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Investigation the effect of Acceptance and Commitment Therapy (ACT) training on stigma and family functioning in family members of patients with psychiatric disorders: a randomized controlled clinical trial

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Abstract

Background Regarding the prevalence and pervasiveness of psychiatric disorders, which significantly affect not only the patients themselves, but also their families, family therapy has emerged as a promising intervention. This research examined the effects of Acceptance and Commitment Therapy (ACT) on stigma and family functioning in family members of patients with psychiatric illnesses, demonstrating effectiveness in improving family functioning and coping strategies in the face of mental illness.

Methods This randomized controlled clinical trial without blinding. Forty family members of patients with psychiatric disorders were randomly assigned to an intervention group ($N=20$) or a control group ($N=20$). The intervention group received ACT in eight weekly sessions, each lasting 90 min, while control group remained on a waiting list. Both groups were assessed at three time points: pre-intervention, post-intervention, and at a one-month follow-up. Data collection instruments included a demographic information questionnaire, a stigma assessment, and a family functioning measure. Data were analyzed using SPSS software version 23.

Results A statistically significant difference was observed between the mean post-test and follow-up stigma scores of the intervention and control groups ($P < 0.05$). The intervention group's mean scores showed a rising trend, whereas the control group's mean scores showed a declining trend. This was evident from within-group comparisons of the mean post-test and follow-up stigma scores. Repeated measures ANOVA indicated that the pattern of change in stigma for the intervention group was significant, in contrast to control group, suggesting a reduction in stigma ($P < 0.001$).

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Conclusion In light of the findings presented in this study, ACT emerges as a promising intervention for mitigating stigma, and enhancing the family functioning of individuals afflicted with mental disorders. To improve the generalizability of the study results, comparable studies using this therapy method should be undertaken on family caregivers of patients with mental illnesses.

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Keywords Psychiatric disorders, Family functioning, Stigma, Acceptance and commitment therapy, Randomized controlled clinical trial

Introduction

Mental disorders are pervasive and prevalent throughout the world, with recent studies reporting alarmingly high rates of occurrence across diverse populations, including Iran [1, 2]. The ramifications of mental illness extend far beyond the individual afflicted, profoundly affecting the lives of family members as well [3]. Families under these difficult conditions have two responsibilities: caring for their mentally ill family member and dealing with the stigma attached to having one [4]. A significant proportion of family caregivers for the individuals with mental disorders experience stigma, with reported rates ranging from 43 to 92%, and 18–21% reporting high levels of stigma [5]. Stigma, defined as negative attitudes or behaviors towards individuals with mental illness, poses a pervasive and detrimental effect on family members [6].

The effect of stigma on families affected by mental illness is multifaceted and pervasive, affecting various aspects of their daily lives and social interactions. Because of the complexity of this experience and the emotions of embarrassment or humiliation that come with seeking out public mental healthcare services, families sometimes choose to hide or keep their distance from those who have mental health issues. This stigmatization can significantly impede a family's ability to engage with their community, resulting in social isolation that adversely affects the family's overall well-being, the recovery process of affected individual, and their participation in community life [7, 8].

In a study conducted by Yin et al. (2020) examining the experience of stigma among family members of individuals with mental illness, the authors emphasized that family members encountered social rejection and isolation, receiving unfavorable comments that devalued and ridiculed them in terms of their relative's mental illness. The authors most prominently noted that some family members made an effort to deal with the stigma by keeping their mental illness a secret from others to prevent prejudice or by limiting their social interactions to avoid being exposed to responses that might stigmatize them [9]. A study conducted by Farzi et al. (2019) showed that stigma can affect overall family functioning and some of its dimensions [10]. Family functioning is a multifaceted

construct that refers to the dynamics within a family. There are various conceptual models for family functioning. One of the important theoretical frameworks is the family process model, which is derived from systems theory and describes how families fulfill important tasks to meet the needs of their members. Based on this model, aspects of family functioning include communication, emotional expression, and role fulfillment [11].

Research identified dysfunctional family dynamics as a factor in various mental illnesses, including major depressive disorder, bipolar disorder, psychotic disorders, and anxiety disorders [11]. The severity of a patient's illness is often linked to the level of dysfunction within their family environment. For example, studies have shown a link between a poor familial environment and the length of illness, frequency of suicide attempts, and severity of manic episodes in people with bipolar disorder [12]. Family therapy can have positive effects on family functioning and coping with mental illness. It has a long history of treating families dealing with mental health issues [3]. Therapeutic interventions, such as education, support, and psychotherapy can significantly reduce depression, anxiety, and stress in family caregivers, paving the way for improved quality of care for patients within the family environment [13]. One of the therapeutic approaches that emerged as part of the third wave of cognitive-behavioral therapies is ACT [14].

ACT focuses on two core principles: accepting thoughts and committing to changing behaviors that align with one's values. The primary aim was to cultivate psychological flexibility while accepting the inherent suffering in life, ultimately enabling individuals to lead richer and more meaningful lives [13]. ACT uses various techniques to promote psychological flexibility [15].

ACT, comprises six core processes that lead to psychological flexibility. These processes are: acceptance, cognitive defusion, self-as-context, contact with the present moment, values, and committed action [14].

A key concept in addressing these challenges is psychological flexibility, which enables the individuals to fully engage with their present circumstances as conscious beings, rather than becoming entangled in their thoughts. This state of mindful awareness allows individuals to

align their actions with their core values, fostering a commitment to these chosen principles through purposeful behavior [16].

The central processes of ACT instruct individuals on how to relinquish thought suppression, disentangle themselves from intrusive thoughts, and enhance their tolerance for unpleasant emotions. Chronic mental diseases cause a variety of symptoms in caregivers and their families, including avoidance, thinking suppression, degradation of family life quality, mood disorders, and more. This constellation of symptoms is particularly amenable to and relevant for ACT. ACT enables individuals to focus on engaging in meaningful and valuable activities, rather than expending considerable time and effort attempting to reduce intrusive thoughts and avoid anxiety [17]. Limited research was conducted on the effectiveness of ACT for family caregivers of individuals with mental illnesses. Therefore, this study aimed to investigate the effect of ACT on stigma and family functioning among families of patients diagnosed with psychiatric disorders.

Methods

Study design

This study is a randomized controlled clinical trial without blinding. It investigated the effect of ACT on the relationship between stigma and family functioning in the caregivers of patients with psychiatric disorders. Participants, who were family caregivers, were evaluated at three levels: pre-intervention, immediately following, and one month later. Necessary ethical approvals and codes (IR.FUMS.REC.1402.061), and a registry code (IRCT20190917044802N10) were obtained before starting the study. Participants were informed about the research and provided informed consent. To determine the quality of the randomized controlled trial, we used CONSORT (Consolidated Standards of Reporting Trials) checklist. [Supplementary file: CONSORT checklist.](#)

Inclusion and exclusion criteria

The inclusion criteria were being the primary caregiver of patient (spending more time with the patient, managing the patient's treatment, fulfilling the patient's basic needs, providing emotional support), at least one year of caregiving experience for a patient with a psychiatric disorder, no current mental health diagnosis or substance abuse issues, and were not receiving other psychotherapy at the time. In the event that participants missed more than one intervention session, experienced an unforeseen distressing event during the study, withdrew assent, or discontinued participation for other reasons, they were excluded.

Sample size and study population

The participants were family members of individuals with mental disorders. Since accessing all family members was difficult, the person playing the biggest role in caring for the patient was chosen.

The sample size was calculated using a formula for comparing two means, with a 5% error rate and 90% power. Based on a previous study by Moghbel Esfahani et al. [12], average family functioning score before and after intervention was estimated to be 9.6 ± 2.05 and 13.38 ± 3.86 , respectively. This resulted in a minimum sample size of 16 per group. To increase power and account for potential dropouts, the sample size was increased to 20 per group. The sample size was relatively moderate, and this was considered a pilot study.

$$n_1 = n_2 = \frac{(S_1^2 + S_2^2) \left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2}{(\bar{X}_1 - \bar{X}_2)^2}$$

To identify families of the patients with mental disorders, after obtaining necessary coordination and permissions, the researchers visited the neurology and psychiatry ward of Shariati, Hospital during patient visiting hours. Subsequently, convenience sampling was implemented to identify families and facilitate direct communication with them. After providing explanations about the study's objectives, process, and confidentiality of information, the family member who played the most significant role in caring for the mentally ill patient was invited to participate in the study. Forty individuals who volunteered to participate in the research were selected for the experimental and control groups.

Randomization

Forty-six family members caring for the patients with disorders were initially identified. Six did not meet the study criteria and were excluded. The remaining 40 participants were randomized into two groups: intervention ($N=20$) and control ($N=20$). Randomization was done using cards placed in a box. Twenty cards had "A" written on them (intervention group) and the other twenty had "B" (control group). Participants drew a card without seeing the letter to determine their group assignment. Figure 1 shows the participant flow throughout the study.

Outcome

In this study, two issues were investigated. the secondary outcomes were stigma and family functioning in family members of patients with psychiatric disorders.

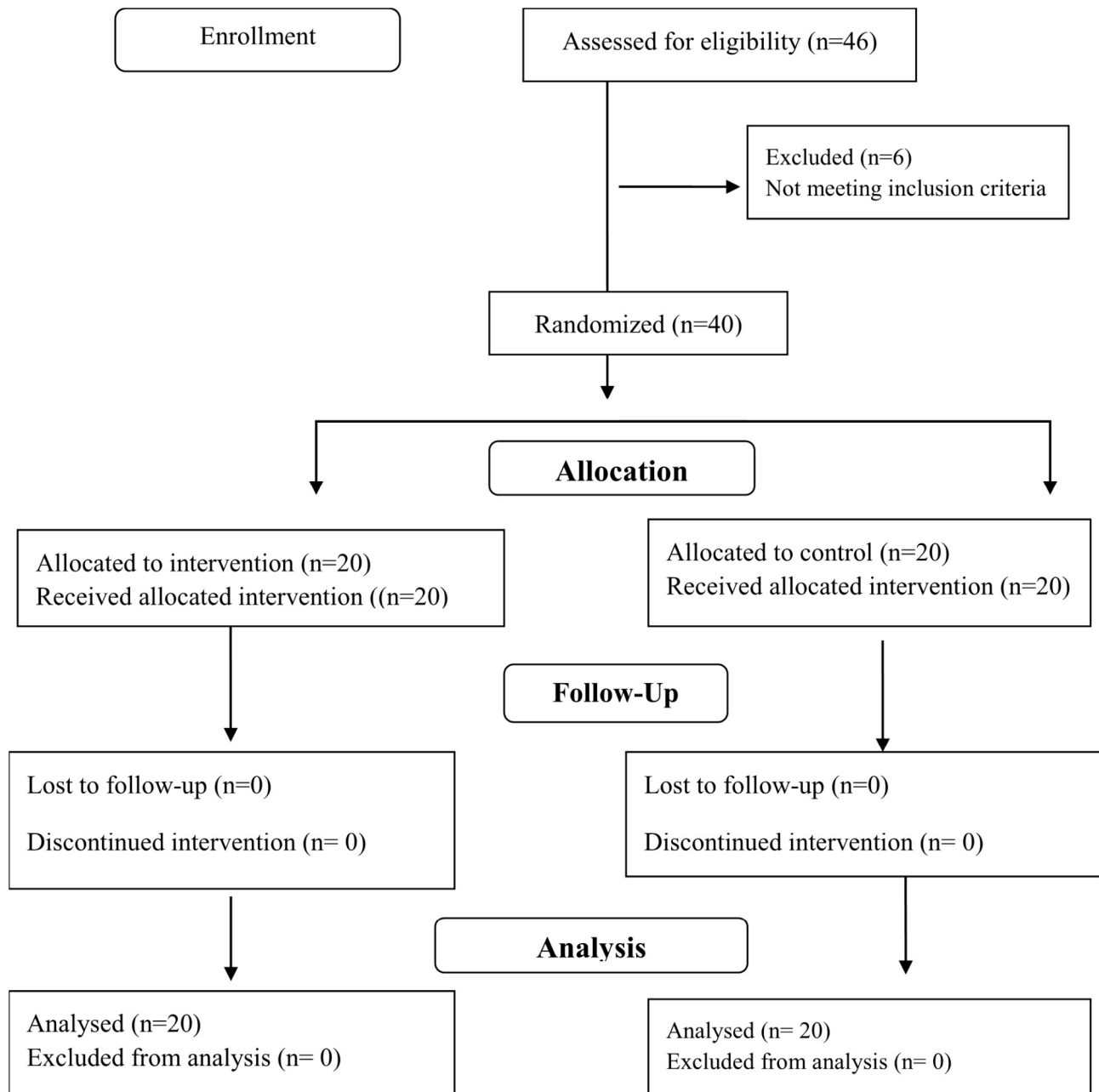


Fig. 1 Consort flow diagram of the participant

Data collection and questionnaires

Data collection for this study was facilitated through a three-part questionnaire designed to gather comprehensive information from participants.

Demographic information

This section captured basic demographic details of participants, including age, gender, marital status, level of education, and duration of patient care experience.

Stigma assessment questionnaire

A validated instrument developed by Shamsaei et al. (2020) was employed to assess participants’ levels of stigma towards mental illness [18]. The questionnaire’s content validity was established through expert review involving psychiatrists, psychologists, and psychiatric nurses, achieving a score of 0.80. A pilot study was conducted with 10 family members who care for individuals with mental illness in order to further refine the instrument and resolve potential ambiguities. This pilot phase

facilitated the identification and modification of queries that were ambiguous or perplexing. Furthermore, the pilot study confirmed the questionnaire's internal consistency through the calculation of internal correlation coefficients. The internal consistency of questionnaire was assessed using Cronbach's alpha, yielding a value of 0.94, indicating high reliability [18]. In a similar study by Farzi et al. (2019), Cronbach's alpha of this questionnaire was also found to be 0.91 [10].

The questionnaire consists of 30 items, each with response options on a Likert scale (always, often, sometimes, rarely, and never) and a score range of 0 to 4. Based on the Internalized Stigma of Mental Illness (ISMI) self-report scale, the stigma score was calculated to range from 0 to 120, with a total score between 0 and 30 indicating no stigma, 30 to 60 indicating mild stigma, 60 to 90 indicating moderate stigma, and 90 to 120 indicating high stigma.

The family functioning assessment questionnaire (FFAQ)

developed by Epstein, Baldwin, and Beavers (1983), assesses family functioning based on the McMaster Model [19]. This 60-item questionnaire utilizes a Likert scale (strongly agree: 1, agree: 2, disagree: 3, and strongly disagree: 4) for scoring. The total score ranges from 60 to 240, and family functioning is categorized into three levels based on obtained score: weak (60–100), moderate (100–150), and strong and healthier (above 150). Family Functioning Assessment Questionnaire (FFAQ)

Table 1 Summary of therapy session content

Technique	Objective	Session
Control strategies as a problem with the help of the "person in the well" metaphor	Introduction and Education on Acceptance and Commitment Therapy	1
Controlling the outside world versus the inside world with the help of the "jelly donut" metaphor	Creative helplessness and examination of specific control strategies previously used by the individual	2
Examining acceptance instead of avoidance with the help of the "beggar" metaphor	Acceptance instead of control	3
Teaching defusion versus cognitive fusion with the help of the "train" metaphor	Teaching defusion versus cognitive fusion with the help of the "train" metaphor	4
Self as context versus self as content using the "chess" metaphor	Moving toward a valued life with an accepting and observing self	5
Clarifying values using the "funeral" metaphor	Creating flexible behavior patterns through value-based exposure	6
Living in the present moment through mindfulness	Developing a behavioral repertoire and more flexible patterns of responding to intrusive thoughts, stress, and anxiety	7 & 8

comprises six dimensions: problem-solving, communication, emotional support, emotional involvement, role functioning, and behavioral control. The questions pertaining to each dimension are as follows: Problem-solving: Questions 2, 12, 24, 38, 50, 60, Communication: Questions 3, 14, 18, 29, 43, 52, 59, Role Functioning: Questions 4, 10, 15, 23, 30, 34, 40, 45, 53, Emotional Support: Questions 5, 9, 19, 28, 39, 49, 57, Emotional Involvement: Questions 13, 21, 22, 23, 33, 35, 37, 42, 54, Behavioral Control: Questions 7, 17, 27, 32, 44, 47, 48, 55, 58, Overall Functioning: Questions 1, 6, 8, 11, 16, 20, 26, 31, 36, 41, 46, 51, 56.

To assess the reliability of Family Functioning Assessment Questionnaire (FFAQ), Epstein et al. (1983) administered it to a sample of 53 individuals, yielding subscale alpha coefficients ranging from 72 to 97%. Yousefi [20]. Examined the validity and reliability of FFAQ and confirmed its psychometric soundness, reporting subscale alpha coefficients of 0.87 for communication, 0.89 for emotional involvement, 0.87 for role functioning, 0.82 for overall functioning, 0.86 for problem-solving, and 0.81 for emotional support. The overall questionnaire reliability was found to be 0.83. In a further study by Farzi and colleagues (2019), the overall Cronbach's alpha for the FFAQ was 0.70 [10].

Intervention and follow-up

Intervention group

The intervention group received an eight-session, 90-minute psychoeducational program delivered once a week for eight weeks. All sessions were conducted face-to-face. The intervention was guided by the principles of ACT (20). Table 1 contains a concise summary of the session structure. The researchers evaluated the adherence of participants to treatment and encouraged them to participate more actively and share the information with other family members during each session, in addition to providing education. The control group did not receive any intervention. However, to adhere to ethical principles, the educational program was implemented for the control group after the completion of the intervention.

Follow-up

All phone calls, which were part of the follow-up process to assess the status of the families of patients with mental illness, were conducted by a psychologist, and a psychiatric nurse. Follow-up continued for one month, post-intervention. All participants in both groups remained engaged until the end of the study, and no one was lost to follow-up. Questionnaires were administered to the control and intervention groups before, immediately after, and one month after the intervention. The two variables of stigma and family functioning of patients with mental

illness were measured for both groups before, immediately after, and one month after the intervention.

Data analysis

Quantitative variables were described using means and standard deviations, while qualitative variables were characterized by frequencies and percentages. Kolmogorov-Smirnov test was employed to assess the normality of distribution for quantitative variables. To compare baseline data between two groups, the chi-square test and independent t-test (or Mann-Whitney U test) were utilized. In an additional effort to investigate stigma, family functioning of patients with mental illness, and the mean participant scores over time and between the two groups, the researchers implemented repeated measures analysis of variance (ANOVA).

Ethical considerations

All participants provided written informed consent to participate in the study. Participants were assured of the anonymity and confidentiality of their information. Furthermore, the study was approved by the Institutional Review Board of Fasa University of Medical Sciences, Fasa, Iran (Ethics Code: IR.FUMS.REC.1402.061).

Results

A total of 40 family members of patients with mental disorders (52.5% men and 47.5% women) who played the primary role in their care were recruited for the study. Participants were randomly assigned to either the control group ($N=20$) or intervention group ($N=20$). The mean age and standard deviation of participants in the intervention, and control groups were 45.24 ± 11.94 years and 46.59 ± 10.09 years, respectively. Independent-samples t-tests and Chi-square tests revealed no significant statistical differences between the intervention and control groups in terms of demographic variables ($P > 0.05$) (Table 2). Prior to the intervention, there was no statistically significant difference in the mean stigma ratings between the intervention and control groups, according to the findings of the independent-samples t-test ($P = 0.192$). However, a statistically significant difference in mean stigma scores was observed between two groups immediately post-intervention and one month, post-intervention ($P < 0.001$). Repeated-measures ANOVA indicated a significant pattern of change in stigma scores for the intervention group compared to the control group, suggesting a reduction in stigma ($P < 0.001$) (Table 3). A pre-intervention comparison of mean family functioning scores between the intervention and control groups revealed no statistically significant difference ($P = 0.383$). However, a statistically significant difference in mean scores was observed between two groups immediately post-intervention and one month,

Table 2 Demographic information of the subjects

Variable	Grouping	Intervention group	Control group	P-value
Age (mean \pm SD)	-	45.25 \pm 11.94	46.55 \pm 10.09	0.712*
Sex (number(percent))	Female	10 (50.0%)	9 (45.0%)	0.752**
	Male	10 (50.0%)	11 (55.0%)	
Marital status (number(percent))	Single	3 (15.0%)	4 (20.0%)	0.916**
	Married	16 (80%)	15 (75.0%)	
	Divorced or widowed	1 (5.0%)	1 (5.0%)	
Educational level (number(percent))	Primary school	7 (35.0%)	9 (45.0%)	0.905**
	High school	5 (25.0%)	4 (20.0%)	
	Diploma	5 (25.0%)	5 (25.0%)	
	Upper than diploma	3 (15.0%)	2 (10%)	
The economic situation	Good	2 (10%)	0 (0.0%)	0.301**
	Medium	14 (70.0%)	14 (70.0%)	
	Bad	4 (20.0%)	6 (30.0%)	
Duration of patient care	1-3year	6 (30.0%)	8 (40.0%)	0.386**
	3-5year	6 (30.0%)	8 (40.0%)	
	>5year	8 (40.0%)	4 (20.0%)	

* Independent sample t test

**Chi square test

Table 3 Comparing the average scores of stigma before, immediately and one month after the intervention in the intervention and control groups

Variables	Time of evaluation	Intervention	Control	P-value*
Stigma	Before	87.30 \pm 8.22	90.50 \pm 7.09	0.192
	Immediately	74.00 \pm 9.60	90.60 \pm 5.91	<0.001
	1 month later	72.85 \pm 10.70	90.90 \pm 5.35	<0.001
	P-value**	<0.001	0.840	
	Effect Size	0.73	0.18	

* Independent sample t-test

**Repeated measures t-tests

post-intervention ($P < 0.001$). The study found that there was a significant difference in the mean family functioning scores of the two groups when comparing the mean scores obtained immediately post-intervention and one month later. The mean scores of the intervention group demonstrated an increasing trend, whereas the mean scores of the control group demonstrated a decreasing trend (Table 4). A pre-intervention comparison of mean scores on the family functioning dimensions of intervention and control groups revealed no statistically significant differences among the groups in any of the dimensions ($P > 0.05$). However, statistically significant differences were observed among the mean scores on problem-solving, communication, role functioning, emotional support, emotional involvement, and overall functioning dimensions of the two groups immediately after and one month after the intervention ($P < 0.001$). On the other hand, the mean behavioral control dimension

Table 4 Comparing the average scores of family performance of psychiatric patients before, immediately and one month after the intervention in the intervention and control groups

Variables	Time of evaluation	Intervention	Control	P-value*
problem-solving	Before	12.85 ± 1.72	12.50 ± 1.50	0.429
	Immediately	14.65 ± 1.46	12.25 ± 1.40	<0.001
	1 month later	15.10 ± 1.44	12.30 ± 1.41	<0.001
	P-value**	<0.001	0.050	
	Effect size	0.53	0.11	
communication	Before	13.80 ± 1.39	13.70 ± 1.59	0.659
	Immediately	15.00 ± 1.21	13.35 ± 1.49	<0.001
	1 month later	15.45 ± 1.35	13.20 ± 1.57	<0.001
	P-value**	<0.001	0.038	
	Effect size	0.76	0.34	
role functioning	Before	18.4 ± 1.14	17.90 ± 1.37	0.341
	Immediately	19.00 ± 1.61	17.5 ± 1.27	<0.001
	1 month later	19.90 ± 1.61	17.50 ± 1.19	<0.001
	P-value**	<0.001	0.015	
	Effect size	0.59	0.41	
emotional support	Before	12.95 ± 2.13	12.65 ± 2.03	0.529
	Immediately	14.95 ± 1.27	12.35 ± 2.15	<0.001
	1 month later	15.60 ± 1.39	12.40 ± 2.08	<0.001
	P-value**	<0.001	0.052	
	Effect size	0.91	0.33	
emotional involvement	Before	16.5 ± 1.27	16.00 ± 1.33	0.211
	Immediately	18.55 ± 1.31	15.55 ± 1.53	<0.001
	1 month later	18.65 ± 1.46	15.40 ± 1.39	<0.001
	P-value**	<0.001	0.068	
	Effect size	0.89	0.28	
behavioral control	Before	20.15 ± 1.26	20.00 ± 1.29	0.678
	Immediately	20.80 ± 1.67	20.20 ± 1.28	0.192
	1 month later	20.80 ± 1.67	20.10 ± 1.20	0.127
	P-value**	0.001	0.186	
	Effect size	0.38	0.19	
Overall performance	Before	23.35 ± 3.85	22.65 ± 2.97	0.369
	Immediately	26.50 ± 2.09	22.20 ± 3.33	<0.001
	1 month later	26.95 ± 1.95	21.80 ± 2.96	<0.001
	P-value**	<0.001	0.009	
	Effect size	0.77	0.36	
Family functioning of mental patients	Before	119.05 ± 9.74	116.85 ± 8.09	0.383
	Immediately	131.35 ± 7.80	114.95 ± 8.48	<0.001
	1 month later	133.45 ± 7.68	111.45 ± 7.43	<0.001
	P-value**	<0.001	0.026	
	Effect size	0.93	0.43	

* Independent sample t-test

**Repeated measures t-tests

scores of the two groups one month and immediately after the intervention did not vary statistically significantly ($P > 0.05$). Repeated-measures analysis of variance (ANOVA) indicated that the pattern of change in all family functioning dimensions of intervention group was significant and suggestive of improvement ($P < 0.05$). In contrast, the pattern of change in the communication, role functioning, and overall functioning dimensions of control group was significant and showed a downward

trend ($P < 0.05$), while it was not significant in the other dimensions ($P > 0.05$) (Table 4).

Discussion

Regarding mental illness not only affects the individual afflicted but also the family members, and considering the significant role family members play in the severity of illness and the recovery of patients; the present study was

conducted to investigate the effect of ACT on stigma and family functioning in the patients with mental disorders.

The findings of this study warrant careful examination. Regarding the efficacy of ACT in mitigating stigma levels among family caregivers of individuals with mental disorders, the results are noteworthy. Although the pre-test stigma results indicated no statistically significant difference between the intervention and control groups, considerable variations surfaced in both post-test and follow-up studies. The intervention group showed a substantial reduction in stigma scores, both immediately following ACT intervention and at the one-month follow-up, in contrast to the control group. This suggested that ACT was instrumental in diminishing stigma among family members of individuals with mental disorders.

The mechanism underlying this outcome can be elucidated via the core principles of ACT. This therapeutic approach emphasizes the cultivation of non-judgmental observation of one's experiences through mindfulness and acceptance techniques, without internalizing these experiences. This process, known as cognitive defusion, enhances psychological flexibility. As a result, people could become less concentrated on habitual stigmatizing ideas, become more conscious of instinctive stigmatizing reactions, and lower their inclination to avoid stigma-related events [21, 22]. ACT participants are guided to mindfully observe their thoughts and emotions, employing key ACT components, such as acceptance and defusion when confronted with stigmatizing cognitions [16].

ACT showed considerable promise in addressing stigma associated with mental illness. A comprehensive meta-analysis exploring the efficacy of various ACT interventions on different forms of stigma revealed consistent reductions in public and self-stigma, alongside improved psychological outcomes. This analysis identified a medium-to-large positive correlation between stigma and psychological inflexibility, underscoring the potential of ACT in this domain [23].

Further evidence supporting the utility of ACT components in stigma reduction comes from recent studies. Among individuals with psychiatric disorders, Chan et al. (2018) discovered that stigma resistance was positively correlated with mindfulness, a fundamental component of ACT [24]. In a similar vein, Tang et al. (2021) reported a significant inverse relationship between mindfulness and stigma among women diagnosed with schizophrenia [25].

A noteworthy contribution to this growing body of research is the study conducted by Kao et al. [16], entitled "The Efficacy of ACT on Self-Stigma Reduction Among People with Mental Illness." This investigation provides preliminary support for the application of ACT in enhancing mindfulness and psychological flexibility among the individuals with mental health conditions.

However, it's crucial to remember that, when assessed from baseline, the observed effect sizes for the decrease in self-stigma and the plausibility of stigmatizing thoughts were modest to medium. To post-intervention and follow-up assessments in the ACT group.

These findings suggested that while participants were able to utilize the core processes taught in ACT intervention to enhance their mindfulness and psychological flexibility across various internal processes, these improvements did not necessarily mediate reductions in self-stigma or its believability. Several factors may account for this outcome. Considering the relatively brief duration of the intervention, it is plausible that participants required an extended period to practice and fully integrate these skills before they could significantly impact their experience of self-stigma. Furthermore, it is important to note that self-stigma often develops over time as a consequence of lived encounters with social stigma. Consequently, altering one's relationship with self-stigma may necessitate a more prolonged intervention period [16].

The findings pertaining to the efficacy of the intervention on family functioning among caregivers of individuals with mental disorders yielded noteworthy results. Initial assessments showed no statistically significant disparities between the mean pre-test scores of family functioning in the intervention, and control groups. However, subsequent analyses uncovered significant differences in post-test and follow-up evaluations of family functioning between these groups.

It was observed that the intervention group showed a marked improvement in family functioning scores, both immediately following the ACT intervention and at one-month follow-up assessment. The results of the ACT group show a significant disparity from those of the control group, which suggests that ACT is effective in improving family functioning for those who care for people with mental illnesses. These findings align with previous research in the field, notably a study conducted by Moghbel Esfahani et al. (2019). Their study sought to examine the impact of ACT on resilience, meaning in life, and family functioning among family caregivers of individuals diagnosed with schizophrenia. The results of their study corroborated the potential of ACT as an effective therapeutic approach for improving these crucial variables in the lives of caregivers [12].

In elucidating this finding, it can be posited that the alignment with values is undoubtedly a matter of paramount importance for any family. Indeed, optimal family functioning is contingent upon operating within the framework of its core values. The effectiveness of a family's functioning may be determined by assessing their success or lack thereof in moving toward their ideals. Families of people with mental illnesses are not excluded

from this concept. The functioning of such families may be occasionally compromised in terms of the challenges they face, potentially impeding their ability to move in accordance with their values. ACT proves efficacious in enhancing family functioning by focusing clarifying and articulating values, identifying obstacles, and fostering a sense of commitment within these families. ACT endeavors to assist individuals in discerning the distinction between reality and internal events, encouraging them to base their actions and performance predominantly on reality. The emphasis of this approach on cognitive defusion and disentanglement can contribute to improved efficiency and functioning. ACT aids families of individuals with mental disorders in acting more in alignment with reality. ACT provides these families with the resources they need to confront their distinctive obstacles while adhering to their fundamental principles by promoting the elucidation of values, acknowledging obstacles, and fostering dedication. Considering the research conducted to date, few studies investigated the effect of ACT on family caregivers of the patients with mental disorders. However, other studies have examined the effectiveness of ACT in various conditions and populations, the findings of which are consistent with the present study. In a study by Priasmoro et al. (2023), it was determined that the family acceptance model for improving the family's role in caring for patients with severe mental disorders focuses on enabling the family to perform its role effectively for these patients. Families who are responsible for the care of individuals with severe mental disorders at home frequently lack the personal qualities required to effectively manage the challenges associated with this responsibility, despite the existence of existing efforts. Enhancing caregivers' commitment to the caregiving role and fostering positive values in their lives is essential for fostering a more accepting and supportive environment for the affected individual [26].

A recent qualitative study by Han et al. (2023) aimed to gain a deeper understanding of the experiences of family caregivers of the individuals with dementia who participated in ACT. The study revealed that participants who learned ACT skills and coping strategies consequently experienced significant improvements in their daily emotional well-being and relationships with their dementia-affected relatives. Interestingly, participants thought that ACT exercises and tactics were useful and immediately relevant for handling difficult circumstances that came up in day-to-day caregiving responsibilities. Furthermore, ACT empowered participants to engage in self-care activities without feelings of guilt, fostering a recognition that prioritizing their own well-being ultimately enhances their capacity to care for their loved ones. These positive changes ultimately translated into

increased participation in valued activities for the caregivers [27].

In a separate study by Han et al. (2023), which examined the preliminary effects of an 8-week video-conferencing ACT program accompanied by psychoeducational materials on psychological distress among family caregivers of the individuals with dementia, in comparison to a control group receiving only psychoeducational materials, it was found that relative to the control group, the intervention group showed a notable reduction in grief, with a medium effect size at post-test. Additionally, compared to the control group, ACT was shown to have minor impacts on anxiety, psychological quality of life, and participation in meaningful activities at the post-test and on grieving, participation in meaningful activities, and psychological flexibility at the one-month follow-up. The small effects of ACT on the aforementioned variables could be potentially attributed to the video-conferencing delivery format employed, whereas in the present study, the intervention was conducted face-to-face [28]. In the study by Rosas-Santiago et al. (2022), which aimed to investigate the effect of ACT on primary informal caregivers of patients with first-episode psychosis, the results indicated that those who underwent the treatment experienced a significant reduction in "perceived burden" and "burnout syndrome," as well as an increase in using "coping strategies" [29]. In the study by Li et al. (2023), conducted to evaluate the effectiveness of ACT-based interventions in improving the mental health of parents of children with special healthcare needs, the research findings highlighted the positive effects of ACT-based interventions on mental health, psychological flexibility, mindfulness abilities, self-confidence, and self-efficacy among parents [30].

The study undertaken by Özer et al. (2024), the findings of which showed that online group-based Acceptance and Commitment Therapy (ACT) for patients in the early stage of psychosis not only reduced psychotic symptoms, but also enhanced functional levels, consequently elucidated that early interventions for individuals afflicted with psychosis can indeed engender positive alterations in the disease processes [31]. The results of the research project conducted by Ara et al. (2023) suggested that ACT had an effect on the emotional processing, irrational beliefs, and rumination of patients with generalized anxiety disorder [32]. The study conducted by Yadav et al. (2024), entitled "Acceptance and Commitment Therapy: A Novel Therapeutic Approach for Mixed Anxiety and Depression," has reported a significant reduction in anxiety levels and depressive symptoms post-treatment [32]. The research findings indicated that ACT assists the client in identifying their value system and taking actions congruent with those values, ultimately leading to conflict resolution. Consequently, by enabling the individual

to lead a meaningful life, ACT can be considered a potential treatment for the diagnosis in question. Furthermore, Nikrah et al. (2023) carried out a study titled “Effectiveness of Acceptance and Commitment Therapy on Resilience and Quality of Life in Patients with Post-acute COVID-19 Syndrome.” The research findings showed that ACT could significantly enhance patients’ resilience and quality of life immediately after and even three months following the intervention [33]. The results obtained in this regard have also demonstrated that Acceptance and Commitment Therapy is effective in reducing stigma and improving family functioning in patients with mental disorders, which is not surprising given that the presence of psychological issues was one of the most important target groups for this therapy.

Limitations

Among the major limitations of this research, one can allude to the convenience sampling method employed, as well as the lack of a double-blind design, which may have compromised the generalizability of the results and the external validity of study to a certain extent. Furthermore, the failure to control for certain variables, such as the caregiver ratio, the duration and severity of the patient’s illness, and the psychological status of caregivers themselves, can be considered another limitation. These factors are indeed pivotal, as they could significantly influence the study outcomes. It is suggested that the paper could benefit from a more focused approach on a single type of severe mental illness, considering the diverse rehabilitative needs and caregiver burdens associated with different conditions. Furthermore, it was not possible to look at the exact diagnostic categories or the amount of time since the original diagnosis since patient records were not accessible and families did not provide accurate information.

Conclusion

The research findings showed that ACT is effective in reducing stigma and improving family functioning in the patients with psychiatric disorders. Based on these findings, it is recommended that counselors at psychiatric centers incorporate this therapeutic approach alongside other treatment methods to enhance family functioning, mitigate stigma, and address other psychological issues faced by families of patients.

Abbreviations

ACT Acceptance and Commitment Therapy

Supplementary Information

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Supplementary Material 1

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Author contributions

MB, AP and AM have participated in the conception and design of the study. MB, AP and AD, contributed the data collection and prepared the first draft of the manuscript. FZ, AP, and LG, critically revised and checked closely the proposal, the analysis and interpretation of the data and design the article. All authors read and approved the final manuscript.

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Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Ethics approval and consent to participate

All participants provided written informed consent to participate in the study. Participants were assured of the anonymity and confidentiality of their information. Additionally, the study was approved by the Institutional Review Board of Fasa University of Medical Sciences, Fasa, Iran (Ethics Code: IR.FUMS.REC.1402.061).

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