





Original Article

The effectiveness of acceptance and commitment therapy on psychological capital and psychological well-being of patients with thalassemia: a quasi-experimental study

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Abstract

Background: This study aimed to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) on psychological capital and psychological well-being of patients with thalassemia.

Methods: This study was a quasi-experimental trial with a pretest-posttest design along with a control group. The statistical population included all patients with thalassemia referred to the office of the Thalassemia Association located in Mohammad Kermanshahi Hospital in Kermanshah. Thirty patients were selected as the sample by targeted sampling method and then randomly assigned to experimental and control groups equally (each n=15). The instruments included Ryff psychological well-being questionnaire and Luthan's Psychological Capital Questionnaire. After performing the pretest, the experimental group underwent an ACT intervention, while the control group received no treatment. Data were analyzed using SPSS software version 21 according to analysis of covariance (ANCOVA).

Results: There was a significant difference between the mean of psychological well-being and psychological capital variables in both experimental and control groups ($P=0.014$ & $P=0.005$, respectively). By eliminating the effect of pre-test psychological capital scores as a covariate variable, the main effect of the independent variable on post-test psychological capital scores was significant ($F=53.601$, $P=0.001$, Partial $\eta^2=0.665$). By eliminating the effect of pre-test psychological capital scores as a covariate variable, the main effect of the independent variable on post-test psychological well-being scores was significant ($F=181.34$, $P=0.001$, Partial $\eta^2=0.87$).

Conclusion: ACT was effective on the psychological capital and the psychological well-being of thalassemia patients. Moreover, ACT can be used to improve the psychological capital and psychological well-being of patients with thalassemia.

Keywords: Acceptance and Commitment Therapy; Thalassemia; Well-being, Mental Health

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Introduction

Thalassemia major is a type of thalassemia that is caused by reduced or no synthesis of β -globin chains (1). Regarding to the World Health Organization (WHO), approximately 240

million people around the world carry the thalassemia gene, and about 200,000 babies with thalassemia are born annually (2). In addition, above 20,000 patients with major thalassemia have been reported in Iran (3). The patients need regular blood

transfusions and medical care (4). These patients have many limitations in life due to various problems and complications of the disease, which reduces their quality of life (5). The disease affects various dimensions of patients' mental health such as psychological capital and well-being (6). Psychological well-being is a protective agent against psychological and psychiatric diseases (7). It is defined as the pursuit of perfection to realize one's true potential abilities (8). The process of realizing these abilities includes six dimensions: autonomy, environmental mastery, individual growth, positive relationships with others, purposeful living and self-assurance (7). In addition to psychological well-being, psychological capital is also affected by thalassemia. Psychological capital includes, belief in one's abilities to achieve success (self-efficacy), creating positive proofs about present and future success (optimism), having perseverance in pursuing goals and following up the necessary strategies to achieve success (hopefulness), and enduring problems and returning to a normal level of performance and even upgrading it to achieve success (resilience) (9). Psychological capital is a good source for preventing stress, anxiety and depression (10). Psychological well-being and psychological capital play a significant role in reducing stress and anxiety caused by the thalassemia. Attention to treatment approaches is very important to improve the level of psychological well-being and psychological capital of patients with thalassemia. One of the effective therapies is Acceptance and Commitment Therapy (ACT) (11).

The ACT approach is evidence-based that combines acceptance and awareness strategies in a variety of ways with commitment and behavior change strategies (12). In this therapeutic approach mindfulness, acceptance, and cognitive fusion skills are used to increase psychological flexibility (13). The main method of treatment is based on acceptance and

commitment of the patient to face situations that have been avoided before (14). In this type of treatment, instead of changing cognition, an attempt is made to increase the psychological connection of the person with his thoughts and feelings. The goal of this treatment is to help clients achieve a more valuable and satisfying life by increasing flexibility rather than focusing solely on cognitive reconstruction (15). Many previous studies have emphasized on the effect of the ACT on reducing psychological damages (11, 16, 17). Although this approach is used in the treatment of psychological diseases, it is important to repeat and evaluate the effectiveness of this treatment. Therefore, the research question is "Is the ACT effective in the psychological capital and psychological well-being of patients with thalassemia?"

Methods

Research Design and Participants

The present study was a quasi-experimental trial with a pretest-posttest design along with a control group. The statistical population included all patients with thalassemia who referred to the office of the Thalassemia Association located in Mohammad Kermanshahi Hospital in Kermanshah. In order to collect information from the research samples, first the necessary permission was obtained through the vice chancellery of research of the Islamic Azad University, Kermanshah branch and afterward by referring to the office of the thalassemia association located in the hospital, the required coordination was made with the association about the research objectives. Then, using a call, among the volunteers who were willing to participate in the research, 100 people were selected (based on Krejcie and Morgan's table) and the necessary explanations were provided about the objectives and how to answer the questionnaires. The participants were asked for informed consent to participate in the research and were assured of confidentiality and privacy. Inclusion

criteria were having the diagnostic criteria for thalassemia, at least junior high school education, not receiving psychological treatment at the same time, and being in the age range of 18-45. Exclusion criteria were low literacy to understand and do homework, absence for more than twice in a row, and having a history of other neurological and physical disorders based on self-report and medical records available in the association.

After obtaining permission from the university, the questionnaires were distributed among participants at 15-minute intervals to control the effect of fatigue on the research results. In addition, after filling in the questionnaire, 30 patients who received low scores in psychological capital and psychological well-being were selected as the participants by targeted sampling method and then, randomly assigned to experimental and control groups equally (each n=15). The former group (ACT) received 8 weekly sessions, each of them took two hours session, while the control group did not receive any intervention. Furthermore, to strengthen the results, the groups were almost identical in terms of age, social and economic conditions, cultural level and place of education.

The data collection tools were Ryff psychological well-being questionnaire (1989), Luthans Psychological Capital Questionnaire (PCQ) and ACT Protocol.

Ryff psychological well-being questionnaire

This questionnaire was designed by Ryff in 1989 which has diverse forms (18). The original form had 120 questions, but revised versions of 84, 54, and 18 questions were also suggested. In this research, its 54 questions form was used. The Psychological Well-Being Scale consists of 6 subscales, each subscale containing 9 questions. The subscales include self-assurance, positive relationships with others, autonomy, environmental mastery, purposeful living, and individual growth. The subject responds to each item on a 6-

point Likert scale (strongly disagree to strongly agree). Some questions were also scored in reverse. The reliability of the test with Cronbach's alpha coefficient was 0.97 for the whole test and from 0.86 to 0.91 for the subtests (19).

Luthans Psychological Capital Questionnaire (PCQ)

PCQ was designed in 2007 and has been used to measure psychological capital. The questionnaire has 24 questions that measure four subscales of 6 questions including hope, resilience, optimism and self-efficacy. The subject responds to each item on a 6-point Likert scale (strongly disagree to strongly agree). To obtain the psychological capital score, one must first obtain the score of each subscale separately and then the sum of them is considered as the total psychological capital score. The results of confirmatory factor analysis indicated that this test has the factors and structures desired by the test developers. In fact, the results of factor analysis confirmed the validity of the test construct. The six-factor model fits better with the data and is more consistent with the theoretical model. The chi-square ratio of this test is 24.6 and the CFI and RMSEA statistics in this model are 0.97 and 0.08, respectively (20).

Acceptance and Commitment Therapy Protocol

In the ACT sessions, the 8-session treatment protocol of Vowles and Sorrell was used (Table 1).

The collected data was analyzed using SPSS software version 21. Descriptive statistic indices including mean and standard deviation (SD) were used and in inferential analysis, analysis of variance (ANOVA) was employed.

Results

The mean score of the studied variables in the experimental and control groups are presented in Table 2 separately for pre-test and post-test steps. The results of statistical test indicated a significant difference between the means of psychological well-being and psychological capital variables in both experimental and control groups

Table 1. Acceptance and Commitment Therapy protocol

Session	Objective	Content, techniques and methods	Assignments
1	Introduction, familiarity with the basics and fundamentals of ACT and increasing cognitive flexibility	Familiarity with members, determining the terms and conditions of attending in meetings, setting the agenda, changing through the creative hopelessness technique, presenting the assignments of the next session	Answering to the question: "What does your illness experience tell you?" And "what personal treatments have you experienced?"
2	Changing behavior and mindfulness, determining treatment options and paths	Discussion and review of the task of the first session, Raising the issue, Making choice, Introducing the behavioral model and the concept of behavior change, Training Mindfulness, Mindfulness feedback - Presenting the assignments of the next session	Benefit/Cost Analysis of focusing or not-focusing on pain and illness in different life situations by determining a four-part model of thoughts, excitement, behavior, and physiology, Mindfulness exercise based on the proposed model and giving feedback
3	Learning to live with chronic pain with the help of acceptance	Discussion about the assignment of the second session, defining the acceptance, identifying values and separating them from desires	Completing the values evaluation form, doing daily mindfulness exercises, giving feedback
4	Identifying the role of values and action	Assessing the assignment of the third session, describing the distinction between values and goals, expressing the barriers of values and goals with the technique of "bubble in the way" and "swamp" allegories, setting goals and introducing committed action	Writing three related values and its goals and behaviors and presenting in the next session - Doing mindfulness of "body scan" and giving feedback
5	Creating a disintegration of self, making a distinction from the content of thoughts, allowing obstacles to the occurrence of committed action	Assessing the assignments of the fourth session, making disconnection from language threats with the help of the exercise "What are numbers?" and the "mental polarity", discussing the inflexible nature of the mind	Exercising the general mindfulness, doing practices of disconnections
6	Separation of thoughts, feelings and emotions from the process of committed action	Assessing the assignments of the fifth session, reviewing the progress of treatment so far and discussing the remaining issues, articulating the difference between deciding to act	Mindfulness and practice of self-observation, recording the behaviors and in case of discrepancy between values and behavior, aligning them and providing the ability rate to align values and behavior
7	Making commitment to have a worthwhile life, creating satisfaction	Assessing the assignments of the sixth session, Defining the primary suffering and the secondary suffering with the help of the "straggler" allegory technique, Formulating the distinction between evaluation or bargaining and satisfaction, Expressing the obstacles to the formation of satisfaction, Presenting the assignments of the next session	Mindfulness in "Walking", Presenting the one's behavioral pattern in relation to the disease and describing their assessment of it.
8	Lifetime preservation of changes, Relapse prevention, Farewell to members	Assessing the assignments of the seventh session, Discussing negative events and preparing for relapse, Reviewing the treatment, Developing a plan for the future, Reviewing committed action as a "lifelong task"	Identifying the negative events that you may encounter in the future and recording them, Use of treatment methods provided throughout life

Table 2. Mean and standard deviation (SD) of psychological well-being and psychological capital variables in different groups and stages of assessment (n=15)

Statistical indices	Group	Step	Mean	SD	P-value
Psychological well-being	Experimental	Pretest	217.28	3.37	0.014
		Posttest	264.87	4.52	
	Control	Pretest	221.22	2.14	
		Posttest	224.33	3.47	
Psychological capital	Experimental	Pretest	100.42	3.64	0.005
		Posttest	127.64	2.91	
	Control	Pretest	102.14	2.29	
		Posttest	104.67	3.57	

between pre-test and post-test ($P=0.014$ & $P=0.005$, respectively).

Table 3 illustrates the results of the psychological capital scores of covariance analysis test. Based on the one-way covariance test, by eliminating the effect of pre-test psychological capital scores as a covariate variable, the main effect of the independent variable on post-test psychological capital scores is significant ($F=53.601$, $P=0.001$, Partial $\eta^2=0.665$). Hence, ACT is effective on the psychological capital of patients with thalassemia.

Table 4 shows the results of the psychological well-being scores of covariance analysis test. Based on the one-way covariance test, by eliminating the effect of pre-test psychological capital scores as a covariate variable, the main effect of the independent variable on post-test psychological well-being scores is significant ($F=181.34$, $P=0.001$, Partial $\eta^2=0.87$). Therefore, ACT is effective on the psychological well-being of patients with thalassemia.

Discussion

This study aimed to evaluate the effectiveness of ACT on psychological capital and psychological well-being of

patients with thalassemia. The results revealed that ACT is effective on psychological capital and psychological well-being of patients with thalassemia. The results of the present study are consistent with the results of Ferros et al., Annunzia et al., and also Marmarchi Nia and Zoghi Paydar (11, 16, 21). In ACT, the goal is for people to achieve a purposeful and rich life, so people are challenged to focus on what is important to them (22). This will increase psychological resilience and reduce empirical avoidance, and the person will not try to control and deal with the situation, but will accept it and use effective solutions for change for the better. (23). Patients were taught how to make better and more appropriate choices. Teaching patients with thalassemia how to live in the present moment and focus their thoughts and feelings on basic and positive activities by teaching the basic processes of ACT (acceptance, mindfulness, living in the present moment, cognitive failure, values and committed action) (14). ACT with emphasis on tissue and contextual factors, tries to bring the person to psychological flexibility as the core therapy that leads to adherence to selected values

Table 3. Results of Covariance score analysis of psychological capital scores

Source	Sum of squares	Freedom Degree	Squares Mean	F	P	Partial eta-squared
Constant	1847.37	2	923.68	43.34	0.001	0.761
Intercept	258.803	1	258.803	12.543	0.001	0.417
Pretest	1128.139	1	1128.139	53.087	0.001	0.657
Group	1138.976	1	1138.976	53.601	0.001	0.665
Error	684.208	27	25.341			
Total	70184	30				
Revised Total	2420.561	29				

Table 4. Results of Covariance score analysis of psychological well-being scores

Source	Sum of squares	Freedom Degree	Squares Mean	F	P	Partial eta-squared
Constant	2329.545	2	1164.77	116.6	0.001	0.896
Intercept	89.64	1	89.64	8.97	0.006	0.249
Pretest	1285.25	1	1285.25	128.61	0.001	0.826
Group	1812.24	1	1812.24	181.34	0.001	0.87
Error	269.82	27	9.993			
Total	89325	30				
Revised Total	2599.37	29				

and causes the person to adhere to behaviors that cause Provides capital promotion and psychological well-being (24).

ACT in patients with thalassemia can be a good treatment According to Harris's study, the use of act therapy increases a person's belief in efficiency and commitment to appropriate behaviors and practices with well-being for a long time. The reason for the sustainability of this treatment is the emphasis on values that are committed to maintaining values. It is the motivator of the individual to continue the treatment (25,26). By creating this balance, patients gained psychological capital and psychological well-being, which is mainly based on personal and private criteria for evaluating the individual's psychological actions. Through ACT, patients with thalassemia have learned to increase their efforts to realize their true potential, and found the ability to actively participate in work and leisure, build meaningful relationships with others, and experience positive emotions, enhancing their sense of self-worth and giving them enough motivation to live. Accordingly, their psychological capital and well-being increased significantly.

Conclusion

Psychological well-being and psychological capital of patients with thalassemia are very importance. ACT can be used to increase the level of psychological well-being and psychological capital of patients with thalassemia. The sample of the present study was purposeful and limited to a specific geographical area, with a limited number of volunteer participants. These conditions make the generalization of results hard. The use of self-report tools to measure the variables under study can also highlight research limitations. The future studies are recommended to examine the effectiveness of these treatments on patients with thalassemia along with other diseases. Also, for the treatment of

psychological injuries of patients with thalassemia in related medical centers, ACT should be taught to such patients.

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Authors' contribution: Conception and design: MKS and AS; Acquisition of data: MKS and HA; Statistical Analysis: MA; Drafting of the manuscript: MKS; Critical revision of the manuscript for important intellectual content: MA and AS.

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