



# Effectiveness of Acceptance and Commitment Therapy (ACT) on Distress Tolerance, Flourishing, and Purpose in Life of Infertile Women

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## Abstract

**Background:** Infertile women not only face physical challenges but also experience a range of psychological problems throughout the diagnosis, treatment, and course of their disease.

**Objectives:** This study aimed to examine the effects of acceptance and commitment therapy (ACT) on distress tolerance, flourishing, and purpose in life of infertile women.

**Methods:** An interventional design with a pre-test and post-test with a control group was utilized in this research. The population consisted of infertile women undergoing treatment at infertility clinics in Isfahan city from February 20, 2023, to July 30, 2023. A total of 36 infertile women were randomly selected by convenience sampling based on inclusion and exclusion criteria and assigned into two equal groups—control and interventional—using simple random sampling ( $n = 18$ ). The instruments used in this study included the Distress Tolerance Questionnaire by Simmons and Gaher (2005), the Flourishing Questionnaire by Soleimani et al. (2015), and the Purpose in Life Questionnaire by Crumbaugh and Maholick (1964). The interventional group received 8 sessions of ACT, while no intervention was implemented for the control group. At the end of the last treatment session, the participants took a post-test, and the data were analyzed using SPSS software version 23 at two levels of descriptive and inferential statistics.

**Results:** The demographic findings of the sample group indicated that the average age in the interventional group was 29.94 years, and in the control group, it was 30.50 years. Results showed that the mean scores of distress tolerance, flourishing, and purpose in life in the interventional group improved in the post-test phase compared to the control group ( $P < 0.05$ ). Based on the results of multivariate covariance analysis, there is a significant difference between the groups in terms of distress tolerance, flourishing, and purpose in life ( $P < 0.05$ ).

**Conclusions:** Acceptance and commitment therapy appears to be helpful in improving psychological problems associated with infertility in infertile women. Therefore, counselors and psychologists can use this method to support infertile women.

**Keywords:** Acceptance and Commitment Therapy, ACT, Distress Tolerance, Flourishing and Purpose in Life, Infertile Women

## 1. Background

Infertility is a medical condition affecting the reproductive system of either males or females, characterized by the inability to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse (1). Infertility and its treatment, regardless of the outcome of pregnancy or non-pregnancy, have consequences including financial, psychological, health and social consequences (2). Global estimates of infertility indicate that approximately 72.4 million couples in the world are infertile (3). In Iran, its range

has been reported in different studies from 7.8% to 20% (4).

The profound impact of infertility on individuals' emotional well-being cannot be overlooked. It is well-documented that infertility can trigger a wide range of negative emotional responses, including helplessness, conflict, frustration, and a sense of existential meaninglessness (5), and it should be noted that when comparing infertile men and women, studies indicate deeper effects of psychological damage in infertile women than infertile men (6). Infertile women are at a

high level of confusion, anxiety, dissatisfaction with life and insecurity, and ultimately have lower happiness (7).

It seems that one of the important factors in effective coping with the infertility crisis is distress tolerance, which refers to an individual's capacity to endure and withstand emotional distress (8). Individuals with low distress tolerance face difficulties in managing their confusion and distress, particularly because they find their emotions overwhelming (9). In contrast, individuals with higher levels of distress tolerance are likely to exhibit better control over emotional dysregulation and are more capable of taking steps to address it (10). Therefore, the main feature of distress tolerance is regulating emotions, which emerges as a critical element in how individuals cope with life's hardships (11).

It seems that another important variable in reducing the mental problems caused by infertility is flourishing which (12) is a state of positive mental health. Not only are flourishing individuals free of mental illness, they are also filled with emotional vitality and function positively in both private and social realms of their lives (13).

Purpose in life appears to be a valuable asset in coping with the emotional difficulties of infertility. Having purpose in life can reframe stressful situations in such a way that individuals be able to have more constructive way to deal with those situations and thus make it easier to recover from mental stress (14). Having a purpose and valuable goals that guide one's behavior and give a sense of direction is a key part of a meaningful life (15). Having purpose in life and meaning has been found to be positively associated with life satisfaction, positive functioning, and hope (16).

Today, in the treatment of infertility, multidimensional therapy is emphasized; it means that psychological intervention is also a part of the process treatment. One of the effective psychological treatments to reduce psychological problems caused by female infertility is Acceptance and commitment therapy (ACT) Which was developed by psychologist Steven C. Hayes (17). Acceptance and commitment therapy is a cognitive-behavioral approach that falls under the category of third-wave therapies. Its primary focus is to assist individuals in accepting challenging thoughts, feelings, and internal experiences, while guiding them towards taking actions aligned with their personal values (18). Searches have shown that ACT is effective on infertile women's distress tolerance and sense of coherence (19), reduces their anxiety during medical treatment (20), and improves psychological flexibility and marital intimacy in women with infertility (21). The key to using

ACT for infertile women is to help them accept unwanted internal experiences such as negative thoughts and feelings about infertility and move toward their valued goals and create a productive and active life (22). Although researches have been carried out in order to solve the psychological problems of infertile women and improve their quality of life, (23) but as far as we know, there is no research that specifically examines the effectiveness of ACT on distress tolerance, flourishing and purpose in life of infertile women. Therefore, considering the psychological consequences of women's infertility, it seems that ACT intervention would be useful to help them effectively deal with this problem.

## 2. Objectives

The aim of this research was investigating of effects of ACT on distress tolerance, flourishing, and purpose in life of infertile women.

## 3. Methods

### 3.1. Study Design

The current research is an applied study and its design was an interventional design with pre-test and post-test with control group.

### 3.2. Participants

The inclusion criteria were as follows: Age range between 20 and 40 years, minimum education level, undergoing infertility treatment, non-use of psychoactive or psychiatric drugs for at least two weeks prior to the start of treatment, and absence of severe physical or mental illnesses. The exclusion criteria included two consecutive or non-consecutive absences, not doing assigned homework during two consecutive or non-consecutive sessions and use of psychoactive or psychiatric drugs during research.

### 3.3. Sampling

The statistical population consisted of all infertile women undergoing treatment at infertility clinics in Isfahan city from February 20, 2023, to July 30, 2023. Thirty-six infertile women were selected by convenience sampling among the infertile women referred to fertility and infertility clinics in Isfahan city based on inclusion and exclusion criteria and then divided equally into interventional and control groups (in each group  $n = 18$ ) using simple random sampling. In order to random assign, a lottery method was used, so that,

each participant was given a number and then researchers draw numbers from the box randomly to choose samples. To determine the sample size for the interventional researches the guidelines provided by Gall et al. were followed, which recommend a minimum of 15 participants for interventional research (24). Considering the possibility of dropout in the statistical sample size, 18 participants were selected for each group.

### 3.4. Scales

#### 3.4.1. Distress Tolerance Scale

The Distress Tolerance Scale is a self-assessment emotional distress tolerance questionnaire developed by Simmons and Gaher in 2005. This scale consists of 15 questions and Each item on the scale is scored using a five-point Likert Scale. Higher scores on the scale indicate higher distress tolerance. Cronbach's alpha is estimated 0.82 for the entire scale. Also reported the Cronbach's alpha value of this questionnaire as 0.67 and the retest validity as 0.79. (25). In this study, Cronbach's alpha for the total score was 0.79.

#### 3.4.2. Flourishing Questionnaire

The flourishing questionnaire was developed by Soleimani et al. based on Seligman's model in positive psychology. The questionnaire contains a total of 28 items. It is structured on a six-point Likert scale and higher scores on it indicates higher level of flourishing. According to Soleimani et al.'s research, Convergent validity of FQ was confirmed through concurrent implementation of this questionnaire with Ahvaz Self-actualization Questionnaire and Diener's Flourishing Questionnaire and its divergent validity was examined through concurrent implementation of this questionnaire with Beck's Depression Inventory. Cronbach's alpha is estimated 0.90 for the entire scale (26). In this study, Cronbach's alpha for the total score was 0.84.

#### 3.4.3. The Purpose in Life Test

The purpose in life test (PIL) was developed by Crumbaugh and Maholick in 1964. To answer each question, participants are required to mark a number from 1 to 7 on the answer sheet, indicating their point of view toward the question. A higher score suggests a greater sense of purpose and meaning in life. The original split-half reliability reported using the odd-even method was .81, Spearman-Brown corrected to 0.90

(27). In this study, Cronbach's alpha for the total score was 0.81.

### 3.5. Data Collection

Researchers after receiving the letter of introduction from the research department of Isfahan (Khorasgan) Islamic Azad University referred to Fertility and Infertility Clinics in Isfahan city and explained the objectives of the research to the managers of these clinics. After obtaining their agreement, the sampling was carried out (refer to the sampling section). After performing the pre-test for both groups, the interventional group for 8 weeks (90-minute weekly sessions), While no intervention was implemented for the control group during the study period. The treatment was based Pakenham's ACT protocol (28) which is summarized in Table 1. At the end of the last treatment session, the participants took a post-test.

### 3.6. Data Analysis

The data were analyzed using SPSS software version 23 with a P-value of 0.05, at two levels of descriptive and inferential statistics. At the descriptive level, the mean and standard deviation were determined. At the inferential level, Levene's, MBox's, and Kolmogorov-Smirnov tests, as well as multivariate covariance analysis, were conducted.

### 3.7. Ethical Consideration

Prior to commencing the research, participants were assured that their participation in the study would remain anonymous and that only the results would be reported. They were also informed that they had the freedom to withdraw from the study at any point during the intervention.

## 4. Results

The demographic findings of the sample group indicate that the average age in the interventional group is 29.94 years, while in the control group, it is 30.50 years. In the interventional group, 5 participants have non-university education, and 13 participants have university education. In the control group, 4 participants have non-university education, and 14 participants have university education. Regarding employment status, 10 participants in the interventional group are homemakers, and 8 are employed, while in the control group, 11 participants are homemakers, and 7 are employed.

**Table 1.** Session Contents of Acceptance and Commitment Therapy

Session	Content
1	Introduction and familiarization, review of goals of the treatment program
2	Explanation of creative helplessness, homework
3	Acceptance of infertility by the individual and family members, realizing the values of life during infertility, practicing mindfulness, homework
4	Clarifying individual values and purposefulness and achieving self-actualization, obstacles of values in life, homework
5	Mindfulness and self-observation, homework
6	Planning and action, homework
7	Commitment to action and values despite obstacles, homework
8	Reviewing previous sessions, conclusion and ending

**Table 2.** Levin, Kolmogorov-Smirnov, and M-box Tests

Variables	Levin Test		
	F	df1, df2	Sig.
Distress tolerance	0.979	1, 34	0.330
Flourishing	4.287	1, 34	0.056
Purpose in life	0.328	1, 34	0.570
<b>M-box Test (Box's M= 13.185)</b>	1.149	10, 5526.693	0.321
Purpose in life			
Flourishing			
Distress tolerance			
Variables	Kolmogorov-Smirnov Test		
	Statistics	df	Sig.
<b>Distress tolerance</b>			
Control	0.105	18	0.200
Intervention	0.164	18	0.200
<b>Flourishing</b>			
Control	0.115	18	0.200
Intervention	0.159	18	0.200
<b>Purpose in life</b>			
Control	0.129	18	0.200
Intervention	0.121	18	0.200

The results of Levene's, MBox's, and Kolmogorov-Smirnov tests in [Table 2](#) show that there is equality of variance and covariance for the scores of all variables, and all scores are within the normal range at the P-value of 0.05. Therefore, the assumptions of covariance analysis are valid.

As shown in [Table 3](#), there is a significant difference between the groups in terms of distress tolerance, flourishing, and purpose in life ( $P < 0.05$ ). This suggests that ACT has effectively increased distress tolerance, flourishing, and purpose in life scores of infertile women in the post-test phase ( $P < 0.05$ ).

## 5. Discussion

The results of this study revealed that ACT has been able to increase distress tolerance, flourishing, and purpose in life for infertile women in the post-test phase in the interventional group.

As far as we know, no research has been conducted to investigate the effectiveness of ACT on distress tolerance, flourishing, and purpose in life for infertile women. However, in terms of reviewing and comparing previous research, it can be said that similar studies align with the results of our research. For example, our results are in agreement with the findings of Basirifar and Mosavinezhad, who examined the impact of ACT on distress tolerance and the sense of coherence in infertile women (19). In addition, Rahimi et al. focused on the effectiveness of ACT on the anxiety of infertile women

**Table 3.** The Mean and Standard Deviation of the Groups and Multivariate Covariance Analysis

Variables	Interventional Group	Control Group	Source	Sum of Squares	df	Mean Square	F	P
<b>Distress tolerance</b>								
Pre-test	41.27 + 5.77	35.55 + 8.43	Pre-test	146.018	1	146.018	5.298	0.028
			Group	395.161	1	395.161	14.338	0.001
Post-test	47.88 + 6.23	38.88 + 5.87	Error	854.401	31	27.561		
			Total	69750	36			
<b>Flourishing</b>								
Pre-test	106.44 + 9.56	105.77 + 11.87	Pre-test	97.005	1	97.005	0.463	0.501
			Group	1508.911	1	1508.911	7.210	0.012
Post-test	118.66 + 17.31	103.88 + 10.20	Error	6487.990	31	209.290		
			Total	454612	36			
<b>Purpose in Life</b>								
Pre-test	72.33 + 9.85	75.44 + 7.17	Pre-test	0.137	1	0.137	0.001	0.976
			Group	1946.892	1	1946.892	12.965	0.001
Post-test	80.55 + 8.53	74.55 + 8.69	Error	5255.932	35	150.169		
			Total	327239	40			

during treatment, and according to their results, ACT helped reduce anxiety in infertile women (20). In this regard, the results of research by Naghavi, et al. showed that ACT can serve as an effective psychological intervention to enhance psychological flexibility and marital intimacy in women experiencing infertility (21).

In explaining the research findings regarding the effect of ACT on improving distress tolerance, it can be said that since infertile women often experience high levels of self-criticism and shame, one of the goals of psychological interventions for them should be to teach them how to cope with these negative thoughts and feelings constructively (29). Therefore, ACT, in order to achieve this goal, emphasizes acceptance to deal with negative thoughts and feelings (30) and increases psychological flexibility by focusing on six core processes: Acceptance, cognitive defusion, self-as-context, contact with the present moment, values, and committed action. Each of these processes helps establish change or persistence linked to chosen values (31). Thus, infertile women using ACT strategies learn how to let go of thought inhibition, release disturbing thoughts, strengthen their self-awareness, identify their values, and take action accordingly.

In explaining and interpreting the research findings related to increased flourishing in the interventional group, it can be stated that flourishing arises from engagement in an authentic life that brings inner happiness through the fulfillment of goals and connection with personal passions (32). One important goal of ACT is the acceptance of negative feelings and thoughts, allowing people to improve their living

conditions. Accepting personal events, even if they are painful, and not trying to excessively control them are emphasized, providing the foundation for flourishing (33).

In explaining the research finding that ACT increased the purpose in life of infertile women, we can refer to research that has mentioned how ACT helps people see themselves beyond their condition or illness. It shows that it is possible to live a meaningful and fulfilling life, in line with their personal values, even if they have a mental or physical illness (34). It can be concluded that infertile women may have a low level of purposefulness in their lives due to not having children. This lack of purposefulness can lead to a sense of incompleteness and lack of utility. These women may find themselves engrossed in irrational and negative thoughts and feelings, leading to difficulties in social interactions. Participating in ACT sessions helps these women develop a different attitude, accept their thoughts and feelings, and ultimately increase their sense of purpose in life.

### 5.1. Conclusions

The study highlighted the importance of considering ACT as a potential treatment method in counseling and psychology settings for individuals facing infertility-related psychological challenges. This study has taken a step towards filling the research gap.

Like any other study, this research has some limitations. The participants were selected by convenience sampling from Isfahan city, which further restricts the generalizability of the results to women



from other geographical locations. The study relied on self-report measures to assess distress tolerance, flourishing, and purpose in life, which are subjective and rely on participants' ability and willingness to report their experiences accurately. Furthermore, the study only measured the outcomes immediately after the completion of ACT sessions, without long-term follow-up. Consequently, it is unclear whether the treatment effects persisted over time.

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## Footnotes

**Authors' Contribution:** Study design, P. J. Gh. and F. A. S.; data collection, F. A. S.; analysis of data, P. J. Gh., F. A. S.; manuscript preparation, P. J. Gh.

**Conflict of Interests Statement:** The authors declare no conflict of interest.

**Data Availability:** The dataset presented in the study is available on request from the corresponding author during submission or after publication.

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