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Associations among Psychosocial Factors in Adolescents with Beta Thalassemia Major

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Abstract:

Background: Beta thalassemia major is a chronic inherited blood disorder associated with physical and psychosocial challenges among adolescents living with the condition. These challenges may affect hope, body image, and self-esteem. However, studies examining the associations among hope, body image, and self-esteem in adolescents with beta thalassemia are limited.

Aim: This study aimed to examine the associations among psychosocial factors, including body image, self-esteem, and hope among adolescents with beta thalassemia major.

Methods: A cross-sectional correlational study was conducted with a total of 137 adolescents diagnosed with beta thalassemia major who attended a thalassemia center at a pediatric hospital. Data were collected through face-to-face interviewsusing a sociodemographic and clinical characteristics questionnaire,the Body Image Scale (BIS), the Herth Hope Index (HHI), and the Rosenberg Self-Esteem Scale (RSES).

Results: The findings indicated a statistically significant negative association between body image and self-esteem ($r = -.236$, $P = .005$). A significant negative association was also observed between hope and body image ($r = -.314$, $P = .000$). However, no statisticallysignificant association was found between hope and self-esteem.

Conclusion: Body image emerges as an important factor that is significantly related to both hope and self-esteem among adolescents living with beta thalassemia major. These findings suggest that psychosocial interventions addressing body image, fostering hope, and supporting self-esteem may be beneficial for adolescents with beta thalassemia major.

Keywords: Beta thalassemia major, Adolescents, Psychosocial factors, Associations.

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1. INTRODUCTION

Beta-thalassemia is one of the most common inherited hemoglobin disorders worldwide and is associated with physical and psychological problems for sufferers and their families (Kumar et al., 2025). Globally, approximately 60,000 people are born each year with symptomatic beta-thalassemia. In Iraq, the total number of currently registered thalassemia cases is estimated at 13,390, with an incidence of 3.4 per 10,000 (Abd Hussein et al., 2024).

Regarding its clinical manifestations, beta thalassemia major is characterized by severe systemic complications, including chronic anemia, bone abnormalities, growth retardation, small stature, and delayed physical maturation, along with an extended therapy regimen, which negatively affects various aspects of patients' lives. Therefore, disease-related changes in physical appearance may contribute to body image distress(Behdani et al., 2015). Body image is a multifaceted term encompassing individuals' negative and positive perceptions, behavioral patterns, cognition, and attitudes regarding their physical appearance(Burychka et al., 2021).Since body image constitutes an important component of self-perception, body image distress may adversely influence self-esteem. Self-esteem reflects an individual's overall sense of self-worth and is particularly important during adolescence, a developmental stage characterized by identity formation and the development of a coherent sense of self (Virk & Singh, 2020).

Moreover, individuals with thalassemia may experience low self-esteem, which may increase their vulnerability to negative emotional states such as fear, fatigue, sleep disturbance, and hopelessness (Anggraini&Huwae, 2026).According to Snyder, hope is characterized by the ability to find ways to achieve desired goals and the intrinsic motivation (the drive to act) to use those ways (Amatory, 2025).Hope is considered particularly important for individuals living with chronic diseases such as thalassemia. Several studies have shown that individuals with lower levels of hope may be more vulnerable to depression and maladaptive coping than those with higher levels of hope (Mardhiyah, 2022). Furthermore, a comprehensive analysis of the function of hope in adolescents with long-term illnesses has revealed that hope supports health, promotes adjustment and adaptation, improves quality of life, is important in finding meaning in life and disease, increases self-esteem, and is an essential component of mental resilience (Griggs & Walker, 2016).

Taken together, body image, self-esteem, and hope are important psychosocial constructs that may be interrelated among adolescents with beta thalassemia major. Although previous studies have examined psychological outcomes among adolescents with thalassemia, limited evidence is available regarding the interrelationships between body image, self-esteem, and hope,particularly in Iraqi populations. Therefore,this study aimed to examine the associations among psychosocial factors, including body image, hope, and self-esteem, in adolescents with beta thalassemia major in Kirkuk City.

METHODOLOGY

The present study was a cross-sectional correlational design that was conducted between October 2025 and May 2026 at the thalassemia center of a Pediatric hospital in Kirkuk City to attain the aim of the study.

Study sample and procedure

A purposive (non-probability) sampling method was used to select adolescents with beta thalassemia major from the thalassemia center during the data collection period. A total of 137 adolescents who met the inclusion and exclusion criteria were included in the study.

Inclusion criteria

- Adolescents aged between 11 and 19 years.
- Adolescents getting routine blood transfusions at the thalassemia center.
- Adolescents who volunteered to take part in the study

Exclusion criteria

- Adolescents who had cognitive impairment.
- Adolescents in critical condition during the data collection period.

Study instrument

The questionnaire consisted of four parts. The first part included sociodemographic and clinical-related information and was designed based on previous studies. The second part included the Body Image Scale (BIS), developed by Hopwood et al. (2001), which was used to evaluate body image perception among the study sample. The BIS consists of ten items rated on a 4-point Likert scale(not at all=0, a little= 1, quite a bit= 2, very much= 3), with total scores ranging from 0 to 30, and a high score represents high body image distress. The third part comprised the Herth Hope Index, a standardized scale introduced by Herth (1992), which was employed to assess participants' hope levels. The HHI consists of 12 items rated on a 4-point Likert scale (1= Strongly disagree, 2= Disagree, 3= Agree, 4= Strongly agree), with total scores varying from 12 to 48, and a high score indicates a high hope level. The fourth part included the Rosenberg Self-Esteem Scale (RSES), developed by Rosenberg(1965), the scale includes ten items, five positively formatted items (1, 3, 4, 7, 10) and five negatively formatted items (2, 5, 6, 8, 9), rated on a 4-point Likert scale ranging from Strongly disagree (1) to Strongly agree (4) with total score varying from 10 to 40 and high score represents participants experiencing high self-esteem.

Validity and Reliability of the Instruments

The validity and reliability of the research instruments were evaluated before data collection. The Herth Hope Index and Body Image Scale were translated into Arabic by the researcher in collaboration with the supervisor because validated Arabic versions of both instruments were unavailable. The Rosenberg Self-Esteem Scale was administered using a previously validated Arabic version. An expert panel assessed all instruments to evaluate their content validity. Additionally, Cronbach's alpha coefficients were computed to assess the instruments' internal consistency. The Cronbach's alpha coefficients for the Herth Hope Index, Body Image Scale, and Rosenberg Self-Esteem Scale were 0.79, 0.86, and 0.82, respectively, showing good internal consistency.

Ethical Consideration

The presentstudy was granted ethical approval from the Ethics Committee of the Faculty of Nursing, University of Kirkuk. Additionally, administrative approval to conduct the study at the thalassemia center was obtained before the commencement of data collection. Before data collection, all participating teenagers and their families were fully given information about the study's purpose, approach, and intended use of the results, and formal informed permission was granted before participation. Beyond this, data were obtained through face-to-face interviews.

Data analysis

The data was analyzed using SPSS Statistics version 26.0. Descriptive and inferential statistics were used. Participants' sociodemographic variables were described using frequencies and percentages. The mean and standard deviation were used to describe the levels of body image, self-esteem, and hope. The Spearman's rank correlation coefficient was utilized to investigate the relationships between hope, body image, and self-esteem.

RESULTS

Table 1. Presents the participants' characteristics and clinical data. The findings revealed that the majority of teenagers (45.3%) were between the ages of 17 and 19, which indicated late adolescence among participants. Gender based proportion was nearly equal, with 50.6% men and 49.4% women. The majority of participants (73.7%) lived in cities, with only 26.3% living in rural areas. Regarding family type, most participants(70.8%) belonged to nuclear families, whereas 19% belonged to extended families, and 10.2% lived in single-parent families. Concerning parental occupation, 45.3% of fathers were employed, while the majority of mothers (91.2%) were unemployed. Regarding age at diagnosis, more than half of the participants (55.5%) were diagnosed before the age of one year, while 44.5% were diagnosed at or after 1 year of age.In addition, 56.2% of the participants received blood transfusions every 2 weeks or less, whereas 43.8% received blood transfusions every 3 weeks or more.

Table 1. Participants' Characteristics and Clinical Data

Variables		frequency	%
Age (Years)	11-13 14-16 17-19	39 36 62	28.4 26.3 45.3
Gender	Male Female	69 68	50.6 49.4
Residence	Urban Rural	101 36	73.7 26.3
Type of family	Nuclear Single-parent Extended	97 14 26	70.8 10.2 19
Father's occupation	Employee Unemployed	62 75	45.3 54.7
Mother's occupation	Employee Unemployed	12 125	8.8 91.2
Age at diagnosis (years)	< 1 ≥1	76 61	55.5 44.5
Blood transfusion frequency	Every ≤ 2 weeks Every ≥ 3 weeks	77 60	56.2 43.8

Table 2 shows descriptive statistics for hope, body image, and self-esteem among adolescents with beta thalassemia major; the mean scores of hope were 37.11 ± 3.595, the mean scores of body image were 11.64 ± 7.272, and the mean scores of self-esteem were 28.19 ± 2.400.

Table 2: Descriptive Statistics for Hope, Body Image, and Self-Esteem

Variables	Mean	Standard deviation
Hope	37.11	3.595
Body Image	11.64	7.272
Self-Esteem	28.19	2.400

Table 3 exhibits a significant negative correlation between hope and body image(r = −.314, P = .000), indicating that higher levels of hope were associated with lower body image distress among adolescents with beta thalassemia major. In addition, a significant negative correlation was found between body image and self-esteem (r = − .236, P = .005), suggesting that adolescents with high body image distresswereassociated with lower self-esteem. No significant correlation was found between self-esteem and hope.

Table 3: Associations among Body Image, Self-esteem, and Hope

Correlation		Hope	Body Image	Self-esteem
Hope	Correlation		-.314**	−.048
	Sig. (2-tailed)		.000	.581
Body Image	Correlation	−.314		−.236**
	Sig. (2-tailed)	.000		.005
Self-esteem	Correlation	−.048	−.236**	
	Sig. (2-tailed)	.581	.005	

DISCUSSION

This study is the firststudy to investigate the association among psychosocial factors, including body image, self-esteem, and hope in adolescents with beta thalassemia major in Kirkuk City.The sociodemographic features of the study sample indicated that nearly half of the patients were aged between 17 and 19 years old. The study's gender distribution was relatively balanced to ensure that the results were representative of both genders. Concerning living area, most participants lived in urban areas. The current findings correspond with a prior study that showed that a higher proportion of patients were from urban areas (Al-Jabri et al., 2015). These may be beneficial, since people in urban areas can more easily access healthcare facilitiesand health promotion programs, which may contribute to continuous medical monitoring and treatment adherence.Furthermore, the findings indicate that half of the fathers were employed, while most of the mothers were housewives. The results were in line with Manzoor and Zakar (2019), who investigated social and demographic characteristics related to parental awareness of thalassemia major screening services in Lahore and noticed that more than half of mothers were housewives and around one-quarter of fathers worked.In terms of frequency of blood transfusion therapy, the present study demonstrated that a higher proportion of respondents received transfusions at two-week intervals. These findings are comparable to research conducted by Rambod et al. (2023), which found that the majority of patients with thalassemia required blood transfusions every two weeks. Frequent blood transfusions may increase the burden of treatment for teenagers with thalassemia and affect their psychosocial adjustment.

The findings demonstrated a significant negative association between body image and self-esteem. These associations may be explained by the fact that body image is an essential component of self-worth during adolescence. Adolescents who perceive their body image positively are more likely to report higher levels of self-esteem and confidence. In contrast, adolescents with beta thalassemia major may experience disease-related physical changes, such as growth retardation and facial or skeletal alterations, which may contribute to body image distress. Greater body image distress may be associated with lower self-esteem (Mediani&Fuadah, 2025). Consequently, these adolescents may perceive themselves as different from their peers. Our findings are support previous studies that reported a significant relationship between body image and self-esteem (Dhanjal&Rathee, 2020; Yildiz et al., 2016). Moreover, maintaining a positive body image despite disease-related physical changes may reflect better psychological adaptation, which may be associated higher self-esteem. Also, people with high self-esteem are less likely to have negative opinions about their bodies and physical appearances, and they are less fearful of other people's judgments of them. Conversely, persons with lower self-esteem may be more prone to evaluate their looks negatively and critically (Virk & Singh, 2020).

Another crucial finding of this study was that no statistically significant association was found between self-esteem and hope. These results may reflect differences in the nature of these two concepts; hope refers to a positive cognitive and motivational attitude, while self-esteem is closely linked to an individual's perception of their own worth. Thus, even with fluctuating self-esteem, adolescents may maintain a sense of optimism about the future (Hosseini et al., 2024). However, the findingsof this study disagree with a previous study that reported a significant association between hope and self-esteem. For instance, a study conducted among adolescents with thalassemia in Iran demonstrated a statistically significant correlation between the hope and self-esteem (Tajvidi&Zeighaini, 2012). These disparities may be related to the use of different measuring instruments.Furthermore, although previous studies have shown that individuals with chronic illnesses who have greater levels of hope demonstrate better coping mechanisms, flexibility, and resilience in the face of disease-related difficulties, despite their health issues, these individuals may approach obstacles as manageable tasks, keep motivation, and preserve life pleasure, demonstrating higher tolerance and patience (Abd El Aziz &Abd El Khalek, 2019).

The result of this study also indicated that a significant negative association between hope and body image. This finding suggests that adolescents with greater body image distress tend to report lower levels of hope. This association may be explained by the disease related physical changes commonly experienced by adolescents with beta thalassemia major, including growth retardation and facial alterations, which may contribute to body image distress. Furthermore, adolescence is a critical period during which concerns about physical appearance become increasingly

important and may influence psychological well-being (Shagar et al., 2017). However, limited evidence is available regarding the association between hope and body image among adolescents with beta thalassemia major. Therefore, the present findings were compared with studies conducted in other clinical populations. These findings are consistent with the study conducted by Heidari and Ghodusi (2015), who reported a significant direct linear relationship between valuing body and hope and mental wellness. In contrast, Liu et al. (2017) found that although body image distress increased over time, hope levels remained stable.

CONCLUSION

The current study shows that body image plays a unique role in adolescents with thalassemia and influences their hope and self-esteem. Therefore, integrating clinical psychosocial support units into existing healthcare frameworks is essential. Such interventions will help these patients minimize unfavorable thoughts about themselves, cultivate a positive body image, and ultimately enhance their overall well-being.

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