




Effectiveness of Acceptance and Commitment Therapy Based on Positive Psychology Approach on Rumination and Positive and Negative Meta-emotions in Anxious Women

Mehrasa. Anisian¹, Zahra. Dasht Bozorgi², Negar. Mirzaie^{3*}

¹ Master's Degree in Clinical Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran

² Assistant Professor, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

³ PhD student in Psychology, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

* Corresponding author email address: nmpsy88@gmail.com

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ABSTRACT

Objective: This research was conducted with the purpose of examining the effectiveness of acceptance and commitment therapy (ACT) based on a positive psychology approach on rumination and both positive and negative meta-emotions in anxious women.

Methods and Materials: The study employed a quasi-experimental design. The population consisted of all anxious women in Tehran in the year 2022, from which 30 individuals were selected as the sample. Fifteen participants were placed in the experimental group and fifteen in the control group. The instruments used for data collection were the Rumination Questionnaire and the Meta-emotions Questionnaire.

Findings: Data analysis was conducted using covariance analysis tests. The results indicated that the intervention of acceptance and commitment therapy based on a positive psychology approach has a significant effect on rumination and positive and negative meta-emotions in anxious women ($p < 0.05$).

Conclusion: Therefore, acceptance and commitment therapy based on the positive psychology approach can be utilized for anxious women.

Keywords: Acceptance and Commitment Therapy, Positive Psychology, Rumination, Meta-emotions, Anxiety.

1. Introduction

Research has shown that women are more prone to internal disorders such as anxiety, while men display more external disorders such as substance abuse, alcoholism, and internet addiction (Gao et al., 2020; Rosenfield & Mouzon, 2013). Among these, rumination is a type of repetitive negative thinking that has been identified as a risk factor for predicting and maintaining anxiety (Moulds et al., 2022; Taylor & Snyder, 2021). According to the response styles theory (Nolen-Hoeksema, 1991), rumination refers to repetitive thinking about the causes, meanings, and consequences of moods, symptoms, and ongoing worries. Essentially, rumination is a process of continuous and repetitive thinking about one's negative feelings, their causes, and consequences, and is often associated with the level of stress experienced and the individual's anxiety. These repeated negative thoughts can lead to doubt and internal turmoil. Researchers have found that ongoing rumination can intensify an individual's negative emotional response to stress and thereby increase the perception of psychological stress (Zhang et al., 2024).

On the other hand, emotions stem from the appraisal of an individual's internal state and environmental conditions, and when environmental conditions are assessed as rewarding, positive emotions follow. This means experiencing positive feelings such as happiness, joy, and satisfaction. When individuals experience positive emotions, they are more likely to recall the pleasant aspects of their lives and likely adopt a positive attitude towards themselves and others. Additionally, positive emotion can enhance the frequency and recognition of positive cognitions, improve attention, and recall memory. During cognitive appraisal, positive emotion yields positive interpretations of ambiguous situations and adds positive value to thoughts and topics. Thus, positive cognitive processes and positive emotion are closely related, and positive emotions enhance positive cognitions, while negative emotion also affects cognition and negative cognitive processes strengthen negative emotion (Garland et al., 2015). In this context, the concept of meta-emotion is a term used to describe an individual's emotions about themselves and their arousal in response to those emotions (Jadhav et al., 2017). Meta-emotion can be divided into positive and negative meta-emotions. Positive meta-emotion refers to emotions that provide a pleasant state, such as joy, excitement, and exhilaration. These emotions are usually accompanied by the experience of positive feelings, energy, and satisfaction

(Norman & Furnes, 2016). Meta-emotion information in the process of emotional goal regulation can be influential. When an individual feels anxious, meta-emotion information can cause them to become angry and affect the experience that is anxiety-provoking. This process differs from experiencing compassion or pity about the anxious person (Ahadian fard et al., 2017; Banisi, 2019; Goudarzi et al., 2021).

Among the effective interventions identified is acceptance and commitment therapy (ACT). ACT is a third-wave CBT approach (Hayes et al., 2006). Unlike traditional CBT, acceptance and commitment therapy does not aim to avoid or eliminate distress. Instead, it is based on a holistic view that helps individuals achieve psychological flexibility - the ability to fully engage with the present moment as a conscious human being and change or continue behavior when doing so serves valuable goals (Hayes et al., 2006). Specifically, ACT includes six main processes: (1) Acceptance: actively accepting unwanted thoughts, feelings, or experiences instead of controlling them. (2) Cognitive defusion: changing the undesirable functions of thoughts rather than immediately changing their frequency. (3) Presence: non-judgmental contact with the present moment. (4) Self as context: reporting one's behavior from the perspective of 'self-feel'; (5) Values: chosen qualities of purposeful action. And (6) Committed actions: committing to actions that serve chosen values (Fang et al., 2023; Hayes et al., 2006; Zhang et al., 2018). ACT teaches skills and techniques to pay attention to and accept experiences for thoughts, emotions, physiological feelings, and memories to continue old avoidance patterns. ACT also encourages individuals to clarify their personal values and engage in behaviors consistent with these values to help regulate their emotions (Burckhardt et al., 2016). Research has shown that acceptance and commitment therapy is effective for many psychological variables in clinical and non-clinical populations (Ashok Seshadri et al., 2021; Burckhardt et al., 2016; Cojocararu et al., 2024; Fang et al., 2023; Fernández-Rodríguez et al., 2023; Fuenmayor et al., 2019; Hayes et al., 2006; Ong et al., 2019; Ong et al., 2020; Petersen et al., 2023; Shahkaram et al., 2024; Sharif Ara et al., 2023; Zhang et al., 2018).

Simultaneously, positive psychology, a therapeutic approach based on the principles of positive psychology, has emerged with a focus on creating positive emotions to combat psychological issues (Seligman et al., 2006). Positivity is defined as an intervention aimed at strengthening positive feelings, behaviors, or cognitions

based on theories and research in positive psychology (Basurrah et al., 2023). Research has shown the effectiveness of this approach on many psychological issues (Aikaterini et al., 2020; Ashok Seshadri et al., 2021; Basurrah et al., 2023; Brouzos et al., 2023; Carr et al., 2021; Parsakia et al., 2024; Seligman et al., 2006).

While ACT promotes mindfulness as a means of managing negative thoughts and emotions, positive psychology elevates mindfulness to enhance positive emotions for improving mental well-being. From this perspective, they are complementary emotional regulation approaches targeting both positive and negative emotions (Burckhardt et al., 2016). Therefore, the current study used an integrated program of acceptance and commitment therapy with positive psychology to target emotional regulation strategies for both positive and negative emotions in anxious women, which was evaluated in a sample of anxious women using a randomized controlled trial. Thus, the current research was conducted with the aim of examining the effectiveness of acceptance and commitment therapy based on the positive psychology approach on rumination and positive and negative meta-emotions in anxious women.

2. Methods and Materials

2.1. Study design and Participant

The research method used in this study was a quasi-experimental design with a pre-test, post-test control group setup. The population of this study consisted of all anxious women in Tehran in the year 2022. Based on the sample sizes used in similar quasi-experimental studies and considering the average sample size of three similar studies, 30 participants were selected through purposive sampling. Initially, 150 women from Tehran completed the Beck Anxiety Inventory, out of which 30 women with higher anxiety levels were selected as the sample and were randomly assigned into two groups of 15 each for the experimental and control groups after the pre-test phase. Inclusion criteria included: age between 20 and 40 years, full consent to participate in the study, being married with at least one child, and exclusion criteria included a history of participation in psychological interventions during the past year, medication use, suffering from chronic physical illnesses, and absence in more than two sessions of the intervention.

2.2. Measures

2.2.1. Meta-Emotions

This questionnaire was designed by Mitmansgruber et al. (2009) and consists of 28 items that respondents answer on a 6-point Likert scale. The scores range from 6 (strongly agree) to 1 (strongly disagree). Scoring is then performed for each component based on the responses. Higher scores indicate a higher presence of the component in the individual. The researchers reported the scale as comprising six components: anger, shame, aggression control, and suppression (negative meta-emotions) and compassion and affection (positive meta-emotions). Rezaei et al. (2014) reported a Cronbach's alpha of 0.78 in Iran and confirmed the factorial analysis results of two main dimensions of positive and negative meta-emotions. The concurrent validity of the scale was examined with the Emotional Intelligence Questionnaire, particularly reporting a desirable correlation with components of emotional intelligence (Goudarzi et al., 2021).

2.2.2. Rumination

This scale was developed by Nolen-Hoeksema and Morrow (1991) and consists of 22 items rated on a 4-point Likert scale ranging from 1 (never) to 4 (always). The total score ranges from 22 to 88. Nolen-Hoeksema and Morrow reported a validity of 0.82 using factor analysis, a test-retest reliability over 12 months of 0.67, and an alpha coefficient between 0.88 and 0.92. In Iran, Farnam et al. (2010) reported a construct validity of 0.75 using intraclass correlation in five measurements. Bagheri Nejad et al. (2010) reported a Cronbach's alpha of 0.88 and concurrent validity with Beck's Depression Inventory of 0.79. In the current study, the reliability of the questionnaire using Cronbach's alpha was found to be 0.74 (Shahkaram et al., 2024).

2.3. Intervention

2.3.1. ACT based on Positive Psychology

Session 1:

Introduction: Introduction of clients to the number of sessions and hours of participation in therapy, explanation of therapy goals and process, discussion on confidentiality limits, and general explanations about acceptance-based treatment were provided, highlighting the therapeutic relationship through the metaphor of two mountains, an introduction to creative hopelessness.

Session 2:

Continuation of creative hopelessness, participants were asked to write a positive self-introduction story, practice thinking and discussing their positive traits with others.

Session 3:

Exploration of goals and unsuccessful efforts, helping the client to realize that their control strategies in dealing with stresses and issues have been ineffective so far. The therapist also addresses depression from the ACT perspective (such as fusion, emotional control strategies, distancing from values), potential supportive exercises, acquisition of client's essential goals, familiarity with the client's past efforts to achieve goals, the metaphor of the pit, introduction of the past inefficiency system, selection of the option and movement towards understanding "control as a problem" (if time allows), helping to recognize oneself, reviewing the positive self-introduction story and identifying and discussing capabilities within the story, asking participants to design a specific plan to implement these capabilities.

Session 4:

Introducing control as a problem, introduction of desire/acceptance, behavioral commitment, identifying own negative emotions, and focusing on forgiveness.

Session 5:

Introduction of self as context and defusion, practice of behavioral commitment, focusing on the construct of gratitude and introducing its psychological, physical, and interpersonal benefits, especially increasing life satisfaction.

Session 6:

Introduction of values (assignment of values), consolidation of skills, focus on hope and optimism in life, teaching attribution concepts to participants, teaching internal, global, and stable attributions.

Session 7:

Commitment and action, practice of behavioral commitment, focusing on love and attachment, encouraging participants to establish effective communication with others and participate in pleasurable activities, review of progress and achievements obtained.

Session 8:

Summary of all past sessions and exercises was conducted, then participants completed the questionnaire for the post-test stage (Ahadian fard et al., 2017; Ashok Seshadri et al., 2021; Burckhardt et al., 2016).

2.4. Data Analysis

Data for the study were analyzed using analysis of covariance with SPSS software, version 24.

3. Findings and Results

In the current study, there were a total of 30 participants (15 in the experimental group and 15 in the control group). Table 1 presents the descriptive statistics for the variables of positive and negative meta-emotions and rumination response.

Table 1

Pre-test and Post-test Mean and Standard Deviation for Research Variables in Experimental and Control Groups

Variable	Group	Stage	Mean (M)	Standard Deviation (SD)
Positive Meta-emotion	Experimental	Pre-test	31.666	1.868
		Post-test	33.733	1.901
	Control	Pre-test	31.733	1.901
		Post-test	31.866	1.919
Negative Meta-emotion	Experimental	Pre-test	45.866	2.516
		Post-test	43.933	2.579
	Control	Pre-test	45.933	2.487
		Post-test	45.666	2.489
Rumination Response	Experimental	Pre-test	55.333	2.117
		Post-test	52.800	2.169
	Control	Pre-test	55.400	2.083
		Post-test	54.333	1.999

The results from Table 1 indicate that the score for positive meta-emotion in the experimental group increased from the pre-test to the post-test phase, and for the control group, it also increased from pre-test to post-test. The score for negative meta-emotion in the experimental group decreased from pre-test to post-test, and for the control

group, it also decreased. The score for rumination response in the experimental group decreased from pre-test to post-test, and for the control group, it also decreased.

To examine the significance of the differences between the scores for positive and negative meta-emotions and rumination response in the experimental and control groups,

a one-way analysis of covariance (Table 6) was used. Before performing the analysis of covariance, the assumptions of homogeneity of variance and linearity (checking the correlation between pre-test and post-test of positive and negative meta-emotions and rumination response) were assessed. The correlation test showed significant correlations between pre-test and post-test for positive meta-emotion, negative meta-emotion, and rumination response, thereby confirming the assumption of linearity. Additionally, the results of the Levene's test indicated that the variables of positive and negative meta-emotions and rumination response were not significant, thus confirming the assumption of equal variances among the groups and that the error variance of the dependent variables was equal across all groups.

In this study, prior to data analysis to check for homogeneity of variances, Levene's test for equality of variances was used, which indicated homogeneity of variances ($p < 0.05$). Given the non-significance of Levene's test, the use of analysis of covariance was permissible, meaning that the experimental and control groups were

homogeneous in terms of variances before the experimental intervention (in the post-test phase). The assumption of normal distribution of variable scores was confirmed by the Kolmogorov-Smirnov test, given the significance levels in the experimental and control groups in the Kolmogorov-Smirnov test ($p > 0.05$). Another assumption of covariance analysis, the homogeneity of covariances, was examined using Box's M test, which indicated no significant differences in the homogeneity of covariances as evidenced by Box's M test results ($p < 0.05$, $F = 0.157$, Box's $M = 1.064$). Therefore, the assumption of differences between covariances holds.

For comparison of experimental and control groups based on post-test scores, after controlling for pre-test effects, a multivariate analysis of covariance was initially conducted on the data to determine the impact of acceptance and commitment therapy based on the positive psychology approach on positive and negative meta-emotions and rumination response. The results of the multivariate analysis of covariance are presented in Table 2.

Table 2

Results of Multivariate Analysis of Covariance on Post-test Scores of Positive and Negative Meta-emotions and Rumination Response in Experimental and Control Groups

Measure	Value	F	df Hypothesis	df Error	Significance	Effect Size
Pillai's Trace	0.525	8.482	3	23	0.001	0.525
Wilks' Lambda	0.475	8.482	3	23	0.001	0.525
Hotelling's Trace	1.106	8.482	2	23	0.001	0.525
Largest Root	1.106	8.482	2	23	0.001	0.525

As observed in Table 2, the multivariate tests (MANCOVA) indicate significant differences between the groups in at least one of the dependent variables. Table 3

presents the results of the one-way analysis of covariance for post-test scores on the dependent variables.

Table 3

One-way Analysis of Covariance for Comparing Mean Scores of Positive and Negative Meta-emotions and Rumination Response in Experimental and Control Groups at Post-test

Source	Sum of Squares	df	Mean Square	F	Significance	Effect Size	Statistical Power
Positive Meta-emotion	28.078	1	28.078	16.534	0.001	0.380	0.975
Error	45.852	27	1.698				
Total	33910.000	30					
Negative Meta-emotion	20.844	1	20.844	5.424	0.028	0.167	0.612
Error	103.755	27	3.843				
Total	62932.000	30					
Rumination Response	19.249	1	19.249	6.119	0.020	0.185	0.665
Error	84.930	27	3.146				
Total	88143.000	30					

As seen in Table 3, significant differences exist between the experimental and control groups regarding positive meta-emotion in the post-test. Therefore, the intervention of acceptance and commitment therapy based on the positive psychology approach is effective for positive meta-emotion in anxious women. Also, significant differences exist between the groups regarding negative meta-emotion in the post-test. Therefore, the intervention is also effective for negative meta-emotion in anxious women, and significant differences exist between the groups regarding rumination response in the post-test. Thus, the intervention is effective for rumination response in anxious women.

4. Discussion and Conclusion

The present study aimed to examine the effectiveness of acceptance and commitment therapy (ACT) based on a positive psychology approach on rumination, and positive and negative meta-emotions in anxious women. The results of the analysis showed that the ACT intervention based on a positive psychology approach significantly impacts rumination and both positive and negative meta-emotions in anxious women. To date, no research has directly examined the effectiveness of ACT based on a positive psychology approach on rumination and meta-emotions in anxious women, but there is evidence supporting the effectiveness of ACT and positive interventions (Banisi, 2019; Brouzos et al., 2023; Carr et al., 2021; Fang et al., 2023; Moulds et al., 2022; Parsakia et al., 2024; Shahkaram et al., 2024; Sharif Ara et al., 2023) on various psychological variables in both clinical and non-clinical populations, showing similar results.

ACT is designed to enhance psychological flexibility by focusing on metacognitive processes (decentering), acceptance, mindfulness, and self-as-context, while simultaneously promoting committed action aligned with values for behavior change (Hayes et al., 2006). The use of stories, metaphors, mindfulness, and language games helps individuals to see their thoughts and feelings from a different perspective (Sharif Ara et al., 2023). In ACT, the goal is not to eliminate psychological distress but to help individuals choose their life goals despite unpleasant feelings. However, it is expected to reduce psychological distress because individuals learn to accept their thoughts and feelings as constructs rather than concrete realities (Burckhardt et al., 2016; Zhang et al., 2018). Given that ACT aims to increase psychological flexibility, it is theoretically plausible that individuals with greater psychological flexibility might

show more progress compared to those with less flexibility, as they have more room for improvement in this skill (Ong et al., 2019). The component of direct attention to mindfulness in ACT helps individuals understand their emotional experiences while a non-judgmental stance reduces the tendency to avoid emotional experiences, which typically occurs when unpleasant emotions are evaluated. Avoiding emotional experiences leads to avoidant behaviors, whereas being present with emotions facilitates acceptance. It has been shown that mindfulness reduces emotional reactivity (Britton et al., 2012) and enhances the ability to differentiate and label emotions (Hill & Updegraff, 2012). Moreover, in ACT, individuals learn skills and techniques to pay attention to and accept these experiences to continue old patterns of avoidance. It also encourages individuals to clarify their personal values and engage in behaviors consistent with these values to help them regulate their emotions (Burckhardt et al., 2016). Essentially, for reducing rumination in anxious women, the individual first accepted and aligned with their current situation. Instead of fighting negative thoughts and feelings, the individual accepted them. Then, by focusing on and committing to meaningful actions aligned with their values and personal goals, the individual can break free from undesirable patterns. This helps the individual to better cope with their negative and anxious thoughts and to manage them. Unlike instructions based on changing thoughts, ACT emphasizes the individual's ability to accept these thoughts and undesirable behaviors. This reduces the individual's entanglement with negative thoughts and directs them towards healthier and more effective behaviors. Therefore, ACT can significantly improve the reduction of repetitive negative thoughts and rumination. Reducing negative thoughts and focusing on meaningful actions can also help reduce negative emotions like anger and shame, leading to self-love and consequently experiencing positive emotions. On the other hand, positive psychology, by directly creating positive feelings, personal strengths, and meaning, can effectively address psychological problems. Treatment focuses on identifying and establishing strengths, fostering positive feelings, forgiveness, and gratitude; pursuing good outcomes and increasing emphasis on meaning (Parsakia et al., 2024; Seligman et al., 2006). In essence, positive psychology treatment helps the individual to change their negative thought patterns and instead, adopt and strengthen more positive and constructive patterns. By practicing and focusing on ideals, values, and individual capabilities, positive psychology treatment can help the individual to

change their negative beliefs and instead adopt more positive and constructive beliefs. Thus, positive psychology treatment can be used as an effective tool for reducing rumination and increasing self-acceptance, self-esteem, and personal satisfaction. Additionally, changing negative beliefs towards a life with healthier and more positive emotions allows individuals to move forward. During the intervention, women with anxiety learn to focus on positive cognitions and emotions, naturally reducing repetitive negative thoughts (Parsakia et al., 2024). Furthermore, due to this practice and focus on positive feelings, these women will have positive emotions such as affection, compassion, and kindness to themselves, which also leads to reduced negative emotional reactions. In fact, engaging in desirable activities makes the situation easier for themselves, and naturally, negative meta-emotions like anger and shame are reduced. Therefore, the combined treatment of ACT with positive psychology has managed to create positive effects in reducing rumination and negative meta-emotions among these anxious women by creating acceptance, flexibility, and changing negative feelings to positive ones.

5. Limitations and Suggestions

Due to financial and support limitations, the present study was conducted only among anxious women in Tehran, who were approximately between the ages of 20 and 40, and cannot be considered representative of the entire population. Therefore, it is recommended that future research similar to the present study be conducted among other segments of the population with different levels of education, age ranges, and cultures, including children, adolescents, and adults, of both genders, and in different cities. Moreover, given the effectiveness of ACT based on a positive psychology

approach for anxious women, it is recommended that this intervention be used in clinical and psychological centers.

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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