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Is there a relationship between demographic factors and depression, anxiety, and stress in adolescents with thalassemia?

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Abestrac:
Thalassemia is a common genetic disorder worldwide that affects millions of people, including teenagers. On the one hand, this chronic disease has adverse effects on the mental health of affected adolescents, and on the other hand, demographic factors cause the exacerbation of these adverse effects, including depression, anxiety, and stress in adolescents. Therefore, the present study was conducted with the aim of determining the relationship between demographic factors and depression, anxiety and stress in adolescents with thalassemia. In this descriptive-analytical study, 64 adolescents with thalassemia in the thalassemia department of Shahid Dastghib Medical Education Center in Shiraz, who met the conditions for entering the study, were selected and entered the study by a simple random method after completing the informed consent form by the adolescent or their parents. The data collection tool was a demographic questionnaire including gender, age, education level of the teenager, education level of the teenager father, education level of the teenager mother, family income level and history of thalassemia in the family and depression, anxiety and stress questionnaire DASS-21. Data were analyzed using SPSS 21. The results of the study showed that family income and gender are effective in the incidence of depression, anxiety and stress in teenagers with thalassemia, so programs and strategies to adapt or eliminate the negative effects of demographic factors are recommended.

Key Words: Thalassemia, demographic factors, depression, anxiety and stress.

Introduction:
Chronic disease refers to diseases with physical changes that are long-term and sometimes untreated and affect a person until the end of life. One of the types of chronic diseases is thalassemia. Today, almost 3% of people worldwide have a defective beta thalassemia gene (Robert, 2016). About 60,000 to 70,000 children with thalassemia are born in the world every year; most of them belong to countries with poor health status (Abulghasmi et al, 2015). The average prevalence of the thalassemia gene in Iran is 4% and there are approximately 25,000 people with thalassemia, and 800 people are added to this number yearly (Jaafari et al., 1401). Due to the high number of patients with thalassemia major and the variety of physical disorders that these patients face during their treatment, thalassemia major can be considered one of the biggest chronic physical disorders (Shahriari et al., 2018). In a study conducted by Baghiani Moghadam et al. on children and adolescents, it was found that thalassemia reduces the quality of life in the range of physical, social, mental, and spiritual activities by about 14 to 23% (Baghiani Moghadam, 2019). In a study conducted by Koutelos et al 2013 on teenagers and adults, it was found that one of the biggest problems

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faced by teenagers with thalassemia is depression (Koutelekos, 2013). In Roy et al.'s study 2007, one of the problems faced by adolescents with thalassemia was anxiety, which can cause social and academic limitations in them (Roy, 2007). In a study, Parvinian Nasab 2013 quoted Pourmouhed as saying: "The most psychiatric disorders reported in patients with thalassemia or their family members include: having a bad mental image of the body, anxiety, depression, physical disorders and lack of proper anger control." Also, he 2012 quoted Pahlavani and wrote: "Depression is seen in 77% of teenagers with thalassemia (Parvinian Nesab et al., 2012).

Considering the prevalence of depression, anxiety, and stress and their negative impact on the lives of teenagers with thalassemia and the difference in the amount of depression, anxiety, and stress reported in teenagers with thalassemia in different studies, recognizing and determining the level of depression, anxiety and stress in teenagers with thalassemia can be effective in explaining and providing strategies to reduce, empower and deal with depression, anxiety and stress in teenagers with thalassemia. Therefore, the present study was conducted to investigate the effective demographic factors on depression, anxiety, and stress among adolescents with thalassemia referred to Shahid Dastghib's educational and therapeutic center in 2022.

Materials and methods: This descriptive-analytical study was conducted on 64 adolescents between the ages of 15 and 20 referred to the Martyr Dastghib Educational Therapy Center in Shiraz, selected by a simple random method. Inclusion criteria were suffering from alpha or beta thalassemia disease requiring blood transfusion, age 15-20 years, having at least elementary literacy, speaking Persian, not suffering from any other physical disease except thalassemia, not facing any stressful event in the last 6 months, not having a known mental illness according to the patient and parents, not using drugs affecting mental health, and the exclusion criteria were death and the teenager's unwillingness to cooperate.

Two demographic questionnaires (age, sex, education level of the adolescent, education level of the adolescent father, education level of the adolescent mother, and history of thalassemia in the family) and depression, anxiety, and stress questionnaire DASS-21 were used to collect data from. This scale was first developed by Lovibond (Parkitny, 2010). To validate and reliability of the DASS-21 scale, Antony et al, 1998 analyzed the said scale, and the results of their research again indicated the existence of three factors depression, anxiety, and stress. The specific value of stress, depression, and anxiety factors was equal to 9.07, 2.89, and 1.23, respectively, and the alpha coefficient for these factors was 0.97, 0.92, and 0.95, respectively. Also, the results of calculating the correlation between factors in the study of Antony and colleagues indicated a correlation coefficient of 0.48 between the two factors of depression and stress, a correlation coefficient of 0.53 between anxiety and stress, and a correlation coefficient of 0.28 between anxiety and depression (Antony, 1998). The validity and reliability of this questionnaire in Iran have been investigated by Samani and Jokar 2006.

They have reported the validity for the scale of depression, anxiety, and stress equal to 0.80, 0.76, 0.77, respectively, and Cronbach's alpha for the scale of depression, anxiety, and stress equal to 0.81, 0.74, 0.78, respectively (Samani et al., 2015). Each of the subscales of DASS-21 includes 7 questions, the final score of each is obtained by summing the scores of the related questions. Each question is scored from 1 (not at all) to 4 (a lot)

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(Parkitny, 2010). Questionnaires were completed through self-reporting and interviews.

SPSS software version 21 was used for data analysis. Considering the relationship between qualitative and quantitative variables and the non-normality of data, according to the statistician's opinion, non-parametric tests such as Man Whitney and Kruskal-Wallis were used for descriptive statistics from midrange and quartile range and inference.

Ethical considerations: To carry out this research, permission to implement the project was obtained from the research committee ethics committee of Shiraz University of Medical Sciences with the code (IR.SUMS.REC.1398.659) and registration in the clinical trial center of Iran with the code IRCT20190908044725N1). To start the study, parents and adolescents participating in the study were first explained about the research, its objectives, its importance and the optionality of participating in the study. Then, if the teenager and their parents agree to enter the study, written informed consent will be obtained from the parents of teenagers younger than 18 years old and from teenagers over 18 years old. Also, there was compliance with the principle of free will and the possibility of withdrawing from the study whenever they wanted. The principle of secrecy and confidentiality regarding the information obtained from the people participating was considered in all stages of the study.

Findings:

In this study, there was no statistically significant difference between the variables of age, sex, adolescent education level, father's education level, mother's education level, and history of thalassemia in the family ($p>0.05$), so they were homogeneous. However, there was a statistically significant difference ($p<0.05$) in terms of the family income variable, and they were not homogeneous.

Based on the Mann-Whitney test, the relationship between gender and the total score of depression, anxiety, and stress (Table 1) showed that there was no statistically significant relationship between gender and the total depression score ($p = 0.99$).

There was no statistically significant difference between gender and total anxiety score ($p=0.1$); there was a statistically significant difference between gender and total stress score ($p=0.008$).

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Tabale1: Determining the relationship between gender and the total score of depression, anxiety and stress

Demographic factors	Depression			Anxiety			Stress		
		Mid range± Mid quartile	p		Mid range± Mid quartile	P	Mid range± Mid quartile		P
Gender	Male	12 ± 4.50	0.99	Male	12±3	0.1	Male	18±11	0.008
	Female	18 ± 8.25		Female	17±4		Female	18±8.25	

According to the Kruskal-Wallis test, the relationship between the adolescent's education level and the total score of depression, anxiety, and stress (Table 2) showed that there was no statistically significant difference between the adolescent's education level and the depression score (p=0.37). There was no statistically significant difference between the adolescent's educational level and the anxiety score (p=0.46), and there was no statistically significant difference between the adolescent's educational level and the stress score (p=0.27).

Table2: Determinig the relationship between the adolescent's education level and the total score of depression, anxiety

Demographic factors	Depression			Anxiety			Stress		
		Mid range± Mid quartile	**P**		**Midrange± Mid quartile**	**P**		**Mid range± Mid quartile**	**P**
Adolescent's education level	**Elementary**	2±0	0.37	**Elementary**	2±0	0.46	**Elementary**	6±0	0.27
	Junior	15±6		**Junior**	11±6.75		**Junior**	7±4.50	
	High school	16±7.25		**High school**	13±3		**High school**	17±6	
	Diploma	18±9.25		**Diploma**	17±4.75		**Diploma**	17±7	
	Post diploma	7±5.50		**Post diploma**	3±2.50		**Post diploma**	6±4.50	
	Student	2±0		**Student**	2±0		**Student**	5±0	

According to the Kruskal-Wallis test, the relationship between the education level of the adolescent's father and the total score of depression, anxiety, and stress (Table 3) showed that there was no statistically significant difference between the education level of the adolescent's father and the depression score (p=0.35). There was no statistically significant difference between the education level of the adolescent's father

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and the anxiety score (p=33), and there was no statistically significant difference between the education level of the adolescent's father and the stress score (p=0.35).

Table3: Determinig the relationship between the adolescent's father education level and the total score of depression, anxiety

Demographic factors	Depression			Anxiety			Stress		
		Mid range± Mid quartile	P		Midrange± Mid quartile	P		Mid range± Mid quartile	P
Adolescent's father education level	Illiterate	14±9.50	0.35	Illiterate	7±6.25	0.33	Illiterate	16±6.25	0.35
	Elementary	16±5.50		Elementary	13±3		Elementary	11±5	
	Junior	12±7		Junior	11±8		Junior	13±4	
	High school	17±8.75		High school	17±9		High school	14±8.75	
	Diploma Post diploma	14±4		Diploma Post diploma	4±2		Diploma Post diploma	14±2	
	Bachelor's and Master's degree	6±0		Bachelor's and Master's degree	2±0		Bachelor's and Master's degree	7±0	

According to the Kruskal-Wallis test, the relationship between the adolescent's mother education level and the total score of depression, anxiety (Table 4) showed that there was no statistically significant difference between the educational level of the teenage mother and the depression score (p=0.8). There was no statistically significant difference between the educational level of the teenage mother and the anxiety score (p=0.2), and there was no statistically significant difference between the educational level of the teenage mother and the stress score (p=0.3).

Table4:Determinig the relationship between the adolescent's mother education level and the total score of depression, anxiety

Demographic factors	Depression			Anxiety			Stress		
		Mid range± Mid quartile	P		Midrange± Mid quartile	P		Mid range± Mid quartile	P
Adolescent's mother	Illiterate	8±5.75	0.8	Illiterate	5±4.25	0.2	Illiterate	15±6.75	0.3
	Elementary	18±13.25		Elementary	17±2.25		Elementary	11±5.50	
	Junior	11±6.25		Junior	12±8.25		Junior	17±4	

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education level	**High school**	9±6.25		**High school**	10±7.25		**High school**	8±6.75	
	Diploma Post diploma	11±5.50		**Diploma Post diploma**	5±3		**Diploma Post diploma**	14±5	
	Bachelor's and Master's degree	10±9.50		**Bachelor's and Master's degree**	4±3.50		**Bachelor's and Master's degree**	7±4	

Based on the Man-Whitney test, the relationship between the family income level and the total score of depression, anxiety, and stress (Table 5) showed that there was a statistically significant difference between the family income level and the depression score (p=0.04). There was a statistically significant difference between the family income level and the anxiety score (p=0.01), and there was no statistically significant difference between the family income level and the stress score (p=0.32).

Table5: determining the relationship between the family income level and the total score of depression, anxiety, and stress

Demographic factors	**Depression**			**Anxiety**			**Stress**		
		Mid range± Mid quartile	p		Mid range± Mid quartile	P	Mid range± Mid quartile		P
Family income level	Under 1 millions	16±10	0.04	Under 1 millions	15±9	0.01	Under 1 millions	9±8	0.32
	Between 1 ans 2 millions	16±4.25		Between 1 ans 2 millions	13±3		Between 1 ans 2 millions	18±4	
	Upper 2 millions	15±9		Upper 2 millions	10±2		Upper 2 millions	14±5.50	

Based on the Man-Whitney test, the relationship between the history of thalassemia in the family and the total score of depression, anxiety, and stress (Table 6) showed that there was no statistically significant difference between the history of thalassemia and the depression score (p=0.96). There was no statistically significant difference between the history of thalassemia and anxiety score (p=0.44), and there was no statistically significant difference between the history of thalassemia and the stress score (p=0.71).

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Table6:Determining the relationship between the history of thalassemia in the family and the total score of depression, anxiety, and stress

Demographic factors	Depression			Anxiety			Stress		
		Mid range± Mid quartile	p		Mid range± Mid quartile	P	Mid range± Mid quartile		P
Gender	**Yes**	32.93	0.96	**Yes**	34.71	0.44	**Yes**	33.50	0.71
	NO	32.63		**NO**	31.14		**NO**	31.84	

Discuss:

The present study was conducted to investigate the effect of demographic factors on depression, anxiety, and stress in teenagers with thalassemia. The amount of family income affected the rate of depression in adolescents with thalassemia, and on the other hand, gender, education level of the adolescent, and history of thalassemia did not affect the rate of depression. In a study conducted by Neshat Doost et al. in 2015, the results showed that the feeling of security and peace in the family, relationship with siblings, differences and arguments of parents with each other, adolescent relationship with parents, sharing private issues with parents, punishment by parents and the amount of family income respectively had the highest relationship with depression in adolescents (p = 0.001). These results showed that about 30% of depression scores are affected by family functioning (Nishath Dost et al., 2015). Also, in 2015, Jahangesht et al. conducted a study on 775 high school students in Rasht city. The results showed that the rate of depression in adolescent girls was higher than that of boys, and the most common cause of depression in adolescents was related to the low income level of the family. This meant that there was a statistically significant relationship between depression and gender (P<0.05).

It should be noted that in this study, other results show that there is a statistically significant relationship between the level of education of parents and the rate of depression in adolescents (P < 0.05) (Jehangesht et al., 2015). The result is inconsistent with the present study, which can be considered due to the difference in the number of samples and the target group. In the Jahangesht study, the number of people studied was 775, and in the present study, 64 people.

According to the findings, there is a relationship between the amount of family income and anxiety in teenagers with thalassemia. On the other hand, there is no relationship between gender, education level of the teenager, and history of thalassemia and anxiety. Also, a study conducted by Amani et al. in 2014 on 180 teenagers in Hamadan City showed a statistically significant difference between parents'

occupation, age, economic status, and teenagers' anxiety levels ($p<0.05$). (Amani et al., 2014). In a study conducted by Dalesgard et al. in 2015 showed that, on average, 13 out of every 100 children and adolescents between the ages of 9 and 17 experience one of the types of anxiety disorders, and the prevalence of this disorder in girls is more than boys. The result is inconsistent with the present study, possibly due to the different types of study, target groups, and number of samples. In Dalesgard's study, the target group was teenagers and children, with a sample size of 100 people. Still, in the current study, the target group was teenagers with thalassemia, with a sample size of 64 people (Dalesgard, 2020).

According to the findings, there was a relationship between gender and stress in teenagers. On the other hand, there was no relationship between teenagers' education level and the history of thalassemia and family income. Based on a descriptive study conducted by Hizomi et al. in 2015 under the title "Stress and predictors of mental health in Iranian adolescents" in Tabriz city on 403 high school students, the results showed that 55% of girls and 45.3% of boys suffer from mental problems including stress (Hizomi et al., 2015).

Conclusion:

The results of the present study showed that there was a relationship between family income and depression, and anxiety of teenagers. Also, there was a relationship between gender and stress, but no relationship was found between other demographic variables and depression, anxiety, and stress, which, of course, is better than examining the relationship between the variables in a correlation study with a larger number of samples.

It is hoped that the results of this research will expand the field of nursing activities related to the mental health of adolescents with thalassemia and increase the quality of life of these adolescents.

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