

The Effectiveness of Acceptance and Commitment Therapy on Psychological Hardiness and Psychological Flexibility in Individuals with Depression

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ABSTRACT

The present study was conducted to determine the effectiveness of Acceptance and Commitment Therapy (ACT) on psychological hardiness and psychological flexibility in individuals with depression. This study employed a quasi-experimental design with pretest, posttest, and a two-month follow-up alongside a control group. The statistical population consisted of individuals with depression who were referred to psychological service centers and clinics in the city of Tonekabon in 2024. Among eligible individuals, 30 participants were selected using purposive sampling and were randomly assigned into experimental and control groups, with 15 participants in each group. The experimental group received Acceptance and Commitment Therapy during 10 sessions of 90 minutes each, whereas the control group received no intervention during the same period. Data were collected using the Psychological Hardiness Questionnaire developed by Suzanne Kobasa and colleagues and the Cognitive Flexibility Questionnaire developed by Jason P. Dennis and J. S. Vander Wal. Data were analyzed using the independent samples t-test, Fisher's exact test, and two-way repeated-measures analysis of variance (ANOVA) in IBM SPSS Statistics. The findings indicated that the experimental and control groups did not differ significantly in terms of age, gender, educational level, and marital status. Furthermore, the results of the two-way repeated-measures ANOVA demonstrated that the interaction effect of group and time on psychological hardiness and psychological flexibility was significant. Based on mean comparisons, psychological hardiness and psychological flexibility scores in the experimental group increased from the pretest to the posttest stage, and these improvements were largely maintained during the follow-up stage, whereas no substantial changes were observed in the control group. Based on the findings, therapists and mental health professionals may use Acceptance and Commitment Therapy to improve health-related characteristics, particularly psychological hardiness and psychological flexibility.

Keywords: Depression, Psychological Hardiness, Psychological Flexibility, Acceptance and Commitment Therapy.

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Introduction

Depression is recognized as one of the most prevalent and debilitating psychological disorders worldwide and is considered a major threat to mental health across different age groups. This disorder is characterized by persistent sadness, loss of interest in daily activities, cognitive dysfunction, emotional dysregulation, hopelessness, reduced motivation, sleep disturbances, and impairments in interpersonal and occupational functioning (1, 2). Contemporary psychiatric and psychological literature identifies depression as a

multidimensional disorder influenced by biological, cognitive, emotional, environmental, and social factors. The chronic and recurrent nature of depression has made it one of the leading causes of disability and reduced quality of life in modern societies (1, 3). Epidemiological studies have demonstrated that depression not only affects emotional well-being but also contributes to impaired social functioning, increased healthcare utilization, occupational inefficiency, and vulnerability to physical illnesses. Furthermore, depressive symptoms are strongly associated with maladaptive coping patterns, emotional rigidity, and reduced capacity to tolerate stressful experiences (4). The growing prevalence of depression in both clinical and nonclinical populations highlights the urgent need for effective psychological interventions capable of targeting not only symptom reduction but also the underlying psychological processes involved in emotional dysfunction.

Stress exposure and maladaptive emotional responses play a substantial role in the development and maintenance of depressive symptoms. Recent theoretical perspectives suggest that individuals differ significantly in their capacity to tolerate stressors, regulate emotions, and adapt to adverse life events. In this regard, psychological hardiness has emerged as one of the most important protective psychological constructs associated with resilience against stress and emotional disorders. Psychological hardiness refers to a personality-based resilience resource characterized by commitment, control, and challenge, enabling individuals to perceive stressful experiences as manageable and meaningful rather than threatening (5, 6). Individuals with high levels of psychological hardiness are generally more capable of maintaining emotional balance under stressful conditions and demonstrate greater persistence in coping with life difficulties. Conversely, low levels of hardiness are associated with emotional vulnerability, avoidance behaviors, perceived helplessness, and increased susceptibility to depressive symptoms (6). Research has indicated that hardiness functions as a buffer against psychological distress and contributes to improved emotional adjustment and mental health outcomes. Stress-related models also emphasize that the interpretation and appraisal of stressful experiences are central to understanding the onset and persistence of depression (7). Therefore, interventions that enhance hardiness may strengthen adaptive coping capacities and reduce emotional dysregulation in individuals with depression.

In addition to psychological hardiness, psychological flexibility has received increasing attention in contemporary clinical psychology as a core mechanism underlying emotional health and adaptive functioning. Psychological flexibility refers to the ability to remain in contact with present-moment experiences while adapting behavior according to personally meaningful values despite unpleasant thoughts, emotions, or memories (8). Individuals with high psychological flexibility can respond more adaptively to internal experiences without excessive avoidance, rumination, or emotional suppression. In contrast, psychological inflexibility is characterized by cognitive fusion, experiential avoidance, rigid behavioral patterns, and difficulties in emotional regulation, all of which are strongly associated with depression and anxiety disorders (9, 10). Contemporary research has shown that psychological flexibility contributes significantly to emotional resilience, adaptive decision-making, and overall psychological well-being (9). Moreover, affective flexibility has been identified as a key factor associated with resilience to stress and adaptive emotional functioning (11). Theoretical models of contextual behavioral science propose that individuals who demonstrate greater flexibility are better able to manage distressing emotions and maintain engagement in meaningful life activities even in the presence of psychological pain.

Depression has repeatedly been associated with diminished psychological flexibility and reduced capacity to adapt to challenging emotional experiences. Individuals with depressive disorders often become trapped in repetitive patterns of negative thinking, rumination, self-criticism, hopelessness, and experiential avoidance. Such maladaptive processes reduce emotional openness and impair the ability to engage effectively with life demands. Previous studies have demonstrated that psychological flexibility is inversely associated with depressive symptoms and emotional dysregulation (9, 12). Furthermore, inflexible cognitive and emotional processes often prevent individuals from effectively utilizing coping resources, thereby increasing vulnerability to chronic psychological distress. Research findings suggest that enhancing flexibility may improve emotional adaptation, interpersonal functioning, and mental health outcomes among individuals with emotional disorders (11). Consequently, therapeutic approaches that specifically target flexibility and acceptance-based coping processes have gained substantial empirical support in recent years.

Acceptance and Commitment Therapy (ACT), one of the third-wave behavioral therapies, has emerged as a promising intervention for addressing emotional disorders through the enhancement of psychological flexibility and values-based behavior. ACT was developed within the framework of contextual behavioral science and aims to reduce psychological suffering by altering individuals' relationships with their thoughts and emotions rather than attempting to eliminate unpleasant internal experiences (8). This therapeutic approach emphasizes six core processes including acceptance, cognitive defusion, present-moment awareness, self-as-context, values clarification, and committed action. These processes collectively contribute to increased psychological flexibility and adaptive functioning. ACT encourages individuals to accept distressing emotions and thoughts without avoidance while engaging in meaningful and value-consistent behaviors (13). In contrast to traditional symptom-focused interventions, ACT seeks to cultivate openness, awareness, and behavioral commitment in the face of emotional discomfort.

Substantial empirical evidence supports the effectiveness of ACT for a wide range of psychological problems, particularly depressive disorders. Meta-analytic findings have demonstrated that ACT significantly reduces depressive symptoms and improves psychological functioning in clinical populations (10, 14). ACT has also been associated with improvements in emotional regulation, psychological flexibility, values-based action, and adaptive coping strategies (15). Researchers have emphasized that the therapeutic benefits of ACT are strongly linked to changes in cognitive defusion and increased engagement in personally meaningful activities (15). Furthermore, evidence suggests that ACT may contribute to reductions in rumination, emotional avoidance, and maladaptive cognitive processes commonly observed in depression (16). The neuropsychological mechanisms underlying ACT have also attracted increasing attention, with recent investigations demonstrating that ACT-based interventions may influence neural pathways associated with emotional regulation and cognitive processing (16). Such findings indicate that ACT may produce meaningful psychological and neurocognitive changes that extend beyond symptom reduction alone.

Another important aspect of ACT involves its emphasis on values clarification and committed action, both of which play central roles in promoting resilience and adaptive functioning. Values-based living enables individuals to maintain purposeful engagement in life despite the presence of emotional pain or distress (13). Through the cultivation of acceptance and committed action, individuals may become more capable of tolerating difficult emotions while maintaining psychological balance and resilience. This process may be

particularly important for individuals with depression, who often experience hopelessness, withdrawal, and diminished motivation. Emerging evidence suggests that ACT-based interventions can significantly improve resilience-related constructs, including hardiness, emotional endurance, and adaptive coping capacities (17, 18). ACT has also been found to facilitate self-compassion and emotional acceptance, thereby helping individuals disengage from rigid self-critical patterns that perpetuate depressive experiences (19). These findings suggest that ACT may influence multiple psychological domains simultaneously, making it particularly suitable for individuals struggling with depression.

Several previous studies have investigated the role of ACT in improving psychological flexibility and resilience-related constructs among different populations. Ghorbani et al. reported that ACT significantly improved depression, pain acceptance, and psychological flexibility among women with breast cancer (20). Similarly, Abdi Hamalabad et al. demonstrated that ACT effectively increased psychological hardiness while reducing death anxiety among students with emotional disturbance (17). Other investigations have highlighted the role of psychological flexibility as a mediating factor in emotional adjustment and resilience processes (9, 11). Moreover, recent studies have shown that ACT contributes to improvements in cognitive flexibility among adolescents with generalized anxiety disorder (21). Findings from clinical and experimental studies consistently indicate that ACT promotes adaptive coping, emotional openness, and resilience through acceptance-based processes and behavioral commitment (8, 10). Although considerable evidence supports the effectiveness of ACT in reducing depressive symptoms, fewer studies have simultaneously examined its impact on psychological hardiness and psychological flexibility among individuals with depression, particularly within Iranian clinical populations.

Given the increasing prevalence of depression and its significant psychological, social, and functional consequences, identifying effective interventions that enhance adaptive psychological capacities remains essential. Psychological hardiness and psychological flexibility are two critical constructs that may protect individuals against emotional vulnerability and facilitate resilience under stressful conditions. Since depression is often accompanied by experiential avoidance, emotional rigidity, hopelessness, and maladaptive coping strategies, interventions aimed at enhancing flexibility, acceptance, and resilience may provide substantial therapeutic benefits. ACT appears particularly relevant because it directly targets avoidance-based processes while encouraging value-oriented living and emotional openness. Furthermore, the emphasis of ACT on mindfulness, acceptance, cognitive defusion, and committed action may help individuals with depression develop more adaptive responses to distressing experiences and improve their overall psychological functioning.

Despite the growing body of evidence regarding the effectiveness of ACT, further research is needed to clarify its effects on resilience-related constructs such as psychological hardiness and psychological flexibility among depressed individuals. Additionally, cultural and contextual differences may influence therapeutic outcomes, highlighting the importance of conducting research within diverse clinical settings. Therefore, the present study was conducted to determine the effectiveness of Acceptance and Commitment Therapy on psychological hardiness and psychological flexibility in individuals with depression.

Methods and Materials

Study Design and Participants

In terms of purpose, the present study was applied research, and in terms of implementation, it employed a quasi-experimental design with pretest, posttest, and a two-month follow-up alongside a control group. The statistical population included all non-hospitalized individuals with depression who were referred to psychological service centers and clinics in the city of Tonekabon in 2024. The sample size was determined based on the study design, a 95% confidence level, a medium effect size, and a statistical power of 0.83. Accordingly, the minimum sample size for each group was estimated at 12 participants; however, considering the probability of attrition of participants, 15 individuals were assigned to each group, resulting in a final sample of 30 participants. Sampling was initially conducted using purposive sampling among individuals who met the inclusion criteria, and participants were then randomly assigned through simple randomization using a lottery method into the experimental and control groups, with 15 participants in each group.

The inclusion criteria consisted of a diagnosis of depression based on clinical records or specialist opinion, informed consent to participate in the study, being within the adult age range, possessing at least a middle school level of education to complete the questionnaires, not receiving similar psychological interventions during the previous three months, and the ability to attend treatment sessions regularly. The exclusion criteria included absence from more than two treatment sessions, withdrawal from the study, simultaneous participation in other psychological interventions or programs, occurrence of acute psychological or physical conditions affecting the research process, and incomplete completion of the questionnaires. Ethical principles were observed throughout all stages of the study, including obtaining informed consent, explaining the objectives and procedures of the research, maintaining confidentiality of information, ensuring participants' freedom to withdraw from the study at any stage, and providing free psychological services to the control group after completion of the study.

The research procedure was conducted as follows: after obtaining the necessary permissions and coordinating with psychological service centers and clinics in Tonekabon, eligible individuals were identified. Following an explanation of the study objectives and obtaining informed consent, the research questionnaires were completed by both groups during the pretest stage. Subsequently, the experimental group received Acceptance and Commitment Therapy (ACT) in 10 sessions of 90 minutes each, while the control group received no intervention during this period. After completion of the treatment sessions, the posttest phase was administered for both groups, and a follow-up assessment was conducted two months after the end of the intervention. Following completion of the study period, the control group was offered free psychological services. Data collection instruments included a demographic information form, the Psychological Hardiness Questionnaire developed by Suzanne Kobasa and colleagues, and the Cognitive Flexibility Questionnaire developed by Jason P. Dennis and J. S. Vander Wal.

Data Collection

Kobasa et al.'s Psychological Hardiness Test (1982): The Psychological Hardiness Test was developed by Suzanne Kobasa and colleagues in 1982. The instrument includes three subscales as follows: the first factor, Commitment, consists of 9 items (Items 1–9); the second factor, Control, consists of 7 items (Items 10–16);

and the third factor, Challenge, consists of 4 items (Items 17–20). The questionnaire is scored using a 4-point Likert scale in which “never” receives a score of 0, “rarely” a score of 1, “sometimes” a score of 2, and “often” a score of 3. Michelsen et al. (2003) reported Cronbach’s alpha coefficients of 0.72 for the Commitment subscale, 0.58 for the Control subscale, 0.68 for the Challenge subscale, and 0.80 for the total hardiness score. Suzanne Kobasa and Salvatore Maddi (1992) reported that the instrument demonstrated appropriate construct validity and reported a Cronbach’s alpha coefficient of 0.81 for the total scale. Molazadeh Esfanjelani et al. (2011) reported Cronbach’s alpha coefficients of 0.71 for Commitment, 0.70 for Control, 0.66 for Challenge, and 0.85 for the total hardiness score.

Dennis and Vander Wal Cognitive Flexibility Questionnaire (2010): This questionnaire was developed by Jason P. Dennis and J. S. Vander Wal (2010). It is a brief 20-item self-report instrument scored on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree” and is used to assess psychological flexibility. The instrument attempts to measure three aspects of cognitive flexibility: (a) perception of controllability, (b) perception of behavioral justification, and (c) perception of alternative options. Dennis and Vander Wal (2010) demonstrated that the questionnaire possessed an appropriate factor structure and satisfactory concurrent validity. The concurrent validity coefficient of the questionnaire with the Aaron T. Beck Depression Inventory was 0.39. Internal consistency coefficients obtained through Cronbach’s alpha for the three subscales of perception of controllability, perception of behavioral justification, and perception of alternative options were 0.91, 0.91, and 0.84, respectively, while test–retest reliability coefficients were 0.81, 0.75, and 0.77, respectively. In the psychometric evaluation of this questionnaire conducted in Iran, the three-factor structure of the instrument was confirmed, and the Cronbach’s alpha coefficients calculated for the subscales were 0.705, 0.779, and 0.81, respectively, with a total questionnaire reliability coefficient of 0.893.

Intervention

The Acceptance and Commitment Therapy (ACT) protocol used in the present study was developed based on the theoretical framework proposed by Matthew D. Herbert and Evan M. Forman (2008) and was structured by Abbasi et al. into 10 therapeutic sessions. The first session focused on participant orientation, introducing the objectives and rules of the sessions, providing a general overview of Acceptance and Commitment Therapy, conceptualizing the participants’ psychological problems, preparing participants for the treatment process, and developing a list of pleasurable activities to be incorporated into their weekly schedules. The second and third sessions emphasized familiarization with the principles and core concepts of ACT, including psychological flexibility, psychological acceptance, cognitive awareness, cognitive defusion, self-as-context, personal narrative, clarification of values, and committed action. The fourth and fifth sessions concentrated on mindfulness training, including emotional awareness and wise awareness, as well as training participants to observe and describe experiences, events, and personal skills while maintaining nonjudgmental attention toward these experiences. During the sixth and seventh sessions, participants were trained to enhance cognitive awareness, learn appropriate methods of responding to and confronting mental experiences, establish purposeful and socially adaptive lifestyles, and commit themselves to value-oriented actions. In addition, participants practiced identifying positive and negative characteristics in themselves and others without judgment or emotional reactivity. The eighth and ninth sessions focused

on increasing tolerance of negative events through crisis survival and commitment-based coping skills, distraction techniques, self-soothing through sensory experiences, mindfulness exercises, and reciprocal feedback among participants. Finally, the tenth session aimed to improve interpersonal effectiveness through maintaining and strengthening healthy interpersonal relationships and emotional interests, while also teaching individual skills such as self-description, emotional expression, assertiveness, trust, negotiation, self-esteem enhancement, and communication skills, followed by a comprehensive review and summary of all therapeutic sessions.

Data Analysis

Data were analyzed using IBM SPSS Statistics. In the descriptive statistics section, mean, standard deviation, frequency, and percentage were reported. To examine group homogeneity regarding demographic variables, the independent samples t-test and Fisher's exact test were used. Prior to conducting the primary analysis, statistical assumptions were evaluated, including normality of data distribution using the Shapiro – Wilk test, homogeneity of variances using Levene's test, and the assumption of sphericity using Mauchly's test. Finally, a two-way repeated-measures analysis of variance (ANOVA) was employed to assess the effectiveness of Acceptance and Commitment Therapy on psychological hardiness and psychological flexibility. The significance level for all statistical tests was set at 0.05.

Findings and Results

The mean and standard deviation of age in the experimental and control groups were 43.40 ± 3.92 and 44.07 ± 4.49 years, respectively ($P = 0.669$). The results of Fisher's exact test regarding gender, educational level, and marital status indicated that there was no statistically significant difference between the experimental and control groups in terms of demographic characteristics ($P > 0.05$). Therefore, the two groups were homogeneous with respect to demographic variables.

Table 1. Demographic Characteristics of the Participants

Variables	Components	Experimental (n = 15) n (%)	Control (n = 15) n (%)	P-value
Gender	Male	13 (86.67)	13 (86.67)	1.000
	Female	2 (13.33)	2 (13.33)	
Educational Level	Diploma	3 (20.00)	2 (13.33)	0.522
	Bachelor's degree	12 (80.00)	13 (86.67)	
Marital Status	Single	3 (20.00)	1 (6.66)	0.569
	Married	12 (80.00)	14 (93.34)	

According to Table 2, the descriptive indices of the two groups at the pretest, posttest, and follow-up stages are presented. As shown in Table 2, the mean scores of the experimental group improved from the pretest to the follow-up stage. This improvement in the variables of psychological hardiness and psychological flexibility was accompanied by changes in the mean scores, indicating the effectiveness of Acceptance and Commitment Therapy (ACT) on the studied variables, whereas no substantial changes were observed in the control group.

Table 2. Descriptive Indices of Psychological Hardiness and Psychological Flexibility in the Experimental and Control Groups

Variables	Group	Pretest Mean \pm SD	Posttest Mean \pm SD	Follow-up Mean \pm SD	Minimum	Maximum
Psychological Hardiness	Experimental	44.56 \pm 3.67	50.40 \pm 3.70	49.80 \pm 3.70	38	56
	Control	45.80 \pm 2.16	46.48 \pm 3.38	46.12 \pm 3.19	41	52
Psychological Flexibility	Experimental	87.56 \pm 6.67	96.40 \pm 7.70	95.40 \pm 7.12	78	108
	Control	88.80 \pm 6.16	89.48 \pm 6.38	89.12 \pm 6.19	80	101

To investigate the effectiveness of Acceptance and Commitment Therapy on psychological hardiness and psychological flexibility, a two-way repeated-measures analysis of variance (ANOVA) was conducted. Prior to performing the primary analysis, statistical assumptions were examined. The results of the Shapiro–Wilk test indicated that the distribution of research variables at the pretest, posttest, and follow-up stages did not significantly deviate from normality ($P > 0.05$). Furthermore, the results of Levene’s test demonstrated that the assumption of homogeneity of variances was satisfied for the research variables ($P > 0.05$). The results of Mauchly’s test also indicated that the assumption of sphericity was met for psychological hardiness and psychological flexibility; therefore, the within-group results were reported based on the assumption of sphericity.

The results of the two-way repeated-measures ANOVA presented in Table 3 demonstrated that the main effect of group on psychological hardiness was significant, indicating that the mean scores of psychological hardiness differed significantly between the experimental and control groups. The main effect of time was also significant, demonstrating that psychological hardiness scores significantly changed across the pretest, posttest, and follow-up stages. In addition, the interaction effect of group and time was significant, suggesting that the pattern of changes in psychological hardiness was not identical across the two groups and that the observed increase in the experimental group compared with the control group resulted from the implementation of Acceptance and Commitment Therapy.

The findings also revealed that the main effect of group on psychological flexibility was significant. In other words, there was a significant difference between the experimental and control groups in terms of mean psychological flexibility scores. The main effect of time was likewise significant, indicating that psychological flexibility scores changed across the measurement stages. Moreover, the interaction effect of group and time was significant; therefore, it can be concluded that Acceptance and Commitment Therapy significantly increased psychological flexibility in the experimental group, and this change remained largely stable at the follow-up stage.

Table 3. Results of the Two-Way Repeated-Measures ANOVA for the Effects of Acceptance and Commitment Therapy on Psychological Hardiness and Psychological Flexibility

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	P-value	Effect Size
Psychological Hardiness	Group	205.589	1	205.589	4.688	0.033	0.273
	Time	96.572	2	48.286	24.416	< 0.001	0.677
	Group \times Time	120.001	2	60.000	30.888	< 0.001	0.715
Psychological Flexibility	Group	98.822	1	98.822	15.703	0.024	0.204
	Time	92.822	2	46.411	36.997	< 0.001	0.785
	Group \times Time	132.022	2	66.011	18.206	< 0.001	0.653

Based on Table 3, the interaction effect of group and time for psychological hardiness was significant ($F = 30.888, P < 0.001$). This finding indicates that changes in psychological hardiness scores across the three measurement stages differed significantly between the experimental and control groups. Considering the mean values reported in Table 2, it can be concluded that Acceptance and Commitment Therapy increased psychological hardiness in the experimental group. The effect size for the interaction between group and time on psychological hardiness was 0.715, indicating a substantial effect of the intervention on this variable. Furthermore, the interaction effect of group and time for psychological flexibility was also significant ($F = 18.206, P < 0.001$). This result demonstrates that the trend of changes in psychological flexibility differed between the experimental and control groups. Given the increase in the mean scores of the experimental group at the posttest stage and the relative maintenance of these gains during follow-up, it can be concluded that Acceptance and Commitment Therapy increased psychological flexibility in individuals with depression. The effect size for the interaction between group and time on psychological flexibility was 0.653, indicating a considerable effect of the intervention on this variable.

Discussion and Conclusion

The present study was conducted to determine the effectiveness of Acceptance and Commitment Therapy (ACT) on psychological hardiness and psychological flexibility in individuals with depression. The findings demonstrated that ACT significantly improved psychological hardiness and psychological flexibility in the experimental group compared with the control group, and these improvements remained relatively stable during the two-month follow-up period. The significant interaction effect between group and time indicated that the observed changes in the experimental group were attributable to the therapeutic intervention rather than the mere passage of time or repeated measurement effects. These findings suggest that ACT can serve as an effective psychological intervention for enhancing adaptive psychological capacities among individuals experiencing depressive symptoms.

One of the central findings of the present study was the significant increase in psychological hardiness among participants who received ACT. Psychological hardiness is considered an important resilience-related construct that enables individuals to perceive stressful experiences as manageable and meaningful rather than overwhelming or threatening (5, 6). Individuals with depression often experience helplessness, emotional exhaustion, hopelessness, and diminished control over life circumstances, which negatively affect their ability to cope effectively with stressors (1, 2). ACT appears to influence these maladaptive patterns by encouraging acceptance of emotional experiences, promoting cognitive defusion, and facilitating engagement in value-oriented behaviors. Through these processes, individuals gradually become more capable of tolerating emotional discomfort without excessive avoidance or emotional collapse. The observed increase in psychological hardiness in the present study may therefore reflect participants' enhanced capacity to reinterpret stressful experiences more adaptively and respond to them with greater psychological endurance and emotional stability.

The findings related to psychological hardiness are consistent with previous studies demonstrating the positive effects of ACT on resilience-related psychological constructs. Abdi Hamalabad et al. reported that ACT significantly increased psychological hardiness among students with emotional disturbance while simultaneously reducing death anxiety (17). Similarly, studies focusing on resilience and stress adaptation

have emphasized that acceptance-based interventions strengthen individuals' capacity to manage emotional distress and persist in meaningful life activities despite adversity (5, 7). ACT may contribute to this process by reducing experiential avoidance and helping individuals develop greater psychological openness toward internal experiences. Rather than attempting to eliminate unpleasant thoughts or emotions, participants learn to coexist with emotional pain while continuing to act according to their personal values. Such therapeutic mechanisms are particularly important in depression, where avoidance, withdrawal, and emotional suppression often intensify psychological distress.

Another important finding of the present study was the significant improvement in psychological flexibility following the implementation of ACT. Psychological flexibility represents one of the fundamental mechanisms underlying emotional adaptation and mental health and is regarded as the core therapeutic target of ACT (8, 10). Individuals with depression frequently exhibit cognitive rigidity, repetitive negative thinking, rumination, and emotional avoidance, all of which contribute to the persistence of depressive symptoms (9). ACT seeks to disrupt these maladaptive processes by teaching individuals to observe their thoughts and emotions without becoming entangled in them. Through mindfulness practices, cognitive defusion techniques, and values clarification, participants gradually develop the ability to respond to emotional experiences with greater flexibility and awareness.

The increase in psychological flexibility observed in the current study aligns closely with previous empirical findings. Ghorbani et al. demonstrated that ACT significantly improved psychological flexibility among women with breast cancer while also reducing depressive symptoms (20). Likewise, Wang et al. found that ACT enhanced psychological flexibility and reduced rumination in healthcare professionals, suggesting that acceptance-based interventions effectively target maladaptive cognitive and emotional processes (16). The findings of Razaee and Pourmohammad Ghouchani also indicated that ACT improved cognitive flexibility among adolescents with generalized anxiety disorder (21). Collectively, these findings support the theoretical proposition that ACT enhances adaptive functioning primarily through increasing psychological flexibility and reducing rigid patterns of emotional and cognitive responding.

The persistence of treatment effects during the follow-up phase is another important aspect of the present findings. The maintenance of gains in psychological hardiness and psychological flexibility suggests that participants were able to internalize and continue applying the skills learned during therapy after the completion of formal intervention sessions. ACT emphasizes experiential learning, mindfulness practice, and committed behavioral action rather than reliance on temporary symptom-control strategies (8). Consequently, participants may have continued using acceptance-based coping skills in their daily lives following the intervention period. The relative stability of therapeutic gains observed in this study is consistent with the long-term orientation of ACT, which focuses on fostering sustainable behavioral and cognitive changes rather than short-term emotional suppression.

From a theoretical perspective, the findings of this study can be interpreted within the framework of contextual behavioral science and psychological flexibility theory. ACT proposes that psychological suffering is largely maintained by experiential avoidance, cognitive fusion, and disconnection from personal values (8). Depression is often characterized by persistent attempts to control or avoid painful emotional experiences, which paradoxically intensify emotional distress over time. By encouraging acceptance and mindful awareness, ACT helps individuals disengage from rigid cognitive patterns and develop a more

adaptive relationship with internal experiences. This process may explain why participants in the present study demonstrated increased psychological flexibility and greater emotional resilience after receiving ACT.

The observed improvements in psychological hardiness may also be related to changes in participants' appraisal and interpretation of stressful experiences. Hardiness theory emphasizes that resilient individuals perceive challenges as opportunities for growth rather than insurmountable threats (6). ACT may facilitate this transformation by encouraging participants to accept uncertainty, remain present-focused, and commit to meaningful actions despite emotional discomfort. In this sense, the therapeutic processes of ACT are conceptually compatible with the development of hardiness because both emphasize adaptive engagement with adversity rather than avoidance or emotional withdrawal. Moreover, values-based action, one of the core components of ACT, may strengthen individuals' sense of purpose and commitment, thereby enhancing their psychological resilience (13).

The findings of the present study also support previous evidence suggesting that changes in psychological flexibility are associated with broader improvements in emotional well-being and adaptive functioning. Klein et al. emphasized that psychological flexibility contributes to emotional regulation, adaptive decision-making, and psychological well-being in everyday life (9). Similarly, Rademacher et al. found that affective flexibility was associated with resilience to stress and emotional adaptation (11). The present findings extend this literature by demonstrating that ACT can effectively enhance flexibility-related processes among individuals with depression. Because depression often involves rigid emotional and cognitive patterns, interventions that increase flexibility may be especially valuable for improving long-term emotional functioning and reducing vulnerability to relapse.

Another possible explanation for the effectiveness of ACT in the current study relates to its emphasis on mindfulness and acceptance processes. Mindfulness-based components encourage participants to observe thoughts, emotions, and bodily sensations without judgment or excessive reactivity. Such processes may reduce emotional avoidance and help individuals develop greater tolerance for distressing experiences. Previous research has shown that reductions in experiential avoidance and increases in values-based action are associated with improvements in depression and mental health outcomes (15). Bramwell and Richardson specifically reported that improvements in depression following ACT were closely linked to changes in cognitive defusion and values-based behavior (15). These mechanisms may similarly explain the improvements observed in psychological hardiness and flexibility in the present study.

The findings also highlight the clinical significance of targeting psychological processes rather than focusing exclusively on symptom reduction. Traditional approaches to depression often emphasize eliminating negative emotions or dysfunctional thoughts. However, ACT proposes that attempts to control internal experiences may actually maintain psychological distress (8). By contrast, acceptance-based approaches encourage emotional openness and psychological adaptability. This perspective may be particularly beneficial for individuals with chronic or recurrent depressive symptoms who struggle with persistent rumination and emotional avoidance. Meta-analytic evidence has further supported the effectiveness of ACT in treating depressive disorders and improving overall psychological functioning (10, 14). The present findings provide additional support for the applicability of ACT within clinical populations experiencing depression.

Furthermore, the improvement in psychological flexibility observed in the current study may have contributed indirectly to the enhancement of psychological hardiness. Flexibility enables individuals to adapt more effectively to emotional challenges, whereas hardiness strengthens resilience and persistence under stress. These constructs appear to interact dynamically in promoting psychological adjustment. Individuals who become more psychologically flexible may simultaneously develop stronger perceptions of control, commitment, and challenge, thereby increasing overall hardiness. ACT may therefore influence multiple dimensions of psychological functioning through interconnected therapeutic mechanisms.

The present study contributes to the growing literature emphasizing the importance of acceptance-based interventions in the treatment of depression and resilience-related difficulties. Given the chronic and disabling nature of depressive disorders, interventions capable of improving adaptive functioning and emotional resilience are particularly valuable. The findings suggest that ACT may help individuals with depression not only reduce emotional distress but also develop greater psychological endurance, flexibility, and adaptive coping capacities. Such outcomes may ultimately contribute to improved quality of life, emotional well-being, and long-term psychological adjustment.

One of the limitations of the present study was the relatively small sample size, which may restrict the generalizability of the findings to broader populations of individuals with depression. In addition, participants were recruited from psychological service centers and clinics in a single city, which may limit the applicability of the results to individuals from different cultural or socioeconomic backgrounds. Another limitation involved reliance on self-report questionnaires, which may be influenced by response biases and subjective interpretation. Furthermore, the follow-up period was limited to two months, making it difficult to determine the long-term stability of the treatment effects over extended periods.

Future research is recommended to examine the effectiveness of Acceptance and Commitment Therapy in larger and more diverse clinical populations and across different age groups and cultural settings. Comparative studies evaluating ACT alongside other evidence-based interventions may also provide a clearer understanding of its relative effectiveness for depression and resilience-related outcomes. In addition, future investigations could explore the mediating role of variables such as emotional regulation, self-compassion, mindfulness, and experiential avoidance in explaining therapeutic changes. Longer follow-up assessments are also necessary to evaluate the durability of treatment outcomes over time.

From a practical perspective, the findings of the present study suggest that Acceptance and Commitment Therapy may be effectively integrated into mental health services for individuals with depression. Mental health professionals, counselors, and clinical psychologists may benefit from incorporating ACT-based techniques such as mindfulness training, cognitive defusion, acceptance exercises, and values clarification into therapeutic programs. Educational and healthcare settings may also use ACT-oriented interventions to strengthen psychological resilience and adaptive coping capacities among vulnerable populations. Additionally, workshops and training programs designed to enhance psychological flexibility and hardiness may contribute to improving emotional well-being and reducing the psychological burden associated with depression.

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Authors' Contributions

All authors equally contributed to this study.

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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