

# Effectiveness of Acceptance and Commitment Therapy in Sleep Quality, Resilience, and Death Anxiety in the Elderly

Bahman Hajatnia<sup>1</sup>, Biuok Tajeri<sup>2\*</sup>, Kobra Haji Alizadeh<sup>3</sup>

<sup>1</sup> Department of Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran

<sup>2</sup> Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran

<sup>3</sup> Associate Professor, Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

\* *Corresponding authors:* Biuok Tajeri, Department of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran. Email: btajeri@yahoo.com, Tel: +989126049225

Received 2020 July 02; Accepted 2020 December 21.

## Abstract

**Background:** Aging currently has a major share of population composition. The current study aimed to determine the effectiveness of acceptance and commitment therapy (ACT) in sleep quality, resilience, and death anxiety of the elderly.

**Materials and Methods:** The research method was pretest-posttest with a two-month follow-up period and control group. The statistical population of this study included all the elderly residents in nursing homes in Shiraz, Iran, in 2019. The sample consisted of 30 individuals from the aforementioned population selected by convenience sampling and assigned to two groups of ACT (n=15) and control (n=15) using simple randomization. The data were collected using Connor-Davidson Resilience Scale (Connor-Davidson, 2003), Collett-Lester Death Anxiety Scale (Collett-Lester, 1969), and Pittsburgh Sleep Quality Index. The data were analyzed using the repeated measures analysis of variance, and statistical analysis was performed using SPSS software (version 22).

**Results:** The results showed that ACT was effective in the improvement of sleep quality ( $P<0.001$ ), resilience ( $P<0.001$ ), and death anxiety ( $P<0.001$ ) in elderly individuals.

**Conclusion:** It can be concluded that ACT is effective in the improvement of sleep quality, resilience, and death anxiety in elderly individuals.

*Keywords:* Acceptance and Commitment Therapy, Sleep, Anxiety

## 1. Introduction

Aging currently has a major share of population composition. According to the population index, if more than 12% of the total population in a community are 60 years and older or more than 10% of the total population are 65 years and older, such a population is considered elderly. In 2002, the world population status was 629 million (10% of the total population) aged 60 or older, and that ratio will reach 2 billion in 2050 (20% of the total population). In Iran, if this growth of population aging continues to a similar trend around 1410, the phenomenon of explosion of the elderly population will occur, and 25% to 30% of the population will be the age of 50 and older (1). Therefore, it is inevitable to pay attention to different aspects of this phenomenon. Death anxiety is one of the concerns of old age. Death anxiety is defined as an unusual and great fear of death, accompanied by feelings, such as fear of death and apprehension when thinking about the

process of dying or paces that occur after dying (2). Tamer and Ellison (3) also define death anxiety as typically the anxiety that individuals experience in the prediction of a state in which they do not exist.

The multiplicity and variety of stresses faced by individuals in old age have turned attention to mental health, especially resilience in aging and necessity. Resilience is a factor helping individuals to deal with difficult and stressful life situations and reducing depression (4). In addition, the ability to adapt to pain increases the quality of life. In fact, resilience is the capacity of individuals to stay healthy and resist difficult and high-risk situations causing them not only to overcome those difficult conditions but also to become stronger during and despite them, and this may be due to optimism about a better future (5). The results of previous studies carried out on resilience showed that increasing resilience leads to more coping ability to deal with problems. According to

Belsky's observations (6), individuals with high resilience perceive stressful events as less threatening and are more likely to seek help instead of suppressing them.

Human health is associated with the quantity and quality of sleep. The results showed that nighttime insomnia could affect the quality of life; accordingly, the risk of depression and anxiety increases and the ability to cope with everyday stress decreases (7). Epidemiological studies have shown that more than 57% of the elderly report sleep problems, and only 12% of sleep problems are not complaining. More than 40% of individuals over the age of 60 have poor sleep quality (8). Insomnia is one of the most common sleep disorders in the elderly. This disorder is observed as primary and secondary insomnia. Primary insomnia is a disorder that does not result from another mental disorder, physical disorder, or substance use. A major complaint is a problem in the onset and durability of sleep and lack of feeling comfortable after sleep for at least a month (9). Sleep disturbances in the elderly may lead to depression, falls, memory disorders, problems in concentration, irritability, low quality of life, dementia, stingy, unsympathetic mood, and anxiety (10).

Various treatments have been provided for the improvement of the psychological status of the elderly, including reality therapy, logotherapy, and cognitive behavioral therapy. Acceptance and commitment therapy (ACT) is one of the treatments that can be effective in the enhancement of mental health and enrichment of the lives of the elderly. The ACT is one of the recently expanded therapeutic models that its key therapeutic processes are different from cognitive behavioral-traditional therapy.

The underlying principles of ACT include acceptance or willingness to experience pain or other disturbing events without attempting to contain it and value-based behaviors or commitment combined with a willingness to act as meaningful personal goals more than eliminating unwanted experiences that interact with other non-sexual experiences. Nonverbal dependencies lead to healthy functioning. This method includes experimental experiences, exposure-based exercises, linguistic metaphors, and methods, such as mental care training (11).

In this treatment, firstly, it is tried to increase the psychological acceptance of an individual about mental experiences and reduce exertive control. In other words, the individual is taught that every action taken to avoid or control unwanted mental experiences is ineffective or has an inverse effect and accepts no external or internal reaction to remove them. In the second step, the individual becomes mentally aware of the present moment. In the third step, the individual is taught to separate him/herself from the mental experiences in a way that he/she can independently of this. Experiences work, in the fourth stage, to reduce the extreme focus on the visual self or the story of the person in mind. In the fifth step, the individual is helped to identify core personal values and turn them into specified goals and values, along with accepting

subjective experiences (12).

The results of studies carried out on ACT show its effect on psychological disorders and problems. For example, due to the increasing number of elderly individuals and their major problems in the fields of sleep, resilience, and death anxiety, it seems that many of these elderly individuals do not have enough knowledge and skills to properly manage such problems. In the case of spiritual therapy and ACT training for the elderly, such problems can reduce. With this background in mind, the present study aimed to determine the effectiveness of ACT in the sleep quality, resilience, and death anxiety of the elderly.

## Materials and Methods

The present study was carried out with an applied, semi-experimental, and pretest-posttest design with a follow-up and control group. The statistical population of this study consisted of all the elderly residents in nursing homes in Shiraz, Iran, in 2019, of which 146 were. The sample consisted of 30 subjects who were selected using the convenience sampling method and randomly assigned to two groups of ACT (n=15) and control (n=15). The required sample size was calculated 0.40, 0.95, 0.80 test power and 10% loss for each group (13). The inclusion criteria were a minimum age of 60 years, minimum education, no reception of psychological treatment since diagnosis, lack of acute or chronic medical diseases (e.g., epilepsy), skeletal diseases, heart and respiratory failures causing problems in blood sampling and tolerance of long session, no severe mental illnesses (e.g., psychotic disorders), and no psychotropic medications or substance abuse. The absence of more than two sessions in treatment sessions and occurrence of major stresses due to unpredicted accidents were considered the exclusion criteria. Prior to implementation, the purpose of the research and other conditions were described for the elderly; for example, participation in the study was completely optional and nonparticipation would not affect their health care process. In addition, the information will remain confidential with the researcher. Then, the informed consent was obtained and all the questionnaires were filled out and recorded by the subjects.

The ethical considerations were observed in the present study. All the subjects received written information about the study and participated in the study if they were willing to. It was assured that all the information remained confidential and would be used for research matters. Participants' names and last names were not registered in order to respect their privacy.

Connor and Davidson Resilience Scale in 2003 reviewed the research resources of 1979-1991 and had 25 items aiming to measure resilience in different individuals (14). Likert's accountability spectrum and in order to obtain the overall score of the questionnaire, the total scores of all questions will be gathered together. This score will be within the range of 0-100. As the score is higher, the

**Table 1.** Content of acceptance and commitment therapy sessions

Session	Content
1 <sup>st</sup>	Establishing therapeutic relationships, familiarizing individuals with the subject of research, responding to questionnaires, and closing treatment contracts
2 <sup>nd</sup>	Discovering and evaluating treatment methods and evaluating their effects, discussing temporary and ineffective treatments using metaphors, and receiving feedback and providing tasks
3 <sup>rd</sup>	Helping authorities to identify inefficient control strategies and recognize their futility, accepting painful personal events without conflicting with them using allegory, and receiving feedback and providing tasks
4 <sup>th</sup>	Explaining about avoiding painful experiences and becoming aware of their consequences, teaching acceptance steps, changing language concepts using allegory, teaching relaxation, and receiving feedback and providing tasks
5 <sup>th</sup>	Introducing a three-dimensional behavioral model in order to express the common relationship between behaviors/emotions, psychological functions, and visible behaviors, discussing efforts to change behaviors based on it, and receiving feedback and providing tasks
6 <sup>th</sup>	Explaining the concepts of role and context, observing oneself as a context and establishing self-contact using metaphors, becoming aware of different sensory perceptions, and separating from feelings that are part of subjective content
7 <sup>th</sup>	Explaining the concept of values, motivating them to change and empower references for a better life, practicing concentration, and receiving feedback and providing tasks
8 <sup>th</sup>	Training commitment to action, identifying behavioral plans in accordance with values, and making commitments to act based on them
9 <sup>th</sup>	Summing up sessions and performing posttest and relapse prevention

**Table 2.** Frequency distribution and comparison of demographic characteristics

Demographic variable		Acceptance and commitment therapy group n (%)	Control group n (%)	P-value
Gender	Female	11 (73.3)	4 (26.7)	0.24
	Male	4 (26.7)	11 (73.3)	
Marital status	Single (Divorced or widowed)	11 (73.3)	13 (86.7)	0.09
	Married	4 (26.7)	2 (13.3)	
Age	60-65 years	6 (40)	5 (33.3)	0.35
	66-70 years	6 (40)	5 (33.3)	
	75 years and older	3 (20)	5 (33.3)	
Educational level	Illiterate	1 (6.7)	-	0.19
	Lower than diploma	12 (80)	14 (93.3)	
	Diploma	-	-	
	Bachelor's degree	2 (13.3)	1 (6.7)	

resilience of the respondent will be higher and vice versa. The cut-out point of this questionnaire is 50 points. In other words, a score higher than 50 indicates that individuals have resilience and higher scores above 50 show higher intensity of the individual's resilience and vice versa. The validity and reliability of the original version of this scale were 0.89 in a study by Connor and Davidson (14). In this study, the reliability of the questionnaire was tested using Cronbach's alpha coefficient, which was reported as 0.84 (15).

Collett-Lester Death Anxiety Scale is a self-assessment tool for the measurement of death-related fear and anxiety.

Collett-Lester designed the initial form of this scale in 1969. This scale includes 32 items and four subscales of your own death, observing yourself dying, dying around you, and observing those around you dying (16). The items of this questionnaire are scored based on a five-point Likert scale, each of which has a score of 1-5 points. In this questionnaire, two types of scores are calculated, namely subscale score and total score. The highest and lowest scores in this test are 160 and 32, respectively. As an individual's score is closer to 160, he/she suffers from more death anxiety. Cronbach's alpha coefficient was cited to assess the reliability of the Collett-Lester Death

Anxiety Scale and since the reliability coefficient was 0.79, the reliability of the instrument was ensured (16). The reliability coefficients of this questionnaire in Iran were 0.89 and 0.68 by Dadfar using Cronbach's alpha and Ballad methods, respectively. Furthermore, the concurrent validity of this scale with the Templer Death Anxiety Scale was 0.57, indicating the acceptable validity of the questionnaire (17).

Pittsburgh Sleep Quality Index was developed by Boyce et al. in 1989 for the assessment of sleep quality (18) with 18 items in seven components. The first part is related to the quality of mental sleep, which is determined by item number 9. The second part is related to delay in falling asleep, the score of which is determined by two items, including the average score of item 2 and the score of part A of item 5. The third component is related to the duration of sleep, which is determined by item number 4. The fourth part is related to the efficiency and effectiveness of sleep, the score of which is determined by dividing the total hours of sleep by the total hours that the individual is in bed, multiplied by 100. The fifth part is related to sleep disorder and obtained by calculating the mean scores of item number 5. The sixth component is related to sleeping drugs that are identified by item number 6. The seventh component is related to inappropriate performance during the day, which is determined by calculating the average scores of items number 7 and 8. The score of each item is at least 0 and maximum of 3. The total mean scores of these seven components constitute the total score of the instrument within a range of 0-21. As the score is higher, the sleep quality is lower. A score higher than 6 implies

poor sleep quality. Concurrent validity and reliability (Cronbach's alpha coefficient) of the original version of the questionnaire were 0.89 and 0.88, respectively (18). The validity and reliability of the Persian version of this questionnaire, which was modeled by Farahi et al., were 0.86 and 0.89, respectively. In addition, the reliability of the questionnaire was 0.46 by Cronbach's alpha and 0.52 by display method (19).

The ACT was held in 9 sessions of 90 min once a week for 2 months (Table 1). Before starting the sessions and obtaining permission, both groups completed resilience, death anxiety, and sleep quality questionnaires. Then, the experimental group received weekly training for the elderly men and women residing in nursing homes; however, the control group did not receive any training. The follow-up period was performed 2 months after the posttest.

In descriptive statistics, central and dispersion indices, such as mean and standard deviation, were used. The repeated measures analysis of variance was employed for the inferential statistics. It is worth noting that in order to investigate the assumptions of the inferential test, Levene's test (to examine the homogeneity of variances), Kolmogorov-Smirnov test (to examine the normality of data distribution), Box's M test, and Mauchly's sphericity test were used. The Chi-square test was utilized to compare the two groups in terms of demographic variables (i.e., gender, marital status, age, and educational level). Statistical analysis was performed using SPSS software (version 22). The significance level of the tests was considered 0.05.

**Table 3.** Mean and standard deviation of scores of study variables in experimental and control groups

Variable	Group	Pret st		Posttest		Follow-up	
		M	SD	M	SD	M	SD
Sleep quality	Acceptance and commitment therapy	17	2.44	11.73	2.15	11.60	2.16
	Control	16.86	2.35	16.80	2.30	16.80	2.30
Death anxiety	Acceptance and commitment therapy	116.33	7.55	105.46	7.65	106.13	7.77
	Control	119.46	4.88	119.13	4.77	119.26	4.80
Resilience	Acceptance and commitment therapy	33.73	3.39	42.20	5.74	42.13	5.98
	Control	33.53	2.74	34.20	2.62	34.33	2.74

**M:** mean; **SD:** Standard deviation

**Table 4.** Multivariate analysis of covariance for comparison of pretest and posttest in experimental and control groups

Variable	SS	Df	MS	F	P	Eta
Group Sleep quality	197.63	2	98.81	239.49	0.001	0.92
Group Resilience	460.21	2	230.10	38.16	0.001	0.66
Group Death anxiety	1838.11	2	919.05	43.35	0.001	0.69

## Results

The descriptive findings of this study included statistical indicators, such as mean, standard deviation, number of sample subjects, and frequency and percentage, which are shown for all the studied variables in Table 2.

Multivariate analysis of covariance (MANCOVA) was used to investigate the significant difference in sleep quality score, resilience, and death anxiety between the two groups of ACT and control. The results of Box's M and Levene's tests were examined before MANCOVA to observe the assumptions. Since Box's M test was not significant for any of the study variables (Box's M=21.47; df=12; P<0.05), the homogeneity of variance-covariance matrices was correctly observed. In addition, no significant difference in any of the variables in Levene's test showed that the condition of parity of intergroup variances was observed and the variance of dependent variable error was equal in all the groups.

The results of Table 3 showed that there was a significant difference between the two groups of ACT and control in sleep quality, resilience, and death anxiety. It should be noted that Wilks' lambda test with a value of 0.02 and F=61.00 showed a significant difference between the two groups of ACT and control in sleep quality, resilience, and death anxiety (P<0.001).

The results of Table 4 revealed that sleep quality (239.49) at the level of 0.0001, resilience (230.10) at the level of 0.0001, and death anxiety (43.35) at the level of 0.0001 were significant.

## Discussion

The results of the present study showed that ACT had an effect on the study variables. In fact, ACT was an effective treatment for sleep quality and resilience variables. In this regard, the results of this study are in line with the findings of studies conducted by Izadi and Rasouli (20), Mirzaei Esmoestan et al. (21), Mesbah et al. (22), Ghadampour et al. (23), Azimi et al. (24), Jennings et al. (25), Ellen et al. (26), and Karikkola and Constantino (27). In explaining this finding, it can be said that although both treatment methods have a favorable effect on sleep quality, resilience, and death anxiety, acceptance and commitment to spirituality therapy have more effect on sleep quality and resilience.

The ACT allows the authorities to change relationships with their dorni experiences in the first place, reduce experiential avoidance, and increase flexibility and ultimately adaptation, and in the second, teach the authorities to increase taking action on valuable pathways (28). Changing relationships with internal experiences includes the expansion and clarity of internal awareness, in addition to strengthening a nonjudgmental and adaptive relationship with experiences. At the same time, the therapist encourages individuals to experience thoughts and emotions related to a thought, feeling, relationship, and behavior completely without suppressing and judging

them and experience secondary emotions, such as shame, guilt, mistrust, reproach, and humiliation, after displaying this behavior. As the control and dominance of the living environment increase, especially the stressful living conditions, their sense of internal satisfaction, self-efficacy and self-confidence, and resilience increases.

In ACT, find all the efforts of the therapist, create and nurture life and perform it (20). Hedayatizadeh-Omran et al. (28) believe that the sustainability of ACT believes that clarifying the values during this treatment gives the group members amp much incentive to continue treatment and committed action is done when the values become clear. In addition, two important processes of ACT under the name of the connection with present and self are the basic causes to increase the awareness of the clients about themselves and current needs and this awareness helps to continue self-care behaviors in the elderly.

The present study had some limitations, which can stipulate the findings and suggestions of the study and help the researchers to take effective measures to deal with the threat of internal and external validity of research projects. The main limitation of this study was the restriction of the results to the statistical population of the elderly. This study was conducted only on the elderly population of Shiraz, and caution should be exercised with the generalization of the results to other regions and cities. It is suggested to carry out this study on other age groups in the community and other statistical samples. It is also recommended to perform this study in other cities.

## Conclusion

It can be concluded that ACT is effective in the improvement of sleep quality, resilience, and death anxiety in elderly individuals.

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