadolahi2014@gmail.com

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ABSTRACT

Objective: The present study aimed to compare the effects of group counseling based on Acceptance and Commitment Therapy (ACT) and Compassion-Focused Therapy (CFT) on the psychological capital of infertile women.
Methods and Materials: This research was a quasi-experimental study with a pretest-posttest design and a control group. The study population included all infertile women in Bojnord in 2023. A total of 45 participants were selected using purposive sampling and randomly assigned to three groups of 15 individuals (two experimental groups and one control group). The experimental interventions—one based on ACT and the other on CFT—were conducted in eight sessions lasting 120 minutes each for the experimental groups. The research instrument was the Psychological Capital Questionnaire developed by Luthans (2007).
Findings: The findings indicated that the effects of time, group, and the interaction between time and group were all statistically significant ($p < .001$). Pairwise comparisons revealed no significant difference between the two therapeutic approaches (ACT and CFT) in the posttest. However, both experimental groups showed statistically significant improvements compared to the control group in all dimensions of psychological capital—hope, self-efficacy, optimism, and resilience ($p < .01$).
Conclusion: The results suggest that group counseling based on ACT and CFT can be used to improve the psychological capital of infertile women, thereby potentially reducing the psychological and familial consequences of infertility, as well as the risk of increased conflict and divorce.
Keywords: *Psychological Capital, Compassion, Acceptance and Commitment, Infertile Couples*

1. Introduction

One of the most common psychological and sexual health challenges among women is infertility. According to medical literature, infertility is defined as a condition in which a couple fails to conceive after one year of regular unprotected intercourse (İnam, 2024; Xie et al., 2023). The average prevalence of infertility in developing countries is estimated to be between 6.9% and 9.3% (Hassan et al., 2023; Schuette et al., 2023). Currently, the prevalence of infertility is increasing due to various reasons. Recent global estimates indicate that the prevalence of infertility among the general population ranges from 9% to 18% (Leisegang, Sengupta, Agarwal, & Henkel, 2021). In Iran, based on the results of a national survey on infertility prevalence, the rate of infertility was reported to be 20.2% nationwide, with urban areas at 19.9% and rural areas at 22%, significantly exceeding the global average of 12% to 15% (Shahi Sonobari et al., 2022). It is estimated that over one million infertile couples reside in Iran (Borhani et al., 2010).

The crisis of infertility and its accompanying emotional and psychological harm have caused infertile couples to experience increased levels of infertility-related stress (Kim et al., 2020). Infertile women often perceive infertility as one of the most stressful periods of their lives, marked by numerous stressors (Adeleye et al., 2020). The sustained psychological distress and ongoing stress they endure lead to reduced quality of life and impaired mental health (Swift et al., 2021).

One variable that may be disrupted in the lives of infertile individuals is *psychological capital*. Psychological capital is a key construct in positive psychology, defined by characteristics such as an individual's belief in their abilities to achieve success, persistence in pursuing goals, the formation of positive self-attributions, and the ability to endure difficulties (Ryan & Deci, 2001). In another definition, psychological capital refers to positive traits and capabilities among employees, managers, and organizational environments, including self-confidence, hope, optimism, and resilience. More specifically, psychological capital includes personality characteristics that influence job performance, such as self-respect, self-confidence, accountability, emotional stability, flexibility, resilience, optimism, and hope (Avey et al., 2009). According to Luthans and colleagues (2021), psychological capital consists of four core components: (1) optimism about current and future success; (2) perseverance and hope regarding goals and their achievement; (3) confidence in one's competence and effort in tackling challenges and attaining success; and (4) flexibility in dealing with events and approaches to success (Luthans & Broad, 2022).

Given the multifaceted nature of infertility and its treatment, addressing infertility cannot be limited to physical dimensions alone. It is essential to consider psychological interventions alongside medical treatments. In recent decades, significant advances have been made in the development of psychosocial interventions for individuals facing infertility (Kim et al., 2020). Psychological interventions, when integrated with infertility treatment programs, enhance mental health, increase the resilience of individuals to stress, improve the effectiveness of infertility treatments, and encourage patients to continue treatment. One such psychological intervention grounded in robust theoretical foundations is *Acceptance and Commitment Therapy* (ACT). Rather than attempting to change thoughts, ACT seeks to enhance the individual's psychological relationship with their thoughts and emotions. ACT is a functionally contextual intervention based on Relational Frame Theory (Zhang et al., 2018).

Acceptance and Commitment Therapy posits that psychological distress results from the interaction between language and human cognition, and it advocates for regulating verbal events instead of direct behavioral action. The primary aim of ACT is to enhance *psychological flexibility* to support value-consistent living. Psychological flexibility refers to a set of behavioral patterns that are sensitive to personal events, while remaining adaptive, flexible, and creative in response to those events. Overall, ACT focuses on psychological strengths, goal selection, mindfulness, and the clarification of values (Einbeigi et al., 2019).

However, the psychological challenges associated with infertility may stem from or be exacerbated by a lack of compassion, harsh self-criticism, and underdeveloped compassionate abilities. Another therapeutic approach examined in this study is *Compassion-Focused Therapy* (CFT). Over the past several years, increasing attention has been given to compassion as a key resource for mental health. Compassion can be defined as the ability to be sensitive to one's own and others' suffering, coupled with a commitment to alleviate or prevent it (Gilbert, 2014). The growing interest in compassion has led to the development and evaluation of various compassion-based interventions. Among them, Compassion-Focused Therapy (Gilbert, 2009, 2014) has emerged as the most extensively evaluated

intervention (Ahmadpour Dizji et al., 2017; Gilbert, 2009, 2014). CFT is based on an evolutionary model of psychological functioning. According to this model, the motivations and capacities for compassion are linked to evolved brain systems that support attachment, altruism, and caregiving behaviors. The natural function of compassion is to facilitate prosocial behaviors, promote bonding, security, soothing, participation, encouragement, and support (Gilbert, 2014).

Considering that infertility is a major issue affecting part of the population and due to the severe physical, psychological, and relational consequences—especially for women—many sufferers face serious challenges. There is a critical need to address the negative psychological outcomes of infertility and to implement effective non-pharmacological treatments alongside medical interventions to mitigate the progression of problems across physical, psychological, and family domains. Numerous studies have examined the effectiveness of ACT and CFT for individuals facing various physical, psychological, and marital difficulties, with promising outcomes. Therefore, the current study aims to answer the research question: Is there a difference between the effectiveness of Acceptance and Commitment Therapy and Compassion-Focused Therapy on the psychological capital of infertile women?

2. Methods and Materials

2.1. Study design and Participant

The present study employed a quasi-experimental design using a pretest-posttest with a two-month follow-up and a control group. The statistical population included all infertile women in Bojnord in 2023. The study sample consisted of 45 eligible infertile women who volunteered to participate and were selected using purposive sampling based on specific inclusion and exclusion criteria. Participants were randomly assigned to two experimental groups—Acceptance and Commitment Therapy (ACT) and Compassion-Focused Therapy (CFT)—and one control group, with 15 participants in each group.

Inclusion criteria for participation were: age range between 20 and 55 years, at least a middle school diploma, being in a formal and continuous marriage with cohabitation for at least one year, no substance, alcohol, or psychotropic drug abuse, no history of psychiatric hospitalization, no current use of psychiatric medication (self-reported), and providing informed consent for participation. Exclusion criteria included missing more than two sessions, voluntarily withdrawing from the study, or receiving other individual or group counseling services outside the group therapy sessions.

Following random assignment and completion of the pretest for all three groups, the first experimental group received Acceptance and Commitment Therapy, and the second received Compassion-Focused Therapy. Each intervention was conducted over eight 120-minute sessions. During this time, the control group received no interventions and was placed on a waiting list. After the completion of the intervention sessions, all three groups were assessed again (posttest phase).

The structure of the ACT sessions was designed based on the therapeutic model proposed by Hayes et al. (2016), and the content for the CFT sessions followed Gilbert's treatment protocol (2009, 2014).

2.2. Measures

2.2.1. Psychological Capital

This instrument was developed by Luthans, Avolio, Avey, and Norman (2007) and includes 24 items divided into four subscales: self-efficacy (items 1–6), hope (items 7–12), resilience (items 13–18), and optimism (items 19–24). Items 13, 20, and 23 are reverse scored. The items are rated on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree) (Eskandari, Maktabi, & Atashafrouz, 2021). Luthans et al. (2007) confirmed a four-factor structure through confirmatory factor analysis and reported a Cronbach's alpha of .89 for overall reliability. In a study by Nasaj (2012), exploratory factor analysis with varimax rotation supported construct validity, and Cronbach's alpha coefficients for self-efficacy, hope, resilience, and optimism were .75, .72, .79, and .80, respectively, indicating acceptable reliability. Jafari, Pourmohseni Kaluri, Ghobadi, and Taklavi Varnyab (2020) estimated the total reliability of the Psychological Capital Questionnaire at .82 using Cronbach's alpha, with subscale reliabilities for hope, resilience, optimism, and self-efficacy reported as .85, .78, .82, and .80, respectively. In another study by Jafari and Hanifi (2021), the overall Cronbach's alpha was calculated at .87 (Ahmadpour Dizji et al., 2017; Nasiri et al., 2019).

2.3. Interventions

The ACT intervention was conducted over eight 120-minute group sessions based on the therapeutic model developed by Hayes et al. (2016). The first session involved

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rapport-building, explanation of ACT principles, and group rules, along with pretest administration. The second session introduced key ACT concepts such as experiential avoidance, cognitive fusion, and psychological acceptance, encouraging participants to explore personal values and control strategies. In the third session, therapeutic techniques like cognitive defusion and psychological awareness were taught using metaphors such as the "train of thought" to help participants observe their thoughts non-judgmentally. The fourth session focused on emotional awareness and mindful awareness, training participants to distinguish evaluations from experiences to enhance psychological flexibility. The fifth session introduced the concept of "self-as-context," emphasizing present-moment awareness and distress tolerance through mindfulness exercises. In the sixth session, personal values clarification and emotion regulation strategies were emphasized, particularly through the "bus metaphor," helping participants identify obstacles to value-driven living. The seventh session extended value work with committed action planning, improving interpersonal effectiveness using metaphors such as the "chessboard," and building a meaningful life narrative. The final session reviewed all techniques, encouraged real-world application of ACT skills to enhance meaning and emotion regulation, administered the posttest, and scheduled the follow-up session.

The CFT intervention followed the framework of Gilbert (2010, 2014) over eight group sessions, each lasting 120 minutes. In the first session, participants were introduced to the structure and objectives of CFT, assessed for self-criticism, shame, and self-compassion, and completed the pretest. The second session focused on identifying compassion components, measuring self-kindness, and presenting the three emotional regulation systems (threat, drive, and soothing). The third session involved educating participants on the "three brains" model, fostering warmth and shared humanity, and encouraging self-empathy in contrast to shame-based responses. The fourth session emphasized self-forgiveness and distress tolerance, applying compassionate mind training and meditative exercises to promote self-acceptance and emotional healing. The fifth session helped participants recognize compassionate identity through practices such as non-judgmental acceptance and writing compassion-based letters to themselves and others. The sixth session focused on compassionate reasoning and imagery, introducing mindful attention styles and cultivating flexibility in perceptual systems. The seventh session explored the healing potential of compassionate emotions and the impact of the brain's threat system, highlighting the inhibitory role of self-criticism on the soothing system. In the final session, all learned skills were consolidated and reviewed, participants discussed practical application strategies for daily life, completed the posttest, and follow-up scheduling was arranged.

2.4. Data Analysis

For data analysis, descriptive statistics including mean and standard deviation were used. At the inferential level, assumptions such as normality of score distribution (Kolmogorov–Smirnov test), homogeneity of variances (Levene's test), sphericity (Mauchly's test), and equality of covariance matrices were examined. Repeated measures ANOVA with Bonferroni post hoc tests was employed using SPSS version 20.

3. Findings and Results

Based on the results presented in Table 1, the mean scores of psychological capital increased from the pretest to the posttest and follow-up phases in the intervention groups, namely Acceptance and Commitment Therapy (ACT) and Compassion-Focused Therapy (CFT). However, in the control group, no significant changes were observed.

Table 1

Mean and Standard Deviation of Psychological Capital Scores

Variable	Phase	ACT Group (n = 15)	CFT Group (n = 15)	Control Group (n = 15)
		M (SD)	M (SD)	M (SD)
Psychological Capital	Pretest	46.33 (3.96)	46.86 (2.89)	45.66 (3.24)
	Posttest	56.86 (4.17)	54.08 (4.15)	45.20 (3.58)
	Follow-up	54.13 (3.48)	54.80 (5.17)	44.60 (2.92)

The assumption of sphericity for the homogeneity of covariance matrices was assessed using Mauchly's test. Results indicated that the sphericity assumption was met for the self-efficacy component ($p > .05$). It was also satisfied

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for the other components of psychological capital, including hope, resilience, and optimism ($p < .01$). The results of repeated measures multivariate analysis of variance (MANOVA) are presented below.

Table 2

Multivariate Test Statistics for Comparing Psychological Capital in ACT and CFT Groups

Effect	Pillai's Trace	F	df Hypothesis	df Error	p-value	Effect Size
Time	.97	123.03	8	21	< .001	.87
Group	.74	17.93	4	25	< .001	.74
Time * Group	.76	7.51	8	21	< .001	.78

The statistical significance of Pillai's trace for the main effects of time, group, and the time*group interaction ($p < .001$) indicates that these factors had a significant effect on the combined dependent variables, i.e., the four components of psychological capital (Table 2).

Table 3

Bonferroni Test Results for Comparing Psychological Capital Across Groups

Group	Variable	Pre–Post (Mean Diff / p)	Pre–Follow-up (Mean Diff / p)	Post–Follow-up (Mean Diff / p)
ACT	Self-Efficacy	4.80 / .062	4.80 / .058	.13 / .160
CFT	Self-Efficacy	5.66 / .051	6.13 / .052	.46 / .070
ACT	Hope	4.46 / .063	4.06 / .065	.40 / .060
CFT	Hope	6.40 / .001	5.73 / .001	.54 / .070
ACT	Resilience	8.26 / .001	8.13 / .001	.17 / .080
CFT	Resilience	6.41 / .053	6.53 / .063	.11 / .150
ACT	Optimism	2.13 / .061	2.80 / .071	.66 / .100
CFT	Optimism	1.53 / .310	2.53 / .060	1.00 / .160

As shown in Table 3, within the ACT group, scores for all four components of psychological capital significantly increased from the pretest to posttest and from pretest to follow-up; however, no significant changes were observed from posttest to follow-up. In the CFT group, similarly, scores significantly improved from pretest to posttest and from pretest to follow-up across all components.

Overall, these findings indicate that both interventions were effective in enhancing psychological capital. However, as reflected in the mean differences across the measurement phases (Table 3), there was no statistically significant difference in effectiveness between ACT and CFT for improving psychological capital in infertile women. Therefore, the research hypothesis is rejected, and the null hypothesis is confirmed, indicating that no significant difference was found between the two treatment approaches regarding their impact on psychological capital.

4. Discussion and Conclusion

This study compared the effectiveness of Acceptance and Commitment Therapy (ACT) and Compassion-Focused Therapy (CFT) on the psychological capital of infertile women. The results indicated that psychological capital and its components—self-efficacy, hope, resilience, and optimism—significantly increased in the experimental groups at the posttest stage. In other words, both ACT and CFT had a significant effect on improving psychological capital in infertile women. The findings demonstrated that interventions based on both ACT and CFT were effective in enhancing psychological capital among this population. A comparison of the mean differences between the two intervention groups revealed that the effectiveness of ACT was statistically equal to that of CFT in improving psychological capital at the posttest phase. Hence, the study's hypothesis was rejected, and the null hypothesis—indicating no significant difference between the effectiveness of the two therapies—was supported.

These results align with previous findings such as Einbeigi et al. (2020), who compared ACT and existential therapy for increasing psychological capital (Einbeigi et al., 2019). However, the findings diverge from those of Ahmadpour Dizaji et al. (2017), who found no significant impact of compassion-focused therapy on psychological capital (Ahmadpour Dizji et al., 2017). This discrepancy may stem from differences in the study samples, measurement tools, therapeutic techniques, and the fewer number of training sessions in the latter study.

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To interpret the results, it should be noted that psychological capital includes traits such as belief in one's abilities (self-efficacy), persistence in pursuing goals (hope), generating positive self-attributions (optimism), and the ability to withstand adversity (resilience). Compassion-focused therapy, by regulating negative emotions, reducing self-judgment, and enhancing the perception of self-worth, promotes optimism regarding one's capabilities. Compassion practices help individuals realize that they possess diverse internal potentials, reflecting their motivational or emotional identities. Thus, these practices enhance self-esteem and self-efficacy (Ahmadpour Dizji et al., 2017; Sharifpour shirazi & Ghaderi, 2022).

In explaining the comparison between ACT and CFT on psychological capital in infertile women, it can be said that compassion-focused therapy emphasizes clarifying core components of compassion such as sensitivity with attentiveness, caregiving motivation, empathy, distress tolerance, and non-judgmental awareness. Meanwhile, ACT focuses on liberating individuals from cognitive traps. The ACT approach underscores the necessity of helping individuals break free from self-evaluations and painful labels, a process conceptualized as *psychological flexibility*. This includes processes such as cognitive defusion, value-driven action, self-as-context, acceptance, committed action, and mindfulness. In this way, processes involved in compassion and psychological flexibility are interconnected.

Many individuals affected by infertility exhibit hyperactive threat and self-protection systems, resulting in high levels of stress and anxiety. Conversely, their soothing and satisfaction systems tend to be underdeveloped, as they may not have had the opportunity to cultivate them. Consequently, CFT places great emphasis on breathing exercises, mindfulness, and imagery. Practical techniques such as compassionate behavior rehearsal and visualizing oneself as a kind individual are used to help patients construct an identity rooted in compassion. This newly formed "self" then becomes a secure base for confronting emotional suffering. In CFT, compassion is cultivated to empower individuals to face the dark and difficult parts of their mind with courage.

In contrast, ACT goes beyond experiencing events to constructing verbal representations of the self. ACT focuses on the language individuals use to describe their experiences. In this therapeutic approach, maladaptive cognitions are addressed by changing negative self-appraisals, reducing social anxiety, and minimizing avoidance. Emphasis is also placed on bodily sensations, real memories tied to those experiences, and fears about identity change, shame, and self-criticism. By nurturing self-kindness, individuals gain the courage and wisdom to deal with complex mental phenomena such as anger, anxiety, and trauma. CFT is a therapeutic model fundamentally grounded in sensitivity to human suffering, arising from the human condition itself, and the intention to heal or prevent such suffering.

Another component of compassion-focused therapy is teaching self-forgiveness and forgiveness of others, which significantly impacts the psychological capital of infertile women. Instruction in CFT helps individuals reduce the dominance of their internal threat-detection systems and reclaim their lives through compassion and acceptance. We all possess an intuitive wisdom that affectionate kindness, support, and compassion help us endure suffering, while criticism, shame, and blame often exacerbate distress. Self-compassion allows us to create the emotional space necessary to confront pain and emotional complexity.

5. Limitations and Suggestions

One limitation of the present study is the relatively small sample size, which may restrict the generalizability of the findings to broader populations of infertile women. Additionally, the participants were all recruited from a single geographic area (Bojnord), which may introduce regional or cultural biases that limit the external validity of the results. The use of self-report questionnaires could also be subject to social desirability or response bias. Moreover, the follow-up period was limited to two months, which may not be sufficient to assess the long-term sustainability of the therapeutic effects. Finally, the study did not account for potential moderating variables such as personality traits, duration of infertility, or previous treatment history, which could influence the outcomes.

Future research should aim to replicate this study with a larger and more diverse sample across multiple regions to enhance the generalizability of the findings. Extending the follow-up period to six months or one year would provide more robust data on the durability of treatment effects. It is also recommended that future studies employ a mixed-methods approach, incorporating qualitative interviews to gain deeper insights into participants' lived experiences of the interventions. Researchers should consider examining the moderating roles of demographic and clinical factors such as age, duration of infertility, and marital satisfaction. Lastly, comparative studies involving other therapeutic

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approaches—such as cognitive-behavioral therapy or mindfulness-based interventions—could help further delineate the specific contributions of ACT and CFT to enhancing psychological capital in infertile populations.

Authors' Contributions

Authors contributed equally 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

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

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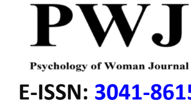

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