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The Effectiveness of the Acceptance and Commitment-based Treatment Matrix Model on Improving the Quality of Life of Patients with Major Depression

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ABSTRACT: Major depressive disorder refers to the creation of boredom with intense nostalgia and excessive apathy for aspects of life that were previously enjoyable. The present study was conducted to evaluate the effectiveness of the acceptance and commitment-based treatment matrix model to the quality of life components of patients with major depression. The present study was a quasi-experimental study with a pretest-posttest design and follow-up with a control group. The statistical population of this study consisted of all patients with major depression who referred to counseling and psychology clinics in Bandar Abbas, Iran in 2020. For the study, 30 people who were based on symptoms of major depression with a criterion of 14 score and above were selected as a sample of this study. They were then randomly assigned to two groups. Beck Depression Inventory (BDI-II) and WHO Quality of Life (WHOQOL-BREF) were used to collect data. The acceptance and commitment-based treatment matrix model was implemented in experimental group in 13 sessions as a group based on the instructions of Polak et al. Data were analyzed using univariate analysis of covariance and Bonferroni post hoc test at a significance level of .05 using SPSS statistical software. The results indicated a significant effect of the acceptance and commitment-based treatment matrix model on the quality of life variable and its components (P<.001) and this effect is permanent in the follow-up stage (P<.001). In general, it could be said that this treatment method was one of the effective treatment methods in reducing depression. Improving the quality of life could be used in medical centers, and counselors, clinical psychologists, and therapists could use the matrix model of treatment based on acceptance and the commitment to reduce depression and increase the quality of life of people with major depression.

Keywords: Matrix model of treatment based on acceptance and commitment, quality of life, major depression.

Introduction

Major depression is one of the most common mental disorders, and according to the latest World Health Organization reports in 2017, depression was predicted to be the second leading cause of disability in countries in 2020 (Boima et al., 2020). Major depressive disorder refers to the boring mood as intense nostalgia or excessive apathy for aspects of life that are previously enjoyable (Kraus, Kadriu, Lanzenberger, Zarate Jr, & Kasper, 2019).

The mood of depressed patients most of the day, according to the patient's own report of mental feeling and the observation of other people close to the patient, seemed sad, and in terms of

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activity, a clear decrease in interest or enjoyment of almost all activities were observed (Lyubenova et al., 2021).

Depressed people show behavioral symptoms, such as slowness of speech and behavior (for example, depressed people respond to those around them with short sentences). They are physically inactive, stay in bed for hours, and experience constant fatigue, lethargy, and lack of energy. It seems that even the smallest tasks take a lot of energy from them. Slowing of all body movements, expressive gestures, and spontaneous reactions, and psychomotor inactivity (or slowness, mental-motor slowness) are other characteristics of people with major depression (Park & Kim, 2020).

Depression is a strong predictor of quality of life impairment in adults (Stafford, Berk, Reddy, & Jackson, 2007). Recent research suggests that even mild levels of depression are associated with a significant reduction in quality of life in adults. Findings from previous studies also indicated a significant relationship between the presence of depression and poor quality of life. For example, Chachamovich, Fleck, Laidlaw, and Power (2008), in a study examined the quality of life of people with major depression in people in the stage of relative recovery and healthy people and showed the average score of quality of life in the group of major depression. It was significantly less than the control group. Nasimikhah, Mirzaeian, and Ebrahimi (2015) also stated that the quality of life in patients with major depression is lower than in normal individuals.

The World Health Organization defined quality of life as "individuals' perceptions of living conditions, in the form of culture and values that govern society, and in relation to their goals, expectations, and interests." According to this definition, quality of life is closely related to emotional, psychological, personal beliefs, self-reliance, social communication, and environment (Kraus et al., 2019).. In addition, quality of life is a powerful force that plays a prominent role in guiding, maintaining, and promoting the health and well-being of individuals in diverse communities and cultures (Testa & Simonson, 1996). Ryff and Singer (1998) considered the quality of life including six components of self-acceptance, purpose in life, personal growth, mastery of the environment, autonomy, and positive relationships with others. Therefore, some experts considered the quality of life as a mental and changeable feeling of people about their health and believed that this feeling was a reflection of their desires, hopes, expectations in relation to their current and future life situation (Jobst et al., 2016).

The results of various studies showed that the use of a combination of medication and psychotherapy in the treatment of people with major depression was more effective than each of these treatments alone (Jobst et al., 2016). There had been many studies on the effectiveness

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of psychological interventions on depression, and it had been proven that these interventions were effective in treating depression. These included acceptance and commitment therapy.

In this treatment, instead of changing cognitions, an attempt was made to increase the person's psychological connection with his thoughts and feelings. The main goal of this treatment was to create psychological flexibility. First, one tried to increase one's psychological acceptance of psychological experiences, then one was taught the ineffectiveness of any avoidance action and that one should accept these experiences without any external or internal reactions. In the next stage, the authorities were taught to be aware of their mental states from moment to moment, and in the next stage, they were being able to act independently of these experiences (cognitive separation). Finally, recognizing an individual's personal values and motivating them to take committed action (ie, activities aimed at setting goals and values along with accepting mental experiences) was done (Johns et al., 2016). Depressive thoughts, obsessions, fears, or social anxiety were the result of these mental experiences. In general, the belief in treatment was based on acceptance and commitment to what was out of one's control and committing to an action that enriched life (Reyes, Vargas, & Miranda, 2015).

The acceptance and commitment matrix was an approach based on choosing a path and improving people's ability to approach valuable goals despite life problems (Boima et al., 2020). Therefore, in the Matrix model, the viewpoint was considered by the therapists as the focus of treatment and by examining the measures of moving away and approaching the values and compassion in the strategies of commitment and change, the goal was to achieve a lively life (Boima et al., 2020). Prior to the introduction of the matrix, acceptance and commitment therapies were widely presented with the flexibility hexagonal model; a hexagon representing six stages (cognitive fault, acceptance, committed action, values, relationship with The present and itself as a context) centered on cognitive flexibility (Peymannia, Hamid, & Mhmudalilu, 2018). Although the hexagonal model of acceptance and commitment therapy was useful for referring to the research process of this approach, it could be clinically burdensome. Although the goal of both models was to promote the psychological flexibility of therapists, the main difference between the Matrix model and the hexagonal model was the emphasis on promoting psychological flexibility through compassion. In other words, it helped people to take effective action by sorting out their life stories, even in the face of unpleasant thoughts, emotions, and feelings (Boima et al., 2020). In addition, the matrix could enhance the transdisciplinary nature of acceptance and commitment therapy, and research had shown that it was a clinically advanced expression for integration with other approaches (Reyes et al., 2015).

In this regard, most of the findings of previous studies indicated the effectiveness of treatment based on acceptance and commitment to reduce depression and improve the quality of life of

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patients. Peymannia et al. (2018), in a study on the effectiveness of the acceptance and commitment treatment matrix with compassion on self-harming behaviors, quality of life of students with borderline personality disorder symptoms found that the acceptance and commitment treatment matrix compassion reduced the symptoms of self-harming behaviors and improved the quality of life in the experimental group compared to the control group. Sarizadeh, Rafienia, Sabahi, and Tamaddon (2018) in a study examined the effectiveness of group acceptance and commitment therapy on depression and quality of life in female dialysis patients and found that group therapy of acceptance and commitment improved the quality of life and depression in women undergoing dialysis. Also, the studies of other researchers showed that acceptance and commitment-based therapy was effective in improving depressive symptoms and quality of life in people with depression

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In general, considering the fact that effectiveness of the acceptance and commitment treatment matrix on a wide range of depressive disorder symptoms on the one hand, and the lack of such research in the country to examine the effectiveness of the acceptance and commitment treatment matrix on quality of life in patients with depression, therefore, in order to achieve the desired goal, the question was raised whether the treatment matrix of acceptance and commitment was effective on the quality of life of patients with depression?

Material and Methods

The research method was based on the applied purpose and from the perspective of data collection with quantitative and quasi-experimental research with a pre-test, post-test design and a control group with a 3-month follow-up. The statistical population of this study consisted of all patients with major depression, and they were referred to counseling and psychology clinics in Bandar Abbas in 2020.

A total of 70 people were voluntarily interviewed clinically and after completing the Beck Depression Inventory 21 (BDI-II) questionnaire, 30 patients with severe depressive symptoms with a score of 14 and above were eligible. Recognized conditions, as well as major depression with DSMIV based psychiatric interviews, were selected as a sample of this study. Then they were randomly assigned to two groups (treatment matrix model based on acceptance, commitment, and control).

Inclusion criteria included Suffering from major depressive illness based on the diagnosis of a specialist psychiatrist in Bandar Abbas, age between 18 and 40 years, at least a diploma (due to the active nature of the species and participation in two methods of treatment), and doing homework and having ability, motivation, and energy were needed to identify thoughts and

emotions), no history of other physical illnesses, willingness, and satisfaction to participate in the study, no use of psychiatric drugs, no receipt of other psychological therapies while conducted research and no occurrence of a stressful event such as divorce or the death of a loved one in the past six months.

Exit criteria included failure to participate in the matrix model therapy group based on acceptance and commitment, absence of more than two sessions in the matrix model therapy group therapy based on acceptance and commitment, incomplete and complete questionnaires at any stage of the research, the incident affected the personal life of the subject so that one was not able to continue participating in psychotherapy sessions, and the use of drugs affected the results of the research.

Also, the ethical issues observed in the research included obtaining voluntary consent from the subjects, the subjects were allowed to refuse to continue participating in the program whenever they could not continue in the intervention program, and the information about the subjects was kept completely confidential.

In this study, descriptive statistics (mean and standard deviation) and inferential statistics (analysis of variance with repeated measures and Bonferroni post hoc test) were performed using SPSS software version 25 at a significance level of 0.05. The research tools were presented below.

Beck Depression Inventory (BDI-II): This inventory was first introduced in 1961 by Beck et al. It was revised in 1971. This test had 21 items to examine different symptoms of depression and answering questions based on the 4-point Likert scale is performed from zero (a sign of mental health) to 3 (a sign of major depression). The total score range is between zero and 63. In a study by Beck and Steer (1984), the reliability of the scale was reported to be 0.48 to 0.86. Also researches conducted in different countries indicated the acceptable validity of this questionnaire. Kapci, Uslu, Turkcapar, and Karaoglan (2008) reported internal consistency coefficients of .90 and .89 in the non-clinical and clinical samples and a retest coefficient of .94 in the non-clinical sample, respectively. In a meta-analysis study to determine internal consistency, the range of this coefficient was reported between .73 to .92, and the correlation between the two revised and original forms was equal to .89. In Zettle (2015) research, the reliability of the list was reported to be .91 using Cronbach's alpha coefficient. The reliability coefficient of this tool in the present study based on Cronbach's alpha was .83.

WHOQOL-BREF: World Health Organization (WHO) developed this questionnaire in 1996 after conducting international surveys on quality of life and comparing measurements based on different cultures. The main quality of life questionnaire was assumed to have 24 dimensions, which was asked in 100 questions. The abbreviated form of this scale had 26 questions that

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measured 4 areas of quality of life. These areas included physical health, mental health, social health, and environmental health; each of these areas had 3, 6, 7, and 8 questions, respectively. The abbreviated scale questions covered the same dimension of the large-scale quality of life, and in addition, two questions were included to examine the apparent quality of life and general health. These two questions did not belong to any of the areas and examined the general state of quality of life and general health. Individuals' scores on this scale ranged from 26 to 136, and higher scores had been interpreted as a better quality of life (Organization, 2004). This scale was translated into Persian by Nasiri in 2006, and this researcher reported the descriptive reliability coefficient and internal consistency of the Iranian version of this scale (IRQOL) in a sample of 302 students of Shiraz University 0.87 and 0.84, respectively. The retest reliability coefficient was 0.67, and the findings related to its concurrent validity with the General Health Scale (GHQ) were satisfactory.

In addition, this scale was standardized by Nejat et al. (Organization, 2004), and they reported the content validity of the questionnaire as desirable. Also, the reliability of the scale by using the retest method for the areas of physical health, psychological health, relationships with others, and the environment were respectively .77, .77, .75, and .84; the internal consistency of different parts of the scale Using Cronbach's alpha method for healthy and sick individuals was reported to be .52 and .84, respectively. This study showed that the Persian translated version of this scale had acceptable reliability and validity. The reliability coefficient of this tool in the present study was .74 based on Cronbach's alpha method.

The treatment matrix model was based on acceptance of commitment in 13 sessions and in a group based on the instructions of Polak et al. (Boima et al., 2020).

Session 1: Introducing and introducing group members to each other, learning the concept of mind communication frameworks, mixing with emotion and emotion dysregulation in depressive disorder

Session 2: Familiarity with the matrix of treatment based on acceptance and commitment, the difference between the five senses and the inner world of the mind, view-practice exercise

Session 3: Reviewing homework, understanding the effects of external movements, moving away and approaching, and getting to know the two good-natured and bad-tempered personalities

Session 4: Homework review, functional analysis of long-term and short-term behavior

Session 5: Review of homework, problems, and difficulties of trying to control the attention

Session 6: Homework review, Aikido Verbal skills training

Session 7: Reviewing homework, getting to know the concept of self-compassion, identifying sources of negative emotions such as shame and self-blame, introducing three emotional

regulation systems (threat, reward and comfort system) and writing a compassionate letter to yourself

Session 8: Review of homework, practicing the skills of a compassionate teacher or a strict teacher

Session 9: Review of homework, combining Aikido Verbal skills with other compassionate metaphors

Session 10: Reviewing homework, practicing mindfulness skills, in this process the therapist helps the subjects to look at the experience of pain, suffering and struggle with acceptance and mindfulness.

Session 11: Review of homework, practice of harnessing the power of insight in challenging situations and interpersonal relationships in the future

Session 12: Review of all group sessions using the skills of perspective, aikido verbal and mindfulness

Session 13: Completion of questionnaires on depression and quality of life, questions and answers and closing treatment sessions.

Results

This section presented the results of data analysis. In this study, initially, there were 15 people in the treatment matrix group based on acceptance and adherence, which increased to 12 people with the dropout, and 5 people (41%) were women and 7 people (59%) were men. In the control group, it started with 15 people and then dropped to 13 subjects, of which 6 were men (46%) and 7 were women (.54 %). Descriptive statistics of the collected data were shown in Table 1.

Table 1. Mean and standard deviation of quality of life and its components in pretest and posttest of control and experimental groups

Variable	Phase	Experimental group		Control group	
		Mesn	SD	Mesn	SD
Life's quality	Pre test	59.65	7.64	60.15	6.94
	Post test	99.57	10.32	61.67	6.51
	Follow up	100.94	10.61	59.46	7.20
Phisical helth	Pre test	7.15	3.23	7.37	3.20
	Post test	12.52	4.10	7.66	3.62
	Follow up	12.84	4.22	7.52	3.52
Mental health	Pre test	15.15	5.02	15.33	4.09
	Post test	24.26	6.29	15.62	4.22
	Follow up	24.30	6.52	14.97	4.61
Social health	pre test	19.06	5.15	19.19	5.02
	Post test	29.23	6.19	19.85	5.51
	Follow up	28.51	6.29	18.78	5.24
Environment health	pre test	18.29	5.44	18.26	5.08
	Post test	33.56	6.95	18.54	4.55
	Follow up	35.29	7.01	18.19	4.48

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Table 2 showed the mean and standard deviation of quality of life and its components in the experimental and control groups in pre-test, post-test and follow-up. As could be seen in the table above, the post-test scores compared to the pre-test in the quality of life variable and its components in the treatment matrix group based on acceptance and commitment were higher than the control group, which indicated that the treatment under study had an effect on the quality of life and its components. In addition, follow-up scores did not change significantly compared to the post-test, indicating that the effect of the treatment was lasting. Then, in order to know whether these changes in post-test and follow-up were statistically significant or not, Bonferroni's repeated measures analysis of variance was used. Using this test required observing a few basic assumptions, which were first examined**.**

Shapiro-Wilk test was used to check for normality. Since the values of the Shapiro-Wilk test were not significant in any of the steps ($p < 0.05$), so it could be concluded that the distribution of scores was normal. Levin test was used to evaluate the homogeneity of variances. According to the results, the statistical index of the Levin test was not statistically significant in the three stages of evaluation ($p < 0.05$), and thus the assumption of the equality of variance was confirmed. The research data did not call into question the assumption of homogeneity of variance-covariance (M-box) matrices; therefore, this assumption had been observed ($p > 0.05$). The significance level of group interaction and pretest was greater than 0.05, and this indicated the homogeneity of the regression line slope. The assumptions of using analysis of variance with repeated measurements had been observed, and this statistical test could be used**.**

Table 2. Results of repeated measures ANOVA in the quality of life variable and its components in three stages

variable	Variance resources		F	*p*	Effect size
Life's quality	Within group	time	125.22	.001	.82
		group* time	134.15	.001	.88
		gender* time	.091	.89	.009
		gender*group* time	.26	.65	.012
	Between group	group	26.74	.001	.79
		gender	.52	.53	.11
		gender*group	.68	.50	.18
Physical health	Within group	Time	105.95	.001	.80
		group* time	111.89	.001	.86
		gender* time	.150	.62	.01
		gender*group* time	.35	.59	.15
	Between group	Group	90.14	.001	.85
		gender	.62	.54	.18
		gender* group	.84	.55	.19
Psychological healthh	Within group	time	89.91	.001	.78
		group* time	85.05	.001	.77

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		gender* time	.93	.35	.04
		gender* group* time	.93	.34	.04
	Between group	group	50.40	.001	.68
		gender	.55	.46	.02
		gender*group	.02	.88	.001
Social health	Within group	time	175.46	.001	.88
		group*error	129.10	.001	.82
		gender*time	.09	.90	.006
		gender* group*time	.50	.61	.02
	Between group	group	12.81	.001	.82
		gender	.45	.51	.020
		gender* group	.45	.52	.02
Environment health	Within group	time	75.95	.001	.81
		group*time	60.71	.001	.71
		gender*time	1.71	.19	.07
		gender* group*time	.42	.61	.01
	Between group	group	41.91	.001	.62
		gender	4.01	.062	.15
		gender* group	.03	.85	.006

The results of Table 2 indicated that the effectiveness of the treatment matrix based on acceptance and adherence to quality of life and its components was significant (P <0.001). That is, there was a significant difference in quality of life scores between groups in the post-test and follow-up time stages compared to the pre-test. The effect of intergroup variable was also significant in improving the quality of life and its components. Bonferroni post hoc test was used to compare the scores obtained in the research stages, the results of which were presented in Table 3.

Table 3. Results of Bonferroni test of quality of life and its components in pre-test, post-test and follow-up stages

Research variables	Adjusted mean		Level differences	significance
Life's quality	Pre test	59.65	post test – Pre test	.001
	Post test	99.57	follow up – Pre test	.001
	Follow up	100.94	follow up – post test	.22
Physical health	Pre test	7.15	post test – Pre test	.001
	Post test	12.52	follow up – Pre test	.001
	Follow up	12.84	follow up – Post test	.32
Psychological health	Pre test	15.15	post test – Pre test	.001
	Post test	24.26	follow up – Pre test	.001
	Follow up	24.30	follow up – Post test	.81
Social health	Pre test	19.06	pre test – Pre test	.001
	Post test	29.23	follow up – Pre test	.001
	Follow up	28.51	follow up – Post test	.41
Environment health	Pre test	18.29	post test – Pre test	.001
	Post test	33.56	follow up – Pre test	.001
	Follow up	35.29	follow up – Post test	.19

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The results of Table 3 showed that the treatment matrix model based on acceptance and commitment had a significant effect on the quality of life and its components. As the results of table 3 showed, "the difference between the mean of pre-test and post-test" and "the difference between the mean of pre-test and follow-up" were significant, but no significant difference was observed in "the mean difference between post-test and follow-up."

Discussion

The aim of this study was to evaluate the effectiveness of the acceptance and commitment treatment matrix model on improving the quality of life of patients with major depression. In general, the results showed that the treatment matrix model was based on acceptance and adherence to quality of life and its components in patients with major depression, and this effectiveness was lasting in the follow-up period.

Considering the matrix model of treatment based on acceptance and commitment as one of the newest psychological therapies and very few studies of this treatment had been used to improve psychological disorders, the use of this treatment on quality of life in patients with major depression was no exception to this rule, but in general, various studies had mentioned the effectiveness of treatment based on acceptance and commitment to improve mood and behavioral disorders in patients with major depression. In this regard Peymannia et al. (2018), in a study found the effectiveness of the matrix of acceptance and commitment therapy with compassion on self-harming behaviors and quality of life of students with symptoms of borderline personality disorder; the treatment matrix was based on acceptance and commitment with compassion reduced the symptoms of self-harming behaviors and improved the quality of life in students in the experimental group compared to the control group. Zahedi et al. (2020) evaluated the effectiveness of acceptance and commitment therapy on the quality of life and depression of depressed young girls and showed that acceptance and commitment therapy improved the quality of life and reduced depression in depressed young girls. This was a treatment of choice to reduce depression and increase the quality of life in depressed young girls. Sarizadeh et al. (2018) in a study examined the effectiveness of group acceptance and commitment therapy on depression and quality of life in female dialysis patients and found that group therapy of acceptance and commitment improved the quality of life and depression in women on dialysis. Twohig and Levin (2017) in a study examined acceptance and commitment-based therapy on quality of life and depressive symptoms in people with depression. Findings of this study showed that acceptance and commitment-based therapy could be significantly effective in reducing depressive symptoms and improving the quality of life of patients with depression. Zettle (2015) in a study examined the effectiveness of treatment based on acceptance and adherence to depression and showed that people in the experimental group experienced less depression after the intervention and in the follow-up period than the waiting group. Karlin et al. (2013) in a study examined acceptance and commitment-based therapy on quality of life and depressive symptoms in people with depression. The results of this study showed that acceptance and commitment-based therapy could be significantly effective in reducing depressive symptoms and improving the

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quality of life of patients with depression. In their research, Forman, Herbert, Moitra, Yeomans, and Geller (2007) examined acceptance and commitment-based therapies on quality of life and depressive symptoms in people with depression. The results of this study showed that acceptance and commitment-based therapy could be significantly effective in reducing depressive symptoms and improving the quality of life of patients with depression.

To explain the effectiveness of the treatment matrix model based on acceptance and adherence on improving the quality of life of patients with depression, several main mechanisms could be named. Acceptance processes, cognitive failure, values, and committed acts could reduce depressive symptoms and improve quality of life by increasing psychological resilience (Ostergaard, Lundgren, Zettle, Landrø, & Haaland, 2020). In the therapy based on accepting and adhering to the clients, by accepting the inner sufferings, he stopped struggling and trying to escape the inner world and day by day, increased his suffering and finally learned to communicate in a new way with his inner world, which not only reduced his inner sufferings but also improved his quality of life. During the acceptance of internal suffering, clients were asked to put aside a number of dysfunctional behaviors that exacerbated depressive symptoms in the long run. As the findings of Krieger, Altenstein, Baettig, Doerig, and Holtforth (2013) showed, the less avoidance and mental rumination a depressed person had, the better their depressive symptoms would be.

Acceptance and commitment therapy emphasized committed action. This treatment led to patients being encouraged to methodize values, set goals, anticipate obstacles, and ultimately, committed to achieve goals and move toward values, despite the presence of disease. Ultimately, it achieved goals and happiness that enhanced the patient's quality of life, freeing the patient from being caught in a circle of disgusting and negative feelings and thoughts (Twohig & Levin, 2017).

In addition, one of the most important processes of treatment based on acceptance and adherence was the definition of values and committed action. Encouraging patients to identify values and set goals, obstacles, and ultimately adherence to actions to achieve goals and move in the direction of values, despite the problems, led to the realization of goals and the resulting happiness, satisfaction, obtained from life (Zettle, 2015).

Finally, it could be stated that one of the important goals in acceptance and adherence therapy was to improve the patient's function by increasing psychological flexibility (Zettle, 2015). Many psychotherapists tried to make the client experience fewer symptoms of pain and stress and feel better emotionally at the end of the treatment period. However, acceptance and adherence therapy explicitly focused on a better life, regardless of whether a better life was associated with a better feeling or not. Sometimes a better life actually required a sense of suffering. If it promoted a sense of suffering, communication, and a dynamic life, acceptance and commitment-based therapy sought to provide the skills needed to create suffering without unnecessary defense (Zettle, 2015).

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