



The Effect of E-Learning on Lifestyle in Adolescents with Thalassemia Major

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Abstract

Introduction: One of the ways to improve the quality of life of patients with thalassemia major is to empower patients through education to deal with the effects and complications of illness and control disease and life further. This study aimed to determine the impact of E-learning intervention on self-care behaviors in patients with thalassemia major.

Methods: The present study is a quasi-experimental study of clinical trial type. The effect of e-learning on the lifestyle of eligible adolescents with thalassemia major of both sexes referred to Razi, and Bu Ali Sina Hospitals was investigated. Samples were divided into two groups control (N=25) and intervention (N=25). The control group received routine training from the relevant centers or health care staff, and the intervention group received e-learning and regular exercise. Data were collected through valid and reliable questionnaires, including two main parts. The first part contains demographic information. The second part of the questionnaire was a standard health-promoting behaviors questionnaire that assesses the lifestyle of adolescents in three dimensions nutrition, physical activity, and stress management. Finally, data were analyzed using SPSS version 22, and P-value less than 0/05 was considered significant.

Results: Obtained results demonstrated a significant difference in the quality of nutrition in adolescents with thalassemia before e-learning intervention between intervention and control groups (P< 0.05). Moreover, after the intervention, there was a significant difference in the stress management of the intervention and control groups, and the scores of the intervention group increased significantly (P< 0.05). The findings also indicated that physical health was also considerably increased in adolescents with thalassemia after intervention by e-learning compared to the control group (P< 0.05).

Conclusions: It can be concluded that e-learning has a significant effect on patients' quality of life with thalassemia in three dimensions: nutrition, physical and mental health. The results of this study can serve as a guideline for designing appropriate educational programs for thalassemia patients.

INTRODUCTION

Thalassemia is one of the most common genetic diseases globally, and about 3% of the world's population carries only β -thalassemia gene [1]. Thalassemia has been reported in more than 60 countries. Still, the prevalence of this disorder has been seen in the malaria belt in the world, including the Mediterranean, western and northern Africa, the Middle East, the subcontinent of India, and Southeast Asia [2].

Iran is also one of the countries in the malaria belt, with a relatively high prevalence of thalassemia. Despite the therapeutic measures for patients with thalassemia major, clinical signs and symptoms, like any other chronic disease, affect the various aspects of the individual's life and the family and adversely affect the physical, mental, and energy of the patient and family [3]. Adolescents with thalassemia experience more

depression and lower quality of life than other patients with short-term injuries. The findings support psychosocial support and rehabilitation programs to increase the motivation and quality of life in adolescents with thalassemia [4, 5].

Combating high-risk behaviors and unhealthy habits in early life has a significant impact on the health of adults and older people. Therefore, education on healthy lifestyles and the avoidance of high-risk behaviors in early life should be considered [6]. Lifestyle changes should be considered alongside other treatments as a critical factor in reducing complications and improving symptoms in many diseases [7]. Researches indicate that lifestyle improvement can reduce the incidence and severity of chronic illness, increase individuals' quality of life and health, and reduce the cost of health care [8]. Concerning the negative impact of disease on various life aspects of children, efforts have been made to develop ways to improve lifestyle and promote the health of patients with chronic conditions. Different self-control and educational methods help patients adapt to lifestyle changes [9]. Patient education is one of the essential factors in adherence to treatment. Patient education is a process that provides the knowledge and skills needed by patients and their families to take care of themselves, maintain and promote their health and adapt to their health problems. Considered one of the most fundamental roles and professional practices in nursing [10]. Many experts have assessed patient education as an essential nursing component of inpatient care.

The impact of education has been confirmed in various studies. Given the variety of educational methods available, each of these methods, individually and inaccurately, has its own characteristics, and many studies have been done in the field [11]. One of the important and effective methods of improving patients' quality with chronic diseases is e-learning [12]. Electronic education and learning were first developed by the Association for the Development of Teaching in America in 1990. e-learning is a new method among other educational practices, including computer-aided learning, multimedia computer networks, and the Internet, facilitated by the growing growth of information technology [13]. Advantages of using e-learning in comparison with traditional education are enormous, including flexibility at any time and place, multimedia presentation and synchronization interaction between educator and learner, spending less time on teaching and sustainability and deepening of learning and the attractiveness of the learning environment in the educational system [14]. There is no comprehensive study on the effects of the modern e-learning program on lifestyle in adolescents with thalassemia major. Regarding the necessity of education for thalassemia patients to make suitable changes in their lifestyle, electronic methods were used, and the

effect of e-learning on lifestyle improvement in adolescents with thalassemia major was investigated.

METHODS

The present study is a quasi-experimental study of clinical trial type in which the effect of e-learning on the lifestyle of adolescents with thalassemia major was investigated. The research population was the adolescents with thalassemia major of both sexes referred to Razi and Bu Ali Sina Hospitals eligible to enter the study based on the inclusion criteria: 1) The definitive diagnosis of the disease 2. Ability to use the computer and educational software 3. Taking informed consent and exclusion criteria: 1. Not reading and writing literacy 2. Failure to use the computer 3. Lack of personal satisfaction. At first, the sample size needed to conduct the study was determined based on similar studies.

According to the previous studies, considering the probability of a type 1 error was 0.05 ($\alpha = 0.05$) and the test power equal to ($\beta = 0.01$ with Power = 99%) and effect size = 1/036, the number of patients in each group was estimated 20 and regarding the probability of falling 10%, the largest sample size was considered in each group about 25 patients. Then, eligible patients were selected as a sample size from adolescents with major thalassemia. The sampling method was randomized, and the samples were divided into two groups control and intervention. The control group received routine training from the relevant centers or health care staff, and the intervention group received e-learning and regular exercise. In the present study, information about the disease and its treatment methods and the nutritional needs of patients were extracted from good sources and provided in educational software. First, the information of the patients in the intervention and control group before the intervention was collected through a questionnaire. The questionnaires had two main parts. The first part contains demographic information such as age and sex, religion, educational level, and the job of the father and mother. The second part of the HPLP questionnaire was a standard health-promoting behaviors questionnaire that assesses the lifestyle of adolescents in three dimensions nutrition, physical activity, and stress management. Also, a questionnaire for content validity was provided to ten local experts and was approved by them after the review and the amendments were made. After collecting data, educational software was offered to patients in the intervention group. Then, after the time required for the research, the information was again collected through a questionnaire from the patients in both the control and intervention groups. Then, obtained information was evaluated and compared to investigate the impact of e-learning on lifestyle modification. To analyze the data and research and compare the qualitative variables in the

groups and between two groups, Chi-square and McNemar tests and examine the quantitative variables nonparametric Wilcoxon's, T-test and Mann-Whiney-U were used. P-value less than 0/05 was considered significant.

RESULTS

The mean age of the subjects in the intervention and control groups was 14.51 and 14.8, respectively, and there was no significant difference between the two groups ($p>0.05$). Gender, religion and education level and the job of the mother or father were not significantly different between the two groups ($P>0.05$). There was no significant difference between the two groups in the knowledge about thalassemia disease before intervention through e-learning. However, significant statistical changes were observed in the knowledge scores of the intervention and control groups, and the knowledge scores of the intervention group increased significantly ($P<0.05$) (Fig.1). In addition, there was a significant difference in the quality of nutrition in adolescents with thalassemia before intervention e-learning between intervention and control groups (Figure 1). Moreover, after the intervention, there was a significant difference in the stress management of the intervention and control groups, and the scores of the intervention group increased significantly ($P<0.05$) (Figure 2). Obtained results also indicated that physical health was also considerably increased in adolescents with thalassemia after intervention by e-learning compared to the control group ($P<0.05$) (Figure 3).

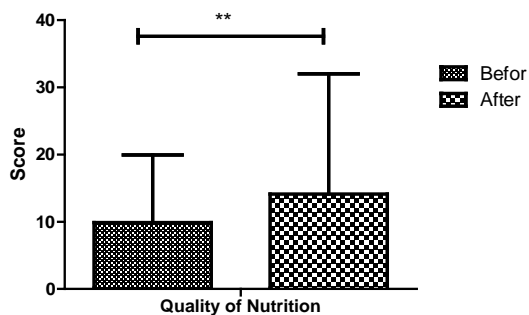


Figure 1. Comparison of Nutrition Quality before and after E-Learning Intervention, ** Indicates $P<0.05$

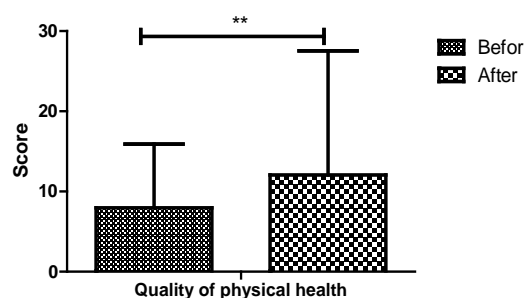


Figure 2. Comparison of Physical Health Quality before and after E-Learning Intervention, ** Indicates $P<0.05$

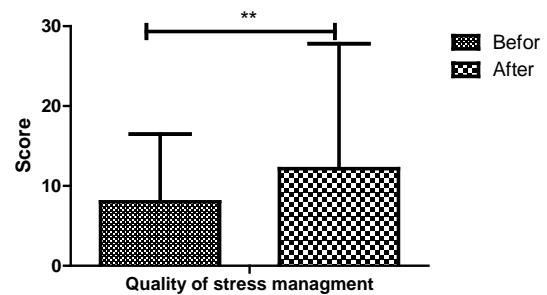


Figure 3. Comparison of Stress Management Quality before and after E-Learning Intervention, ** Indicates $P<0.05$

DISCUSSION

One of the ways to improve the quality of life of patients with thalassemia major is to empower patients through education to deal with the effects and complications of the illness and further control their disease and energy [15]. Therefore, in the current study, we investigated the impact of Elearning intervention on self-care behaviors in patients with thalassemia major. Our results indicated a significant difference in quality of nutrition in adolescents with thalassemia after intervention through e-learning compared to patients in the control group. In addition, after the intervention, there was a significant difference in the stress management of the intervention and control groups, and the intervention group scores increased significantly. Results also indicated that physical health was also significantly increased in adolescents with thalassemia after intervention by e-learning compared to the control group. In line with our results, a study indicated that group training effectively increased life expectancy and general health of 15 to 18 year- old females with thalassemia major [16]. Badger et al. also reported that short phone counseling and easy access to information and emotional support could significantly improve the quality of life of females with breast cancer in Latin America [17], which is consistent with our findings. Also, the results of studies by Pradier et al., Hasanpour Dehkordi et al., Belgacem et al., Yang et al. In Taiwan, and Abu Samra et al. were similar to the findings of this study [18-21]. However, Rafiee et al. stated that the short-term training program did not significantly affect the quality of life of thalassemia patients. They reported that participants in their study had such problems as fatigue, frustration, low self-esteem, adverse reactions to thalassemia, restricted access to doctors with different specializations, lack of needed drugs, financial equipment, and financial problems caused ineffectiveness of this intervention. They concluded that the intervention, given the chronic nature of the disease and the severity of the related

complications, was inadequate to improve the quality of life in these dimensions.

CONCLUSIONS

Taken together, it can be stated that the e-learning has a significant effect on the quality of life of patients with thalassemia in three dimensions of nutrition, physical and mental health. Among the notable points in this study was the age of patients, so that our results indicated that proper intervention by using e-learning in adolescent with thalassemia could definitely change their future life and goals. The results of this study can serve as a guideline to design appropriate educational programs for thalassemia patients. Also, many of the physical and mental disorders of these patients can be prevented by organizing group meetings.

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