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Evaluating the Effect of Peer Education on the Hope of Patients with Thalassemia Major

A quasi-experimental study

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Abstract

Objective: Thalassemia major (TM) is one of the most common chronic genetic disorders in today's world. The psychological impacts of this disease can affect patients' hopes. Considering the positive role and importance of suitable educational methods, the aim of this study was to determine the effect of peer education on the hope of patients with TM. **Methods:** This was a quasi-experimental single-group study performed on 50 patients with TM undergoing treatment in Zabol in 2020. Patients were recruited by the continuous sampling method. Data collection tools included a demographic questionnaire and the Snyder's Hope Scale. Patients were educated in groups by eligible peers in 2 sessions each for 60 minutes. Hope was measured before and one month after the educational sessions. Data was analyzed by SPSS software version 20. **Results:** The mean age of the participants was 24.5 (4.24) years. At the pretest, the mean score of total hope was 26.72 ± 5.82 , which increased to 28.21 ± 5.11 at the posttest ($P = 0.028$). The mean hope score of patients in the pathway thinking dimension ($P = 0.01$), significantly increased after

peer education. 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 indicated that peer education can improve hope in patients with TM. So, considering that this educational method is easy, cheap, and experienced-based, it can be used in combination with other health care measures to improve TM patients' hope.

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

Advances in Knowledge

- According to the findings of this study, peer education may improve the level of hope in 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.

Introduction

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

Patients with β -TM, like all chronic diseases, are vulnerable to emotional and behavioral problems.⁸ While several factors can aggravate the psychological problems of these patients,

various factors, including hope, also play a role in reducing these problems.⁹ Hope is one of the basic concepts of optimistic psychology and a factor that enriches people's lives.¹⁰ Snyder et al defined hope as "the capability to derive pathways to desired goals and motivate oneself via agency thinking to use those pathways".¹¹ Hope as a healing, multidimensional, dynamic, and powerful factor affects the capacity to adapt to problems and even to incurable diseases.¹² Hope improves individuals' mental health and opens a way to increase knowledge and awareness and to rationally cope with a disease.¹³ In a research by Kao et al., it was found that people who had higher levels of hope also had lower anxiety levels.¹⁴

Patient education can be seen as a way to improve the quality of life in patients with chronic diseases.^{15,16} Nowadays, the educational methods that engage learners in the process have gained attention.¹⁷ One of the methods to educate patients is peer education which has been effective in promoting their patient health care and learning activity.¹⁸ Peer learning system is one of the novel and effective innovations in the field of educational methods that has shown positive effects on various aspects of education, especially in the field of health care. This type of education improves individuals' knowledge, attitude and practice.¹⁹ Peer groups can more effectively encourage their counterparts to adhere to appropriate health behaviors and share their strengths, weaknesses, and experiences.²⁰ 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.²¹ Meeting similar people provides patients with comfort and reassurance and can help them learn adaptive ways to overcome chronic illness and increase hope.²² Many studies have asserted the usefulness of communications between patients and their peers. In a study by Pasiar et al. the results showed a positive effect of peer education on the hope of patients undergoing hemodialysis.²³ Also, Dant et al. in their study stated that peer education can improve the quality of life of diabetic patients.²⁴

According to what was mentioned above, the main hypothesis of the current study was that peer education is effective on the hope of TM patients. Considering that thalassemia patients due to various reasons suffer from psychological diseases, only a few studies have been conducted to evaluate the effects of educational interventions on the level of hope in these patients²³. Also, due to the discrepancy in the results of studies such as the results reported by Molazem et al.

which showed that peer group education had no effect on depression in patients undergoing coronary angiography,²¹ the aim of this study was to determine the effects of a peer education program on the hope of TM patients.

Methods

This was a quasi-experimental single-group study with a pre/post-test design. The study population included patients with TM referred to the thalassemia care center of Imam Khomeini Hospital of Zabol city in Iran, between March and July 2020. In this study, the patients were recruited via the continuous sampling method.

Inclusion criteria were the definite diagnosis of TM by a physician, having a medical record, age of >18 years, having no cognitive problems and physical disability, being able to read and write, and willingness to participate in the study. Exclusion criteria were not attending one of the educational sessions, unwillingness to continue to participate in the study. Considering 95% confidence level, the power of 80%, and a possible sample loss, the sample size was determined as 50.

Data collection tools included a demographic and clinical information questionnaire and the Snyder's Hope Scale.¹¹ Demographic and clinical information included age, sex, 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.

The Snyder's Hope Scale was originally developed for people over 15 years of age. This questionnaire has 12 items, of which 4 are related to agency thinking dimension (2, 9, 10, and 12), 4 refer to pathway thinking dimension (1, 4, 6, and 8), and four (3, 5, 7, and 11) are deviating items. So, this questionnaire assesses the two subscales of factors and strategies using a 5-point Likert scale (completely disagree, disagree, no opinion, agree, and completely agree with the respective scores of 1, 2, 3, 4, and 5). No score is considered for the deviating items. Scores could range from 8 to 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.¹¹ To

evaluate the reliability of the questionnaire in the present study, the overall Cronbach's alpha was obtained 0.89, and the values were 0.84 and 0.78 for the agency thinking and pathway thinking subscales, respectively.

The current study was approved by the ethics committee of Iran University of Medical Sciences. After explaining the goals of the study to patients and gaining their agreement to participate, a written informed consent was obtained from them. After selecting and educating a peer group, the education was performed by the peers, and data was collected before and one month after the intervention. Peers were selected among eligible individuals who had specific criteria including fulfilling inclusion criteria, being a volunteer to participate in the study, obtaining a hope score of > 25 based on the Snyder's Hope Scale, and having required communication skills and at least high school diploma or higher education. Finally, 2 of the peers who attained higher scores than others were selected as peers, who were then trained by the researcher in 3 sixty-minute-long educational sessions during one week. The educational content taught by the researcher to the peers included explanations about research objectives, the importance and benefits of peer education, educational concepts, and communication skills including attention to verbal and non-verbal behaviors 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, upgrading faith, emphasizing 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 expressed 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. At the end, a booklet containing all the educated contents was given to the peers.

After obtaining informed consent from patients and providing a comfortable and calm place for them, the demographic and clinical information questionnaire was completed following the Snyder's Hope Scale. Then, the educational content of the booklet with emphasis on the experiences of the peers was provided in groups of 6-7 patients in two 60-minute-long sessions

(considering a gap of 60 minutes between the sessions) by each peer separately during one day. The first session included introducing peers to others, explaining the goals of the study, and educating the concepts aiming to improve hope (i.e., the purpose and meaning of life, increasing the sense of appreciation and gratitude, upgrading faith, emphasizing 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 by 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, SPSS software version 20 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.

Results

Table 1 shows the sociodemographic characteristics of the participants. According to the demographic data analysis, most of the participants in this study were women (56%). The mean age of the patients was 24.5 ± 4.24 years. In terms of education, most participants had a diploma. Also, the majority of participants were unemployed, and the parents of most of the patients were related.

In this study, the results of paired sample t-test revealed that TM patients' total hope score pre-test, the mean and standard deviation of the total hope score was 26.72 ± 5.82 , and in the post-test, this mean and standard deviation of the score increased, 28.21 ± 5.11 . This increase was statistically significant ($P = 0.028$). Hope score in patients with thalassemia major after training by peers in the pathway thinking dimension increased from the mean and standard deviation 12.88 ± 3.23 , to the mean and standard deviation 13.91 ± 3.09 . This increase was statistically significant ($P = 0.01$).

However, in terms of agency thinking dimension, despite the mean and standard deviation increasing from 13.48 ± 3.24 to 14.30 ± 2.94 , it was not statistically significant ($P = 0.297$, Table 2).

Discussion

According to the results of the present study, one month after peer-education, the total score of hope and pathway thinking significantly increased in TM patients compared to pre-education. 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.²⁵ The reason for the lack of a significant change in the agency thinking score may be the fact that due to the chronicity of the disease and old age, our patients had little motivation to achieve their goals. Thornton et al. in a 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.²⁶

The positive effects of peer education have also been confirmed in patients with other chronic diseases. In a study by Pasiar et al. on the effects of peer support on hope in hemodialysis patients, results showed that peer education significantly increased the mean total score of hope in patients.²¹ Also, the results of another study by Safaei et al. on the effects of a peer group educational program in promoting self-care in TM patients indicated improvement in self-care behaviors in the intervention group compared to the control group up to four months after the intervention.¹⁹ Also, Giese-Davis et al. in their 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.²⁷ In a study on diabetic patients, Heisler et al. showed that a peer-support program promoted self-care behaviors and proper use of drugs and decreased insulin requirements in the intervention group compared to the control group.²⁸ The results of these studies are consistent with those of our research. So, it seems that peers can contribute to the success of educational programs in patients suffering from chronic diseases. This is probably

because patients are encouraged to share and discuss their concerns with their peers with 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.²⁹ The results of a research by Thakre showed that hopeful people who are also satisfied with their lives can tolerate challenges and be better prepared for the future.³⁰ Also, Dezutter et al. have noted that high levels of hope are related to more commitment to self-care activities and superior health status.³¹ A peer group can help patients to choose a positive coping strategy and become compatible with disease-related challenges, raising the patient's hope. It seems that the group participation of people with thalassemia major in meetings and hope training through a hopeful peer who himself 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 this 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 on patients' psychological variables. Therefore, managers, policy makers, planners, physicians, psychologists and nurses in this field can be suggested to use peer education as a practical method to create a suitable educational and intimate 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.

Of the limitations of the present study was the limited space available in the special diseases care center for conducting educational sessions. On the other hand, this was a single-center study. And because it was feared that information would interfere between the samples if the study was conducted in two groups, we had to conduct the study as a single group. In addition, continuous sampling, which is a non-probability method, makes it difficult to generalize 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 taking pre-test and post-test should be done in different centers.

Conclusion

Thalassemia is a chronic disease, and the affected person deals with this condition from birth. On the other hand, health experts are always seeking for effective ways to reduce the direct and indirect complications and costs of chronic diseases. The results showed that the mean score of hope in patients with thalassemia major after training by peers in the pathway thinking dimension and overall score of hope has increased statistically significantly, but in the agency thinking dimension, despite the increase, there was no statistically 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, health care personnel, as individuals who have important roles in educating and supporting patients, can use this type of intervention alongside other health care measures.

Conflict of interest

The authors declare no conflicts of interest.

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Authors' Contribution

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

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

Variables		n (%)	Variables		n (%)
Age (years)	18-19	7 (14)	Residency	Urban	22 (44)
	20-24	19 (38)		Suburbs	5 (10)
	25-29	15 (30)		Rural	23 (46)
	30-34	9 (18)		Total	50 (100)
	Total	50 (100)	Parents' relationship	Consanguineous	30 (60)
	Mean \pm SD	24.5 \pm 4.24		Non-Consanguineous	20 (40)
	Min-Max	18-34		Total	50 (100)
Gender	Female	28 (56)	Transfusions per month	Once	6 (12)
	Male	22 (44)		Twice	44 (88)
	Total	50 (100)		Total	50 (100)
Education	Elementary	12 (24)	Another affected child in the family	Yes	18 (36)
	Middle school	16 (32)		No	31 (62)
	Diploma	18 (36)		No response	1 (2)
	Higher than diploma	3 (6)		Total	50 (100)
	No response	1 (2)	Iron chelator	Subcutaneous	12 (24)
	Total	50 (100)		Oral	3 (6)
Economic status	Poor	20 (40)		Subcutaneous and oral	35 (70)
	Moderate	18 (36)	Total	50 (100)	
	Good	8 (16)	Regular drug consumption	Yes	39 (78)
	Great	4 (8)		No	11 (22)
	Total	50 (100)		Total	50 (100)

SD = standard deviation.

Table 2: Mean and standard deviation of hope score and its dimensions before and after peer education in patients with thalassemia major (N = 50)

Hope dimensions	Before peer education		After peer education		P value [†]
	Mean	SD	Mean	SD	
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. [†] paired student t-test