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The effectiveness of acceptance and commitment therapy in reducing the symptoms of complicated grief, corona disease anxiety, and improving the quality of life in the survivors of the deceased due to COVID-19

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Abstract:

BACKGROUND: COVID-19 is an infectious disease that has threatened the physical and mental health of people and in many cases leads to death. The present study investigated the effectiveness of acceptance and commitment therapy (ACT) in reducing the symptoms of complicated grief, and corona disease anxiety, and improving the quality of life in the survivors of the deceased due to COVID-19.

MATERIALS AND METHODS: The research method was an experimental design with pre-test, post-test, and follow-up with a control group and random assignment to the intervention and the control groups. Thirty-eight people who met the study criteria were selected as a sample and assigned to the two intervention and control groups using a simple randomization method (19 people in each group). Measures included the complex grief scale, the coronavirus anxiety scale, and the short form of the World Health Organization quality of life scale. Then, mixed analysis of variance was used to compare the average variables between the two groups. Also, the independent *t*-test was used to compare the mean quantitative outcomes between the two groups.

RESULTS: The results showed that there were significant changes over time between the experimental and control groups (with a small effect coefficient) in complicated grief symptoms ($P < 0.05$), corona disease anxiety ($P = 0.001$), and quality of life ($P = 0.001$). Also, the results of all three variables showed that there were significant differences between pre-test and post-test ($P < 0.05$) and between pre-test and follow-up (P value < 0.05), but the difference between post-test and follow-up was insignificant.

CONCLUSIONS: ACT has significant effects on reducing the symptoms of complicated grief and corona disease anxiety as well as on improving the quality of life in the survivors of the deceased due to COVID-19.

Keywords:

Acceptance and commitment therapy, complicated grief, corona disease anxiety, quality of life

Introduction

Since the end of December 2019, the coronavirus disease 2019 (COVID-19) has occurred through human-to-human transmission and involved more than 200 countries in the world, so that the World

Health Organization (WHO) declared it a global pandemic on January 30, 2020, and named it officially as coronavirus disease on February 11, 2020.^[1] This contagious disease has not only threatened the physical health of society and, in some cases, death,

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but considering that pandemics often create uncertainty and confusion in people, it has caused unbearable psychological problems such as stress, anxiety, depression, unresolved grief, and post-traumatic stress disorder for the involved communities.^[2,3] This situation evokes fear, anxiety, and discomfort, and this is a time of collective grief. People who have not lost anything like a job or a loved one have been affected.^[4]

According to recent studies, anxiety is the most common mental health problem in the studied populations involved in the pandemic. In fact, anxiety disorders are known to be common psychological problems in pandemics, followed by depression, low self-efficacy, low sleep quality, and distress due to the fact that it is unknown and creates cognitive ambiguity about this virus.^[5-7] Fear of the unknown reduces the perception of safety in humans and has always been a source of anxiety. The lack of scientific information about COVID-19 continues to intensify anxiety and stress, resulting in reducing the quality of life, weakening the body's immune system, and making them vulnerable to COVID-19.^[8-10] Findings based on the review of the literature related to psychological interventions in the COVID-19 pandemic have shown that cognitive behavioral therapy is very effective for anxiety, especially health anxiety. Psychoanalysis, stress management, mindfulness, and ACT are other effective psychological interventions for health and death anxiety.^[11,12]

According to studies, one of the most important issues that arose during the outbreak of COVID-19 was dealing with grief and its negative consequences for mental and physical health. Grief is very important for health. Burial is a part of the grief process that provides an opportunity for the mourners to express their feelings and emotions about their loved ones and to vent their emotions.^[13-15] Delayed grief means not grief in time or restraining the appropriate emotional response. In fact, in this situation, the person may overreact in the future due to a lack of appropriate emotional reaction. The main characteristic of delayed grief is the long denial of the issue of loss. In other words, when people lose their loved ones, the people around them and society stop their sadness, discomfort, and anxiety and do not allow them to mourn their loved ones, and a few months later, they experience delayed grief. Delayed grief causes mental problems such as depression, anxiety, bipolar disorder, obsession, sleep disorders, eating disorders, anger, guilt, suicide, and tendency to use drugs.^[16,17]

Psychological interventions are useful in the early stages of the pandemic when it is predicted that anxiety and worry are likely to be high, and in the later stages, especially in cases where people are exposed to traumatic events such as witnessing the death of friends and

loved ones and unresolved grief. Also, psychological interventions are practical even after the pandemic is over. For example, some people clinically experience long and severe grief when their loved ones die.^[18]

There are many approaches in the field of complex grief treatment. One of the new treatment methods proposed for the treatment of complex grief is acceptance and commitment therapy (ACT). This treatment is a behavioral intervention based on acceptance and mindfulness that may be suitable for improving the psychological problems related to the epidemic. ACT targets behavioral awareness and openness to experience. More specifically, on the one hand, ACT helps people to have an observer's perspective on thoughts (e.g., "This pandemic is never going to end"), feelings (e.g., hopelessness, fear, and anxiety), and physical feelings (e.g., heartbeat), and on the other hand, it cultivates people's awareness to pursue their values with the assumption that if they live in the present moment, they might make purposeful choices through being aware of their behavior.^[19] Overall, the goal of ACT is to promote acceptance of inner experiences by helping people understand the connection between difficult emotions and personal values (e.g., grief over the loss of a loved one). By cultivating these skills, people can choose to live in the present moment, respond to difficult inner experiences, follow values, and develop psychological flexibility that includes meaningful action, even when confronting adversity and emotional pains.^[20]

Therefore, according to the symptoms of complicated grief and preoccupation with memories of the deceased constant mental preoccupation, and other cognitive problems such as confusion and difficulty in accepting death as well as emotional disorders such as feelings of anger and anxiety, ACT helps the grieving person to avoid thinking about the events that remind the deceased and to have an unbiased view of his thoughts and feelings. Hence, it prevents the intensification of negative thoughts in the pattern of rumination and facilitates the decentralization of the person's thoughts and emotions.^[21] ACT has not been investigated for the survivors of the deceased due to COVID-19 yet. Therefore, in the present study, we sought to answer the question of whether ACT affects the symptoms of complicated grief, corona disease anxiety, and the quality of life in the survivors of the deceased due to COVID-19 for the first time.

Materials and Methods

Study design and setting

The research method was an experimental design with pre-test, post-test, and follow-up with intervention and control groups and random assignment of people to the

two groups. Then, the intervention group was subjected to a ten-session ACT protocol for grief treatment, whereas the control group did not receive any treatment. Measures were conducted again for both groups after the completion of the therapy sessions and 3 months later as a follow-up. Three participants (two people from the experimental group and one person from the control group) withdrew from the research, and a replacement person was appointed. It should be noted that the present study was double-blind, and the evaluator and statistical analyst were blind to the research process. The statistical analyst was blind to the research, so the data analysis was performed without bias. The criteria for entering the study included having lost one of their loved ones due to COVID-19 and at least 3 months had passed since their death (bereavement treatment intervention should not be performed with a very short interval after a loss because it might interfere with the usual mourning process),^[22] 18 years old, and education at least 9 years. The exclusion criteria were the presence of concurrent mental disorders (e.g., bipolar disorder, schizophrenia and other psychotic disorders, substance use disorders), receiving psychotherapy and medication for the previous 3 months from entering the study (in the case of patients treated with medication whose drug dosage was stable 6 weeks before entering the study and remained at the same dose during the study, they were not excluded from the study), having serious suicide thoughts, and having organic brain disorder based on the report of the family and the patient (history of trauma, infection and seizures). Also, the only criterion for exiting the research was active suicidal thoughts during the research.

Study participants and sampling

After explaining the purpose of the research, the volunteers who called were asked to cooperate in this research. Then, an evaluator independent of the therapist (doctoral student of clinical psychology) and trained in the field of grief, conducted a structured clinical interview based on DSM-5 with people willing to cooperate in the research (the evaluator was independent of the therapist and had no knowledge of the design and objectives of the study), and 38 people who volunteered in calls and advertisements posted in treatment and counseling centers who met the criteria for entering the study were included in the study through purposeful sampling and were divided into two experimental and control groups [Figure 1].

Data collection tool and technique

Before conducting the research, the nature and purpose of the research were explained to the participants, and they were assured that the information obtained was confidential, that the results of the research would be published without mentioning their names, and they

could withdraw from the research whenever they wanted. The complex grief scale, the coronavirus anxiety scale, and the short form of the WHO quality of life scale were implemented on each person by an independent evaluator from the therapist at pre-test, post-test, and follow-up.

Ethical consideration

The research is approved by the ethics committee and is received an ethics code (IR.SBMU.MSP.REC.1400.260). Then, the research was recorded in the Iranian Registry of Clinical Trials (IRCT20230219057460N1).

Intervention

In the present study, ACT was performed on the experimental group during ten 120-min sessions weekly. This treatment was based on the "10-session ACT group therapy protocol for bereavement treatment" designed by Steven C. Hayes.^[23] The first session included evaluation and assessment, diagnosis of the type of grief and diagnosis of the stage, co-occurrences, definition of grief, stages of grief, resolved grief versus unresolved grief, familiarization with ACT, doing homework, and participating in the study. The second session included pain, suffering, struggle and avoidance, acceptance, examination of coping and control strategies, creative frustration, explanation and discussion about the ineffectiveness of control, explanation about desire; and in the third session, discussion about the automatic nature of thoughts, creative frustration, practicing praying, practicing not thinking about this (chocolate donut metaphor), how the mind works, word generating machine, ascending mind, and acceptance of thoughts versus avoidance of thoughts (thought denial) were discussed. The content of the fourth session comprised discussion about the experience of emotions, pleasant emotions versus bad emotions, creative frustration (control, happiness trap, marriage practice, relationship between emotions and feelings, discussion about anger, introduction of mindfulness practice (as an alternative to emotional control), the practice of mindfulness with breathing, acceptance of emotion versus avoidance of emotion (emotional denial); and in the fifth to seventh sessions, mindfulness and cognitive dissonance were discussed along with the review of previous exercises. Finally, the eighth to tenth sessions included the completion of the desire discussion, introduction of values, evaluation of values, selection of values, selection of goals, commitment, termination, and discussion about follow-up.

Measures

Structured clinical interview for DSM-5 (SCID-5)

The SCID-5 is a semi-structured interview for the main DSM-5 diagnoses (which used to be in Axis 1) and is conducted by professionals or a trained mental health

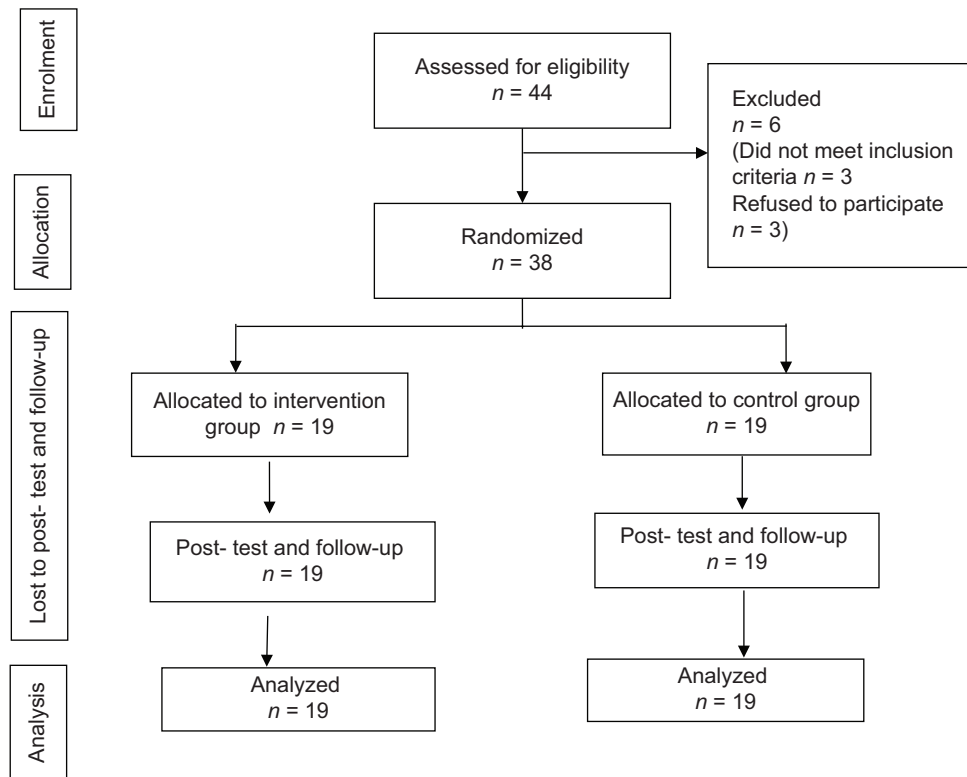


Figure 1: Participant's Flowchart

expert who is familiar with the diagnostic criteria and classification of disorders in the DSM-5.^[24] This measure has three versions: the clinical version (SCID-5-CV), which covers most psychiatric diagnoses and is mainly designed for use in clinical settings and clinical research. The research version (SCID 5-RV) used in research studies and the clinical trial version (SCID-5-CT) can be modified to match the diagnostic entry and exit criteria in clinical trials.^[25,26] In this study, the clinical version (SCID-5-CV) was used. The validity and reliability of this tool have been reported in various studies as acceptable.^[27] In Iran, a study was conducted by Shabani and colleagues^[28] with the aim of investigating the psychometric characteristics of the SCID-5-CV clinical version. The result indicated that considering the kappa criterion, for all diagnoses, except for anxiety disorders, kappa was higher than 0.4 as a result of higher than average agreement, but in anxiety disorders with kappa of 0.34 there was moderate agreement between psychiatrist reports and SCID interviewer.^[29] In the present study, kappa was higher than 0.35 due to higher-than-average agreement.

Complex Grief Scale

The Complex Grief Scale was developed by Prigerson and Masichowski in 1995 to distinguish between normal and complicated grief.^[30] This scale has 19 questions that examine the symptoms of complicated grief. The symptoms that are examined are symptoms related to separation anxiety (painful memories, longing for the

lost person, and extreme loneliness) and behavioral, emotional, and cognitive symptoms (difficulty in accepting the reality of a loved one's death, shock, sense of meaninglessness in life, difficulty in trusting others) and impairment in daily functioning. Scoring is based on a 5-point Likert scale (never: 0, rarely: 1, sometimes: 2, often: 3, always: 4). In the original study, Cronbach's alpha was 0.94, and the reliability coefficient of the scale with the retest method was 0.80. In convergent validity, a positive and significant correlation was obtained with the Beck Depression Inventory ($P > 0.01$ and $r = 0.67$) and the revised Texas Grief Scale ($P > 0.01$ and $r = 0.87$).^[30] In the Iranian standardized version, Yousefi *et al.* reported the reliability of the questionnaire in 1401 by calculating the internal consistency coefficient according to Cronbach's alpha of 0.94 and the retest reliability after 3 weeks for the whole scale as 0.81.^[31] In the present study, Cronbach's alpha reported 0.91 and the retest reliability for the whole scale was 0.82.

Corona anxiety scale

This measure has been prepared and validated to measure the anxiety caused by the spread of COVID-19 in Iran. The final version of this tool has 18 items and 2 components (factors). Items 1 to 9 measure mental symptoms and items 10 to 18 measure physical symptoms. This tool is scored on a 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2, and always = 3); Therefore, the highest and lowest

scores obtained by respondents in this questionnaire are between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety. The reliability of the scale was obtained using Cronbach's alpha for the first factor ($\alpha = 0.87$), the second factor ($\alpha = 0.86$), and the whole questionnaire ($\alpha = .91$). Also, Gottman's λ -2 value was obtained for the first factor (.88), the second factor (.86) and the entire questionnaire (.92). To check the validity of the correlation with the criteria of this questionnaire, the correlation of this tool with the Generalized Health Questionnaire showed that the correlation between the Corona Anxiety Questionnaire and the total score of the Generalized Health Questionnaire, the anxiety component, physical symptoms, impairment in social functioning, and depression were .48, .50, .41, .33, and .26, respectively.^[32] In the present study, the reliability of the scale was obtained using Cronbach's alpha for the first factor ($\alpha = .83$), the second factor ($\alpha = .82$), and for the whole questionnaire ($\alpha = .86$).

The short form of the World Health Organization Quality of Life Scale (WHOQOL-BRIEF)

The short form of WHOQOL-BRIEF was created by a group of experts from the WHO in 1996 after merging and removing a number of questions from the 100-question scale. The results of these two questionnaires have shown a satisfactory agreement in different studies. In this study, the WHOQOL-BRIEF form was chosen due to the number of questions and ease of use. This questionnaire has 26 questions. Two questions are about satisfaction with general health and a person's overall understanding of his quality of life, and the rest of the questions measure the person's feelings and behavior in the last two weeks in different dimensions of the quality of life.^[33] This questionnaire measures a person's general quality of life and four general areas including physical, psychological, social, and environmental dimensions.^[34] In a survey conducted on the adult population of 23 countries, internal consistency was reported acceptable for the domains of physical health ($\alpha = 0.82$), mental health ($\alpha = 0.81$), environmental health ($\alpha = .80$), and social relations ($\alpha = .68$). Also, this questionnaire has the ability to distinguish between healthy and sick people and has desirable construct validity.^[35] Nejat *et al.* (2015) reported the reliability of this scale to be .77 in the field of physical health, .77 in mental health, .75 in social relations, and .84 in environmental health.^[36] Elmy Manesh *et al.* reported

Cronbach's alpha .75 on the scale with .78, .76, .73, and .80 for physical health, mental health, social relations, and environmental health, respectively.^[37] In the present study, Cronbach's alpha reported .74 for the whole scale, with .75, .73, .74, and .78 for physical health, mental health, social relations, and environmental health, respectively.

Data analysis

After collecting the data, they were entered into SPSS software version 26, and descriptive statistics were analyzed first. In data analysis, mean, standard deviation, median, minimum, and maximum scores were used to describe quantitative variables, and frequency report (percentage) was used for qualitative variables. In the following, the normality of the distribution of the research variables was investigated using the skewness and kurtosis indices and the Shapiro–Wilk test. Then, to check the correctness of the questions, a mixed analysis of variance was used to compare the average variables between the two groups in the pre-test, post-test, and follow-up due to the normality of the data. Also, the independent *t*-test was used to compare the mean quantitative outcomes between the two groups in pre-test, post-test, and follow-up. In all the analyses, *P* value <0.05 was considered statistically significant.

Results

In this study, 38 survivors of those who died due to COVID-19 were investigated. Table 1 shows the mean, standard deviation, and statistics for the demographic characteristics of the groups. The two groups had no significant relationship with demographic variables ($P > 0.05$). In other words, the variables of age, gender, marital status, and education level do not act as confounding variables. Before interpreting the results of the tables, it should be noted that the results of the Shapiro-Wilk test showed that the distribution of all variables considered by different groups and times was normal. Analysis of descriptive findings with a *t*-test showed that the difference in the mean of quantitative variables was not significant. Also, the difference in the frequency ratio of qualitative variables through Chi-square showed that the difference between the two groups was not significant for these variables. The demographic profile and characteristics of the participants are shown in Table 1.

Table 1: Demographic features of the sample

	Intervention (n=19)	Control (n=19)	Statistics
Mean Age (SD)	36.10 (8.48)	34.94 (9.30)	1.83 <i>F</i>
Number of females	12 (63%)	11 (58%)	1.6 χ^2
Marital status (Single/Married/Divorced or separated)	n=7/10/2	n=6/12/1	1.64 χ^2
Mean years of education (SD)	11.18 (1.02)	11.52 (1.06)	0.92 χ^2
Number with comorbid diagnoses (%)	7 (37%)	6 (32%)	1.2 χ^2
Number of Previous engagement with psychotherapy (%)	5 (26%)	4 (21.3%)	1.4 χ^2

According to Table 2, there was a significant difference (P value < 0.05) between the two intervention and control groups (with a small effect coefficient) in the average changes of complex grief symptoms over time, the details of which are shown in Figure 2. Also, a significant difference was observed between the different stages of the test (P value > 0.05). The results of the *post hoc* test showed that there was a significant difference between pre-test and post-test (P value > 0.05) and pre-test and follow-up (P value > 0.05), but there was an insignificant difference between the post-test and follow-up.

Also, there was a significant difference (P value = 0.001) between the intervention and control groups (with a small effect coefficient) over time, the changes in the average of corona disease anxiety, the details of which are shown in Figure 3. Also, a significant difference was observed between the different stages of the test (P value = 0.001). The results showed that there was a significant difference between pre-test and post-test (P value = 0.001) and pre-test and follow-up (P value = 0.001), but there was an insignificant difference between the post-test and follow-up (P value = 0.011).

Changes in the average quality of life over time between the two intervention and control groups (with a small effect coefficient) had a significant difference (P value = 0.001), the details of which are shown in Figure 4. Also, a significant difference was observed between different stages of measurement (P value = 0.001) (with medium effect coefficient) and two groups (P value = 0.001) (with small effect coefficient). The results of the post-hoc test showed that there was a significant difference between pre-test and post-test (P value = 0.001) and pre-test and follow-up (P value = 0.001), but there was an insignificant difference between post-test and follow-up (P value = 0.061).

Discussion

In the present study, using an experimental design and pre-test, post-test, and follow-up with intervention and control groups and random assignment of people to the two groups, the effectiveness of ACT in reducing the symptoms of complicated grief and corona

disease anxiety and improving the quality of life in the survivors of the deceased due to COVID-19 was investigated.

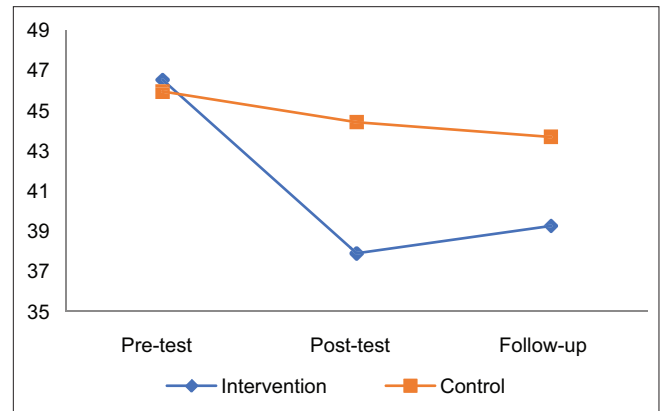


Figure 2: Average changes in complicated grief

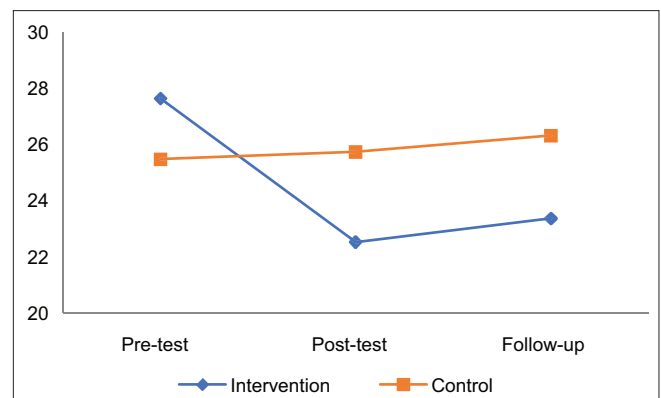


Figure 3: Average changes in corona disease anxiety

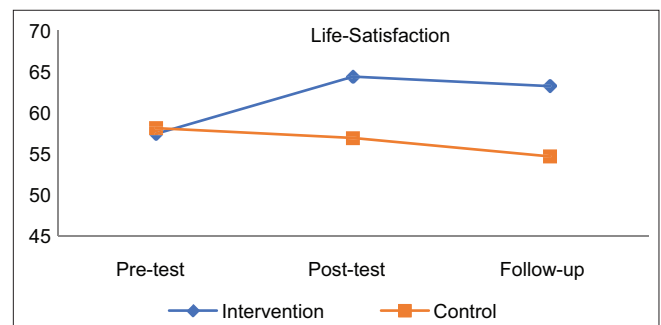


Figure 4: Average changes of the quality of life

Table 2: Descriptive statistics for the measures over the three time periods assessed in this study by condition

Measure	Intervention group (n=19) Mean (SD)			Control group (n=19) Mean (SD)			Main effect of time	Main effect of the condition	Condition* time interaction
	Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up			
Complicated Grief	46.52 (12.11)	37.89 (11.88)	39.26 (11.62)	45.94 (12.24)	44.42 (12.16)	43.68 (12.08)	F=0.66, P<0.041	F=98.14, P=0.001	F=53.14, P<0.001
Corona Disease Anxiety	27.63 (2.06)	22.52 (1.95)	23.36 (1.83)	25.47 (2.81)	25.73 (3.15)	26.31 (3.18)	F=7.26, P<0.011	F=14.19, P<0.001	F=12.25, P<0.001
Quality of Life	57.47 (3.11)	64.42 (3.73)	63.26 (3.75)	58.16 (3.24)	56.94 (3.39)	54.73 (3.29)	F=0.26, P<0.061	F=41.74, P<0.001	F=55.32, P<0.001

The results of the independent *t*-test to compare the average symptoms of complicated grief between the intervention and control groups in three stages before the intervention, after the intervention, and follow-up indicated that the average symptoms of complicated grief after the intervention and in the follow-up in the experimental group were less than the control group (P value > 0.001). Therefore, it can be said that ACT has a significant effect on reducing the severity of complex grief symptoms in the survivors of the deceased due to COVID-19. The results of this study were in line with recent studies regarding the effectiveness of ACT on grief symptoms. For example, Martínez *et al.*,^[38] in a study on the treatment of prolonged grief have found that group therapy is effective in reducing the severity of grief, and ACT is practical in restoring spirituality in people with long-lasting grief. Medina *et al.*,^[39] in a study on the effectiveness of ACT on repetitive and negative thinking for complex grief due to separation, found that breaking up often causes important behavioral and emotional consequences that can lead to the experience of complicated grief. Abtahi Forushani also reported in research aimed at investigating ACT on grief and distress among female nurses bereaved by COVID-19 that the amount of distress and long grief caused by COVID-19 can be reduced through ACT.^[40]

In explaining these findings, it can be said that, on the one hand, it is proportional to the symptoms following complicated grief and people's preoccupation with memories of the deceased, constant mental preoccupation, and other cognitive problems such as confusion and difficulty in accepting death, as well as emotional disorders such as feelings of anger and anxiety, this treatment helps bereaved people to have an unbiased view of their thoughts and feelings with the help of cognitive dissonance and self as a background, so as a result, it prevents them from mixing with negative thoughts and intensifying thoughts in the pattern of rumination, and facilitate the decentralization of people's thoughts and emotions, so they face less grief. On the other hand, ACT increases cognitive adaptation, which makes people stop denying and avoid behaviors, and with the help of the acceptance component, which is one of the most important elements of ACT, accept the main cause of grief is the death of the deceased and the process of mourning, and faceless grief through mental acceptance. Also, cognitive exercises based on mindfulness by cultivating awareness during thinking exercises enable bereaved people to activate negative rumination responses in their minds, see them more clearly, and free their minds from those thinking patterns. Moreover, people are asked to avoid judgment. Therefore, incompatible strategies in complex mourning, such as blaming oneself and others and feeling guilty, are abandoned, which is a motivating factor in affected

people and leads them to the goals of life.^[41,42] In general, ACT, on the one hand, helps people to have an observer's point of view about their thoughts, feelings, and physical sensations, and on the other hand, it cultivates people's awareness in pursuing their values. If they live at the present moment, they can make purposeful choices by being aware of their behavior. In fact, ACT promotes the acceptance of inner experiences by helping people to understand the connection between difficult emotions and personal values (for example, grief from the loss of a loved one), and as a result, by cultivating skills, people can choose to live in the present moment, respond to difficult inner experiences and follow values, and develop psychological flexibility and meaningful actions.^[20]

Furthermore, the results of the independent *t*-test to compare the average of corona disease anxiety between the intervention and control groups in three stages of pre-test, post-test, and follow-up indicated that corona disease anxiety after the intervention and in the follow-up was significantly lower in the intervention group than in the control group (P value > 0.001). Therefore, it can be said that the effectiveness of ACT in reducing corona disease anxiety in the survivors of the deceased due to COVID-19 was higher compared to the control group and continued over time. These findings were in line with recent research. For example, Han *et al.*,^[43] in a study on the effect of a treatment program based on ACT on the mental health of clinical nurses during the outbreak of COVID-19 showed that ACT is effective in the consequences caused by the spread of Covid-19 such as anxiety. Swain *et al.*,^[44] in their review study on the effectiveness of ACT on anxiety showed that this treatment is effective not only for healthy people and patients with mental disorders but also is effective for most anxiety disorders. In addition, Joharifard *et al.*,^[45] reported that ACT effectively reduced corona disease anxiety by increasing psychological flexibility, reducing struggle and control, and increasing mental awareness. Roshani^[46] showed that ACT reduced psychological and physical components of corona disease anxiety in the elderly. Mokhtari^[47] showed that this ACT is effective in reducing corona disease anxiety (mental and physical symptoms).

In explaining the outcomes, it can be said that the use of accepting and omission in the therapeutic intervention process makes the person aware of anxiety, accept it, and feel less suffering. In fact, in ACT, the psychological acceptance of the individual regarding mental experiences, including anxiety, is increased. Control actions are reduced, and the patient is taught that any action to avoid or control anxiety is ineffective or has the opposite effect and aggravates it. Instead, acceptance without any internal or external reaction

to remove would be more effective. As a result, people using acceptance instead of suppressing anxiety have the power to cope with it. Also, using the dimension of presence in the present moment reduces negative bias toward the future and reduces anxiety thoughts about getting sick in the future. On the other hand, through the omission technique, the observer's self is strengthened in person, and he finds the ability to see life far from his mind, which reduces corona disease anxiety in the psychological dimension and separates it from anxiety-provoking thoughts related to COVID-19.^[46] It can also be assumed that ACT helps people restore the balance of emotion regulation systems and also tries to make people learn to access the self-soothing system in response to threats and reduce their anxiety. Patients who manage their emotions during the outbreak of COVID-19 enjoy less anxiety and better mental health.^[48] In general, in explaining these findings, it can be said that ACT provides the necessary conditions to create a valuable and rich life through the process of accepting disturbing feelings and thoughts, communicating with the present moment, and identifying the individual's values and encouraging the individual to perform actions based on values, resulting in reducing anxiety.^[49]

Additionally, the results of the independent *t*-test to compare the average quality of life between the intervention and control groups in three stages of pre-test, post-test, and follow-up indicated that quality of life after the intervention and in the follow-up was significantly lower in the intervention group than in the control group (P value > 0.001). Therefore, it can be said that the effectiveness of ACT in improving the quality of life in the survivors of the deceased due to COVID-19 was higher compared to the control group and continued over time. These findings were in line with previous studies. For instance, Han and Kim^[50] in their review of the effectiveness of ACT on the quality of life, showed that ACT as an evidence-based treatment, by reducing stress, anxiety, and distress, leads to the improvement of the quality of life. In another study, Hertenstein and colleagues^[51] showed that ACT led to a reduction in insomnia symptoms in people and significantly increased their quality of life. Fathi Ahmadsaraei *et al.*,^[52] reported that ACT as an effective psychological intervention leads to improving the quality of life. Farnam and Jenaabadi^[53] have indicated that ACT improved cognitive fusion, quality of life, and anxiety of students with diabetes.

In the explanation of these findings, it can be mentioned that ACT improves the quality of life by teaching people to accept unwanted experiences or problems that are beyond their control and also the commitment to act toward the goals of life.^[5] In other words, in ACT, people learn to try to accept their inner experiences

and life situations and take steps to improve them by increasing psychological acceptance instead of cognitive, practical, and emotional avoidance. This trend can lead to more attention to personalized values and thus improve their mental health and well-being, resulting in having a higher cognitive and metacognitive focus in order to improve their quality of life.^[54] Also, ACT empowers people to watch mental images by applying mindfulness techniques instead of mixing with thoughts and mental images. Using problem-solving techniques, they experience less fusion of thought and action. This process also causes people to solve the leading challenges and experience a higher quality of life by applying problem-solving skills.^[55-57]

Limitations and recommendation

The follow-up period in this study was relatively short. Therefore, the generalization of the results to longer schedules should be performed with caution. A longer follow-up period can increase our confidence in the stability of the changes. In future studies, longer follow-up periods can be considered in order to investigate the continuation of therapeutic benefits. The sample of this research was people 18 years old. For this reason, the findings are limited to be generalized to the age group under 18 years old. Therefore, due to the small sample size, it is suggested to conduct research on a wider sample with the age group below and above 18 years. Also, since every intervention needs research support to demonstrate its effectiveness, it is suggested that ACT be compared with other psychotherapy approaches, especially emotion regulation-based perspectives.

Conclusion

Covid-19 is an infectious disease that threatens people's physical and mental health and, in many cases, leads to death. Therefore, treating the symptoms of complicated grief and corona disease anxiety and improving the quality of life in the survivors of the deceased due to COVID-19 is a necessity. The results of the present study indicated the effectiveness of ACT in reducing the symptoms of complicated grief and corona disease anxiety and improving the quality of life in the survivors of the deceased due to COVID-19. Also, these changes remained in the follow-up phase.

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Conflicts of interest

There are no conflicts of interest.

References

- Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020;579:270-3.
- Farnoosh G, Alishiri G, Zijoud S, Dorostkar R, Farahani AJ. Understanding the 2019-novel coronavirus (2019-nCoV) and coronavirus disease (COVID-19) based on available evidence-A narrative review. *J Mil Med* 2020;22:1-11.
- Javadi SMH, Arian M, Qorbani-Vanajemi M. The need for psychosocial interventions to manage the coronavirus crisis. *Iranian Journal of Psychiatry and Behavioral Sciences* 2020;14:e102546.
- Weir K. Grief and COVID-19: Mourning our bygone lives. *American Psychological Association* 2020;1.
- Fathi Ashtiani A, Rahnejat AM, Ahmadi Tahour Soltani M, Taghva A, Ebrahimi MR, Donyavi V, et al. Psychological consequences and interventions during the COVID-19 pandemic: Narrative review. *J Mar Med* 2020;2:1-11.
- Afshari B, Valianpour M, Balagabri Z, Aramfar B, Vaseghi N, Mohebi M. Personality psychology behind social anxiety disorder: Revisiting past and present researches. *Adv Psychol Res* 2022;149.
- Afshari B. Personality and anxiety disorders: Examination of revised reinforcement sensitivity theory in clinical generalized anxiety disorder, social anxiety disorder, and panic disorder. *Current Issues in Personality Psychology* 2020;8:52-60.
- Bajema KL, Oster AM, McGovern OL, Lindstrom S, Stenger MR, Anderson TC, et al. Persons evaluated for 2019 novel coronavirus-United States, January 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:166-70.
- Saji JA, Babu BP, Sebastian SR. Social influence of COVID-19: An observational study on the social impact of post-COVID-19 lockdown on everyday life in Kerala from a community perspective. *J Educ Health Promot* 2020;9:360.
- Agarwal N, Jain P, Pathak R, Gupta R. Telemedicine in India: A tool for transforming health care in the era of COVID-19 pandemic. *J Educ Health Promot* 2020;9:190.
- Cooper K, Gregory JD, Walker I, Lambe S, Salkovskis PM. Cognitive behaviour therapy for health anxiety: A systematic review and meta-analysis. *Behav Cogn Psychother* 2017;45:110-23.
- Afshari B, Jafarian Dehkordi F, Asgharnejad Farid AA, Aramfar B, Balagabri Z, Mohebi M, et al. Study of the effects of cognitive behavioral therapy versus dialectical behavior therapy on executive function and reduction of symptoms in generalized anxiety disorder. *Trends Psychiatry Psychother* 2022;44:e20200156.
- Afshari B, Hasani J. Study of dialectical behavior therapy versus cognitive behavior therapy on emotion regulation and mindfulness in patients with generalized anxiety disorder. *J Contemp Psychother* 2020;50:305-12.
- Afshari B, Keyhani A, Balagabri Z, Aramfar B, Vaseghi N, Vaseghi F, et al. emotion regulation psychotherapies: Revisiting past and present researches and moving toward future directions. *Understanding emotions*. 1.
- Rafii M, Skandari H, Borjali A, Farokhi N. Investigation on experienced losses in the life story of young people living in Tehran: A phenomenological study. *Counseling Culture and Psychotherapy* 2019;10:63-98.
- Mauro C, Reynolds CF, Maercker A, Skritskaya N, Simon N, Zisook S, et al. Prolonged grief disorder: Clinical utility of ICD-11 diagnostic guidelines. *Psychol Med* 2019;49:861-7.
- Afshari B, Omid A, Ahmadvand A. Effects of dialectical behavior therapy on executive functions, emotion regulation, and mindfulness in bipolar disorder. *J Contemp Psychother* 2020;50:123-31.
- Kroska EB, Roche AI, Adamowicz JL, Stegall MS. Psychological flexibility in the context of COVID-19 adversity: Associations with distress. *J Contextual Behav Sci* 2020;18:28-33.
- Rezaie Z, Afshari B, Balagabri Z. Effects of dialectical behavior therapy on emotion regulation, distress tolerance, craving, and depression in patients with opioid dependence disorder. *J Contemp Psychother* 2021:1-10.
- Crane RS, Kuyken W. The implementation of mindfulness-based cognitive therapy: Learning from the UK health service experience. *Mindfulness (N Y)* 2013;4:246-54.
- Folke F, Parling T, Melin L. Acceptance and commitment therapy for depression: A preliminary randomized clinical trial for unemployed on long-term sick leave. *Cognitive and behavioral practice* 2012;19:583-94.
- Nematipour Z, Golzari M. The effectiveness of group grief counseling and grief therapy using a religious approach on improving the quality of life in bereaved mothers. *Research in Clinical Psychology and Counseling* 2015;5:52-69.
- Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and commitment therapy: Model, processes and outcomes. *Behav Res Ther* 2006;44:1-25.
- Afshari B, Khezrian K, Faghihi A. Examination and comparison of cognitive and executive functions in patients with schizophrenia and bipolar disorders. *J Isfahan Med Sch* 2019;37:270-7.
- First M, Williams J, Karg R, Spitzer R. Structured clinical interview for DSM-5 disorders—Research version (SCID-5-RV). Arlington: American Psychiatric Association 2014.
- Afshari B, Rasouli-Azad M, Ghoreishi FS. Comparison of original and revised reinforcement sensitivity theory in clinically-stable schizophrenia and bipolar disorder patients. *Pers Individ Differ* 2019;138:321-7.
- Shankman SA, Funkhouser CJ, Klein DN, Davila J, Lerner D, Hee D. Reliability and validity of severity dimensions of psychopathology assessed using the structured clinical interview for DSM-5 (SCID). *Int J Methods Psychiatr Res* 2018;27:e1590.
- Shabani A, Masoumian S, Zamirinejad S, Hejri M, Pirmorad T, Yaghmaeezadeh H. Psychometric properties of structured clinical interview for DSM-5 disorders-clinician version (SCID-5-CV). *Brain Behav* 2021;11:e01894.
- Afshari B, Shiri N, Ghoreishi FS, Valianpour M. Examination and comparison of cognitive and executive functions in clinically stable schizophrenia disorder, bipolar disorder, and major depressive disorder. *Depress Res Treat* 2020;2020:2543541.
- Prigerson HG, Maciejewski PK, Reynolds CF 3rd, Bierhals AJ, Newsom JT, Fasiczka A, et al. Inventory of complicated grief: A scale to measure maladaptive symptoms of loss. *Psychiatry Res* 1995;59:65-79.
- Yousefi S, Mayeli P, Ashouri A. Psychometric properties of the Persian version of the inventory of complicated grief. *Omega (Westport)* 2022:302228221102687.
- Alipour A, Ghadami A, Alipour Z, Abdollahzadeh H. Preliminary validation of the corona disease anxiety scale (CDAS) in the Iranian sample. *Health Psychol* 2020;8:163-75.
- Purba FD, Hunfeld JAM, Iskandarsyah A, Fitriana TS, Sadarjoen SS, Passchier J, et al. Quality of life of the Indonesian general population: Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. *PLoS One* 2018;13:e0197098.
- Ganesan S, Thulasingam M, Gunaseelan K, Kalaiarasi R, Penumadu P, Ravichandran S, et al. Validity and reliability of Tamil translated University of Washington quality of life questionnaire for head and neck cancers. *Asian Pac J Cancer Prev* 2019;20:3649-54.
- Guity S, Narges Karam G, Yaghob Esmaeli T, Narges E. Validation and reliability assessment of the Persian version of obsessive beliefs questionnaire-44. *Adv Cogn Sci* 2004;6:23-36.

36. Nejat S, Montazeri A, Holakouie Naieni K, Mohammad K, Majdzadeh S. The World Health Organization quality of life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version. *J Sch Public Health Inst Public Health Res* 2006;4:1-12.
37. Elmy Manesh N, Arab Shibani K, Javanmard G. Effectiveness of functional analytic psychotherapy on obsessive symptoms, depression and quality of life in obsessive compulsive disorder. *J Psychol Stud* 2020;16:75-88.
38. Martínez-Medina CB, Rodríguez-Orozco AR. Prolonged grief disorder treatment: An approach to COVID-19 grief. *Salud Ment* 2023;46:165-75.
39. Medina-Reina DP, Ruiz FJ. Acceptance and commitment therapy focused on repetitive negative thinking for complicated breakup grief: A randomized multiple-baseline evaluation. *Rev de Psicol* 2022;33:67-83.
40. Abtahi Foroshani, N., & Rakhshan, P. (2022). Effectiveness of Acceptance and Commitment Therapy on Long-Term Grief Disorder and Reduction of Distress in Coronary Women Nurses. *Psychology of Woman Journal*, 3(4), 64-83.
41. Aslani K, Hajihaidary M, Rajabi G, Amanuelahi A. Mindfulness-based cognitive therapy on symptom of complicated grief on people with symptoms of complicated grief. *Middle East J Disabil Stud* 2019;9:42.
42. Salami S, Naami A, Zargar Y, Davoodi I. Effectiveness of trauma-focused behavioral method on post-traumatic growth among abused children. *Iran J Psychiatry Nurs* 2017;5:15-21.
43. Han J, Zhang L, Liu Y, Zhang C, Zhang Y, Tang R, et al. Effect of a group-based acceptance and commitment therapy programme on the mental health of clinical nurses during the COVID-19 sporadic outbreak period. *J Nurs Manag* 2022;30:3005-12.
44. Swain J, Hancock K, Hainsworth C, Bowman J. Acceptance and commitment therapy in the treatment of anxiety: A systematic review. *Clin Psychol Rev* 2013;33:965-78.
45. Joharifard R, Nouri R, Hazrati S, Arani SF. Effectiveness of acceptance and commitment therapy on COVID-19 induced anxiety among worried people. *Int J Body Mind Cult* (2345-5802) 2022;9:97-105.
46. Roshani M. The effectiveness of acceptance and commitment-based therapy on corona anxiety in the elderly. *Clin Health Psychol* 2022;1:43-52.
47. Talebi M, Teymuri H. The Effectiveness of Online Training in Acceptance and Commitment Therapy on Psychological Distress and Resilience of Nurses with Covid-19. *3 JNE* 2022; 11(2) :1-11.
48. Caletti E, Massimo C, Magliocca S, Moltrasio C, Brambilla P, Delvecchio G. The role of the acceptance and commitment therapy in the treatment of social anxiety: An updated scoping review. *J Affect Disord* 2022;310:174-82.
49. Dinarvand N, Barghi Irani Z, Forstmeier S. The comparison of the effectiveness of positive therapy and acceptance and commitment therapy on the anxiety and depression of the elderly living in nursing homes. *Aging Psychol* 2022;8:189-203.
50. Han A, Kim TH. Efficacy of internet-based acceptance and commitment therapy for depressive symptoms, anxiety, stress, psychological distress, and quality of life: Systematic review and meta-analysis. *J Med Internet Res* 2022;24:e39727.
51. Hertenstein E, Thiel N, Lüking M, Külz AK, Schramm E, Baglioni C, et al. Quality of life improvements after acceptance and commitment therapy in nonresponders to cognitive behavioral therapy for primary insomnia. *Psychother Psychosom* 2014;83:371-3.
52. Fathi Ahmadsaraei N, Neshat Doost HT, Manshaee G, Nadi M. The effectiveness of acceptance and commitment therapy on quality of life among patients with type 2 diabetes. *Iran J Health Educ Health Promot* 2016;4:31-9.
53. Farnam A, Jenaabadi H. The comparison of the effectiveness of acceptance-commitment group therapy on cognitive fusion, quality of life and anxiety in students with diabetes. 2020.
54. Pleger M, Treppner K, Diefenbacher A, Schade C, Dambacher C, Fydrich T. Effectiveness of acceptance and commitment therapy compared to CBT+: Preliminary results. *Eur J Psychiatry* 2018;32:166-73.
55. Elhai JD, Yang H, McKay D, Asmundson GJG. COVID-19 anxiety symptoms associated with problematic smartphone use severity in Chinese adults. *J Affect Disord* 2020;274:576-582.
56. Afshari B, Hasani J, Hanzaii MM, Nasrollahizadeh H, Amiri P. A systematic review of current psychological interventions for bipolar disorder. *Adv Psychol Res* 2023;150:115-36.
57. Afshari B, Valianpour M, Rezaie Z, Balagabri Z, Mardi N, Keyhani A. Executive function and therapy of mental disorders: Move toward future directions. *Advances in Psychology Research* 2021;144:61-121.