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Compare the effectiveness of two treatments, behavioral activation and acceptance and commitment therapy, on depression and mental rumination in mothers of children with cerebral palsy in Ilam city

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Abstract:

BACKGROUND: Since in most families, mothers are more responsible for taking care of children and have more responsibility than fathers for monitoring the child, taking care of a disabled child can have a more negative effect on the psychological state of mothers. This study aimed to investigate the effectiveness of behavioral activation (BA) and acceptance and commitment therapy (ACT) in depression and rumination in mothers with children with cerebral palsy.

MATERIALS AND METHODS: This research was quasi-experimental field research with a pre-posttest and control group. The study population comprised 237 mothers with children who had cerebral palsy and were referred to occupational therapy centers in Ilam, Iran. The sample consisted of 60 participants selected by convenience sampling, who were randomly divided into two experimental groups (BA and ACT) and a control group (n = 20 per group). Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 27.0 with descriptive and inferential statistics, such as mean, standard deviation, and multivariate analysis of covariance (MANCOVA).

RESULTS: The results of both BA and ACT were effective in reducing depression ($P < 0.01$) and rumination ($P < 0.01$) in the two experimental groups compared with the control group in the posttest phase. Furthermore, the effectiveness of the ACT in reducing depression and rumination was found to be more significant than the effectiveness of BA ($P \leq 0.05$).

CONCLUSION: The findings of the study suggest that both BA and ACT are effective in reducing depression and rumination in the research participants. However, the study also found that ACT was more effective than BA in reducing depression and rumination. Thus, both approaches can be used to strengthen treatment interventions to lessen depression and rumination in the research participants.

Keywords:

Acceptance and commitment therapy, behavior, cerebral palsy, depression, mothers, rumination syndrome

Introduction

Cerebral palsy is a group of permanent disorders caused by brain damage, which can lead to abnormal movements and postures, shortenings, deformities, and

limited activity.^[1] As a result, children with cerebral palsy require various interventions to improve their physical and cognitive condition. However, continuous practice is necessary to achieve effective and lasting motor and cognitive improvements, which

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can be time-consuming and expensive for the children's families.^[2] Although the injury in a child with cerebral palsy is nonprogressive in nature, the care needs of these children are crucial. If not cared for properly, joint deformities and muscle shortening can develop, which can hinder their growth and independence.^[3]

In many cultures around the world, mothers are primarily responsible for raising their children, and the primary caregivers of disabled children are usually mothers.^[4] Studies conducted in Iran have also shown that 91.4% of caregivers of children with cerebral palsy are mothers.^[5] Providing care for these children, particularly for those who require special and long-term support,^[6] can cause physical and mental stress for the mother.^[7] Furthermore, many children with cerebral palsy who are unable to walk often experience pain, sleep disorders, and constipation, and it has been reported that caring for these children can significantly impact the daily activities of their parents' lives.^[8]

Mothers of children with cerebral palsy often experience depression, which is a common and universal mental disorder that affects around 322 million people worldwide with a prevalence rate of 4.4%. The prevalence of depression is usually higher among women (5.1%) than men (3.6%). Shockingly, about 800,000 people with depression commit suicide each year, making suicide the second leading cause of death for people aged 15 to 29.^[9] Due to the significant disruption in the person's academic, occupational, and social functions, the high prevalence rate, and the adverse and long-term consequences, depression has always been of interest in treatment.^[10] Various treatment methods have been developed to treat depression; however, they still face significant challenges such as the problem of recurrence of the disease or the high rate of return of the disease after recovery (over 80%) and resistance to treatment, leading to adverse psychosocial consequences such as social problems (e.g., increasing divorce rates) and financial problems (e.g., numerous sick leaves and unemployment).^[11]

Rumination is one of the factors that can contribute to the occurrence of mood and anxiety disorders, particularly depression and anxiety.^[12] Various models and definitions of rumination have been presented, and the most influential theory in this regard is Nolen-Hoeksema's theory of response styles.^[13] According to this theory, rumination is characterized by repetitive thinking about the symptoms of depression and the possible causes and consequences of these symptoms.^[14] The intensity and course of depression are influenced by the type of evaluation of the person's symptoms of depression, and rumination can exacerbate and perpetuate depression through negative thinking,

ineffective problem-solving, interference with purposeful behavior, and reduced social support.^[15] Given these challenges, it is important to examine the strengths and weaknesses of different treatment methods and compare their effectiveness in various dimensions. In this regard, behavioral activation (BA)¹ and acceptance and commitment therapy (ACT)² are two of the most widely used non-pharmacological treatments that have emerged in the third wave of behavioral therapy and have been investigated in the field of depression.^[16]

BA is rooted in the behavioral theory of depression and behavioral therapy, which is based on the functional analysis of behavior. According to this analysis, depressed individuals tend to use avoidance coping styles more than other types of coping styles. They may avoid negative events in a cognitive manner by denying, suppressing, or avoiding thoughts, or in a behavioral manner by avoiding accepting responsibility or seeking support from others.^[17] As ineffective patterns of avoidance and inactivity can contribute to the development and maintenance of depression, BA therapy teaches clients to use activity-based strategies instead of avoidance patterns. Clients learn to identify problematic behavior patterns and fight against avoidance by activating structured strategies and effective problem-solving techniques. In this treatment, treatment seekers learn to identify their avoidance patterns and use alternative coping strategies to approach and engage with issues.^[18]

ACT is a psychological intervention that utilizes strategies based on awareness and acceptance, along with commitment and behavior change strategies, to increase psychological flexibility. The aim of this treatment is not to directly change clients; rather, its goal is to help clients relate to their experiences by reducing avoidance and inflexibility so that they can fully engage in a meaningful and value-based life. The primary objective of ACT is to increase psychological and behavioral flexibility in areas where experiential avoidance predominates and prevents a person from functioning normally in various dimensions of life.^[19] Many researchers have reported the effectiveness of these two treatment methods in improving the symptoms of depression.^[20] However, the field of depression treatment has been investigated less from the perspective of cognitive functions.^[21] Although feeling sad, empty, hopeless, and having decreased interest or pleasure in activities for most of the day is considered the first and most well-known diagnostic criteria for depression, cognitive deficits are also significant aspects of this disorder that have received less attention.^[22] Recent research has investigated the interactive effects of abnormal processing of sad stimuli and cognitive control

1 Behavioral activation

2 Acceptance and commitment therapy

deficits in depression. In particular, research is examining how abnormal processing of sad stimuli negatively affects cognitions and goal-directed behaviors. In the real world, the effects of unregulated emotional responses in depression do impact not only an individual's emotions but also other areas of cognitive processing necessary for effective functioning.^[23] According to the diagnostic and statistical criteria for mental disorders of the American Psychiatric Association, depression includes the loss of thinking ability, concentration, or uncertainty in decision-making.^[24]

BA is a structured therapeutic process that aims to increase a person's contact with reinforcing environmental connections.^[25] This method of treatment looks for the causes of disorders, such as anxiety and depression, outside of the person (in their life) rather than within themselves.^[26] Research has shown that BA therapy is effective in reducing anxiety and depression. For example, Chu *et al.*^[27] found that BA therapy reduced anxiety and depression in young people, while Polinik and Flora concluded that BA training significantly reduced depression.^[28] In a study titled "The Effectiveness of Group BA on the Symptoms of Depression, Anxiety, and Rumination in Patients Suffering from Depression and Anxiety," Tagavi and Kazemi found that BA significantly reduced depression, anxiety, and rumination in the posttest stages and during the 2-month follow-up period.^[29] Taheri and Amiri also found that BA reduced the severity of depression symptoms and improved mental health, but did not improve quality of life.^[30] Considering the effectiveness of ACT and BA on depression and mental rumination in the research participants, given that depression and rumination are some of the most common psychological problems that are associated with huge costs at the individual and social levels, it is necessary to take effective interventions and basic steps to prevent and treat psychological problems. Identifying the best and most cost-effective treatment is also essential to reduce disease rates and treatment. This study aimed to compare the effectiveness of BA and ACT on depression and rumination in the research participants in Ilam, Iran.

Materials and Methods

Study design and setting

This research was quasi-experimental field research with a pre-posttest and control group. The study population comprised 237 mothers with children with cerebral palsy who were referred to occupational therapy centers in the City of Ilam, located in the western part of Iran.

Study participants and sampling

Sixty mothers with children with cerebral palsy were selected as the sample of the study using convenience

sampling. Twenty participants were included in each group using G*power statistical software with an effect size of 1.8, a test power of 0.95, and $\alpha = 0.05$. Randomization was performed by the researcher, and participants were allocated by the coin-throwing method. Randomization was undertaken after consent to participate and completion of all the baseline measures and eligibility interviews. Participants were randomly divided into two experimental groups (BA and ACT) and a control group ($n = 20$ per group). To enter the research program, participants had to meet specific criteria, including a high score on the depression and rumination questionnaire, not taking any medication, not participating in other therapeutic interventions at the same time, and expressing a written desire to participate in the program. Conversely, exclusion criteria included missing more than one session in the treatment sessions, diagnosis of personality disorders, mood problems caused by drug use or biological problems, and lack of consent to participate in the research.

All participants took two tests—the Beck Depression Test (Second Edition) and the Rumination Questionnaire—as a pretest. The first test group received BA group therapy, while the second test group received ACT group therapy. Both test groups participated in eight sessions of 90 minutes each, with one session per week. The control group did not receive any program or intervention during this period.

Data collection tool and technique

Data were analyzed by descriptive and inferential statistics, such as mean, standard deviation, multivariate analysis of covariance (MANCOVA), and *t*-test. The Tukey *post hoc* test was utilized to investigate the difference in the means between the pretest and posttest using Statistical Package for the Social Sciences (SPSS) version 27.0.

After the intervention sessions, a posttest was performed in the experimental and control groups. At the end of the study, to observe ethical considerations, the control group received a course of BA and ACT. For ethical considerations, the researchers received written consent from the participants for participation in the research. The study was approved by the Ethics Committee of Islamic Azad University, Ilam Branch (IR.IAU.ILAM.REC.1401.045).

Research instruments

Beck Depression Questionnaire (BDI-II): This questionnaire is a revised version of the original questionnaire designed to measure depression, consisting of 21 items scored on a continuum from 0 to 3 for each subject. The total score ranges from 0 to 63, with scores between 0 and 13 indicating partial depression,

14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression.^[31]

Beck, Epstein, Broan, and Steer^[32] reported the internal consistency of this tool to be 0.73 to 0.92 with an average of 0.86, while the alpha coefficient for sick and healthy groups was 0.86 and 0.81, respectively. Dobson and Mohammadkhani^[33] reported the reliability of the questionnaire using Cronbach’s alpha method as 0.92 for outpatients and 0.93 for students. In their research, the validity of the questionnaire was reported to be 0.73 at a 2-week interval.

In Kaviani’s research,^[34] the reliability coefficient of this questionnaire was reported as 0.77, its validity as 0.70, and its internal consistency as 0.91. Overall, the BDI (Second Edition) is a reliable and valid tool for measuring depression levels in research studies. In this study, the reliability coefficient of this questionnaire was obtained by Cronbach’s alpha method, which was equal to 0.79.

Rumination Questionnaire: A self-test questionnaire was developed by Nalen-Hooksema and Maro (1991) to evaluate four distinct methods of responding to negative emotions. The response style questionnaire consists of two scales of ruminating responses and a scale of distracting responses. The scale of ruminative responses has 22 items, and the scoring method of this questionnaire is based on the four-option Likert scale, whose options are scored from one (never) to four (always). The range of scores of this questionnaire is between 22 and 88. A score of 33 is the cutoff point of the questionnaire, and scores below 33 indicate low

rumination and scores higher than that indicate high rumination, which predicts primary depression. Based on empirical evidence, the scale of rumination responses has high internal reliability. Cronbach’s alpha coefficient is in the range of 0.88 to 0.92. Various studies show that the test-retest correlation for rumination responses is 0.67.^[35] Cronbach’s alpha was 0.90 in the Iranian sample conducted by Mansouri *et al.* The predictive validity of the Rumination Response Scale has been tested in a large number of studies. The results of many studies show that the scale of rumination responses predicts the severity of depression in follow-up periods in clinical and nonclinical samples by controlling variables such as the initial level of depression or stressful factors.^[36] In this study, the reliability coefficient of this questionnaire was obtained by Cronbach’s alpha method, which was equal to 0.71. The summary of behavioral activation therapy and acceptance and commitment therapy is given in Table 1.

Intervention program

According to the authors, the article is ready for publication. Sincerely, the authors.

Results

The findings of this present research, the result of the study of 60 mothers with children with cerebral palsy with an average age of 34.13 years; With a diploma to master’s education in two experimental groups and one control group. Table 2 displays descriptive statistical indices of mean and standard deviation for three groups in the variables of depression and mental rumination.

Table 1: Summary of the BA program and ACT

Sessions	The content of behavioral activation therapy sessions	The content of acceptance and commitment therapy sessions
First session	Introducing the members to one another, introducing the course and its rules and objectives	Presenting the members, outlining the rules of the group, and objectives, and introducing the course
Second session	Emphasizing behavioral activation and the interaction between the person and the environment, identifying and altering obvious behaviors	Knowledge of certain ACT therapy concepts, including the experience of avoiding, integrating, and accepting the psyche
Third session	Psychological training for group healing processes includes four topics: explanations about the general background of the disease, choosing appropriate treatment methods, the individual’s condition, and motivational topics.	Implementation of therapeutic techniques (ACT) such as cognitive separation, psychological awareness, and self-image
Fourth session	Using metaphors to focus on depression and changing moods and mental states	Providing therapeutic methods for emotional awareness and wise awareness (self-victim metaphor)
Fifth session	Emphasizing the significance of depression and altering moods and mental states through the use of metaphors	Contextualizing self-healing techniques, practicing mindfulness techniques, and teaching distress tolerance
Sixth session	Focusing on behavioral states (essentials to get rid of anxiety and depression) and cognitive judgments and their control (ability to solve problems and get rid of stress and how to use emotion-oriented coping)	Teaching personal value therapy techniques and clarifying values, while teaching emotion regulation through the bad cup metaphor
Seventh session	Teaching therapeutic techniques that emphasize personal values and committed action, while also improving interpersonal efficiency (chess scene metaphor)	Using a chess scene metaphor, therapeutic techniques are taught to promote personal values and committed action and increase interpersonal efficiency
Eighth session	Presenting a brief summary of the treatment and follow-up procedures and soliciting group members’ opinions	Reviewing and practicing the therapeutic techniques taught with an emphasis on regulating emotions and developing a sense of meaning in life in the real world

Table 2 shows the descriptive statistics of the mean and standard deviation of the three groups in the variables of depression and rumination, and the examination and comparison of the scores of the ACT and BA groups in the research variables indicate significant changes in the subjects' scores in the posttest stage compared with the pretest stage, which means that the ACT and BA had a positive and significant effect on the subjects' depression and rumination. However, in the control group, the mean scores of the subjects in the research variables in the posttest stage did not differ significantly from the pretest stage. According to the mean scores of the research variables in both treatments in the pretest stage, we conclude that the ACT has been more effective in reducing depression and rumination in the subjects compared with BA. Therefore, to check the significance or nonsignificance of the changes made in the mentioned scores, considering the differences in the pretest, the MANCOVA method was used.

According to the results of Table 3, the value of the significance level of the F-test in all four tests is less than 0.01; that is, the independent variables (ACT and BA) have a positive and significant effect on the dependent variables (depression and rumination), e of the research participants. They considered the significance of the results of the multivariate test and to check which ACT and BA had a significant effect on which of the dependent variables, the results of the multivariate covariance

Table 2: Mean and standard deviation of the scores of the groups in the variables of depression and rumination in the pretest and posttest stages

Test type	Variable	ACT group		BA group		Control group	
		Mean	SD	Mean	SD	Mean	SD
Pretest	Depression	38.6	5.12	36.25	3.53	35.6	5.92
	Rumination	57.4	6.91	47.85	5.06	49.25	5.66
Posttest	Depression	15.15	6.3	18.6	7.73	35.55	4.31
	Rumination	31.35	3.87	33.2	2.62	46.00	4.44

Table 3: Results of the multivariate test to investigate the effectiveness of treatment in depression and rumination variables

Effect	Value	F	df	Distribution error	P	μ
Pillai's trace	0.903	22.62	4	110	0.000	0.45
Wilks' lambda	0.099	58.87	4	108	0.000	0.68
Hotelling's trace	9.1	120.57	4	106	0.000	0.82
Roy's largest root	9.09	250.19	2	55	0.000	0.901

Table 4: Multivariate analysis of covariance test on the mean scores of the groups in depression and rumination

Source	Dependent variable	SS	df	MS	F	P	μ
Depression pretest	Depression posttest	327.17	1	327.17	10.45	0.002	0.16
Rumination pretest	Rumination posttest	282.54	1	282.54	30.62	0.000	0.35
Group membership	Depression posttest	5068.17	2	254.08	80.94	0.000	0.74
	Rumination posttest	2754.19	2	1377.09	149.28	0.000	0.84

analysis test were used with the control of the pretest effect. It is presented in Table 4.

According to the results in Table 4, the pretest stage of the "depression" variable has a significant effect on the posttest stage of this variable ($P = 0.002$; $F = 10.45$; $\mu = 0.16$), as the value of the significance level is less than 0.01 ($P < 0.01$). In other words, the level of depression of mothers in all three groups studied (ACT, BA, and control) differs in both stages, and their level of depression is not similar to each other. It seems that the pretest stage of the "rumination" variable has a significant effect on the posttest results ($P = 0.000$; $F = 30.62$; $\mu = 0.35$), as the level of significance is less than 1% error ($P < 0.01$). In particular, the amount of rumination in mothers across all three groups studied (ACT, BA, and control) differs in both pretest and posttest stages, and the level of rumination is not similar to each other. It appears that the amount of depression and rumination in the posttest stage varies among the three studied groups, namely the ACT group, the BA group, and the control group. This is because the significance level of all two variables mentioned is less than 0.01 error ($P < 0.01$).

Based on the results of Table 5 in the posttest stage, it was found that there was a significant difference between both treatment groups and the control group in the variables of depression and rumination ($P \geq 0.05$). Additionally, it was observed that the ACT was more effective in reducing depression and rumination as compared to the BA ($P \geq 0.05$).

Discussion

The aim of this study was to compare the effectiveness of BA and ACT on depression and rumination in mothers with children with cerebral palsy.

The findings showed that ACT reduced depression and rumination in research participants. It is more effective in the experimental group than in the control group. Although no research has been conducted on this subject to date, there are studies that have shown the effectiveness of ACT on rumination and depression in different groups as univariate or bivariate. For example, the research results of Mofid *et al.*,^[37] Gharadaghi and Seyed Mirzaei,^[38] Mohammadi *et al.*,^[39] Nameni *et al.*,^[40] Heidari *et al.*,^[41] Ruiz *et al.*^[42] The results of the present study are consistent.

Table 5: Tukey's post hoc test provides pairwise comparison results for the research variables in research groups in the posttest stage

Test type	Dependent variable	Comparison groups		Mean difference	P	95% confidence interval	
						Lower bounds	Higher bounds
Posttest	Depression	ACT	BA	-3.450	0.200	-8.23	1.33
			Control	-20.400	0.000	-25.18	-15.62
		BA	ACT	3.450	0.200	-1.33	8.23
			Control	-16.950*	0.000	-21.73	-12.17
		Control	ACT	20.400*	0.000	15.62	25.18
			BA	16.950*	0.000	12.17	21.73
	Rumination	ACT	BA	-1.850	0.267	-4.69	0.99
			Control	-14.650*	0.000	-17.49	-11.81
		BA	ACT	1.850	0.267	-0.99	4.69
			Control	-12.800*	0.000	-15.64	-9.96
		Control	ACT	14.650*	0.000	11.81	17.49
			BA	12.800*	0.000	9.96	15.64

*The mean difference is significant at the 0.05 level

Explaining the results of the present study, it can be said that children's cerebral palsy has been a shocking event for couples and the family institution, which itself is a disorder and illness in behavior and causes various problems and damage for the parties, especially the mother.^[43] These mothers are gradually drawn into helplessness and infertility, and this deprives them of many positive experiences. Isolation and inactivity also affect a person's self-perception, and the combination of these factors causes the person to transfer the feeling of inefficiency and helplessness to all his experiences and practically miss many opportunities for effective performance. Thus, rumination and subsequent depression can affect most psychological processes and psychological resilience. Cognitive flexibility means the ability to return to the present moment, to be aware and observe one's thoughts and emotions, to distance oneself a little from rigid beliefs, and to do what is important, despite unpleasant events.^[44] In contrast, people who are cognitively inflexible turn to rumination when disturbed and focus on their cognitive power on rumination, which provides a repetitive and unhelpful response to the individual. From the perspective of ACT, psychological disorders can be caused by psychological inflexibility. The ACT assumes that human beings find many of their inner feelings, emotions, or thoughts disturbing and are constantly trying to change or get rid of these experiences. These attempts to control emotions are ineffective and paradoxically exacerbate the feelings, emotions, and thoughts that one initially tries to avoid.^[45] Therefore, this method of avoidance is considered the main problem for patients. In fact, the central process of ACT teaches people how to stop thinking, how not to mix with disturbing thoughts, and makes the person more tolerant of unpleasant emotions.^[46] In ACT, past traumas are an example of immutability that should be accepted. He then asks her to accept what is out of her control and commit to something that will improve and enrich her life. ACT is based on pervasive consciousness

or mindfulness. In this therapy, mindfulness means consciously bringing awareness to the experience of the here and now with openness, interest, acceptance, and no disturbing thoughts. Therefore, it can be said that ACT helps a person to be more in touch with the present and their experiences here and now in addition to accepting the past, and this reduces rumination and depressive states. Acceptance causes them to stop arguing with themselves and focus all their energy on values and what they can do, thus feeling valued.

Also, the present study showed that BA has a positive and significant effect on reducing the symptoms of depression and mental rumination in the participants of the study. The results of the present research on the effectiveness of BA in reducing depression and mental rumination were in line with the results of previous research studies. For example, Chu *et al.*^[27] reported in research that BA therapy reduced youth depression. In another study, Karimpour *et al.*^[47] reported that BA significantly reduced depression and mental rumination in the posttest and 2-month follow-up stages. Also, Soleimani *et al.*^[48] concluded in research that group activation therapy significantly reduced depression and its dimensions.

In explaining the effectiveness of BA on depression, it can be said that the behavioral theory of depression states that this therapy is effective because it provides the opportunity to receive an increase in positive reinforcement. The goal of BA is to increase behaviors that are likely to lead to receiving reinforcement from the patient, which is internal (such as pleasure or a sense of success) or external (such as social attention), and these increases help to improve the patient's mood, and finally, they reduce his depressed mood.^[49] Another explanation is that BA teaches people to change their lifestyles, establish new rules in their lives, and follow them. For example, people learn to become more active

and try to solve problems instead of being silent when they feel sad. Also, this method teaches the strategy of breaking difficult tasks into several simpler ones. Therefore, by implementing these strategies, depressed people can achieve success in a progressive manner, and this facilitates the achievement of positive reinforcement. Also, this therapeutic approach encourages depressed patients to become more active despite feeling tired and sad, or to try to perform behavioral tasks related to the treatment process, even if they have no motivation to do so. Over time, such processes lead to an increase in environmental reinforcement and subsequently improve the mood of depressed people and reduce rumination.^[50]

Another result of the present study was that the effectiveness of the ACT on depression and rumination of the participants in the study was significantly higher than the BA.

To explain the higher effectiveness of ACT compared with BA, it should be said that ACT is basically a behavioral therapy and its subject is a practice that is value oriented in the first step. The ACT method helps clients recognize all annoying and negative thoughts and feelings (caused by depression) as unreal and accept them and not try to change and control them. At the same time, this topic helps the client recognize the really important things for herself and then use these values to guide behavioral changes in life. The second characteristic of behavior therapy is that the action is conscious; that is, it should be done with full awareness and presence.^[51]

Many people believe in the idea that some thoughts, feelings, and memories are wrong and need to be corrected or erased. However, there are different approaches to therapy that take a different perspective. For instance, there is a structured therapeutic process known as BA that aims to increase a person's contact with the reinforcing connections of the environment. This approach locates the cause of disorders outside the individual, in their life experiences. Another example is cognitive-behavioral therapy, which identifies certain signs and symptoms as negative, inefficient, inconsistent, or irrational, and seeks to modify or eliminate them using different techniques. However, the ACT method takes a different approach. Instead of changing or eliminating these thoughts and feelings, the goal is to change the client's relationship with them so that they are not seen as signs causing distress.^[52]

Faulting techniques are used to reduce the intermingling of references with the conceptualized self. According to people, negative thoughts and feelings are a threat to the meaning of their identity, so the depressed person experiences the thought that "I am a worthless person."

This person is mixed with the content of this thought, and this thought is influential in his meaning and perception of himself. In fact, the feeling of worthlessness is a kind of thought, but the person is mixed with its literal meaning. Usually, one of the problems of depressed people is clinging to the past and related events. Living in the present helps clients free themselves from clinging to the conceptualized past and discover the present. Another problem of these people is rumination and clinging to themselves and their thoughts and feelings. ACT method teaches people to accept the contents of their minds and not move to change them through the processes of acceptance, failure, self as context, and living in the present. Rather, their movement toward the important values and goals of their lives. In fact, in the ACT method, acceptance-based interventions want clients to focus their thoughts on creating a valuable life instead of changing and reducing symptoms. The goal of acceptance is that the person accepts all the presented internal experiences, i.e., thoughts, feelings, memories, and bodily sensations, without the need to defend against them. The ACT method, through interventions related to cognitive dissonance, seeks to help clients not inflexibly submit to their thoughts and mental laws and instead find ways to interact more effectively with the directly experienced world. This method introduces another type of self in the name of self as context (or transcendental sense of self). This term means meaning and sense of self as a context in which internal events such as thoughts, feelings, memories, and bodily sensations occur. The ACT method encourages nonjudgmental observation and description of experiences in the present, and these experiences help clients experience changes in the world as they really are, not as their minds make them.^[40]

For every person, values are important areas of life, and to reveal them to clients, special exercises are used. References define the values, goals, and specific behaviors related to them, and possible obstacles in the way of reaching those goals and movements are also identified. These obstacles are usually psychological, and to overcome them, these issues are reduced to the clients: acceptance, failure, and connection with the present. Also, these barriers encourage clients to commit to changing their behavior. In the ACT method, commitments define goals in specific areas that are valuable to the individual. Also, these obligations include acting according to these goals despite recognizing and accepting psychological obstacles.^[53] Thus, ACT balances practices, focusing on change in changing domains (such as overt behavior) and acceptance and mindfulness in stable domains. Finally, the result of all interventions of the ACT method (acceptance, breaking, self as context, living in the present, values, and committed action) is an increase in recovery in the field of psychological disorders such as depression and rumination.

Limitation and recommendation

The results of the current research should be interpreted and generalized in the context of its limitations. First, the sample size was limited. Second, because of executional limitations, it was not possible to have a follow-up procedure. For this reason, its generalization to the whole society should be done with caution. It is suggested that similar research be conducted on samples with larger samples. It is recommended that ACT and BA on other variables of mothers, such as quality of life and obsessive thoughts, should be examined. These treatments should be used to implement preventive programs for parents who are about to have children, and finally, a training package for ACT and BA for parents and their children for education and prevention based on local culture should be prepared and compiled.

Conclusion

In sum, the results of the current research to support the effectiveness of ACT and BA on depression and mental rumination can be an important step in explaining the dimensions of the effectiveness of these treatments in the field of depression and mental rumination. It's interesting to note that mindfulness and acceptance, which are taught in ACT, can help individuals overcome emotional pain and depression. It's worth mentioning that ACT's scope of influence seems to be quite extensive, as it surpasses other approaches in this regard. Free our minds from judgment and negative thoughts live with a feeling of value and be committed to our positive possessions. This research's valuable conclusion was that therapists and researchers can consider using or designing effective treatment programs.

Ethical approval

This article is taken from the Ph.D. thesis in the field of psychology at the Islamic Azad University of Ilam Branch, which was approved by the Medical Ethics Committee of Islamic Azad University of Ilam Branch with the code of ethics: IR.IAU.ILAM.REC.1401.045.

Informed consent

Questionnaires were filled out to the participants' satisfaction, and written informed consent was obtained from the participants in this study.

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Conflicts of interest

There are no conflicts of interest.

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