

Effectiveness of Health Education on Students' Knowledge about Thalassemia

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Abstract

Background: Thalassemia (Mediterranean anemia) is the most widespread single genetic disease in the world today. It is estimated to affect up to 270 million people worldwide. Which began invading the neighbouring countries of the world from the Mediterranean dramatically, leaving the effects and complications of healthy dangerous every organ of the body that occur as a result of the stages of the disease. In the Mediterranean region, there are fifteen to twenty-five million of healthy carriers.

Objectives: Improve the students' knowledge about thalassemia in preparatory schools.

Methods: Methods: A "pre-experimental design" was carried out to accomplish the goal of the study with a pre- and post-test during the period from the 1st of February 2024 to the 6th of March 2024 at preparatory schools in Hilla City. A probability-stratified sample was selected, which consisted of 100 students of preparatory schools within the fifth and sixth stages.

Results: the results indicate that the percentage of correct answers before submitting health program was very low (27.55%), false answers (27.80%), no know is (44.65%). While the percentage of correct answers after the submission of the program was very high (97%), and false answers is very little (2.7%), No know (0.3%), this reflect that the students' knowledge in the study was enhanced following the implementation of a health education program at a "p-value of 0.000" compared to the study group.

Conclusion: The majority of the students in the study group had received the implementation of the educational program with regard to their knowledge regarding the thalassemia disease.

Keywords: Thalassemia; Student; Knowledge; Education.



1. Introduction

The defect of hemoglobin production leads to thalassemia, which is hereditary hemolytic anemia. It was originally defined by Cooley and Lee in 1952 in multiple Italian children as severe spleen and liver enlarging anemia with discoloration of the skin and bony abnormalities (Fatkuriyah & Hidayati, 2022; Mahmoud et al., 2021). Thalassemia is categorized by the hemolytic chain of the hemoglobin molecule affected. In alpha thalassemia, it is the production of the alpha-globin chain, and in beta thalassemia, it is the production of the beta-globin chain. The WHO estimates that about 7 percent of the populations in the whole world are carriers of the hemoglobinopathy gene (Tang et al, 2021). Thalassemia (Mediterranean anemia) is the most widespread single genetic disease in the world today. It is estimated to affect up to 270 million people worldwide. Which began invading the neighboring countries of the world from the Mediterranean dramatically, leaving the effects and complications of healthy dangerous every organ of the body that occur as a result of the stages of the disease. Thalassemia has a complex burden that affects the physical, psychological, social, and economic lives of the person who has the disease. The secondary iron overload is a clinical necessity in people with thalassemia major, who have to receive lifelong blood transfusions. Systemic iron accumulation leads to progressive organ damage, including cardiac failure, hepatic cirrhosis, and severe endocrine dysfunction (diabetes and growth retardation) (Tuo et al., 2024). The physical burden is a chronic condition that directly contributes to mental anguish, and the need to adhere to strict medical treatment throughout life, as well as concerns about death and changes to their body image, often manifests as depression, anxiety, and a poor body image. Socially, the time spent on clinical management is an interruption of academic continuity and highly constraining for career opportunities, which can lead to social isolation, perceived stigma, and difficulty in interpersonal relationships and marriage (Musallam et al., 2023). In the Mediterranean region, there are fifteen to twenty-five million of healthy carriers. One of the nations where 6-10 percent of the population possesses hemoglobinopathy is Iraq. Hemoglobin electrophoresis to identify HbA2 and globin chain separation is used to resolve diagnostic difficulties (Aydinok et al., 2024). The young people of the future (the parents of tomorrow) having sufficient awareness and knowledge about the diseases would evade the impact that it has on their marital life; hence, the extent of knowledge and attitude concerning the same can be used to reduce such instances. The family must possess the necessary knowledge regarding the disease processes and management, as in this case they will be able to better care for their children in spite of all the difficulties caused by the deficiency of health awareness within the family and the wish of the family to marry their relatives, who will help to increase the number of genetic diseases and the diseases associated thalassemia (Forni et al., 2023). Information about thalassemia completely absent, they need a healthy awareness of the cultural program and save their future life of this incurable disease as well as big impact on the family income as well as the cause of psychological and social problems in families that have a person infected with the disease, So the important of this study is: to raise the cultural level of society about thalassemia and its modes of transmission to reduce the spread and severity of disease (Jabbar et al., 2023).

1.1. Objectives of Study

1. To determine the student knowledge about thalassemia in preparatory schools.
2. To improve the students' knowledge about thalassemia in preparatory schools.

2. Methodology

A pre-experimental design study was carried out to accomplish the goals.

2.1. Setting of Study

Preparatory school at Al Hilla City Center

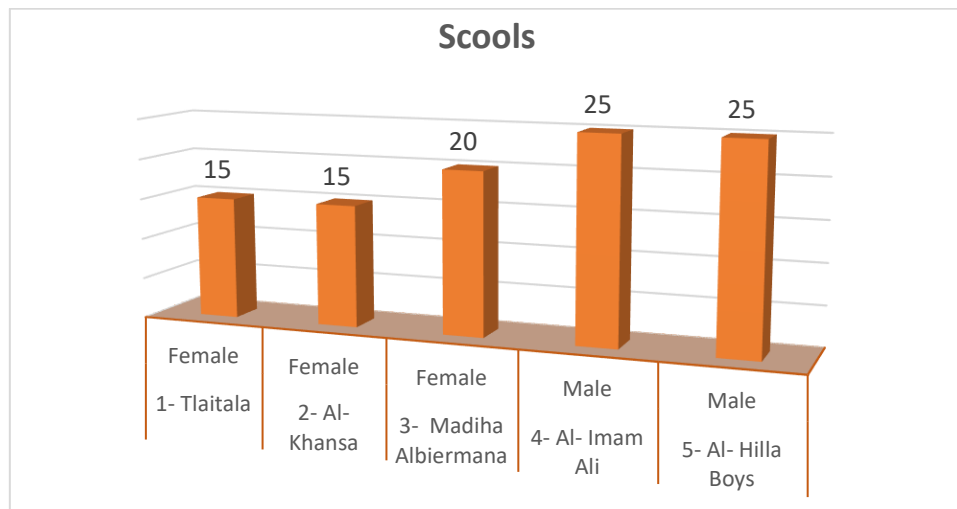


Figure 1. Display target population.

2.2. Sample of Study

Randomization sample (probability stratified sample) was selected which consisted of (100) student of preparatory schools in Al Hilla center. The sample was chosen on the basis of age for the students (17 -19) both gender and most of them are not married.

2.3. Study Instrument and Data Collection

To determine the level of knowledge of the students regarding thalassemia, the researcher reviewed the literature and past studies to come up with a questionnaire designed and produced after thorough scrutiny by 15 experts to examine the students (pre-examination); a pre-test was undertaken prior to applying the health education program on preparatory students that are considered pre-couple age aiming for avoidance of disease.

Then, the program of health education was focused on some key issues regarding the disease and how it can be complied with and prevented. And it was done in two sessions at the classroom of a preparatory school at Al Hilla Center that seeks to stimulate the student knowledge in thalassemia disease. The sessions were planned and set to around 1.30 hours/day during the period of the 1st of February to the 6th of March 2024. And the post-test was conducted following the program.

2.4. Validity of Instrument

A content validity of the study instrument conducted through a 15 of experts who have more than 10 years of experience in nursing field.

2.5. Statistical Analysis

Data organization and cleaning were conducted using Microsoft Excel 2021. Descriptive and inferential statistical analysis was then performed using IBM SPSS Statistics, Version 26. Frequencies and proportions were calculated to analyze the distribution of "Effectiveness of a Health Education on Students' Knowledge about Thalassemia" by using descriptive and inferential statistical methods to achieve goals.

2.6. Ethical Approval

The study protocol was reviewed and approved by the Institutional Review Board (IRB) of the Faculty of Nursing at the University of Babylon. Informed consent was waived by the IRB.

3. Results

Table 1. Distribution of the Student by their Demographic Characteristics.

Age	F	%	Valid	Cumulative
17	71	71.0	71.0	71.0
18	18	18.0	18.0	89.0
19	11	11.0	11.0	100.0
Total	100	100.0	100.0	
Father occupation				
Employee	57	57.0	57.0	57.0
Gainer	40	40.0	40.0	97.0
Retired	3	3.0	3.0	100.0
Total	100	100.0	100.0	
Mother occupation				
Employee	40	40.0	40.0	40.0
House wife	60	60.0	60.0	100.0
Total	100	100.0	100.0	
Parent Life				
Alive	97	97.0	97.0	97.0
Dead	3	3.0	3.0	100.0
Total	100	100.0	100.0	

%= percentage. F= Frequency

Table (1) show that highest percentage of students age group is (71%) in (17) years old, and fathers' occupation percentage (57%) was employment; and mothers occupation percentage (60%) was house wife; while parents life records (97%) are alive.

Table 2. Results of pre-test exam for students.

True answer	F	%	Valid
0 – 10	12	12.0	12.0
11 – 20	18	18.0	18.0
21 – 30	41	41.0	41.0
31 – 40	19	19.0	19.0
41 – 50	8	8.0	8.0
51 – 60	2	2.0	2.0

True answer	F	%	Valid
Total	100	100.0	100.0
False answer			
0 – 10	18	18.0	18.0
11 – 20	24	24.0	24.0
21 – 30	21	21.0	21.0
31 – 40	14	14.0	14.0
41 – 50	17	17.0	17.0
51 – 60	6	6.0	6.0
Total	100	100.0	100.0
Don't know			
0 – 10	15	15.0	15.0
11 – 20	38	38.0	38.0
21 – 30	24	24.0	24.0
31 – 40	17	17.0	17.0
41 – 50	4	4.0	4.0
51 – 60	2	2.0	2.0
Total	100	100.0	100.0

%= percentage. F= Frequency

Table (2) show the highest percentage (pre-test) of true answers between (21- 30 %); and false answers high percent in (11-20%); while the do not know are (21- 40%).

Table 3. The results of post-test exam for students.

True answers	F	%	Valid
80	1	1.0	1.0
85	1	1.0	1.0
90	13	13.0	13.0
95	27	27.0	27.0
100	58	58.0	58.0
Total	100	100.0	100.0
False answers			
0	63	63.0	63.0
5	22	22.0	22.0
10	13	13.0	13.0
15	2	2.0	2.0
Total	100	100.0	100.0
Don't know			
0	97	97.0	97.0
5	3	3.0	3.0

True answers	F	%	Valid
Total	100	100.0	100.0

%= percentage. F= Frequency

Table (3) show the highest percentage(post-test) of true answers at (100%); and false answers high percent in (0%); while the no know are (0%).

Table 4. Results of comparison between pre & post-test exam for students.

One-Sample Test						
	Test Value = 0				“95% Confidence Interval of the Difference”	
	T	D.f	Sig. (2-tailed)	Mean Difference	Lower	Upper
TA pre	22.000	99	0.001	27.550	25.07	30.03
FA pre	16.813	99	0.001	27.800	24.52	31.08
Don't KNOW pre	20.566	99	0.001	44.650	40.34	48.96
TA post	234.080	99	0.001	97.000	96.18	97.82
FA post	6.778	99	0.001	2.700	1.91	3.49
Don't KNOW post	1.750	99	0.083	.150	-.02	.32

D.f= degree of freedom, TA= true answer, FA= false answer.

Table (4) This table show the Comparison of mean values of, true answers in pre& post-test, false answers in pre &post-test, no know in pre & post-test.

Noting that the percentage of correct answers before submitting health program was very low (27%), false answers (27.8%), no know is (44.6%). While the percentage of correct answers after the submission of the program was very high (97%), and false answers is very little (2.7%), No know (0.3%). which confirms the success of the health program, presented in this study.

4. Discussion

In the present study, the result announced that the age of most of the students in the study was between 17 and 19 years. This result agrees with the study results show, that the mean of the sample age is 11-19 years old (Dewi et al., 2024). The fathers' occupation most of them were employed while mother's occupation most of them are housewife (Table 1). These findings are parallel to those of another research (Biswas et al., 2020), which indicated that most of the mothers of the students who took part in her research could neither read nor write, and they were housewives. Education of parents may play a big role in helping them to support their children. Nurses will be able to contribute to raising awareness among families regarding thalassemia disorder (Karakul et al., 2022). The finding of the current study shows that the greatest number of brother & sister in families consist from (4-6) individuals; and student sequence are records (1-3) in the family.

Also, the level of knowledge in pre-test exam express little knowledge about thalassemia, while the highest of them never heard about thalassemia, and this is a sign of lack knowledge of students about the important and seriousness of thalassemia disease. this result is supported by

(Yasmeen & Hasnain, 2018). This study using telephonic interview they found that 77% of Malaysian population know about thalassemia even of its genetic origin.

Regarding the table (3) the finding shows that, the knowledge level of students increases in post-test (after the health education about the disease) and this is indication that the health education has a very great importance in raising knowledge and among students about the importance and seriousness of thalassemia. This finding is higher than of a study done recently in Dubai that showed that, the increased of knowledge among student to 72.5, 78.3 and 67.6%, respectively after provision of written information (p values: 0.03, 0.02, and 0.01, respectively) (Almahmoud et al., 2024). The findings also established that over ninety percent of the participants in the study had acceptable neutral knowledge and a good attitude towards that. Then, using this bare ground knowledge, we can be optimistic about having good programs that will put this under control with a pre-marriage approach towards the couples.

Results are backed by Daswani & Garg (2021), which argues the greatest source of recent incidences was inadequate knowledge of those about to get married and also that outcome improvements in knowledge and attitude of health personnel were effective in prevention (Daswani & Garg, 2021). It is also backed by Mohamed (2017), who discovered that with a favorable attitude towards that, most respondents think that the birth of the child was not due to the presence of genes that were received from parents (Mohamed, 2017). It is thus a way of enhancing the knowledge that would have been vile to control.

There is great diversity in knowledge of students in the various field studies. Those students who attended experimental field have been informed the most in regards to thalassemia (Ali Mehr et al., 2019). It follows that students who simply learn and pass such classes know more about disease, and thus, as the outcomes suggest, it is imperative to educate and encourage such a course within the rest of the high school subjects and even non-medicine subjects in the high disease prevalence.

In certain ones of the course's students obtain knowledge, which is related to the information contained in their books, but in certain ones of the other courses students were more conscious of their age, since they are able to use different sources like books and internet and social information. It seems that the annual pamphlets on thalassemia-related issues, which are supposed to be given out in schools, must be supplemented. Concurring with the study findings. Ali Mehr et al. (2019) and Suryawan et al. (2021) discovered that the rise in the level of knowledge about the nature of diseases and preventive measures is more significant with the increase in the level of education among students. Soliman et al. (2023) wrote that individuals possessing a high education level tend to engage in self-care more than those with a low education level. Seeing that the majority of marriages in the study area occur at a younger age, an ongoing educational program at various stages of study is deemed important.

In his research, Çelik et al. (2022) proposed video/voice paper and pamphlets to enhance the awareness of students. Although, in another study that aimed to investigate parent and family member knowledge regarding genetic mutation pre and post intervention. They concluded that the level of education of the fathers of students has no significant relationships with the knowledge overall of students and with the level of attitude of students, whereas the mothers have significant relationships with the level of knowledge and attitude of students (Joshi & Nayak, 2023).

In one of the studies Sonkawade et al. (2022) evaluated the needs of the mothers who are more than fathers and explained that mothers are given more responsibilities and hence demand more data and the relationship between education, awareness, and educational needs was substantial. Mother with a higher level of education was better informed and had a high attitude towards Thalassemia. As in recent study, the level towards disease of the students, with the rise in the educational level of the parents, is augmented. In a study by Yu et al. (2019), the major barricade in preventing the disease was low parental awareness and attitudes towards thalassemia.

Finally, as an attempt to raise knowledge and attitudes among the preparatory students who will become the future parents, it is advisable that they be given huge educational courses, especially those who are in pre-marriage stages. Due to the prevalence of consanguinity in marriage and even the beliefs about a disease, there is a need to have a long-period program for these local populations.

5. Conclusion

The majority of the students in the study group had received the implementation of the educational program resulting to improve knowledge regarding the thalassemia disease.

6. Recommendation

Implementation of health education programs through mass media (TV, radio, and magazines). It is also necessary to carry out examinations for the most vulnerable individuals (inspection for disease carriers at the population level, examination before marriage and examination of suspected infected families and children). In addition, booklets and publications of educational programs should be distributed to all students of marriageable age in schools.

7. Conflict of Interest Statement

The authors declare no conflicts of interest relevant to the content of this study.

No financial relationships, personal interests, or affiliations influenced the research design, analysis, interpretation, or reporting of the findings.

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