

The Effectiveness of Acceptance and Commitment Therapy on Self-Awareness and Self-Affirmation in Patients with Thalassemia

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Article type:
Original Research

Article history:
Received 5 January 2024
Revised 21 February 2024
Accepted 26 February 2024
Published online 1 March 2024

ABSTRACT

The present study aimed to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) on self-awareness and self-affirmation in patients with thalassemia. This research employed a quasi-experimental design with a pretest-posttest format and a control group. The statistical population consisted of female thalassemia patients who attended Bu-Ali Hospital in the city of Sari. Based on purposive sampling and predefined inclusion and exclusion criteria, a total of 40 participants were selected—20 assigned to the experimental group and 20 to the control group. To collect the required data, the study utilized the standard Self-Awareness Questionnaire by Nestor and Davis (2002) and the standard Self-Affirmation Questionnaire by Rathus (2003). For data analysis, multivariate analysis of covariance (MANCOVA) was used. The results indicated that Acceptance and Commitment Therapy had a positive and statistically significant effect on both self-awareness and self-affirmation in thalassemia patients treated at Bu-Ali Hospital in Sari. Therefore, it can be concluded that ACT is effective in improving self-awareness and self-affirmation in patients with thalassemia.

Keywords: Acceptance and Commitment Therapy (ACT), self-awareness, self-affirmation, thalassemia patients.

How to cite this article:

Karimi Asrami, M., & Mazdarani, S. (2024). The Effectiveness of Acceptance and Commitment Therapy on Self-Awareness and Self-Affirmation in Patients with Thalassemia. *Mental Health and Lifestyle Journal*, 2(1), 10-17. <https://doi.org/10.61838/mhfj.2.1.2>

Introduction

One of the illnesses that causes individuals to experience concern about their current condition and future is thalassemia. Studies have shown that approximately 3 to 10 percent of the global population carry a thalassemia gene. Thalassemia occurs across nearly all ethnic groups; however, regions with high prevalence rates are identified as the “thalassemia belt.” With about 20,000 thalassemia patients and 3 million carriers, Iran is among the countries located on the global thalassemia belt. The average prevalence rate of this condition is around 4 percent, and approximately 300 to 500 new cases are added annually (1).

Thalassemia can also influence emotional processes, such as self-awareness (2). Self-awareness refers to the awareness of one's emotions, as well as the ability to identify and understand those emotions. This capacity enables individuals to recognize and differentiate among their various emotional states. However, self-awareness is not merely about emotional recognition and differentiation; it also encompasses individuals' responses to emotions. Self-awareness plays a vital role in critical and life-determining decisions and significantly contributes to emotional regulation and coping with daily life stressors. Therefore, individuals with self-awareness are able to identify and regulate their own emotions effectively and comprehend others' emotions, interacting with them clearly and constructively (3, 4). The results of previous studies in this domain indicate a significant positive relationship between social anxiety and components such as positive beliefs about worry, cognitive trust, and self-awareness in individuals with thalassemia (5, 6).

Moreover, another variable that can help improve the psychological challenges of individuals with thalassemia is self-affirmation. Self-affirmation is the art of accepting oneself—accepting oneself as one is, with all strengths and weaknesses (7). Self-affirmation can influence the quality of life in patients with thalassemia, as it entails accepting oneself as a person who, alongside their strengths and competencies, also suffers from weaknesses and shortcomings. Sheikh (2018), in a study titled *The Mediating Role of Self-Affirmation in Relation to Personality Factors in Diabetic Patients*, found that self-affirmation has an effect on personality traits such as openness to experience, neuroticism, and agreeableness (8). Given the chronic nature of thalassemia treatment, the patient's role in the therapeutic process is undoubtedly of critical and indispensable importance.

The Acceptance and Commitment Therapy (ACT) approach is founded on the core idea of accepting what lies outside of individual control and channeling one's energy toward what is meaningful and valuable in life. ACT is based on distancing oneself from anxieties and worries that confine individuals in negative self-perceptions and instead emphasizes values and committed action to improve relationship quality and present-focused living, grounded in acceptance and commitment (9). Rather than attempting to control thoughts and mental processes, ACT employs adaptive strategies, value discovery, value-consistent behaviors, training in defusion skills, and cognitive processing techniques that interrupt cycles of thought and mood. It teaches that individuals are separate from their thoughts and should focus on building a meaningful life (10). ACT increases individuals' awareness of their behaviors, enhances daily functioning, and fosters awareness of their thoughts and feelings.

Therefore, the present study seeks to answer the following question: Does Acceptance and Commitment Therapy affect self-awareness and self-affirmation in patients with thalassemia?

Methods and Materials

Study Design and Participants

The present study employed a quasi-experimental research design with a pretest-posttest format and a control group. The statistical population consisted of 100 female thalassemia patients referred to Bu-Ali Hospital in the city of Sari. Based on purposive non-random sampling and the study's inclusion and exclusion criteria, a total of 40 participants were selected—20 for the experimental group and 20 for the control group.

Inclusion Criteria

1. Having a clinical diagnosis of thalassemia.
2. A minimum educational level of lower secondary school.
3. Not currently receiving any form of psychological therapy.
4. No history of substance abuse or use of psychoactive drugs.
5. Age range between 18 and 45 years.

Exclusion Criteria

1. Undergoing concurrent psychotherapy.
2. More than two consecutive absences from the intervention sessions.

Data Collection

The Self-Awareness Questionnaire was developed by Nystrom and Davis (2002) to assess self-awareness. It consists of 11 items across two subscales: self-disclosure (receptivity to feedback from others) and awareness of one's values (inclination toward interpersonal relationships). The questionnaire uses a Likert-type scale and includes items such as "When forming relationships with others, I have a strong understanding of my own interpersonal relational needs." Validity concerns the extent to which a measurement tool truly measures what it claims to measure. In the study by Sepehri (2020), the content, face, and criterion validity of this questionnaire were evaluated as satisfactory. Reliability, or the consistency of a measurement tool, indicates how stable the results are when the tool is applied under consistent conditions. The Cronbach's alpha coefficient for this questionnaire was estimated to be above 0.70 in Sepehri's (2020) study.

The Self-Affirmation Questionnaire was developed by Rathus in 2003 and includes 30 items across two dimensions: self-esteem and self-acceptance. It utilizes a 6-point Likert scale to assess the level of individual self-confidence. Respondents are asked to read each item and determine how accurately it reflects their own experience. All subscales demonstrated high internal consistency, with Cronbach's alpha coefficients ranging from 0.82 to 0.84. Test–retest reliability over a 20-day interval confirmed the temporal stability of the scale scores.

Intervention

The intervention was based on the standard Acceptance and Commitment Therapy (ACT) protocol and was delivered over eight weekly sessions, each lasting approximately 90 minutes, conducted in a group format. The first session introduced the therapeutic framework, established group rules, and clarified the goals of ACT, emphasizing the distinction between pain and suffering and the importance of psychological flexibility. In the second session, participants explored the concept of experiential avoidance and its consequences, identifying personal patterns of avoidance and discussing how these patterns interfere with value-based living. The third session focused on cognitive defusion techniques, teaching participants to observe their thoughts without attachment or judgment, using metaphors, mindfulness exercises, and repetition strategies. In the fourth session, the concept of self-as-context was introduced to help participants develop a more flexible sense of self and to distinguish between the observing self and the content of their thoughts. The fifth session concentrated on values clarification, guiding participants to identify deeply held

personal values across different life domains and reflecting on how their actions align or misalign with these values. The sixth session emphasized committed action, encouraging participants to set realistic, value-consistent goals and develop action plans despite internal obstacles such as fear or doubt. The seventh session provided integrated practice of all core ACT processes through experiential exercises and group sharing, reinforcing psychological flexibility and adaptive coping. The final session focused on relapse prevention, reviewing key concepts, celebrating progress, and equipping participants with personalized strategies for maintaining change, including the use of mindfulness and value-based goal setting in daily life. Throughout the intervention, experiential activities, mindfulness practices, and homework assignments were employed to enhance engagement and facilitate the generalization of therapeutic gains beyond the sessions.

Data analysis

For data analysis, the study employed multivariate analysis of covariance (MANCOVA) to evaluate the effectiveness of Acceptance and Commitment Therapy (ACT) on self-awareness and self-affirmation among thalassemia patients. Before conducting MANCOVA, assumptions such as normality, homogeneity of variances, and linearity were assessed to ensure the appropriateness of the statistical tests. Pretest scores were entered as covariates to control for baseline differences between the experimental and control groups. The Greenhouse-Geisser correction was applied where sphericity assumptions were violated. Effect sizes were reported using partial eta squared (η^2) to determine the magnitude of ACT's impact on the dependent variables. All analyses were conducted using SPSS software, with statistical significance set at $p < .05$.

Findings and Results

As shown in Table 1, the mean and standard deviation of self-awareness and self-affirmation in thalassemia patients increased in both the experimental and control groups after receiving Acceptance and Commitment Therapy (ACT), compared to before the intervention. This increase indicates the effectiveness of ACT in enhancing self-awareness and self-affirmation among thalassemia patients.

Table 1. Mean Scores of Study Variables Before and After ACT-Based Intervention

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Self-Awareness	Experimental	16.50	4.80	17.15	5.86
	Control	15.85	2.17	16.45	3.92
Self-Affirmation	Experimental	16.30	3.31	17.40	1.69
	Control	15.72	2.31	16.80	5.49

According to the results reported in Table 2, all multivariate tests indicate a statistically significant variance in the interaction effect of group and repeated measures factor. For example, the sum of squares for the interaction between time and the repeated measure factor using the Greenhouse-Geisser correction was 14.99 ($F(1.64, 62.46) = 14.99, p < .01$). Considering the effect size of 0.58, the impact of ACT on self-awareness in thalassemia patients at Bu-Ali Hospital in Sari is considered strong.

Table 2. Summary of ANCOVA Results for the First Sub-Hypothesis (Self-Awareness)

Source	SS	df	MS	F	p	Eta ²
Time Effect						
– Sphericity Assumed	101.600	2	50.800	34.574	.000	.676
– Greenhouse-Geisser	101.600	1.644	61.805	34.574	.000	.676

– Huynh-Feldt	101.600	1.754	57.937	34.574	.000	.676
– Lower-bound	101.600	1.000	101.600	34.574	.000	.676
Time × Group Interaction						
– Sphericity Assumed	44.067	2	22.033	14.996	.000	.589
– Greenhouse-Geisser	44.067	1.644	26.807	14.996	.000	.583
– Huynh-Feldt	44.067	1.754	25.129	14.996	.000	.583
– Lower-bound	44.067	1.000	44.067	14.996	.000	.583
Error						
– Sphericity Assumed	111.667	76	1.469			
– Greenhouse-Geisser	111.667	62.467	1.788			
– Huynh-Feldt	111.667	66.638	1.676			
– Lower-bound	111.667	38.000	2.939			

As presented in Table 3, all multivariate tests demonstrate the statistical significance of the variance related to the interaction effect between group and repeated measures. For instance, the sum of squares for the interaction between time and repeated measures with the Greenhouse-Geisser correction was 267.017 ($F(1.27, 48.27) = 42.99, p < .01$). With an effect size of 0.53, this confirms a strong impact of ACT on self-affirmation among thalassemia patients at Bu-Ali Hospital in Sari.

Table 3. Summary of ANCOVA Results for the Second Sub-Hypothesis (Self-Affirmation)

Source	SS	df	MS	F	p	Eta ²
Time Effect						
– Sphericity Assumed	334.317	2	167.158	53.831	.000	.586
– Greenhouse-Geisser	334.317	1.270	263.178	53.831	.000	.586
– Huynh-Feldt	334.317	1.329	251.563	53.831	.000	.586
– Lower-bound	334.317	1.000	334.317	53.831	.000	.586
Time × Group Interaction						
– Sphericity Assumed	267.017	2	133.508	42.994	.000	.531
– Greenhouse-Geisser	267.017	1.270	210.199	42.994	.000	.531
– Huynh-Feldt	267.017	1.329	200.922	42.994	.000	.531
– Lower-bound	267.017	1.000	267.017	42.994	.000	.531
Error						
– Sphericity Assumed	236.000	76	3.105			
– Greenhouse-Geisser	236.000	48.272	4.889			
– Huynh-Feldt	236.000	50.500	4.673			
– Lower-bound	236.000	38.000	6.211			

Discussion and Conclusion

The results of the first sub-hypothesis demonstrated that Acceptance and Commitment Therapy (ACT) is effective in enhancing self-awareness among thalassemia patients at Bu-Ali Hospital in Sari. According to the multivariate covariance analysis, all multivariate tests indicated significant variance in the interaction between the group factor and the repeated measures factor. For instance, the sum of squares for the interaction between time and the repeated measures factor, corrected using the Greenhouse-Geisser method, was 14.99 ($F(1.64, 62.46) = 14.99, p < .01$). Given the effect size of 0.58, it is evident that ACT has a strong impact on self-awareness in thalassemia patients at Bu-Ali Hospital.

This finding can be explained by noting that self-awareness is one of the most fundamental mechanisms necessary for individuals to manage and regulate life events, especially when facing stressors. It is a constructive capability through which individuals organize their cognitive, social, emotional, and behavioral skills effectively to achieve various goals. Self-awareness refers to an individual's belief in their own abilities to produce desired outcomes when performing specific tasks and pursuing goals, which can be

conceptualized both at the personal and collective levels. Successfully completing a task fosters a strong sense of self-awareness regarding that specific task, whereas failure can diminish self-efficacy. Individuals with high self-efficacy exhibit intrinsic interest in their tasks, show greater persistence when facing obstacles, and perform more effectively. In contrast, individuals with low self-awareness become distressed by evaluations, doubt their skills and capabilities, and anticipate failure before making any problem-solving efforts. These negative beliefs elevate stress levels and ultimately lead to failure. The findings of this hypothesis are consistent with previous research (10-14).

The results of the second sub-hypothesis indicated that Acceptance and Commitment Therapy (ACT) is effective in improving self-affirmation among thalassemia patients at Bu-Ali Hospital in Sari. According to the multivariate covariance analysis, all multivariate tests indicated significant variance in the interaction between the group factor and the repeated measures factor. For example, the sum of squares for the interaction between time and repeated measures, corrected using the Greenhouse-Geisser method, was 267.017 ($F(1.27, 48.27) = 42.99, p < .01$). Given the effect size of 0.53, it is evident that ACT has a strong impact on self-affirmation in thalassemia patients at Bu-Ali Hospital.

This result can be explained by recognizing that self-affirmation refers to a state of complete physical, psychological, and social well-being, where these aspects interact with one another. Psychological health refers to the ability to maintain harmonious and balanced relationships with others, adapt and modify one's personal and social environment, resolve personal conflicts and desires logically, and possess meaning and purpose in life. Self-affirmation is a critical dimension of well-being and includes mental comfort, a sense of competence, autonomy, adequacy, connection with others, and awareness of one's capabilities in realizing one's potential. Individuals with higher levels of self-affirmation experience fewer psychological, emotional, and personality-related problems, exhibit greater happiness, and utilize appropriate coping strategies to address challenges. The findings of this hypothesis align with and are confirmed by previous research (15-21).

One of the primary limitations of this study is the relatively small sample size, which restricts the generalizability of the findings to the broader population of individuals with thalassemia. The sample was limited to female patients from a single hospital in Sari, which may introduce gender and geographical bias. Additionally, the use of self-report questionnaires may have introduced social desirability bias, potentially affecting the accuracy of the responses. Another limitation lies in the short-term evaluation of intervention effects; the study did not include follow-up assessments to examine the durability of ACT's impact on self-awareness and self-affirmation over time. Furthermore, the exclusion of patients receiving concurrent psychological treatments may limit the applicability of the results to real-world clinical settings where comorbid therapies are common.

Future research should aim to include larger, more diverse samples from multiple geographic regions to enhance external validity and explore possible gender differences in treatment outcomes. Longitudinal studies incorporating follow-up assessments are recommended to evaluate the long-term efficacy of ACT in improving psychological well-being among patients with chronic illnesses. Researchers may also consider including male participants and assessing additional psychological variables such as resilience, coping flexibility, or quality of life. Moreover, employing mixed-method designs that integrate qualitative interviews with quantitative measures could provide deeper insights into patients' subjective experiences of ACT.

Expanding the study to include participants undergoing concurrent psychological treatments would also increase ecological validity and applicability to clinical practice.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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