



## The effect of self-care education based on the Orem's model on depression in patients with B-Thalassemia major: A semi-experimental study

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## ABSTRACT

**Background:** Due to the nature of the disease, patients with Thalassemia are prone to depression. Depression reduces individual potential abilities and self-care behaviors.

**Aim:** The aim of this study was to determine the effect of self-care education based on the Orem's model on depression in patients with Thalassemia.

**Methods:** In this clinical trial, 60 patients with Thalassemia presented to Razi Hospital in Saravan, were randomly divided into control and experimental groups. Children's Depression Inventory (CDI) was used for data collection. The experimental group was trained for 5 sessions, while the control group received routine interventions. After one month, the questionnaires were completed, and the data were analyzed using SPSS 23.

**Results:** The results of this study indicated that the mean depression score in the experimental group, which was 33.93 at the beginning of the research, reduced to 30.03 after the intervention. The mean score of depression in the control group before and after the intervention was 32.36 and 32.76, respectively. Comparison of mean depression score in both groups before and after the intervention showed a significant difference ( $p = 0.015$ ).

**Conclusion:** Self-care education based on the Orem's self-care model had a positive effect on patients' depression. Therefore, it is recommended that nurses consider nursing theories more frequently.

**Keywords:** Depression; Beta-Thalassemia; Nursing Theory; Self Care

## 1. INTRODUCTION

The longevity of patients with Thalassemia has recently increased due to the availability of appropriate blood regimens, natural chelation therapy, proper management of complications, and supportive care; however, this disease is the most common genetic disorder with 24 million carriers worldwide, especially in Asian and Eastern Mediterranean countries including Iran [1][2]. The chronic nature of the disease still affects the various aspects of patients' lives, including social and physical activity, family estrangement, facial deformity, limitation in playing and school attendance, and increased psychological problems such as anxiety and depression [1, 3]. In different studies, the frequency of psychological disorders in these patients has cited between 47 to 80% [4, 5].

Self-care behaviors are considered as one of the main ways of preventing harmful health behaviors in chronic diseases including Thalassemia leading to health promotion, lower incidence, and health maintenance through personal activities [6]. In chronic diseases, education is an important part of the care plan that engages the patient actively in self-care actions and help them cope with the condition. Self-care education significantly increases satisfaction, continuity of care, and independence in daily work [7].

One of the nursing missions is using nursing patterns including the Orem's self-care nursing model to improve patients' quality of life [8]. The focus of the Orem's self-care model is on individuals' ability to take care of themselves and the role of the nurse in identifying self-care defects [9]. The Orem's model involves the patient in self-care activities, and according to the theory, self-care in chronic diseases is an important part of therapy and a starting point to maintain self-health [10]. Considering the high depression rate, its negative effects on patients with Thalassemia, and the importance of self-care as a method for patient health promotion, the present study aimed to determine the effect of self-care education based on the Orem's model on depression in patients with  $\beta$  Thalassemia major.

## 2. METHODS

This semi-experimental study with two-group design was carried out in 2017 in Thalassemia department of Razi Hospital in Saravan. The study population consisted of patients with  $\beta$ -Thalassemia major. This study approved by ethics committee of Zabol University of medical science.

The inclusion criteria were as follows: patients with Thalassemia major who had a medical record in the Thalassemia department of Razi Hospital; patients with Thalassemia major aged 13 to 17 years old; having reading and writing skills; attending self-care classes, earning a score higher than 22 in CDI Depression Inventory; patients willing to participate in the study and collaborate on completing the forms. Exclusion criteria included patient death; travel; hospitalization during the intervention; non-attendance at classes; lack of willingness to collaborate and participation in the study, and inability to complete the questionnaire.

Based on similar studies, including Habibzadeh et al., The sample size was estimated to be 30 in each group (51). After the selection process, the eligible individuals were randomly divided into the control and experimental groups. Demographic questionnaire (age, sex, education, place of residence, economic status, number of transfusions per month, parental relatedness) and CDI depression inventory were used for data collection. CDI inventory consists of five subscales of negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem. This questionnaire has 27 questions, each containing three sentences. The questions were scored from 0 to 2 (0: no symptoms, 1: moderate symptoms, 2: severe symptoms), and scores ranged from zero to 54 in which a higher score indicated more serious depression. According to Mohammadi et al. (2010), the score of 22 was determined as the cutoff score for the Iranian population with sensitivity of 0.92 and a specificity of 0.91 [11]. In the study of Dehsheiri et al. (2009) with the aim of determining the psychometric properties of the CDI inventory,  $\alpha$  was 0.83 and regarding the subscales it was as follows: negative mood,  $\alpha = 0.53$ ; interpersonal problems,  $\alpha = 0.38$ ; ineffectiveness,  $\alpha = 0.55$ ; anhedonia,  $\alpha = 0.60$ ; negative self-esteem,  $\alpha = 0.56$  [12].

The questionnaires were completed before the intervention and one month after that. In the experimental group, self-care needs were assessed based on the Orem's self-care model; in the second stage, nursing goals were tailored to the patient needs, and then the appropriate nursing system was determined. In the present study, the desired patients were part of the nursing educational-supportive system; the self-care program was based on the specified items, the Orem's self-care model, and the patient needs.

First, researcher trained patients in groups of 5 for 25-30 minutes based on their ability; this group-training program included two sessions which was conducted for the experimental group. The content of the training sessions was as follows:

*First session:*

Thalassemia (causes, stages and symptoms, and disease process) was briefly described to the patients.

*Second session:*

In addition to reviewing the contents of the first session, the therapeutic methods, treatment complications, and drug side effects were discussed.

Then, considering the patient needs and self-care deficiencies extracted from needs assessment forms based on the Orem's model, three group sessions of lecture, PowerPoint presentation, and educational videos were delivered for 25-30 minutes. At the end of the training, educational content was provided to the patients as booklet and compact disc containing educational videos, photographs, and illustrations; the patients were monitored for one month. During this period, the researcher met patients, recalled the self-care points, and answered their questions every two weeks. In case patients had any questions or concerns, they could contact the researcher by making phone calls. After a month, the CDI self-care and depression questionnaires were completed again. No specific actions but routine care were considered for the control group; they also recompleted the CDI self-care and depression questionnaires after the training program. The data were analyzed using SPSS 23.

### 3. RESULTS

The findings showed that 60% of the patients were female and 40% were male. The mean age of the subjects in the control and experimental groups was  $13.44 \pm 1.77$  and  $13.66 \pm 2.02$ , respectively ( $p = 0.63$ ). Chi-square and independent t-test showed no significant difference between two groups in terms of age, sex, education, economic status, place of residence, and parental relatedness ( $p \geq 0.05$ ).

ANCOVA test was used to evaluate post-test statistical significance. The test results indicated a significant difference after the intervention. ( $F(1,59) = 25.30, p = 0.000$ ). These findings are presented in Table 3.

**Table 1** Demographic characteristic for control and experimental groups

Group Variables		Control	Intervention	P value
		N(%)	N(%)	
Sex	Male	9(30)	15(50)	0.11
	Female	21 (70)	15 (50)	
Education	Elementary	10 (33.3)	8 (26.7)	0.47
	Middle	15(50)	13 (43.3)	

	Cycle	5 (16.7)	9 (30)	
Economic Status	Poor	16 (53.3)	8 (26.7)	0.1
	average	11 (36.7)	17 (56.7)	
Parental Relatedness	Yes	17 (56.7)	25 (83.3)	0.05
	No	17 (36.7)	5 (16.7)	

**Table 2** Comparison of mean scores of self-care behaviors between control and experimental groups before and after the Orem's self-care program

Group	Control	Intervention
Depression	Mean $\pm$ SD	Mean $\pm$ SD
Before Intervention	5.56 $\pm$ 32.36	4.54 $\pm$ 33.93
After Intervention	4.21 $\pm$ 32.76	4.20 $\pm$ 30.03

**Table 3** Analysis of covariance on post-intervention depression based on Orem's self-care model

Variable	Control Source	Total Squares	Freedom Degree	Average Squares	F ratio	Significance Level
Depression	Group	248.09	1	248.09	25.30	0.000
	Error	548.96	56	9.80		

#### 4. DISCUSSION

Chronic diseases are a major challenge in the present century [13]. Patients with Thalassemia suffer a chronic disease and need lifelong care of blood transfusions and chelation therapy. These patients have problems such as fatigue, anemia, and exercise intolerance; in addition, these patients are at risk of growth failure, bone loss, and hepatomegaly. The most important effect of such disorders is the lack of self-care, followed by increased depression (19) [14]. The aim of this study was to determine the effect of self-care education based on the Orem's model on depression in patients with  $\beta$ -Thalassemia major. The results of the statistical tests showed a significant difference before and after the intervention in both groups. This indicates the effect of the Orem's self-care model on depression. In fact, self-care education is an interactive set of activities that promotes learning and helps individuals to acquire knowledge or a new skill [15]. In case of learning self-care properly, a person can perform without any professional help. In this regard, the Orem's self-care model is one of the most comprehensive clinical guidelines in terms of patient self-care [16]. In the study of Pudineh Moghadam et al. who aimed at using the Orem's self-care model on psychiatric self-care deficits in patients, the results showed that using this model can play a significant role in patients' psychological problems and reduce these complications, effectively [17]. Also, the results of this study are in line with the study conducted by Rostami et al. aimed at using the aforementioned model on the hemodialysis patients' stress. Hemmati Maslak Pak et al. study aimed at using the Orem's self-care model on asthmatic patients showed an improvement in their self-esteem [13]. Patients with Thalassemia due to apparent facial deformities, frequent referral for blood transfusion, and increased hospitalization are subject to decreased self-esteem leading to increased psychological problems and depression. Reinforcing self-care behaviors in these patients is recommended as an effective method for reducing depression.

Masoudi et al. examined the effect of the Orem's self-care model on the spiritual quality of life. The results showed a positive effect [18].

Compliance with self-care behaviors in chronic diseases, including Thalassemia, is of paramount importance; patients can affect their comfort, functional abilities and disease process by acquiring their own self-care skills [19]. The effect of the Orem's self-care model is addressing caring matters and using patterns that can make patients convinced of considering self-care, and moderate the

factors declining the quality of life [20]. Agha Khani et al. conducted a study to determine the effect of educational-supportive package on patients suffered an infraction; the results of this study showed a reduction in the anxiety and depression of patients in the experimental group, which is in agreement with the results of the present study [21]. Rezaeian et al. (30) and Sopjani et al. (31[22]) investigated the relationship between self-care and depression which showed a significant relation [23].

## 5. CONCLUSION

There is a direct and reciprocal relationship between self-care and depression, in which increased self-care skills results in reducing patients' depression and increasing their adherence to the treatment. The findings of the present study indicated that the score of the subjects before and after the intervention was 33.93 and 30.03, respectively; it shows the effect of the Orem-based self-care model as an effective way to reduce depression in patients.

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