

# Evaluating the Effect of Peer Education on the Hope of Patients with Thalassaemia Major

## A quasi-experimental study

Mahnaz Seyedoshohadaee,<sup>1</sup> Alice Khachian,<sup>1</sup> Hamid Haghani,<sup>2</sup> \*Mohammad S. Sargolzaei<sup>3</sup>

**ABSTRACT: Objectives:** Thalassaemia major (TM) is one of the most common chronic genetic disorders in today's world. The psychological impacts of this disease can affect patients' hope. Considering the positive role and importance of suitable educational methods, this study aimed to determine the effect of peer education on the hope of patients with TM. **Methods:** This quasi-experimental single-group study included patients with TM undergoing treatment at the Imam Khomeini Hospital, Zabol, Iran, between March and July 2020. A continuous sampling method was used and data collection tools included a demographic questionnaire and Snyder's Hope Scale. Patients were educated in groups by eligible peers in two sessions for 60 minutes per session. Hope was measured before (pre-test) and one month after (post-test) the educational sessions. Descriptive statistics and a paired sample student t-test were used. **Results:** A total of 50 participants were included in this study. The mean age of the participants was  $24.5 \pm 4.24$  years. At the pre-test, the mean total hope score was  $26.72 \pm 5.82$ ; this increased to  $28.21 \pm 5.11$  at the post-test ( $P = 0.028$ ). The mean hope score of patients in the pathway thinking dimension significantly increased after peer education ( $P = 0.01$ ). Despite an increase in the score of the agency thinking dimension, this was not statistically significant ( $P = 0.297$ ). **Conclusion:** The findings of this study indicate that peer education can improve hope in patients with TM. Considering that this educational method is easy, cheap and experienced-based, it can be used in combination with other healthcare measures to improve TM patients' hope.

**Keywords:** Peer Group; Hope; Beta-Thalassemia Major; Patient Education; Iran.

### ADVANCES IN KNOWLEDGE

- According to the findings of this study, peer education may improve the level of hope in thalassaemia major (TM) patients.
- Peers can help other patients because of their successful experiences in improving hope.

### APPLICATION TO PATIENT CARE

- By recruiting peers in order to facilitate patient education, it is possible to increase the effectiveness of the educational process and improve hope in TM patients.
- Using peer education as a cost-effective and easy method can increase the quality of patient care.

THALASSAEMIA IS THE MOST COMMON hereditary haemoglobinopathy in the world.<sup>1</sup> This chronic disease has been reported in more than 60 countries around the world.<sup>2</sup> According to the statistics reported by the Thalassaemia International Federation, around 200,000 patients with thalassaemia major (TM) are currently under treatment worldwide.<sup>3</sup> Thalassaemia has a higher prevalence in South and Southeast Asia, the Middle East and Mediterranean and Central African countries.<sup>4</sup> So far, approximately 26,000 patients with TM have been reported in Iran and approximately 1,500 new cases are annually diagnosed in the country.<sup>5</sup> Patients with TM depend on regular blood transfusions and continuous medical care to continue their lives.<sup>6</sup> This lifelong and complex therapeutic protocol may affect the patient's emotional status, daily activities, familial relationships and occupational opportunities.<sup>7</sup>

Patients with  $\beta$ -TM, like all chronic diseases, are vulnerable to emotional and behavioural problems.<sup>8</sup> While several factors can aggravate the psychological problems of these patients, various factors, including hope, also play a role in reducing these problems.<sup>9</sup> Hope is one of the basic concepts of optimistic psychology and a factor that enriches people's lives.<sup>10</sup> Snyder *et al.* defines hope as "the capability to derive pathways to desired goals and motivate oneself via agency thinking to use those pathways".<sup>11</sup> Hope as a healing, multidimensional, dynamic and powerful factor affects the capacity to adapt to problems and even to incurable diseases.<sup>12</sup> Hope improves individuals' mental health and opens-up a way to increase knowledge and awareness and to rationally cope with a disease.<sup>13</sup> For example, Kao *et al.*'s study found that people who had higher levels of hope also had lower anxiety levels.<sup>14</sup>

Departments of<sup>1</sup>Medical Surgical Nursing and<sup>2</sup>Biostatistics, Iran University of Medical Science, Tehran, Iran; <sup>3</sup>School of Nursing and Midwifery, Sabzevar University of Medical Sciences, Sabzevar, Iran

\*Corresponding Author's e-mail: 74ms13@gmail.com

**Table 1:** Thalassaemia major patients' demographic and clinical characteristics (N = 50)

Characteristic	n (%)
<b>Age group in years</b>	
18–19	7 (14)
20–24	19 (38)
25–29	15 (30)
30–34	9 (18)
Mean ± SD (range)	24.5 ± 4.24 (18–34)
<b>Gender</b>	
Female	28 (56)
Male	22 (44)
<b>Education</b>	
Elementary	12 (24)
Middle school	16 (32)
Diploma	18 (36)
Higher than diploma	3 (6)
No response	1 (2)
<b>Economic status</b>	
Poor	20 (40)
Moderate	18 (36)
Good	8 (16)
Great	4 (8)
<b>Residency</b>	
Urban	22 (44)
Suburban	5 (10)
Rural	23 (46)
<b>Parents' relationship</b>	
Consanguineous	30 (60)
Non-consanguineous	20 (40)
<b>Transfusions per month</b>	
Once	6 (12)
Twice	44 (88)
<b>Another affected child in the family</b>	
Yes	18 (36)
No	31 (62)
No response	1 (2)
<b>Iron chelator type</b>	
Subcutaneous	12 (24)
Oral	3 (6)
Subcutaneous and oral	35 (70)
<b>Regular drug consumption</b>	
Yes	39 (78)
No	11 (22)

SD = standard deviation.

**Table 2:** Hope scores and its dimensions before and after peer education in patients with thalassaemia major (N = 50)

Hope dimension	Mean hope score ± SD		P value*
	Before peer education	After peer education	
Agency thinking	13.48 ± 3.24	14.30 ± 2.94	0.297
Pathway thinking	12.88 ± 3.23	13.91 ± 3.09	0.01
Total hope	26.72 ± 5.82	28.21 ± 5.11	0.028

SD = standard deviation.

\*Using paired student t-test.

Patient education can be seen as a way to improve the quality of life in patients with chronic diseases.<sup>15,16</sup> Recently, the educational methods that engage learners in this process have gained attention;<sup>17</sup> one such method is peer education, which has been effective in promoting patient healthcare and learning activities.<sup>18</sup> Peer learning system is a novel and effective innovation in the field of educational methods that has shown positive effects on various aspects of education, especially in the field of healthcare.<sup>19</sup> This type of education improves individuals' knowledge, attitude and practice.<sup>20</sup> Peer groups can more effectively encourage their counterparts to adhere to appropriate health behaviours and share their strengths, weaknesses and experiences.<sup>21</sup> The members of peer groups can also better communicate with their peers and help them behave better. Studies show that peer education is a cost-effective approach to educate patients in different situations.<sup>22</sup> Meeting people with a similar disease experience provides patients with comfort and reassurance and can help them learn adaptive ways to overcome chronic illness and increase hope.<sup>23</sup> Many studies have asserted the usefulness of communication between patients and their peers. Pasiar *et al.*'s study showed a positive effect of peer education on the hope of patients undergoing haemodialysis.<sup>24</sup> Furthermore, Dant *et al.*'s study stated that peer education can improve the quality of life of diabetic patients.<sup>25</sup>

Accordingly, the main hypothesis of the current study was that peer education is effective in improving the hope of TM patients. Considering that thalassaemia patients suffer from psychological problems due to various reasons, only few studies have been conducted to evaluate the effects of educational intervention on the level of hope in these patients.<sup>24</sup> In addition, due to the discrepancy in the results of studies such as the one conducted by Molazem *et al.*, which showed that peer group education had no effect on depression in patients undergoing coronary angiography, the

current study aimed to determine the effects of a peer education programme on the hope of TM patients.<sup>22</sup>

## Methods

This quasi-experimental single-group study used a pre/post-test design. The studied population included patients with TM referred to the thalassaemia care centre of Imam Khomeini Hospital, Zabol, Iran, between March and July 2020. Patients were recruited using a continuous sampling method.

Those with a definite diagnosis of TM by a physician, a medical record, >18 years old, with no cognitive problems or physical disability, with the ability to read and write and who were willing to participate in the study were included. Patients who did not attend one of the educational sessions or were unwilling to continue to participate in the study were excluded. Considering the 95% confidence level, the power of 80% and a possible sample loss, the sample size was determined to be 50.

Data collection tools included a demographic and clinical information questionnaire and Snyder's Hope Scale.<sup>11</sup> Demographic and clinical information included age, gender, residency, level of education, economic status, parents' familial relationship, the frequency of blood transfusions per month, the presence of other affected children in the family, the type of iron-chelating drug and adherence to regular drug consumption.

Snyder's Hope Scale was originally developed for individuals over 15 years of age. The questionnaire has 12 items, of which four are related to the agency thinking dimension (2, 9, 10 and 12), four refer to the pathway thinking dimension (1, 4, 6 and 8) and four (3, 5, 7 and 11) are deviating items. This questionnaire assesses the two subscales of factors and strategies using a 5-point Likert scale (1 = completely disagree, 2 = disagree, 3 = no opinion, 4 = agree and 5 = completely agree). No score is considered for the deviating items. Scores could range from 8–40. Snyder *et al.* assessed the reliability of the questionnaire in 1991 and reported a Cronbach's alpha coefficient of 80% following a 10-week retest interval.<sup>11</sup> To evaluate the reliability of the questionnaire in the present study, the overall Cronbach's alpha obtained was 0.89 and the values were 0.84 and 0.78 for the agency thinking and pathway thinking subscales, respectively.

After selecting and educating a peer group, the obtained knowledge was put into practice by the peers and data were collected before (pre-test) and one month after (post-test) the intervention. Peers were selected among eligible individuals who fulfilled the

inclusion criteria, volunteered to participate in the study, obtained a hope score >25 based on Snyder's Hope Scale, had the required communication skills and had at least a high school diploma or higher education. Two of the participants who attained higher scores than others were selected as peers and were then trained by the researcher in three 60-minute-long educational sessions during one week. The educational content taught by the researcher included explanations about research objectives, the importance and benefits of peer education, educational concepts and communication skills including attention to verbal and non-verbal behaviours and how to be an active listener. The educational content for improving hope (such as purpose and meaning of life, increasing the sense of appreciation and gratitude, upholding faith, emphasising on accomplishments and successful past experiences and creating a positive attitude towards the disease and its treatment) was taught using audio-visual aids and through lectures and question-and-answer sessions. Based on the training given by the researcher and the experiences expressed by the peers, they passed a final evaluation as a role-player. While the peers indicated their experiences, the researcher corrected and completed these statements based on scientific resources, so that the peers were able to transfer these concepts to patients during training sessions. Finally, a booklet containing all the educational content was given to the peers.

After providing a comfortable and calm place for the patients, the demographic and clinical information questionnaire was completed followed by Snyder's Hope Scale. Then, the educational content of the provided booklet, with emphasis on the experiences of the peers, was provided to groups of 6–7 patients in two 60-minute-long sessions (with a gap of 60 minutes between the sessions) by each peer separately during one day. The first session included introducing the peers to the other patients, explaining the goals of the study and providing education on the concepts aimed at improving hope (i.e. the purpose and meaning of life, increasing the sense of appreciation and gratitude, upgrading faith, emphasising on accomplishments and successful past experiences and creating a positive attitude towards the disease and its treatment). The second session included a review of the topics of the previous session through asking questions and providing concluding remarks. At the end of the second session, a group discussion was held; the peers shared their successful experiences and the educational booklet was provided to all the patients. Finally, one month after the intervention, hope was assessed again for all the patients.

For data analysis, Statistical Package for the Social Sciences (SPSS), Version 20 (IBM SPSS Inc., Chicago, IL, USA) was used. Descriptive statistics were used to present the data and inferential statistics such as paired sample student t-test were used to determine statistically significant changes. Hope scores are presented as mean  $\pm$  standard deviation. Statistical significance was set at  $P \leq 0.05$ .

The current study was approved by the ethics committee of Iran University of Medical Sciences (IR.IUMS.REC.1398.910). Written informed consent was obtained from all patients after explaining the goals of the study.

## Results

A total of 50 patients were included in this study. Most participants were female (56%) and the mean age of the patients was  $24.5 \pm 4.24$  years. In terms of education, most participants had a diploma (36%). Also, the parents of most of the patients were related (60%) [Table 1].

The mean of the TM patients' total hope pre-test score was  $26.72 \pm 5.82$  while the post-test score increased to  $28.21 \pm 5.11$ . This increase was statistically significant ( $P = 0.028$ ). The hope score in patients with TM after being trained by peers in the pathway thinking dimension increased from  $12.88 \pm 3.23$  to  $13.91 \pm 3.09$ . This increase was also statistically significant ( $P = 0.01$ ). However, in terms of the agency thinking dimension, despite the hope score increasing after the educational intervention from  $13.48 \pm 3.24$  to  $14.30 \pm 2.94$ , it was not statistically significant ( $P = 0.297$ ) [Table 2].

## Discussion

The present study's results show that one month after peer-education, the total score of hope and pathway thinking significantly increased in TM patients compared to their pre-educational intervention hope scores. In other words, peer-education had a positive effect on the patients' level of hope. The score of the agency thinking dimension also increased; however, this was not statistically significant. Agency thinking refers to a sort of motivation driving people to start and continue moving towards their goals.<sup>26</sup> The reason for the lack of a significant change in the agency thinking dimension score may be due to the chronicity of the disease and old age (the patients had little motivation to achieve their goals). Thornton *et al.*'s study investigated the effects of a psychological intervention on the hope of women with cancer and

reported positive effects for this intervention on the total level of hope and the score of the pathway thinking dimension, but no significant impact was observed on the agency thinking dimension, which is consistent with the findings of the present study.<sup>27</sup>

The positive effects of peer education have also been confirmed in patients with other chronic diseases. In a study by Pasyar *et al.* on the effects of peer support on hope in haemodialysis patients, the results showed that peer education significantly increased the mean total score of hope in patients.<sup>24</sup> In addition, Safaei *et al.*'s study on the effects of a peer group educational programme in promoting self-care in TM patients indicated improvement in self-care behaviours in the intervention group compared to the control group up to four months after the intervention.<sup>21</sup> Also, Giese-Davis *et al.*'s study on the quality of life of patients with breast cancer showed that peer education improved the quality of life of these patients up to one year after diagnosis.<sup>28</sup> In a study on diabetic patients, Heisler *et al.* showed that a peer-support programme promoted self-care behaviours and proper use of drugs and decreased insulin requirements in the intervention group compared to the control group.<sup>29</sup> The results of these studies are consistent with the current research. In light of this, it seems that peers can contribute to the success of educational programmes in patients suffering from chronic diseases. This is probably because patients are encouraged to share and discuss their concerns with their peers who have had similar experiences and obtain necessary information using a common and simplified language.

Hope is a powerful coping mechanism in patients with chronic diseases and people who are hopeful can endure disease-related damages more easily.<sup>30</sup> Thakre's study showed that hopeful people, who are also satisfied with their lives, can tolerate challenges and be better prepared for the future.<sup>31</sup> Also, Dezutter *et al.* noted that high levels of hope are related to more commitment to self-care activities and superior health status.<sup>32</sup> A peer group can help patients choose a positive coping strategy and become compatible with disease-related challenges, raising the patient's hope. It seems that group participation of people with TM in meetings and hope training through a hopeful peer who themselves had had useful experiences in improving hope, helped patients with better exchange and understanding of the concepts of hope education such as having a goal, strengthening motivation to achieve the goal and have positive thinking to achieve a better level of hope. TM, as a chronic disease, affects aspects of quality of life from the earliest stages of diagnosis. Most patients with TM need knowledge and useful

experiences to improve their quality of life. Therefore, paying attention to peer education is very important. The results of the present study can be considered one way to use different types of peer education models and compare them with each other and choose a more effective method to enhance patients' psychological variables. Therefore, managers, policy-makers, planners, physicians, psychologists and nurses in this field can be encouraged to use peer education as a practical method to create a suitable educational and comfortable environment between patients to exchange useful information. And by designing and using this type of education properly, they can take an effective step towards meeting the educational needs of patients.

This study was subject to certain limitations. There was limited space available in the special diseases care centre for conducting educational sessions; this was a single-centre study. Additionally, this study was conducted among a single group of patients at one time as it was feared that information would be shared among groups if done with multiple sets of patients. In addition, continuous sampling, which is a non-probability method, limits the generalisability of the results. It is suggested to assess the effects of peer education on hope of patients with other chronic diseases in future studies. It is also suggested that in order to determine the effectiveness of the mentioned training method, studies with more samples and different intervals between the pre- and post-test should be done in different centres.

## Conclusion

Thalassaemia is a chronic disease and the affected person deals with this condition from birth. Health experts are always seeking for effective ways to reduce the direct and indirect complications and costs of chronic diseases. Results of the present study showed that the mean score of hope in patients with TM after receiving peer-training in the pathway thinking dimension and overall score of hope increased significantly. However, in the agency thinking dimension, despite an increase in the hope score, there was no significant difference. Therefore, it seems that peer education can increase the level of hope in TM patients. Considering that this educational method is easy, cheap and experienced-based, healthcare personnel, as individuals who have important roles in educating and supporting patients, can use this type of intervention alongside other healthcare measures.

## AUTHORS' CONTRIBUTION

MS contributed to the study concept and design as well as the sampling process and manuscript writing. AK contributed to the writing and critical revision of the manuscript. HH contributed to the data analysis. MSS contributed to the study concept and design as well as the process of sampling and manuscript writing. All authors approved the final version of the manuscript.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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