


# The Effectiveness of Acceptance and Commitment Therapy and on Pain Intensity, Childhood Trauma, Perfectionism and Psychological Flexibility in Patients with Chronic Pain

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## ABSTRACT

**Objective:** Chronic pain often leads to distress, morale weakness, and functional impairment, becoming a primary source of suffering and economic burden. This research aimed to determine the effectiveness of Acceptance and Commitment Therapy (ACT) on pain intensity, childhood trauma, perfectionism, and psychological flexibility in patients with chronic pain.

**Materials and Methods:** This applied, quasi-experimental pre-test, post-test, and follow-up study with a control group included 198 patients with chronic pain from Tehran's pain clinics. Fifty patients were selected through purposive sampling based on inclusion and exclusion criteria and randomly divided into two groups: ACT (25 participants) and control (25 participants). Data were collected using the West Haven-Yale Multidimensional Pain Inventory (Kerns et al., 1985), Childhood Trauma Questionnaire (Bernstein et al., 2003), Frost Multidimensional Perfectionism Scale (Frost et al., 1990), and Acceptance and Action Questionnaire-II (Bond et al., 2011). The ACT for chronic pain was conducted in seven 60-minute group sessions over two months, based on a treatment package. Data analysis utilized repeated measures ANOVA and SPSS software version 22.

**Findings:** Results showed that ACT significantly affected pain intensity ( $F = 57.99, p < 0.001$ ), childhood trauma ( $F = 144.38, p < 0.001$ ), perfectionism ( $F = 68.87, p < 0.001$ ), and psychological flexibility ( $F = 5.87, p < 0.001$ ) in patients with chronic pain.

**Conclusion:** ACT is effective in reducing pain severity, childhood trauma, perfectionism, and enhancing psychological flexibility in patients with chronic pain and can be used to alleviate psychological problems in these individuals.

**Keywords:** Acceptance and Commitment Therapy, pain intensity, childhood trauma, perfectionism, psychological flexibility, chronic pain.

## 1. Introduction

Pain is a dual-faceted phenomenon. Like a real double-edged sword, it can protect us from further harm in the short term, but can be extremely debilitating when it

becomes chronic. Our definition of pain has evolved with a better understanding of its underlying psychological and physiological mechanisms. The recent definition of pain is: an unpleasant experience associated with actual or potential tissue damage, accompanied by sensory, emotional,

cognitive, and social components (Almutairi et al., 2023; Otis et al., 2021; Terzaki et al., 2023). Chronic pain is pain that persists for more than 3 to 6 months despite treatment. Most types of chronic pain are to some extent caused by behavioral factors and continue even after healing of a specific tissue injury. Low back pain, headaches, pain from joint inflammation, and cancer are types of chronic pain (Majcher et al., 2023; Tesio et al., 2018; Zargar et al., 2019). It also has physical and psycho-psychological consequences and places a heavy burden on the economy and society. Chronic pain negatively affects 20% of the world's population. Chronic pain often leads to distress, weakened morale, and functional impairment, and is a major source of suffering and economic burden (Otis et al., 2021; Terzaki et al., 2023). Chronic pain can significantly affect an individual's health status and quality of life, leading to a decline in health-related quality of life, often interfering with daily activities such as family responsibilities, recreational activities including sports, and sleep, and has complications such as depression, inability to work, disruption in social relationships, social isolation, early retirement, fatigue, decreased physical and mental performance, sleep problems, and suicidal thoughts (Almutairi et al., 2023; Majcher et al., 2023; Nicholas, 1989; Terzaki et al., 2023).

Primary psychological problems and traumas can have profound effects on the emotional development of children, emotional issues, and their mental health outcomes (Bradford et al., 2012; Goldberg et al., 2019; Kroska et al., 2018). Additionally, childhood traumas can have negative effects on adult lifestyle, including the occurrence of interpersonal problems and physical disorders and symptoms (such as pain) (Danese, 2020). According to the American Institute of Mental Health, childhood trauma is defined as a child's experience of an emotionally painful or disturbing event that leads to long-lasting psychological and physical effects. Other research has identified a relationship between childhood trauma and chronic pain (Balali Dehkordi & Fatehizade, 2022; Chiochetti et al., 2022; Warren et al., 2022). Trauma reports are more common in patients with chronic pain, and trauma is an important cognitive causative factor in central sensitivity, meaning that chronic hypersensitivity of the central nervous system sets the stage for a more painful experience in individuals and is a maintaining factor in chronic pain conditions. Childhood trauma can play a very important role in the concurrent occurrence of chronic pain and borderline personality disorder (Ahmadboukani et al., 2022).

Numerous studies have highlighted the importance of psychological factors in describing physical disability and psychological well-being, with most research focusing on pain catastrophizing. In this context, perfectionism has been examined as a highly stressful cognitive-personality vulnerability factor (Khadem Dezfuli et al., 2023; Vidic & Cherup, 2019). According to this model, perfectionism is defined as cognitive and behavioral inflexibility, such that a person cannot employ a strategy appropriate to the situation and continues to use previous strategies regardless of context. One of the underlying mechanisms of perfectionism is experiential avoidance, which negatively affects health (Jalalvand et al., 2020). Previous studies have shown a relationship between perfectionism and stress, poor mental health, reduced performance, and the frequency/intensity of pain and fatigue. The results of this research showed that in patients with high pain and disease severity, perfectionism leads to performance based on duty rather than pain-based performance. In patients with less severe disease, perfectionism is associated with avoidance of activity (Hoshmandi et al., 2019; Jalalvand et al., 2020; Khadem Dezfuli et al., 2023; Nazari & Meigooni, 2017; Vidic & Cherup, 2019).

A set of transdiagnostic processes based on a coherent theory that have been considered in chronic pain research have recognized the model of psychological flexibility. There is growing evidence that the processes of the psychological flexibility model are related to the severity and impact of chronic pain, especially in those with relatively high clinical complexity (Benjet et al., 2023; Samaelvand et al., 2023; Zolfaghari et al., 2021). Treatment based on psychological flexibility, which can be flexibly provided, such as internet-based acceptance and commitment therapy, may offer a way to address health outcomes and well-being in individuals with chronic pain (Han & Kim, 2022; Preece et al., 2023; Samaelvand et al., 2022).

The challenge that chronic pain poses to an individual's sense of identity (self-concept) is notable and can have profound consequences, especially when a technological solution is not available or is simply not successful. The goal of acceptance and commitment therapy is to help patients learn new ways to live with pain. The term acceptance can be misleading: it does not mean enduring it (Gloster et al., 2017). Acceptance and commitment therapy focuses on accepting thoughts and feelings that have led to unhelpful responses in the past. Acceptance methods are combined with work on personal values, behavioral commitments, and

traditional behavioral change strategies to help patients lead fuller lives; thus, the goal of acceptance is to help the patient move away from old and ineffective ways of solving pain problems and start building a valuable life with the ongoing presence of pain: the goal is to reduce the focus on pain in one's sense of self (Bahrami Rad & Rafezi, 2019; Barnes et al., 2023).

Perfectionism in adolescents with chronic pain and their parents is indirectly associated with functional impairment related to pain through its impact on fear and catastrophizing related to the adolescent's pain. Findings support clinical observations that parental and adolescent perfectionism is a psychological factor that should be considered in the treatment of chronic pain in children. Studies show many associations between perfectionism, pain, and other physical health outcomes in adulthood. This research demonstrates the role of perfectionism in pain, pain-related distress, and pain-related functional impairment (Habibi Asgarabad et al., 2023; Hamzehgardeshi et al., 2023; Klonsky et al., 2017; Muscatello et al., 2016). The psychological domain is one aspect of the biopsychosocial model, and the relationship between psychological/personality factors and mental health has been confirmed. Since perfectionism is associated with greater psychological distress, children with chronic pain who are perfectionists are more vulnerable to the negative consequences of pain. Factors such as rumination, catastrophizing, and an avoidant coping style are common among perfectionists. Perfectionism and its cognitive/behavioral correlates can be transdiagnostic processes or underlying factors that accelerate, maintain, and intensify the experience of chronic pain in children (Barlow et al., 2010). Childhood trauma appears to be a precursor to lower psychological flexibility, greater perfectionism, and increased severity of chronic pain, hence employing methods to mitigate the effects of childhood trauma in adulthood, and especially the global problem of chronic pain, can be very beneficial.

Acceptance and Commitment Therapy (ACT) is a mindfulness and acceptance-based psychotherapeutic intervention that can be employed for many clinical disorders, including chronic pain. ACT is based on relational frame theory, a comprehensive theory of language and cognition derived from behavior analysis. The distinction of ACT from Cognitive Behavioral Therapy is that instead of teaching individuals to control their thoughts, feelings, sensations, and memories (Bond et al., 2011; Ghasemzadeh Barki & SHahgholian Ghahfarokhi, 2020), it emphasizes observing thoughts and feelings without trying to change

them, and behaving in ways consistent with valued goals and life directions. In ACT and other mindfulness-based approaches, pain is seen as an inevitable part of life that can be accepted, while attempting to prevent inevitable pain leads to greater suffering (Kerns et al., 2006). Given the increasing number of patients with chronic pain and their major problems in terms of pain severity, childhood trauma, perfectionism, and psychological flexibility, it appears that many of these patients with chronic pain lack sufficient understanding and skills to properly manage such problems. Proper training in Cognitive-Behavioral Therapy and Acceptance and Commitment Therapy to patients with chronic pain can reduce such problems.

Thus, the present study aims to answer whether there is a difference in the effectiveness of Acceptance and Commitment Therapy and Cognitive-Behavioral Therapy on the severity of pain, childhood trauma, perfectionism, and psychological flexibility in patients with chronic pain.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study employed an applied and quasi-experimental design with a pre-test, post-test, and follow-up alongside a control group. The statistical population comprised all patients with chronic pain attending pain clinics in Tehran, totaling 198 individuals. Out of these, 50 patients were selected through purposive sampling based on inclusion and exclusion criteria and randomly assigned to two groups: an Acceptance and Commitment Therapy group (25 participants) and a control group (25 participants). Inclusion criteria for the sampling included individuals aged 18 to 65 years, Persian-speaking, suffering from chronic pain conditions such as lower back pain, headache, neck pain, cancer-related pain, muscular pains like fibromyalgia, joint pains such as rheumatism, and nerve pains like sciatica and diabetic neuropathy, with a pain duration of more than three months and a score above 60 on the West Haven-Yale Multidimensional Pain Inventory (MPI). Exclusion criteria included participants' unwillingness to continue cooperation at any stage of the research, any acute or chronic illness that, in the researcher's opinion, limited the patient's ability to participate in the study, and absence from more than two therapy sessions.

To conduct this research, I visited pain clinics in Tehran, interviewed chronic pain patients who initially met the research entry criteria, and explained the objectives of the research. The relevant questionnaires, including the chronic

pain questionnaire, childhood trauma questionnaire, perfectionism questionnaire, and psychological flexibility questionnaire, were distributed among them. After the questionnaires were completed, patients with a chronic pain severity score above 60 were included in the study. Following the review of the responses, online interviews were conducted with patients who had a pain severity score above 60. A total of 50 participants who met the research entry conditions were selected. They were then randomly assigned to the experimental and control groups, with 25 members each. Subsequently, patients in the experimental group underwent ACT for seven 60-minute sessions weekly and online, while patients in the control group only completed the questionnaires. One week after the last treatment session, the questionnaires were again filled out by members of both groups as a post-test. Two months after the end of the treatment, the questionnaires were filled out again by members of all three groups for follow-up. Before implementation, the purpose of the research and other conditions were explained to the chronic pain patients, such as ensuring participants were informed about the topic and methodology before the research began and obtaining their written consent; it was explained that their personal and private information would be protected and the interpretation of results would be available to them if they wished.

## 2.2. Measures

### 2.2.1. Pain

West Haven-Yale Multidimensional Pain Inventory (MPI) is developed by Kerns et al. in 1985 and consists of 52 items and 12 components divided into three parts, rated on a 7-point Likert scale. Part 1 includes five components designed to assess important dimensions of chronic pain experience. Part 2 evaluates the patient's perception of the extent to which their spouse or significant others are worried, distressed, or react punitively to their pain behaviors and complaints. Part 3 assesses the frequency of engagement in four categories of daily activities (Kerns et al., 2006). The reliability and validity of the MPI was demonstrated by Asghari various researchers worldwide (Nicholas, 1989; Otis et al., 2021).

### 2.2.2. Childhood Trauma

Childhood Trauma Questionnaire (CTQ) is developed by Bernstein et al. (2003) to assess childhood injuries and

trauma. The CTQ is a screening tool for identifying individuals with experiences of childhood abuse and neglect. It is suitable for both adults and adolescents and assesses five types of childhood maltreatment: sexual abuse, physical abuse, emotional abuse, and emotional and physical neglect. The questionnaire contains 28 questions, of which 25 assess the main components of the questionnaire and three are for detecting individuals who deny their childhood problems. In the research by Bernstein et al. (2003), the Cronbach's alpha coefficient for the CTQ among a group of adolescents for emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect was respectively 0.87, 0.86, 0.95, 0.89, and 0.78. Concurrent validity was reported with therapist ratings of childhood trauma severity ranging from 0.59 to 0.78 (Bernstein et al., 2003).

### 2.2.3. Perfectionism

Frost Multidimensional Perfectionism Scale (FMPS) is by Frost et al. (1990) to assess various dimensions of perfectionism; this questionnaire contains 35 items. Responses are rated on a 5-point Likert scale (1 to 5). The questionnaire has six subscales, with the negative perfectionism score derived from four subscales (excessive concern about mistakes, perceptions of parental criticism, perceptions of parental expectations, and preference for doubt and orderliness) and positive perfectionism score from two subscales (orientation to order and organization, and personal performance standards). The total perfectionism score is obtained from the sum of six scales excluding order. A high score indicates high perfectionism in the respective domain. Frost et al. (1993) reported internal consistency coefficients for the subscales between 0.73 and 0.93, and for the overall test at 0.90 (Jalalvand et al., 2020).

### 2.2.4. Acceptance and Action

The Acceptance and Action Questionnaire-II (AAQ-II) was developed by Bond and colleagues in 2011. This questionnaire consists of 7 items that capture the essence of psychological inflexibility, which includes avoiding or suppressing unwanted thoughts and emotions, as well as being unable to act in alignment with one's values and goals due to experiential avoidance. Respondents rate each item on a 7-point Likert scale, with options ranging from "never true" (1) to "always true" (7). Higher scores on the AAQ-II indicate greater levels of psychological inflexibility (Bond et al., 2011). The AAQ-II has been widely used in both clinical and research settings to assess an individual's level of

psychological flexibility and its potential impact on mental health and well-being.

2.3. *Intervention*

2.3.1. *Acceptance and Commitment Therapy (ACT)*

The ACT for chronic pain was conducted in seven 60-minute group sessions over two months (Larsson et al., 2022; Peterson & Eifert, 2011).

**Table 1**

*Content of Acceptance and Commitment Therapy Sessions*

Sessions	Content
First	Self-introduction and expression of pain type, explanation about lack of pain control, confidentiality and participation, practice on engaging with pain, using related metaphors.
Second	Reviewing contents of the previous session and recent experiences briefly, "passengers on the bus" metaphor, practice on willingness including observation, breathing, openness, concepts of clean and dirty suffering, Chinese finger trap metaphor, generalizing the use of willingness skills outside the session.
Third	Reflective listening, exercises to understand the role of mind and thinking in creating barriers in our path to goals and what is important to us, or mind separation exercises like: lemon exercises, labeling thoughts, getting rid of "buts."
Fourth	Reviewing progress between sessions, practice on following thoughts over time, body awareness exercises, practice on paying attention to five things around you or in your body.
Fifth	Reviewing exercises done between sessions and progress and obstacles, self-conceptualization exercise, observer exercise.
Sixth	Discussion about recent patient experiences, difference between goals and values, value clarification exercises.
Seventh	Goal setting practice, commitment making, goal selection sheet.

2.4. *Data Analysis*

For data analysis, MANCOVA and repeated measures ANOVA were used. To check the assumptions of inferential tests, Levene's test (for homogeneity of variances), Shapiro-Wilk test (for normal distribution of data), homogeneity of regression test, Mbox test, and Mauchly's test of sphericity were used. The above statistical analyses were conducted using SPSS software version 22.

**3. Findings and Results**

The mean (standard deviation) age of participants in the Acceptance and Commitment Therapy group was 39.78 (7.44) and in the control group, it was 38.52 (7.11). There was no significant difference in mean age between the groups.

**Table 2**

*Central Tendencies and Dispersion Indices of Research Variable Scores in Both Experimental and Control Groups*

Variable	Group	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Follow-up Mean	Follow-up SD
Pain Intensity	Acceptance & Commitment	65.12	14.84	56.40	11.09	56.53	11.04
	Control	64.26	13.23	64.93	13.93	64.77	13.02
Childhood Trauma	Acceptance & Commitment	58.16	15.85	50.23	12.69	50.40	11.94
	Control	58.60	18.59	58.53	18.70	58.46	18.77
Perfectionism	Acceptance & Commitment	117.33	21.42	109.73	16.27	110.33	17.54
	Control	118.73	21.27	118.20	21.26	118.80	21.20
Psychological Flexibility	Acceptance & Commitment	26.12	9.84	36.66	3.95	35.93	3.69
	Control	26.60	9.13	27.26	9.40	27.46	8.96

The results of Table 2 regarding central and dispersion indices of research variable scores in the experimental and control groups showed that pain intensity, childhood trauma,

and perfectionism decreased in the experimental group in the post-test and follow-up stages compared to the pre-test, while psychological flexibility increased. Multivariate

analysis of covariance was used to examine the significance of differences between scores for pain intensity, childhood trauma, perfectionism, and psychological flexibility in the Acceptance and Commitment Therapy group and the control group. Before conducting the multivariate analysis of covariance test, the assumptions were checked using Box's M and Levene's tests. Since Box's M test was not significant for any of the research variables (Box's M = 21.95; df = 20;

$p > 0.05$ ), the condition of homogeneity of variance-covariance matrices was correctly met. Also, the non-significance of all variables in Levene's test indicated that the condition of equality of variances between groups was met, and the error variance of the dependent variable was equal across all groups. The results of the multivariate analysis of covariance test are presented in Table 3.

**Table 3**

*Results of the Multivariate Analysis of Variance Test*

Effect	Test Name	Value	F Test	Hypothesis df	Error df	Significance Level	Eta2
Time	Pillai's Trace	0.95	275.47	2	46	0.001	0.95
	Wilks' Lambda	0.04	275.47	2	46	0.001	0.95
	Hotelling's Trace	20.40	275.47	2	46	0.001	0.95
	Largest Root	20.40	275.47	2	46	0.001	0.95
Time*Group	Pillai's Trace	0.90	132.67	2	46	0.001	0.90
	Wilks' Lambda	0.09	132.67	2	46	0.001	0.90
	Hotelling's Trace	9.82	132.67	2	46	0.001	0.90
	Largest Root	9.82	132.67	2	46	0.001	0.90

As seen in Table 3, all tests are significant at the 0.001 level, indicating that there is a significant difference between the mean scores in terms of the effectiveness of Acceptance and Commitment Therapy in improving pain intensity between the experimental and control groups. It is noteworthy that Wilks' Lambda test with a value of 0.09 and an F value of 132.67 shows a significant difference in

treatment effectiveness scores for pain improvement in the experimental and control groups at a significance level of 0.0001. The results of the repeated measures ANOVA for comparing pre-test, post-test, and follow-up pain intensity in the experimental and control groups are presented in Table 4.

**Table 4**

*The Results of Analysis of Variance with Repeated Measurements*

Scale	Source of Effect	Sum of Squares	Degrees of Freedom	Mean Squares	F	Significance	Eta Squared
Pain Intensity	Time	67.28	1.46	46.46	160.63	0.001	0.85
	Time*Group	47.02	1.46	32.21	111.36	0.001	0.79
	Group	146.94	1	146.94	57.99	0.001	0.58
Childhood Trauma	Time	446.06	1.35	329.75	155.08	0.001	0.84
	Time*Group	356.06	1.35	263.22	123.79	0.001	0.81
	Group	291.60	1	291.60	144.38	0.001	0.64
Perfectionism	Time	185.08	1.38	133.96	124.71	0.001	0.81
	Time*Group	106.02	1.38	76.73	71.43	0.001	0.71
	Group	263.51	1	263.51	68.87	0.001	0.69
Psychological Flexibility	Time	185.08	1.38	133.96	124.71	0.0001	0.81
	Time*Group	106.02	1.38	76.73	71.43	0.0001	0.71
	Group	263.51	1	263.51	5.87	0.022	0.17

The results of Table 4 indicate that the ANOVA for the within-group factor (time) and between-group is significant. This means that the effect of time and group is significant. The interaction of group and time is also significant. In

addition, Bonferroni's post-hoc test was used for pairwise comparison of groups, and its results are presented in Table 5.

**Table 5**

*Results of Bonferroni Post-hoc*

Variable	Group	Stages	Post-test	Follow-up
Pain Intensity	Acceptance & Commitment	Pre-test	9.06*	9.46*
		Post-test	-	0.13*
	Control Group	Pre-test	0.27	0.39
		Post-test	-	0.44
Childhood Trauma	Acceptance & Commitment	Pre-test	8.96*	8.43*
		Post-test	-	0.17
	Control Group	Pre-test	0.45	0.36
		Post-test	-	0.58
Perfectionism	Acceptance & Commitment	Pre-test	11.16*	10.90*
		Post-test	-	1.26
	Control Group	Pre-test	0.58	0.86
		Post-test	-	0.74
Psychological Flexibility	Acceptance & Commitment	Pre-test	-10.50*	-9.06*
		Post-test	-	0.43
	Control Group	Pre-test	-0.25	-0.37
		Post-test	-	-0.44

\*Significant results ( $p < 0.05$ )

The results in Table 5 show that the pain intensity score in the experimental group in the post-test stage was lower than in the control group; in other words, the Acceptance and Commitment Therapy group showed high effectiveness in improving pain intensity. Also, these results indicate that pain intensity in the follow-up stage in the Acceptance and Commitment Therapy group significantly decreased compared to the control group. The childhood trauma score in the experimental group in the post-test stage was lower than in the control group; in other words, the Acceptance and Commitment Therapy group showed high effectiveness in improving childhood trauma. Moreover, these results show that childhood trauma in the follow-up stage in the Acceptance and Commitment Therapy group did not significantly decrease compared to the control group. The perfectionism score in the experimental group in the post-test stage was lower than in the control group; in other words, the Acceptance and Commitment Therapy group showed high effectiveness in improving perfectionism. These results show that perfectionism in the follow-up stage in the Acceptance and Commitment Therapy group did not significantly decrease compared to the control group. The psychological flexibility score in the experimental group in the post-test stage was higher than in the control group; in other words, the Acceptance and Commitment Therapy group showed high effectiveness in improving psychological flexibility. These results show that psychological flexibility in the follow-up stage in the

Acceptance and Commitment Therapy group did not significantly increase compared to the control group.

#### 4. Discussion and Conclusion

The current study aimed to determine the effectiveness of Acceptance and Commitment Therapy (ACT) on pain intensity, childhood trauma, perfectionism, and psychological flexibility in patients with chronic pain. According to the obtained results, it is observed that ACT has an impact on pain intensity in patients with chronic pain. The results of this study are consistent with the findings of previous studies by (Afshinpoor et al., 2018; Bahrami Rad & Rafezi, 2019; Barnes et al., 2023; Van de Graaf et al., 2021).

To explain how ACT impacts the pain intensity of patients with chronic pain, it can be said that ACT, a behavioral therapy, utilizes mindfulness skills, acceptance, and cognitive defusion to increase psychological flexibility. At high levels of acceptance, individuals become aware of their thoughts and feelings without trying to control or avoid them. This likely reduces the impact of thoughts and feelings on individuals' behavioral functioning (pain). Therefore, at low levels of acceptance, individuals experiencing psychological arousal engage in control strategies to alter the form and frequency of their thoughts and feelings. In other words, ACT enhances clients' ability to engage with their current experience based on momentary possibilities in a manner that is desirable and aligned with their chosen

values. Thus, it seems likely that behavioral commitment exercises, along with defusion and acceptance techniques, and detailed discussions about individual values and goals and the necessity of emphasizing them, have all contributed to reducing the pain intensity of individuals with chronic pain (Bahrami Rad & Rafezi, 2019; Barnes et al., 2023). One of the goals of this approach is to emphasize individuals' willingness to experience internal events. In this regard, patients are helped to experience their distressing thoughts simply as thoughts; to become aware of the inefficiency of their current program and, instead of responding to it, engage in what they find important or valuable in life. In fact, individuals are taught to strengthen the observer self instead of the conceptualized self and to accept internal events instead of trying to control them. In this treatment, individuals learn not only to not distance themselves from their feelings but also to experience, accept, and live with them; and through mindfulness, to observe the nature of their thoughts and thought processes and link them with goal-directed activities. Therefore, it can be concluded that chronic pain, with a challenging clinical course that includes heterogeneous and specific symptoms such as pain, occurs regularly and with variable frequency regardless of pharmacological treatments (Gifford et al., 2004; Twohig et al., 2006). Thus, one of the symptom management models that brings favorable outcomes for patients is ACT. Also, a change in clients' attitudes in the first session regarding the cause of this effect, change in clients' attitudes in the first session regarding the cause of the creation of irrational thoughts, the negative and defective cycle of these thoughts, and the goal of treatment, starting mindfulness-based practices and creating creative helplessness regarding past solutions, from the very first sessions and the patients' welcoming of this new perspective (Bai et al., 2022). Given the research findings, since the variable (acceptance) increased before a significant reduction in the symptoms of psychological disorders, we conclude that the variable of acceptance and increasing attention and action on values in the treatment of depression and stress by ACT serves as a mediator of change. In other words, ACT creates therapeutic changes by developing (acceptance) and (increasing action on values) in clients. Group therapy using ACT leads to an improvement in pain intensity in patients with chronic pain. Another process emphasized in ACT, which played a prominent role in this treatment protocol, is the focus on committed action (Jahedi & Badri Gargari, 2023; Mardani et al., 2023). Encouraging patients to clarify values, set goals, anticipate obstacles, and finally commit to actions in line

with achieving goals and moving towards values, despite the presence of illness, helps in realizing goals and the resulting happiness, which increases the improvement in pain intensity in patients with chronic pain, and frees them from a cycle of negative thoughts and feelings.

ACT affects childhood trauma in patients with chronic pain. The results of this study are in line with the findings of the previous research (Aghjane et al., 2021; Hayes et al., 2004).

On the other hand, to explain the effectiveness of ACT on childhood trauma in patients with chronic pain, it can be said that ACT focuses on differentiating suffering and pain and pursuing values and goals, differentiating value and goal, planning activities, and increasing engagement in activities that create a sense of competence or pleasure. This treatment also causes a defusion from depressive and anxiety-provoking thoughts and feelings (Ebrahimi Moghadam et al., 2018; Hasan Larijani et al., 2020). It helps the therapist to facilitate strategies for defusion and verbal change that increase value-oriented action. It also focuses on distinguishing the conceptualized self from the observing self, enhancing the individual's understanding of the lack of control over thoughts so that the individual stops struggling with their thoughts and actively accepts and returns to their values through experiential avoidance. Returning to the present moment is another component addressed in this treatment. Finally, ACT focuses on creating commitment, returning to values, identifying obstacles, and preparing clients for a life worth living. Moreover, ACT helps the individual to become familiar with strategies related to problems and challenges and to adopt the best possible strategy in line with the circumstances (Kazemeini et al., 2022); because this treatment enables the individual to better understand the support of others and to have a positive evaluation of events and occurrences around them, and ultimately, instead of escaping and avoiding and also running away from their thoughts, feelings, and memories, accept them and increase their level of psychological flexibility. This treatment can improve childhood trauma in patients with chronic pain in that it deals with problems and challenges with a new realistic perspective and instead of isolation and loneliness, accepts feelings and thoughts resulting from events and adjusts oneself to the circumstances, which will set the stage for the improvement of childhood trauma in patients with chronic pain (Baseri & Bozorgi, 2017; Forman et al., 2007; Peterson & Eifert, 2011). This treatment causes the individual to adopt a positive and constructive approach in their life instead of



struggling and clashing with negative thoughts, which increases psychological flexibility in life and thus improves childhood trauma in patients with chronic pain.

Considering the obtained results, it is observed that Acceptance and Commitment Therapy (ACT) has an impact on the perfectionism of patients with chronic pain. The results of this research are consistent with the previous findings (Asli Azad et al., 2019; Reuman et al., 2018; Twohig et al., 2006).

In explaining these results, it can be said that perfectionists tend to set unrealistic standards for themselves and focus on flaws and failures in performance, along with strict and critical self-monitoring, excessive expectations, and critical evaluation of others, feeling the need to adhere to standards and fulfill expectations imposed by significant others. They tend to perform tasks with precise order and flawlessly, and even when performing better than others, they are not satisfied unless the task is done without any errors (Jalalvand et al., 2020; Nazari & Meigooni, 2017). Therefore, it can be assumed that striving for flawlessness, setting unrealistic standards, and focusing on flaws and failures, excessive worry about achieving unrealistic goals, and severe self-criticism when failing to meet unrealistic standards, intense fear of disapproval from others, fear of failure, and rumination on failures and weaknesses and anxiety-provoking situations like illness can lead to excessive worry and anxiety. Exam anxiety is also characterized by cognitive, emotional (such as stress, fear, worry, and generalized anxiety), physiological, and behavioral components (Barnes et al., 2023; Pugach et al., 2020; Salehian & Moradi, 2022; Sepas et al., 2022). Moreover, these individuals rigidly adhere to their thoughts and mental rules. Also, in ACT, cultivating mindfulness to neutralize excessive engagement with cognitions and identifying personal values related to behavioral goals takes place, and individuals are encouraged to fully and non-resistively engage with their experiences while moving toward valued goals, accepting them without judgment as they arise. This increases motivation for change despite unavoidable obstacles and encourages the person to strive towards fulfilling valuable life goals. Indeed, ACT clarifies relational values and delves into acting consistently, giving individuals the opportunity to act in ways that lead them to happiness in life. Accepting thoughts, feelings, and emotions as they are, weakens cognitive fusion, and alongside, accepting internal events, when the person is not struggling with distress and turmoil, allows them to develop their behavioral repertoire and use the time thus gained for

engaging in valuable activities, committing themselves to a valuable and purposeful life, thereby achieving the purpose and meaning they consider for life and the values they pursue, and as a result, increasing life satisfaction and happiness.

Considering the obtained results, it is observed that ACT affects the psychological flexibility of patients with chronic pain. The results of this research are consistent with the findings of previous research (Barrett & Stewart, 2021; Bond et al., 2011; Caletti et al., 2022; Eifert et al., 2009; Feyzi et al., 2017; Jahedi & Badri Gargari, 2023; Mahdavi et al.; Rafiei Saviri et al., 2022; Saito & Kumano, 2022; Tunnell et al., 2019; Wersebe et al., 2018; Zettle, 2015).

To explain the effectiveness of ACT on the psychological flexibility of patients with chronic pain, it can be said that ACT probably improves negative emotions in patients with chronic pain through factors such as non-judgmental acceptance, being in the present moment, coping with internal experiences without avoidance, suppression, or trying to change them. Patients with chronic pain need strategies to maintain their resilience and coping ability. In this context, ACT helps these patients to not perceive themselves as defeated, damaged, or hopeless, and to find meaning and value in life (Feyzi et al., 2017; Tunnell et al., 2019). All these aspects can act as factors for improving psychological well-being, relationships, and overall quality of life; in other words, ACT, with its effects on emotional regulation and behavioral changes, can lead to lifestyle transformations and a change in attitude towards life, and accepting conditions without trying to change them can directly improve quality of life. Therefore, this approach tries to increase the quality of life of individuals by creating psychological flexibility on one hand and encouraging the individual to take action in the field of personal values on the other. Also, in explaining this finding, it should be emphasized that psychological flexibility is the process of change in ACT (Caletti et al., 2022). Psychological flexibility includes the dimensions of avoidance and cognitive fusion. Experiential avoidance, controlling, or minimizing the impact of distressing experiences can create immediate and short-term peace, leading to the maintenance of avoidant behavioral patterns through negative reinforcement principles. This avoidance becomes problematic when it interferes with daily functioning and achieving life goals; thus, constant use of experiential avoidance as a solution to control or minimize negative internal experiences can become a problem itself and decrease psychological well-being. The effectiveness of

ACT in this area, considering that the variable of inflexibility encompasses the dimensions of avoidance and cognitive fusion, is explainable (Rafiei Saviri et al., 2022; Tunnell et al., 2019). It seems that one of the most important reasons for the repair of this variable in the experimental group of patients with chronic pain was the change in the level of avoidance through work on the important component of exposure in therapy sessions; because one of the behaviors of these patients with chronic pain is avoidance, which will have a defective cycle. On the other hand, the frequency of experienced thoughts of patients with chronic pain leads to avoidant behaviors. For this reason, in addition to the exposure component, attention was also paid to the experienced thoughts of patients with chronic pain; thoughts that themselves can lead to avoidance. Therefore, cognitive defusion was pursued through the acceptance component and defusion from thoughts. These techniques helped patients in the experimental group with chronic pain to understand that they should not allow their thoughts to affect their behavior and reactions, because following this influence, they are drawn towards actions that are far from their values. Probably the reason for the success of ACT was that it does not seek to change the content of thought, but is a behavioral treatment that uses mindfulness skills, acceptance, and cognitive defusion to increase psychological flexibility (Zettle, 2015). Effective, open, and non-defensive communication with the present that has led patients with chronic pain to pay attention to what exists in the environment and their internal experience and observe it, and they have also learned to describe what exists without judgment or values. Mindfulness practices in ACT are used to direct the client's attention to the world as they directly experience it, not as it is constructed by their cognitive products.

## 5. Limitations & Suggestions

The primary limitation of this study was the use of non-random sampling. The reliance on self-report questionnaires introduces potential bias in participants' responses. Other limitations include the study's temporal and geographical scope, as it was conducted with patients from pain clinics in Tehran, which may affect the generalizability of the results. The quasi-experimental design lacked the advantages of true experimental designs. External validity was impacted by not controlling other concurrent factors like disease progression or economic issues, and not matching participants in terms of intelligence and psychological maturity. Future research

should use random sampling methods and be conducted in other cities and with patients suffering from various diseases, comparing results for broader applicability. A qualitative approach, specifically a grounded theory based on semi-structured interviews, is recommended for future studies. Researchers should also investigate the effectiveness of Acceptance and Commitment Therapy on other disorders, considering gender differences. Long-term effects of therapy should be assessed with follow-ups longer than six months. Given the effectiveness of Acceptance and Commitment Therapy on various aspects of chronic pain, clinical psychologists and therapists are encouraged to include it, particularly in cognitive-behavioral interventions focusing on the studied variables. Health and psychological service centers are advised to facilitate the use of these therapies. Finally, counselors and therapists should explore acceptance and commitment elements in their clinical assessments and enhance their treatment efficacy by identifying and teaching effective strategies.

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## Declaration of Interest

The authors of this article declared no conflict of interest.

## 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.

## Ethics Considerations

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

## Authors' Contributions

Parviz Alizadeh, Shirin Kooshki, and Hajar Tarvirdizadeh all made substantial contributions to this research study. Parviz Alizadeh contributed to the study's design, data collection, and the implementation of Acceptance and Commitment Therapy (ACT) for patients with chronic pain. Shirin Kooshki played a key role in data analysis and interpretation, with a focus on pain intensity,

childhood trauma, perfectionism, and psychological flexibility. Hajar Tarvirdizadeh contributed to data collection and the overall research process. Together, the authors collaborated closely to investigate the effectiveness of ACT on these multifaceted aspects of chronic pain management.

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## References

- Afshinpoor, F., Khorami, N. S., & Nabavi, S. A. (2018). The effectiveness of acceptance and commitment therapy on anxiety and quality of life in patients with non-cardiac chest pain. *Journal of Cognitive Psychology and Psychiatry*, 8(5), 56-68. <https://doi.org/10.32598/shenakht.8.5.56>
- Aghjane, F., Dortaj, F., Delavar, A., Navaby nzhad, S., & Mardane rad, M. (2021). Development and Effectiveness Evaluation of a Group Treatment Package based on Transactional Analysis and Acceptance and Commitment Therapy on Aspects of Self-compassion in Girls with Emotional Breakdown Experience. *Journal of Clinical Psychology*, 13(3), 1-18. <https://doi.org/10.22075/jcp.2021.20145.1859>
- Ahmadboukani, S., Ghamarigivi, H., Kiani, A., & Rezaeisharif, A. (2022). Childhood Experiences and Depressive Symptoms- Suicidal tendencies: A Mediating Role of Rumination and Thwarted Belongingness [Original Research]. *Journal of Police Medicine*, 11(1), 1-14. <https://doi.org/10.30505/11.1.2>
- Almutairi, B. A., Al Odaibi, F. A., Alnahdi, A. H., Omar, M., Algashami, A., & Alonazi, M. (2023). Cross-cultural adaptation and validation of the Arabic version of the Pain Self-Efficacy Questionnaire in Arab people with chronic low back pain. *Physiotherapy Theory and Practice*, 39(1), 182-192. <https://doi.org/10.1080/09593985.2021.2005196>
- Asli Azad, M., Manshaei, G. R., & Ghamarani, A. (2019). Effectiveness of Acceptance and Commitment Therapy on the Signs of Obsessive-Compulsive Disorder and Thought-Action Fusion in the Students with Obsessive-Compulsive Disorder [Research]. *Journal of Psychological Science*, 18(73), 67-76. <http://psychologicalscience.ir/article-1-135-en.html>
- Bahrami Rad, M., & Rafezi, Z. (2019). Predicting pain acceptance based on perceived stress and coping strategies in individuals with rheumatoid arthritis. *QUARTERLY JOURNAL OF HEALTH PSYCHOLOGY*, 7(28), 151-166. <https://doi.org/10.30473/hpj.2019.38617.3887>
- Bai, Y., Ma, J.-H., Yu, Y., & Wang, Z.-W. (2022). Effect of Cognitive-Behavioral Therapy or Mindfulness Therapy on Pain and Quality of Life in Patients with Diabetic Neuropathy: A Systematic Review and Meta-Analysis. *Pain Management Nursing*, 23(6), 861-870. <https://doi.org/10.1016/j.pmn.2022.05.005>
- Balali Dehkordi, N., & Fatehizade, M. (2022). Comparison of the effectiveness of Emotion-focused Therapy and Intensive short-term dynamic psychotherapy on marital adjustment of married women with experience of complex childhood trauma. *Counseling Culture and Psychotherapy*, 13(51), 31-57. <https://doi.org/10.22054/qccpc.2022.65682.2871>
- Barlow, D. H., Ellard, K. K., Fairholme, C. P., Farchione, T. J., Boisseau, C. L., Allen, L. B., & Ehrenreich-May, J. T. (2010). *Unified Protocol for Transdiagnostic Treatment of Emotional Disorders: Workbook*. Oxford University Press. <https://doi.org/10.1093/med:psych/9780199772674.001.0001>
- Barnes, S. M., Borges, L. M., Sorensen, D., Smith, G. P., Bahraini, N. H., & Walser, R. D. (2023). Safety Planning Within Acceptance and Commitment Therapy. *Cognitive and Behavioral Practice*, 30(1), 55-63. <https://doi.org/10.1016/j.cbpra.2022.01.002>
- Barrett, K., & Stewart, I. (2021). A preliminary comparison of the efficacy of online Acceptance and Commitment Therapy (ACT) and Cognitive Behavioural Therapy (CBT) stress management interventions for social and healthcare workers. *Health & Social Care in the Community*, 29(1), 113-126. <https://doi.org/10.1111/hsc.13074>
- Baseri, L. D., & Bozorgi, Z. D. (2017). Effectiveness of group therapy based on acceptance and commitment on cognitive emotion regulation and alexithymia of patients with type 2 diabetes. *Iranian Journal of Psychiatric Nursing*, 5(1), 7-14. <https://doi.org/10.21859/ijpn-05012>
- Benjet, C., Zainal, N. H., Albor, Y., Alvis-Barranco, L., Carrasco-Tapias, N., Contreras-Ibáñez, C. C., Cudris-Torres, L., de la Peña, F. R., González, N., Guerrero-López, J. B., Gutierrez-García, R. A., Jiménez-Peréz, A. L., Medina-Mora, M. E., Patiño, P., Cuijpers, P., Gildea, S. M., Kazdin, A. E., Kennedy, C. J., Luedtke, A., . . . Kessler, R. C. (2023). A Precision Treatment Model for Internet-Delivered Cognitive Behavioral Therapy for Anxiety and Depression Among University Students: A Secondary Analysis of a Randomized Clinical Trial. *JAMA Psychiatry*, 80(8), 768-777. <https://doi.org/10.1001/jamapsychiatry.2023.1675>
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child abuse & neglect*, 27(2), 169-190. [https://doi.org/10.1016/S0145-2134\(02\)00541-0](https://doi.org/10.1016/S0145-2134(02)00541-0)
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior therapy*, 42(4), 676-688. <https://doi.org/10.1016/j.beth.2011.03.007>
- Bradford, K., Shih, W., Videlock, E. J., Presson, A. P., Naliboff, B. D., Mayer, E. A., & Chang, L. (2012). Association Between Early Adverse Life Events and Irritable Bowel Syndrome. *Clinical Gastroenterology and Hepatology*, 10(4), 385-390.e383. <https://doi.org/10.1016/j.cgh.2011.12.018>
- Caletti, E., Massimo, C., Magliocca, S., Moltrasio, C., Brambilla, P., & Delvecchio, G. (2022). The role of the acceptance and commitment therapy in the treatment of social anxiety: An updated scoping review. *Journal of affective disorders*, 310, 174-182. <https://doi.org/10.1016/j.jad.2022.05.008>
- Chiocchetti, A. G., Yousaf, A., Waltes, R., Bernhard, A., Martinelli, A., Ackermann, K., Haslinger, D., Rotter, B., Krezdorn, N., Konrad, K., Kohls, G., Vetro, A., Hervas, A., Fernández-Rivas, A., & Freitag, C. M. (2022). The methylome in females with adolescent Conduct

- Disorder: Neural pathomechanisms and environmental risk factors. *PLoS One*, 17(1), e0261691. <https://doi.org/10.1371/journal.pone.0261691>
- Danese, A. (2020). Annual Research Review: Rethinking childhood trauma-new research directions for measurement, study design and analytical strategies. *Journal of Child Psychology and Psychiatry*, 61(3), 236-250. <https://doi.org/10.1111/jcpp.13160>
- Ebrahimi Moghadam, H., Malmir, T., Rahmani, F., & Ramezan Alizadeh, Z. (2018). investigate the effectiveness of group training based on Acceptance and Commitment Therapy (ACT) on aggression and anxiety in patients with panic. *Journal of Psychological Studies*, 13(4), 141-156.
- Eifert, G. H., Forsyth, J. P., Arch, J., Espejo, E., Keller, M., & Langer, D. (2009). Acceptance and Commitment Therapy for Anxiety Disorders: Three Case Studies Exemplifying a Unified Treatment Protocol. *Cognitive and Behavioral Practice*, 16(4), 368-385. <https://doi.org/10.1016/j.cbpra.2009.06.001>
- Feyzi, Z., Moradi, A., Khaje Dalouee, M., & Khadem, N. (2017). The Efficacy of Acceptance and Commitment Therapy (ACT) on Anxiety and Depression in Infertile Women who Undergoing In Vitro Fertilization (IVF). *Clinical Psychology Studies*, 7(27), 1-21. <https://doi.org/10.22054/jcps.2017.7905>
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A Randomized Controlled Effectiveness Trial of Acceptance and Commitment Therapy and Cognitive Therapy for Anxiety and Depression. *Behavior Modification*, 31(6), 772-799. <https://doi.org/10.1177/0145445507302202>
- Ghasemzadeh Barki, S., & SHahgholian Ghahfarokhi, M. (2020). The Effectiveness of Acceptance and Commitment Therapy (ACT) In Reducing Perceived Stress in Pregnant Women in During Covid -19 Pandemic [Applicable]. *Journal title*, 14(3), 89-99. <https://doi.org/10.52547/rph.14.3.89>
- Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Antonuccio, D. O., Piasecki, M. M., Rasmussen-Hall, M. L., & Palm, K. M. (2004). Acceptance-based treatment for smoking cessation. *Behavior therapy*, 35(4), 689-705.
- Gloster, A. T., Meyer, A. H., & Lieb, R. (2017). Psychological flexibility as a malleable public health target: Evidence from a representative sample. *Journal of Contextual Behavioral Science*, 6(2), 166-171. <https://doi.org/10.1016/j.jcbs.2017.02.003>
- Goldberg, X., Serra-Blasco, M., Vicent-Gil, M., Aguilar, E., Ros, L., Arias, B., Courtet, P., Palao, D., & Cardoner, N. (2019). Childhood maltreatment and risk for suicide attempts in major depression: a sex-specific approach. *European Journal of Psychotraumatology*, 10(1), 1603557. <https://doi.org/10.1080/20008198.2019.1603557>
- Habibi Asgarabad, M., Salehi Yegaei, P., Jafari, F., Azami-Aghdash, S., & Lumley, M. A. (2023). The relationship of alexithymia to pain and other symptoms in fibromyalgia: A systematic review and meta-analysis. *European Journal of Pain*, 27(3), 321-337. <https://doi.org/10.1002/ejp.2064>
- Hamzehgardeshi, Z., Sabetghadam, S., Pourasghar, M., Khani, S., Moosazadeh, M., & Malary, M. (2023). Prevalence and predictors of sexual distress in married reproductive-age women: A cross-sectional study from Iran. *Health Science Reports*, 6(9), e1513. <https://doi.org/10.1002/hsr2.1513>
- Han, A., & Kim, T. H. (2022). Efficacy of Internet-Based Acceptance and Commitment Therapy for Depressive Symptoms, Anxiety, Stress, Psychological Distress, and Quality of Life: Systematic Review and Meta-analysis [Review]. *J Med Internet Res*, 24(12), e39727. <https://doi.org/10.2196/39727>
- Hasan Larijani, M., Hossein Sabet, F., & Borjali, A. (2020). Effects of Acceptance and Commitment Therapy on Alexithymia in Patients with Multiple Sclerosis. *Middle Eastern Journal of Disability Studies*---, 10, 124. <http://dorl.net/dor/20.1001.1.23222840.1399.10.0.117.6>
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., Dykstra, T. A., Batten, S. V., Bergan, J., Stewart, S. H., Zvolensky, M. J., Eifert, G. H., Bond, F. W., Forsyth, J. P., Karekla, M., & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, 54(4), 553-578. <https://doi.org/10.1007/BF03395492>
- Hoshmandi, R., Fatolahzadeh, N., & Rostami, M. (2019). Comparison of primary school children by perfectionism, anxiety, maternal parenting style and emotional intelligence. *Rooyesh-e-Ravanshenasi Journal (RRJ)*, 7(12), 183-198. <http://dorl.net/dor/20.1001.1.2383353.1397.7.12.6.7>
- Jahedi, R., & Badri Gargari, R. (2023). Meta-analysis of the effectiveness of interventions based on Acceptance and commitment on social anxiety. *Social Psychology Research*, 13(50), 57-76. <https://doi.org/10.22034/spr.2023.387078.1822>
- Jalalvand, M., Lotfikashani, F., & Vaziri, S. (2020). The relationships between perfectionism, mindfulness and academic burnout with mediating role of unconditional self-acceptance and coping style in in high school boy students in Tehran [Research]. *Journal of Psychological Science*, 19(86), 245-264. <http://psychologicalscience.ir/article-1-406-en.html>
- Kazemeini, S. E., Ranjbaripour, T., NezhadMohammad Nameghi, A., Sodagar, S., & Peyvandi, P. (2022). Comparison the effectiveness of Acceptance and Commitment therapy with Mindfulness-Based Cognitive therapy on Cognitive Emotion Regulation in Heart Failure Patients. *Journal of Assessment and Research in Applied Counseling*, 4(3), 11-18. <https://doi.org/10.52547/jarac.4.3.30>
- Kerns, K. A., Tomich, P. L., & Kim, P. (2006). Normative trends in children's perceptions of availability and utilization of attachment figures in middle childhood. *Social Development*, 15(1), 1-22. <https://doi.org/10.1111/j.1467-9507.2006.00327.x>
- Khadem Dezfuli, Z., Alavi, S. Z., & Shahbazi, M. (2023). The Effectiveness of Emotion Focused Therapy on Alexithymia and Idealistic Marital Expectation in Perfectionism Neurotic Girls. *Biannual Journal of Applied Counseling*, 1-20. <https://doi.org/10.22055/jac.2023.42791.1931>
- Klonsky, E. D., Qiu, T., & Saffer, B. Y. (2017). Recent advances in differentiating suicide attempters from suicide ideators. *Current Opinion in Psychiatry*, 30(1), 15-20. <https://doi.org/10.1097/ycp.0000000000000294>
- Kroska, E. B., Miller, M. L., Roche, A. I., Kroska, S. K., & O'Hara, M. W. (2018). Effects of traumatic experiences on obsessive-compulsive and internalizing symptoms: The role of avoidance and mindfulness. *Journal of affective disorders*, 225, 326-336. <https://doi.org/10.1016/j.jad.2017.08.039>
- Larsson, A., Hartley, S., & McHugh, L. (2022). A randomised controlled trial of brief web-based acceptance and commitment Therapy on the general mental health, depression, anxiety and stress of college Students. *Journal of Contextual Behavioral Science*, 24, 10-17. <https://doi.org/10.1016/j.jcbs.2022.02.005>

- Mahdavi, M. S., Farhadi, H., Sadeghi, E., & Masaeli, N. (2010). Psychometric Traits of Motherhood Role Acceptance Scale and its Relationship With Psychological Capital. *The Family Journal*, 0(0), 10664807211022227. <https://doi.org/10.1177/10664807211022227>
- Majcher, M., Majcher, M., Świercz, K., Górska, D., Karwańska, A., Pikulicka, A., Sierpień, M., Brzychczy, P., Kulbat, A., & Kulbat, M. (2023). The impact of education on the benefits of cognitive-behavioral therapy on improving the quality of life of patients after breast cancer treatment. *Journal of Education, Health and Sport*, 13(3), 46-50. <https://doi.org/10.12775/JEHS.2023.13.03.006>
- Mardani, F., Yousefi, S. A., Ghorbani, E., & Mirzaei, Z. (2023). The effectiveness of realistic acceptance and commitment therapy (RACT) on marital burnout and alexithymia in couples. *Journal of Assessment and Research in Applied Counseling*, 5(1), 9-18. <https://doi.org/10.52547/jarac.5.1.10>
- Muscattello, M. R., Bruno, A., Mento, C., Pandolfo, G., & Zoccali, R. A. (2016). Personality traits and emotional patterns in irritable bowel syndrome. *World J Gastroenterol*, 22(28), 6402-6415. <https://doi.org/10.3748/wjg.v22.i28.6402>
- Nazari, R., & Meigooni, A. K. M. (2017). Structural model of perfectionism, psychological well-being and marital adjustment. *Journal of Applied Psychology*, 11(3), 144. [https://apsy.sbu.ac.ir/index.php/article\\_96925\\_0a6913119a403f54f0fc2231825781ec.pdf](https://apsy.sbu.ac.ir/index.php/article_96925_0a6913119a403f54f0fc2231825781ec.pdf)
- Nicholas, M. (1989). Self-efficacy and chronic pain. *St Andrews : Annual Conference of British Psychological Society*, 1989. <https://cir.nii.ac.jp/crid/1571417125165593472>
- Otis, J. D., Keller, A. E., & Chevalier, L. (2021). Cognitive behavioral therapy for chronic pain. <https://doi.org/10.1037/0000219-013>
- Peterson, B. D., & Eifert, G. H. (2011). Using Acceptance and Commitment Therapy to Treat Infertility Stress. *Cognitive and Behavioral Practice*, 18(4), 577-587. <https://doi.org/10.1016/j.cbpra.2010.03.004>
- Preece, D. A., Mehta, A., Petrova, K., Sikka, P., Bjureberg, J., Becerra, R., & Gross, J. J. (2023). Alexithymia and emotion regulation. *Journal of affective disorders*, 324, 232-238. <https://doi.org/10.1016/j.jad.2022.12.065>
- Pugach, C. P., Campbell, A. A., & Wisco, B. E. (2020). Emotion regulation in posttraumatic stress disorder (PTSD): Rumination accounts for the association between emotion regulation difficulties and PTSD severity. *Journal of Clinical Psychology*, 76(3), 508-525. <https://doi.org/10.1002/jclp.22879>
- Rafiei Saviri, M., Chehri, A., Hosseini, S., & Amiri, H. (2022). Comparison of the effectiveness of couple therapy based on acceptance and commitment with cognitive-behavioral couple therapy on marital conflict and cognitive flexibility in married women with marital boredom. *Journal of Applied Family Therapy*, 3(2), 317-339. <https://doi.org/10.22034/AFTJ.2022.323087.1335>
- Reuman, L., Buchholz, J., & Abramowitz, J. S. (2018). Obsessive beliefs, experiential avoidance, and cognitive fusion as predictors of obsessive-compulsive disorder symptom dimensions. *Journal of Contextual Behavioral Science*, 9, 15-20. <https://doi.org/10.1016/j.jcbs.2018.06.001>
- Saito, J., & Kumano, H. (2022). The patterns of acceptance, mindfulness, and values for Japanese patients with type 2 diabetes mellitus: a web-based survey. *BioPsychoSocial Medicine*, 16(1), 6. <https://doi.org/10.1186/s13030-022-00236-3>
- Salehian, N., & Moradi, S. (2022). The Effect of Intensive Short-Term Dynamic Psychotherapy (ISTDP) on the Mental well-being of Individuals with Antisocial Personality Disorder (ASPD) [Research]. *Journal of Psychology New Ideas*, 14(18), 1-18. <http://jnjp.ir/article-1-803-en.html>
- Samaelvand, N., Sadeghi, M., & Ghadampour, E. (2022). Clinical Trial of Distressed Couples: A Comparison of the Effectiveness of Attachment-Narrative Therapy and Unified Trans diagnostic on Sense of Coherence in Distressed Couples. *The Women and Families Cultural-Educational Journal*, 17(59), 155-178. <https://www.magiran.com/paper/2481659>
- Samaelvand, N., Sadeghi, M., & Ghadampour, E. (2023). Comparison of Effectiveness of Integrated Models of Attachment Narrative Therapy and Unified Transdiagnostic on Cognitive Emotion Regulation Strategies in Distressed Couples. *Family Counseling and Psychotherapy*, 13(1), 37-74. <https://doi.org/10.22034/fcp.2023.62339>
- Sepas, L., Shaker Dioulag, A., & Khademi, A. (2022). Comparison of the effectiveness of acceptance-based therapy and reality therapy on reducing anxiety sensitivity in women with MS in Urmia. *Counseling Culture and Psychotherapy*, 13(51), 85-113. <https://doi.org/10.22054/qccpc.2022.64043.2808>
- Terzaki, F., Tsironi, M., & Theofilou, P. (2023). Do Clinical and Demographic Characteristics Affect Pain Self-Efficacy in Chronic Disease Patients Under-going Occupational Therapy? A Cross-Sectional Study in Greece. *EC Nursing and Healthcare*, 5, 1-6. <https://jcmimagescasereports.org/article/JCM-V2-1334.pdf>
- Tesio, V., Di Tella, M., Ghiggia, A., Romeo, A., Colonna, F., Fusaro, E., Geminiani, G. C., & Castelli, L. (2018). Alexithymia and Depression Affect Quality of Life in Patients With Chronic Pain: A Study on 205 Patients With Fibromyalgia [Original Research]. *Frontiers in psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00442>
- Tunnell, N. C., Suterwala, M., & Meuret, A. E. (2019). Brief acceptance-based therapy for women with high-risk pregnancies: Uncontrolled pilot of an intervention for inpatients. *Journal of Contextual Behavioral Science*, 14, 127-135. <https://doi.org/10.1016/j.jcbs.2019.10.004>
- Twohig, M. P., Hayes, S. C., & Masuda, A. (2006). Increasing Willingness to Experience Obsessions: Acceptance and Commitment Therapy as a Treatment for Obsessive-Compulsive Disorder. *Behavior therapy*, 37(1), 3-13. <https://doi.org/10.1016/j.beth.2005.02.001>
- Van de Graaf, D., Trompeter, H., Smeets, T., & Mols, F. (2021). Online Acceptance and Commitment Therapy (ACT) interventions for chronic pain: A systematic literature review. *Internet Interventions*, 26, 100465. <https://doi.org/10.1016/j.invent.2021.100465>
- Vidic, Z., & Cherup, N. (2019). Mindfulness in classroom: Effect of a mindfulness-based relaxation class on college students' stress, resilience, self-efficacy and perfectionism. *College Student Journal*, 53(1), 130-144. <https://psycnet.apa.org/record/2019-17784-013>
- Warren, J. M., Halpin, S. A., Hanstock, T. L., Hood, C., & Hunt, S. A. (2022). Outcomes of Parent-Child Interaction Therapy (PCIT) for families presenting with child maltreatment: A systematic review. *Child abuse & neglect*, 134, 105942. <https://doi.org/10.1016/j.chiabu.2022.105942>
- Wersebe, H., Lieb, R., Meyer, A. H., Hofer, P., & Gloster, A. T. (2018). The link between stress, well-being, and psychological flexibility during an Acceptance and Commitment Therapy self-help intervention. *International Journal of Clinical and Health Psychology*, 18(1), 60-68.
- Zargar, A., Gooraji, S. A., Keshavarzi, B., & Haji Aghamohammadi, A. A. (2019). Effect of Irritable Bowel Syndrome on Sleep Quality and Quality of Life of Inflammatory Bowel Disease in Clinical Remission. *Int J Prev Med*, 10, 10. [https://doi.org/10.4103/ijpvm.IJPVM\\_364\\_17](https://doi.org/10.4103/ijpvm.IJPVM_364_17)

- Zettle, R. D. (2015). Acceptance and commitment therapy for depression. *Current opinion in psychology*, 2, 65-69. <https://doi.org/10.1016/j.copsyc.2014.11.011>
- Zolfaghari, D., Mohammadkhani, S., Mahdavian, A., & Akbari, M. (2021). Transdiagnostic model of healing from marital infidelity with emphasis on the role of metacognitions, schemas, intimacy, emotional efficiency and forgiveness. *Clinical Psychology and Personality*, 19(1), 27-39. <https://doi.org/10.22070/cpap.2021.7279.0>