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INVESTIGATING THE RELATIONSHIP BETWEEN BODY IMAGE AND ACADEMIC ACHIEVEMENT OF HEALTHY ADOLESCENTS AND THOSE WITH THALASSEMIA MAJOR IN THE CITY OF TEHRAN IN 2016

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ABSTRACT

Background and aim: One of the most important factors affecting the academic achievement of students is their body image and since adolescence is associated with great physical and mental changes, adolescents experience many problems in this regard and external factors such as disease can double its severity. In this regard, this study was conducted to investigate the relationship between body image and academic achievement of healthy adolescents and those with thalassemia major.

Materials and methods: This descriptive correlational study was conducted on 300 teenage students across high schools in the city of Tehran. Using purposive sampling technique, they were divided into two groups: healthy adolescents and those with thalassemia major. Data were collected using multidimensional body self-relation questionnaire and students' GPA in the first semester of 2015-2016. Data were analyzed using descriptive and inferential statistics and utilizing SPSS 16 software.

Findings: In this study, the mean ± SD of body image of healthy adolescents and those with thalassemia major were 159.38 ± 13.22 and 122.16 ± 16.46, respectively. Also, the mean ± SD of academic achievement of healthy adolescents and those with thalassemia major were 19.24 ± 10.87 and 16.17 ± 1.78, respectively. Regarding the healthy adolescents, results indicated that there is no statistically significant relationship between their body image and academic achievement ($p= 0.84$). However, in those with thalassemia major, results indicated that there is a statistically significant relationship between their body image and academic achievement ($p< 0.001$).

Conclusion: Findings revealed that healthy adolescents have a better body image and higher academic achievement compared to those with thalassemia major and there is no significant relationship between body image and academic achievement in healthy adolescents. However, this relationship is significant in those with thalassemia major.

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Introduction

Today, experts believe that one of the most important reasons for the development of advanced countries is paying special attention to the training of creative and effective personnel. Academic achievement is one of the major outcomes of educational system for both individual and his society; thus identification of effective components provides appropriate conditions for

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training educated and creative people (1). Academic achievement refers to the levels of learning and achievement of students to their educational purposes and it is considered as an important duty for adolescents and it is affected by many factors (2). Mental characteristics of individuals are among the most important factors affecting academic achievement and body image is a major characteristic in this regard (3). Body image is one's perception of his body which includes physical appearance, emotional reactions and body positions which are formed based on the past and current perceptions of body (4).

Thalassemia is a common genetic disorder and includes a variety of inherited blood disorders caused by defects in production rate of specific globin chains in hemoglobin that is classified into different types of homozygous, heterozygous or compound heterozygous. 3% of the world's population is thalassemia carriers; most of whom live in Mediterranean area (5). With about 20,000 patients and 3 million carriers, Iran is located on the global thalassemia belt (6). Thalassemia major is a homozygous form of thalassemia which creates symptoms including bone deformities, especially in the face, impaired growth and delayed puberty and can result in many mental problems such as feeling guilty, negative attitude toward life, severe anxiety and being different than peers. Also, thalassemia major by affecting the physical health and changing the appearance of people changes their body image and creates many mental and social disorders (7).

Mental-social health is an essential requirement for the academic achievement of adolescents. Personal-social differences between adolescents with thalassemia major and healthy adolescents affect their academic performance and lead to academic failure. Studies have shown that thalassemia has affected academic achievement of 70% of adolescents and has resulted in their academic failure (8).

Since school is the second home of adolescents and they spend long hours there and considering adolescence crises experienced by most adolescents, experts working in the area of children are faced with the challenge of managing necessary care during school days; so they have designed a plan in which school nurse acts as the leader of a team to provide health care services at school (9). Therefore, school nurse can develop individual care plans to provide the emotional health of students, especially those with chronic diseases such as thalassemia in order to provide necessary grounds to better develop their academic levels (10). In fact, school nurse plays the role of supporter, facilitator and advisor of mental health services in school and in the community (11) and since body image is an important element of mental health in this period, thus school nurse plays an important role in this regard.

Considering the young population and high rates of thalassemia in Iran, it is essential to pay special attention to these people as the main sources of development. Educational status affects the fate and future of adolescents (12) and changes in their body image affects their academic achievements; so that results of various studies suggest that adolescents with thalassemia have poor body images compared to their peers and their academic performance declines as well (5, 7, 8). Therefore, nurses can play an important role in this regard. Considering this issue and due to the lack of statistics on educational status of adolescents with major thalassemia in Iran and the relationship between their body image and their academic achievement and due to the inconsistency of studies conducted by Ludwig et al. (2009) (13), Blarina et al. (2007) (14), Sosa (2008) (15), Yanour and Thompson (2008) (16) –which indicated that there is a relationship between body image and academic achievement of unhealthy adolescents- with the results of studies by Sedighi Arfaei et al. (2011) (17), Aghakhani et al. (2006) (18) and Fortman (2006) (19); researcher -as a member of nursing community- was prompted to conduct this study to investigate the relationship between body image and academic achievement of healthy adolescents and those with thalassemia major in Iran to improve the body image in adolescents, especially those with thalassemia major in order to create a better future.

Methodology:

This is a descriptive correlational research. After obtaining permission from the International Branch and presenting it to the research department of Shahid Beheshti University of Medical Sciences and conducting necessary coordination with the Department of Education in Tehran, Iranian Blood Transfusion Organization and observing ethical considerations, researcher used convenience sampling method to conduct the study. By visiting Zafar thalassemia center, Iranian thalassemia society and center of special diseases, subjects were identified in the morning shift from Saturday to Wednesday and multidimensional body self-relation questionnaire was used to collect data. Subjects had 30 minutes to complete the questionnaire. Healthy subjects were then selected from those schools using purposive sampling method in the morning shift and they completed the multidimensional body self-relation questionnaire. Also, students' GPA in the first semester was used to measure their academic achievement. Sampling began from January 2015 and lasted for four months. The multidimensional body self-relation questionnaire consists of three parts: the first part of the questionnaire includes questions about demographic information, including age, gender, educational level, educational level and occupation of parents, participation in extracurricular classes and number of siblings. The second part of the questionnaire is designed by Cash et al. in the form of a primary form and a final form (20). Its initial form was designed in 1986-1987 which had six subscales, including:

Appearance evaluation (AE), appearance orientation (AO), fitness evaluation (FE), Fitness orientation (FO), self-classified weight (SW) and body areas satisfaction scale (BASS). The final form was published after revision in 1997 and its revised form has been used in this study. It included 46 items on a 5-point Likert scale (I strongly agree: 5; I agree: 4; I have no idea: 3; I disagree: 2 and I strongly disagree: 1) and was answered by participants. This questionnaire included three subscales of evaluation, attention and attitude; in which subscales of evaluation, attention and attitude contained 35, 9 and 2 questions, respectively. The minimum and maximum scores were 46 and 230 and higher scores indicated better body images in adolescents. According to the study of Zeighami and Mozhdeh (2012) scores below 107 represent negative body image; scores between 108 and 169 represent a mediocre body image and scores above 170 represent a positive body image. The third part included a form to insert students' GPA in the first semester of 2015-20016 and based on the qualitative grading system provided by Department of Education, GPAs were classified into 4 classes; excellent (above 18), good (16-18), mediocre (12-16) and requiring much effort (below 12).

In this study, the content validity of the research tool was measured using content validity index (CVI), through considering the criterion of relevance and by using a 4-point Likert scale (4: related; 3: related yet needs revision; 2: requires serious revision and1: unrelated). For this purpose, 15 questionnaires were given to a number of faculty members of Shahid Beheshti

University of Medical Sciences and Jahrom University of Medical Sciences and after receiving comments and ideas of professors and conducting necessary amendments, the content validity was obtained. The content validity was calculated using this index, through summing the scores of relevance and dividing it by the total number of faculty members and the content validity was 84% in this study. In addition, to measure the face validity of the questionnaire, it was given to the faculty members to examine similarities of the questionnaire with the research subject. The face validity of the questionnaire was confirmed, too.

In the present study, the reliability of the questionnaire was measured using internal consistency (Cronbach's alpha coefficient) which was 0.86.

Data were analyzed using descriptive and inferential statistics. Descriptive statistics was used to determine the mean and standard deviation and inferential statistics was used to analyze research variables through utilizing SPSS 16 software. Pearson correlation coefficient was used to determine the relationship between two variables of body image and academic achievement and the mean and standard deviation of 2 variables in two independent groups were compared using independent t-test and one way ANOVA. Also, one way ANOVA and multiple regression analysis were used to test the relationship between other control variables with academic achievement.

Findings:

Based on the results of Table 1, the mean score of body image in adolescents with thalassemia major was lower than healthy adolescents and results of independent t-test revealed a statistically significant difference in this regard ($p<0.001$).

Based on the results of Table 2, the mean score of academic achievement in adolescents with thalassemia major was lower than healthy adolescents and results of independent t-test revealed a statistically significant difference in this regard ($p<0.001$).

Based on the results of Table 3, in healthy adolescents, there is no statistically significant relationship between body image and academic achievement ($p= 0.84$); while in those with thalassemia major, there is a statistically significant relationship between body image and academic achievement ($p<0.001$). Since in adolescents with thalassemia major the value of r is close to 1; thus there is a strong correlation in this group; while in healthy adolescents the value of r is close to 0 and therefore there is a poor correlation.

Based on the results of Table 4, despite the lack of correlation between body image in boys and girls; boys had a better body image compared to girls ($p= 0.37$).

Results of one-way ANOVA and independent t-test presented in Table 4 showed that except educational level and health status –in terms of developing thalassemia- other demographic characteristics have no significant relationship with academic achievement and only educational level and health status had significant relationships with academic achievement.

Table1- Determining body image scores in healthy adolescents and those with thalassemia major

Adolescents with thalassemia major		Healthy adolescents		Determining the level of body image
Percentage	Number	Percentage	Number	Frequency
19	29	0	0	Negative body image (46-107)
81	121	75	113	Mediocre body image (108-169)
0	0	25	37	Positive body image (170-230)
100	150	100	150	Total
122.16		159.38		Mean
16.46		22.136		Standard deviation
Result of independent T-test ($p< 0.001$)				

Table2- Determining academic achievement scores in healthy adolescents and those with thalassemia major

Adolescents with thalassemia major		Healthy adolescents		Determining the level of academic achievement
Percentage	Number	Percentage	Number	Frequency
7	10	0	0	Requiring much effort (below 12)
50	75	16	24	Mediocre (12-16)
28	42	21	33	Good (16-18)
15	23	63	93	excellent (18),
100	150	100	150	Total
16.17		19.24		Mean
1.78		10.87		Standard deviation
Result of independent T-test ($p< 0.001$)				

Table3. Determining the relationship between body image and academic achievement in healthy adolescents and those with thalassemia major

Adolescents with thalassemia major	Healthy adolescents	Relationship between body image and academic achievement
r= 0.73	r= 0.01	Pearson correlation coefficient
p< 0.001	P= 0.84	p-value
Close to 1 and strong	No correlation	Intensity of correlation

Table4. The mean and standard deviation of body image on the basis of gender

Result	Standard deviation	Mean	Body image	
P= 0.37	26.93	139.17	Girl	Gender
	26.99	141.96	Boy	

Table5. The mean and standard deviation of academic achievement on the basis of demographic characteristics

Result	Standard deviation	Mean	Demographic characteristics	
P= 0.54	11.79	18.37	Girl	Gender
	2.06	17.21	Boy	
P= 0.136	1.56	16.54	Under diploma	Mother's educational level
	12.32	18.40	Diploma	
	2.15	17.41	University education	
P= 0.64	2.13	17.08	Under diploma	Father’s educational level
	1.80	17.33	Diploma	
	10.68	18.07	University education	
P= 0.79	1.95	17.26	Housewife	Mother's job
	9.45	17.90	Employed	
P= 0.35	1.62	18.73	Employed	Father’s job
	15.32	19.74	Self employed	
	1.74	17.36	Others	
P= 0.3	2.17	16.53	One child	Number of children
	10.60	18.13	Two children	
	2.50	17.38	More than two children	
P= 0.196	15.54	18.30	Yes	Extra-curricular classes
	1.72	17.14	No	
p< 0.001	16.39	19.89	1	Grade
	2.01	16.36	2	
	2.15	17.08	3	
	1.63	16.65	4	
p< 0.001	10.87	19.24	Healthy	Healthy or suffering from thalassemia
	1.78	16.17	Suffering from thalassemia	

Discussion

Results of this study revealed a significant difference between body image and academic achievement of adolescents with thalassemia major and healthy adolescents had a better body image compared to those with thalassemia major. In this regard, results of studies by Khorana et al. (2006) (8) and Fayez (2013) (5) showed that that adolescents with thalassemia have poor

body images compared to their peers and this is consistent with the results of the present study. Also, results of study of Tajvidi and Zeighami (2012) (7) showed that this is probably because of physical changes in the appearance of patients and especially in their faces as well as performance limitations occurring after developing Thalassemia. These problems in turn may change and lower their body image. On the other hand, findings of this study showed that boys have a better body image compared to girls that is consistent with studies conducted by Ludwig et al. (2009) (13), Blarina et al. (2007) (14), Sosa (2008) (15), Yanour and Thompson (2008) (16). It seems that sexual characteristics and attitudes of girls and boys on their body image have resulted in these differences. Results of study of Abbott and Barber (2010) (21) showed that girls have poor body images compared to boys; because they mostly focus on their aesthetic aspects and their appearance; while boys are more concerned with the functional aspects of their body image. According to the present study, there is a significant difference between academic achievement of healthy adolescents and those without Thalassemia major who have a lower level of academic performance compared to healthy adolescents; so that only a small number of healthy adolescents require more effort and most of them enjoy excellent academic achievement; while half of adolescents with thalassemia have a mediocre level of academic achievement and the rest require more efforts. Results of studies by Khorana et al. (2006) (8), Tavern Charon Sap et al. (2010) (22) and Fayez (2013) (5) showed that adolescents with thalassemia major have lower level of academic performance compared to their peers. Also, results of study conducted by Yahai et al. (2013) (23) showed that personal-social differences between healthy adolescents and those with thalassemia major do not suggest low levels of education. It seems that what decreases the academic performance of adolescents with thalassemia major is their disease condition. This is because of their continuous treatments, such as repeated blood transfusions which force them to skip some classes which in turn may lead to academic failure. In addition, other psychological disorders in these patients such as depression, anxiety, etc. may affect their educational status. Due to their psycho-social problems resulting from chronicity of their disease, adolescents with thalassemia major experience many difficulties in their social activities and educational status and declining academic performance is among the major problems in this period (7). On the other hand, findings of this study showed that despite the lack of significant relationship between academic achievement of boys and girls, studied girls have higher levels of academic performance compared to boys and this is consistent with the results of studies of Sedighi Arfaei et al. (2011) (17) and Arjmand Siahpoosh et al. (2011) (24). This can be attributed to specific individual characteristics of girls and boys and their concern for their educational status.

Results of this study showed that there is no significant relationship between body image and academic achievement of healthy adolescents that is consistent with the results of studies by Sedighi Arfaei et al. (2011) (17), Aghakhani et al. (2006) (18) and Fortman (2006) (19). However, various sources insist on prevalence of body image concerns in adolescence and this problem coincides with great academic expectations by families. Therefore, changing the body image of adolescents can affect their academic achievement (16). Results of studies conducted by Ludwig et al. (2009) (13), Blarina et al. (2007) (14), Sosa (2008) (15), Yanour and Thompson (2008) (16) confirmed the relationship between body image and academic achievement that is inconsistent with the results of the present study. Different results can be attributed to cultural differences in studied countries. On the other hand, results of the present study showed that there is a significant relationship between body image and academic achievement of adolescents with thalassemia major that is consistent with the results of studies by Fayez (2013) (5), Yahai et al. (2013) (23) and Khorana et al. (2006) (8). This consistency indicates the significant relationship between body image and academic achievement due to their disease status. When a possible or real change occurs in the structure and function or the appearance of body, the body image will be impaired. Various factors can change body image, these factors include illness, physiologic changes such as puberty, obesity etc. When a person has a negative body image and thinks that his appearance is lower than desirable and ideal standards of his society, he experience bad feelings and attitudes about himself, such as low self-esteem, low confidence, depression and even in some cases he may experience academic failure (4).

Finally, on-way ANOVA test was performed to determine the mean and standard deviation of factors associated with academic achievement and results showed that except educational level and health status –in terms of developing thalassemia- other demographic characteristics have no significant relationship with academic achievement. Findings suggest that by increasing the level of education, academic achievement of adolescents is declined and this decline in academic achievement has been higher in those with thalassemia compared to healthy adolescents which may be due to their health status. Also, regarding increasing the level of education and poor academic performance in adolescents, it can be pointed out that by increasing level of education and accumulation of different books and curriculum and preparation for university entrance exams, their psychological pressure increases and this has a negative impact on their academic performance. Common problems such as crises associated with beginning a new phase of life, physical changes, educational expectations of parents, the impact of peers and concerns about employment and future are effective as well. Also, investigating other factors affecting academic achievement showed that occupation and education of parents and number of family members have no significant relationship with academic achievement of adolescents and a can be said that the impact of personal characteristics of adolescents on their academic achievement is higher than social, family and cultural variables.

Overall conclusion:

Results of this study showed that healthy adolescents have a better body image and higher academic achievement compared to those with thalassemia major and there is no significant relationship between body image and academic achievement in healthy adolescents. However, this relationship is significant in those with thalassemia major.

Conflict of interest

Authors have reported no conflict of interest in this research.

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