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Original Research Article

Quality of life in children undergoing blood transfusion for thalassemia major

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ABSTRACT

Background: Thalassemia major poses substantial challenges globally, necessitating lifelong medical interventions such as regular blood transfusions and iron chelation therapy to manage complications. While advancements have improved prognosis, the disease's chronicity and treatment regimen impact various facets of patients' lives, particularly in paediatric populations, affecting physical health, emotional well-being, and social interactions.
Methods: A cross-sectional observational study was conducted from January 2019 to June 2020 at a paediatric department, among 80 patients from a thalassemia unit meeting specific criteria. HAM-A, HAAM-D and PedsQL-Child Score assessment tools were employed, and statistical analysis was performed using SPSS software and Excel.
Results: Analysis of socio-demographic variables revealed variations in anxiety and depression levels, with no significant associations found between gender, socio-economic status, locality, and anxiety levels. We found significant associations between chelation therapy, transfusion volumes, and haemoglobin levels, with anxiety and depression levels.
Conclusions: Anxiety and depression levels were associated with various domains of child functioning, impacting physical, emotional, social, and school-related aspects. These findings underscore the importance of addressing psychological morbidity in paediatric thalassemia major patients to improve overall health outcomes and enhance quality of life.

Keywords: Thalassemia major, Psychological morbidity, Quality of life, Anxiety, Depression, HAM-A, HAM-D

INTRODUCTION

Thalassemia major, a hereditary blood disorder characterized by the reduced synthesis of haemoglobin, presents a significant global health burden, particularly in regions where the trait is prevalent.[1] Individuals with thalassemia major require lifelong medical management, including regular blood transfusions and iron chelation therapy, to prevent complications associated with severe anemia and iron overload. While advancements in medical treatment have significantly improved the prognosis and life expectancy of individuals with thalassemia major, the disease's chronicity and treatment burden pose ongoing challenges that impact various aspects of patients' lives.[2] In pediatric populations, thalassemia major can profoundly affect physical health, emotional well-being, social interactions, and academic performance.[3] Children living with the condition often experience symptoms of chronic fatigue, shortness of breath, and physical limitations due to anemia, which can interfere with their daily activities and quality of life. Moreover, the requirement for regular blood transfusions and frequent hospital visits can disrupt normal childhood experiences and social development, leading to feelings of isolation and stigmatization.[4]

Beyond the physical manifestations of the disease, pediatric patients with thalassemia major are also at

increased risk of psychological morbidity, including anxiety, depression, and adjustment difficulties.[4] The burden of chronic illness, fear of medical procedures, and uncertainty about the future can contribute to heightened levels of psychological distress in this population.[5] Furthermore, the psychosocial impact of thalassemia major extends beyond the individual patient to encompass family members, who may experience caregiver stress, financial strain, and emotional upheaval as they navigate the challenges of managing a chronic medical condition.[4,6]

While previous research has documented the multifaceted impact of thalassemia major on pediatric patients and their families, there remains a critical need for a deeper understanding of the complex interplay between quality of life and psychological morbidity in this population.[6,7] Examining the factors influencing QoL and psychological well-being among children with transfusion-dependent thalassemia major is essential for informing holistic care approaches that address the diverse needs of patients and promote positive health outcomes.[8]

By elucidating the mechanisms underlying QoL and psychological morbidity in pediatric thalassemia major patients, healthcare providers can develop targeted interventions aimed at enhancing coping strategies, fostering resilience, and improving overall well-being. Additionally, raising awareness about the psychosocial challenges associated with thalassemia major can help reduce stigma, promote social inclusion, and facilitate access to supportive resources for patients and families affected by the condition.

This study aims to address this gap by exploring the quality of life and its association with psychological morbidity among pediatric patients with transfusion-dependent thalassemia major. By elucidating the factors influencing QoL and psychological well-being in this vulnerable population, this research seeks to inform tailored interventions aimed at improving overall health outcomes and enhancing the patient's overall quality of life.

METHODS

This study was conducted at the Department of Paediatrics, GMCH and RNT Medical Colleges in Udaipur, spanning from January 2019 to June 2020. The majority of participants were registered at the thalassemia unit of Bal Chikitsalaya, Maharana Bhupal Hospital, Udaipur, where they received confirmed diagnoses of beta thalassemia major through Hb Electrophoresis and attended day care facilities for blood transfusions.

The study design employed was observational cross-sectional, with a purposive sampling technique utilized to select 80 participants meeting specific criteria. Inclusion criteria comprised patients aged 6 to 18 years with a confirmed diagnosis of thalassemia major undergoing regular blood transfusions and written informed assent/consent provided by patients and parents, respectively. Exclusion criteria encompassed a history of psychiatric disorders in patients and/or parents, patients requiring intensive care and clinical conditions precluding assessment with study tools.

Data collection commenced following approval from the Institutional Research Review Committee, with written informed assent and consent obtained from patients and parents, respectively. Various assessment tools were employed, including the child questionnaire for evaluating quality of life, the Hamilton anxiety and depression rating scales for assessing depression and anxiety in adolescent patients.

Statistical analysis was performed using IBM Statistical Package for Social Sciences (SPSS) Software (version 25) and Microsoft Excel. Descriptive statistics and student's t-test for quantitative data and chi square test for categorical data were utilized for data analysis, with a p-value of less than 0.05 considered statistically significant with 95%CI.

RESULTS

The study examined socio-demographic variables in relation to HAM-Anxiety classification. Among the participants, 52.5% fell into the category of mild anxiety, while 7.5% were classified as having mild to moderate anxiety. Gender distribution revealed that 42.9% of females exhibited mild anxiety, compared to 60.0% of males. However, in the mild to moderate anxiety category, the percentage was similar for both genders, with 8.6% for females and 6.7% for males. Socio-economic status did not significantly correlate with anxiety levels, as indicated by the p value of 0.94. Regarding locality, 50.0% of participants from rural areas showed mild anxiety, while 55.3% of those from urban areas exhibited the same. In summary, while there were variations in anxiety levels across socio-demographic groups, no statistically significant associations were found between gender, socio-economic status, locality, and HAM-Anxiety classification (Table 1).

The analysis examined socio-demographic variables concerning HAM-Depression classification. Among the participants, 8.8% were classified as having mild depression, while 2.5% fell into the moderate category, and 48.8% were deemed normal. Gender distribution revealed that 14.3% of females exhibited mild depression, compared to 4.4% of males. In the moderate depression category, the proportion was the same for both genders, at 4.4%. However, in the normal category, there was a notable difference, with 48.6% of females and 33.3% of males. Socio-economic status displayed varying patterns, with no participants in the lower status exhibiting depression. In the lower middle, 14.3% experienced mild depression, while 7.1% fell into the moderate category. For upper-middle, 50.0% were

classified as normal. Notably, in the upper-lower category, 48.9% were normal. Regarding locality, 11.9% of participants from rural areas showed mild depression, compared to 5.3% from urban areas. In summary, while there were differences in depression levels across socio-demographic groups, statistical significance was observed in gender distribution (p=0.08), indicating a potential association between gender and HAM-Depression classification. However, no statistically significant associations were found between socio-economic status, locality, and HAM-Depression classification (Table 2).

The clinical profile was analyzed concerning HAM-Anxiety classification. For individuals with pallor, those with its absence had no mild or mild to moderate anxiety, whereas 100% of those with pallor present exhibited mild anxiety (p=0.04*). Similarly, no significant associations were found between anxiety levels and the presence or absence of icterus (p=0.55), clubbing (p=0.94), edema (p=0.98), signs of nutritional deficiency (p=0.22), or splenectomy (p=0.106). However, a significant association was observed between chelation therapy and anxiety classification (p=0.018*), with 100% of individuals not undergoing chelation therapy experiencing mild anxiety compared to 56.0% of those undergoing therapy. Moreover, significant differences were noted in the number of transfusions (p<0.001*) and hemoglobin levels (p<0.001*) across anxiety classifications. Individuals with mild anxiety had a mean number of transfusions of 193.71±90.34 and a mean hemoglobin level of 7.09±1.12 g/dL. In contrast, those with mild to moderate anxiety had a higher mean number of transfusions (258.33±138.19) but a lower mean hemoglobin level (5.73±1.39 g/dL). Participants without anxiety had the lowest mean number of transfusions (85.91±60.54) and a higher mean hemoglobin level (7.49±0.80 g/dL). These findings suggest a potential association between anxiety levels and clinical indicators such as chelation therapy, number of transfusions, and hemoglobin levels (Table 3).

The clinical profile was assessed concerning HAM-Depression classification. No significant associations were found between depression levels and the presence or absence of pallor (p=0.97), icterus (p=0.6), clubbing (p=0.54) or edema (p=0.67). However, significant associations were observed between signs of nutritional deficiency and depression classification (p=0.006*), splenectomy and depression classification (p=0.019*), and chelation therapy and depression classification (p=0.046*). Regarding signs of nutritional deficiency, individuals without signs had a higher proportion of mild depression (9.1%) compared to those with signs (1.3%). Similarly, participants without a history of splenectomy had a higher proportion of mild depression (9.5%) compared to those who underwent splenectomy (1.4%). Conversely, individuals undergoing chelation therapy had a higher proportion of mild depression (9.3%) compared to those not undergoing therapy (2.7%). Additionally, significant differences were noted in the number of transfusions (p<0.001*) and hemoglobin levels (p=0.006*) across depression classifications. Participants with moderate depression had the highest mean number of transfusions (290.00±296.99) and the lowest mean hemoglobin level (5.50±2.12 g/dL). In contrast, individuals with mild depression had a lower mean number of transfusions (263.57±81.28) and a higher mean hemoglobin level (6.27±1.06 g/dL). These findings suggest potential associations between depression levels and clinical indicators such as signs of nutritional deficiency, splenectomy, chelation therapy, number of transfusions, and hemoglobin levels (Table 4).

In terms of physical functioning, children classified with MILD anxiety exhibited the highest mean score of 503.57±118.76, followed by those with MILD to MOD anxiety (233.33±91.74). For emotional functioning, children classified with MILD anxiety also showed the highest mean score of 379.76±63.97, followed by those with MILD to MOD anxiety (275.00±52.44). Similarly, in social functioning, children classified with MILD anxiety had the highest mean score of 363.10±69.90, followed by those with MILD to MOD anxiety (233.33±93.10). In school functioning, children with MILD anxiety demonstrated the highest mean score of 341.67±74.63, followed by those with MILD to MOD anxiety (237.50±13.69). The total PedsQL score followed a similar pattern, with children classified with MILD anxiety having the highest mean score (69.05±11.73), followed by those with MILD to MOD anxiety (42.57±8.20). Regarding summary scores, both physical health summary and psychosocial health summary scores were highest for children classified with MILD anxiety classified as MILD to MOD anxiety. These findings suggest a potential association between anxiety levels and various domains of child functioning, highlighting the impact of anxiety on physical, emotional, social, and school-related aspects of children's lives (Table 5).

For physical functioning, children classified with N/A depression exhibited the highest mean score of 700.78±92.56, followed by those classified as NORMAL (517.95±110.32), those with MILD depression (282.14±78.68), and those with MODERATE depression (187.50±88.39). In emotional functioning, children classified with N/A depression again had the highest mean score of 469.53±59.82, followed by those classified as normal (385.26±63.02), those with mild depression (307.14±18.90), and those with moderate depression (212.50±17.68). Similarly, in social functioning, children with N/A depression demonstrated the highest mean score of 448.44±93.10, followed by those classified as normal (366.03±71.52), those with mild depression (260.71±99.85) and those with moderate depression (275.00±35.36). In school functioning, children classified with N/A depression showed the highest mean score of 428.91±47.14, followed by those classified as normal (347.44±73.40), those with mild depression (250.00±35.36), and those with moderate depression (237.50±17.68). The total PedsQL score followed a

similar pattern, with children classified with N/A depression having the highest mean score (89.03±10.41), followed by those classified as normal (70.29±11.21), those with mild depression (47.83±8.76), and those with moderate depression (39.67±3.84). Regarding summary scores, both physical health summary and psychosocial health summary scores were highest for children classified with N/A depression, followed by those classified as normal, those with mild depression, and those with moderate depression (Table 6). These findings suggest a significant association between anxiety and depression levels and various domains of child functioning, highlighting the impact of anxiety on physical, emotional, social, and school-related aspects of children's lives.

Table 1: Socio-demographic variables and their association with levels of anxiety among paediatric patients with thalassemia major.

Socio-demographic variables		HAM anxiety classification			Total	P value
		Mild	Mild to MOD	Normal		
Gender	Female	27(42.9%)	3(8.6%)	15(48.6%)	35 (43.8%)	0.31
	Male	15(60.0%)	3(6.7%)	17(33.3%)	45 (56.3%)	
Socio-economic status	Lower	2(100.0%)	0(0.0%)	0(0.0%)	2 (2.5%)	0.94
	Lower middle	8(57.1%)	2(14.3%)	4(28.6%)	14 (17.5%)	
	Upper	5(71.4%)	2(28.6%)	0(0.0%)	7 (8.8%)	
	Upper lower	21(46.7%)	2(4.4%)	22(48.9%)	45 (56.3%)	
	Upper middle	6(50.0%)	0(0.0%)	6(50.0%)	12 (15.0%)	
Locality	Rural	21(50.0%)	4(9.5%)	17(40.5%)	42 (52.5%)	0.75
	Urban	21(55.3%)	2(5.3%)	15(39.5%)	36 (45.0%)	

Table 2: Association between sociodemographic variables and levels of depression among paediatric patients with thalassemia major.

Socio-demographic variables		HAM- Depression classification				P value
		Mild (7,8.8%)	Moderate (2,2.5%)	N/A (32,40%)	Normal (39, 48.8%)	
Gender	Female	5(14.3%)	0(0.0%)	17(48.6%)	13(37.1%)	0.08
	Male	2(4.4%)	2(4.4%)	15(33.3%)	26(57.8%)	
Socio-economic status	Lower	0(0.0%)	0(0.0%)	0(0.0%)	2(100.0%)	0.19
	Lower middle	2(14.3%)	1(7.1%)	4(28.6%)	7(50.0%)	
	Upper	1(14.3%)	1(14.3%)	0(0.0%)	5(71.4%)	
	Upper lower	4(8.9%)	0(0.0%)	22(48.9%)	19(42.2%)	
	Upper middle	0(0.0%)	0(0.0%)	6(50.0%)	6(50.0%)	
Locality	Rural	5(11.9%)	1(2.4%)	17(40.5%)	19(45.2%)	0.74
	Urban	2(5.3%)	1(2.6%)	15(39.5%)	20(52.6%)	

Values are expressed as frequency (percentage). HAM-D: Hamilton Depression Rating Scale. N/A: Not applicable (definition to be clarified); MOD: Moderate. Statistical analysis was performed using the chi-square test or Fisher's exact test, as appropriate. A p value <0.05 was considered statistically significant.

Table 3: Clinical findings among paediatric patients with thalassemia major and their association with levels of anxiety among them.

Clinical profile		HAM-Anxiety			P value
		Mild	Mild to MOD	N/A	
Pallor	Absent	0(0.0%)	0(0.0%)	4(100%)	0.04*
	Present	42(55.3%)	6(7.9%)	28(36.8%)	
Icterus	Absent	9(45.0%)	1(5.0%)	10(50.0%)	0.55
	Present	33(55.0%)	5(8.3%)	22(36.7%)	
Clubbing	Absent	37(52.9%)	5(7.1%)	28(40.0%)	0.94
	Present	5(50.0%)	1(10.0%)	4(40.0%)	
Edema	Absent	36(52.9%)	5(7.4%)	27(39.7%)	0.98
	Present	6(50.0%)	1(8.3%)	5(41.7%)	

Continued.

Clinical profile		HAM-Anxiety			P value
		Mild	Mild to MOD	N/A	
Signs of nutritional deficiency	Absent	41(53.2%)	5(6.5%)	31(40.3%)	0.22
	Present	1(33.3%)	1(33.3%)	1(33.3%)	
Splenectomy	Absent	37(50.0%)	5(6.8%)	32(43.2%)	0.106
	Present	5(83.3%)	1(16.7%)	0(0.0%)	
Chelation therapy	Absent	0(0.0%)	0(0.0%)	5(100.0%)	0.018*
	Present	42(56.0%)	6(8.0%)	27(36.0%)	
No. of transfusion		193.71±90.34	258.33±138.19	85.91±60.54	<0.001*
Hb (gm/dl)		7.09±1.12	5.73±1.39	7.49±0.80	<0.001*

Values are expressed as frequency (percentage) or mean±standard deviation, as appropriate. HAM-A: Hamilton Anxiety Rating Scale. Hb: Haemoglobin. MOD: Moderate. Statistical analysis was performed using the chi-square test or Fisher's exact test for categorical variables and an appropriate test for continuous variables. *A p value <0.05 was considered statistically significant.

Table 4: Clinical findings among paediatric patients with thalassemia major and their association with levels of depression.

Clinical profile		HAM- depression classification				P value
		Mild	Moderate	N/A	Normal	
Pallor	Absent	0(0.0%)	0(0.0%)	4(100.0%)	0(0.0%)	0.97
	Present	7(9.2%)	2(2.6%)	28(36.8%)	39(51.3%)	
Icterus	Absent	1(5.0%)	0(0.0%)	10(50.0%)	9(45.0%)	0.6
	Present	6(10.0%)	2(3.3%)	22(36.7%)	30(50.0%)	
Clubbing	Absent	5(7.1%)	2(2.9%)	28(40.0%)	35(50.0%)	0.54
	Present	2(20.0%)	0(0.0%)	4(40.0%)	4(40.0%)	
Edema	Absent	5(7.4%)	2(2.9%)	27(39.7%)	34(50.0%)	0.67
	Present	2(16.7%)	0(0.0%)	5(41.7%)	5(41.7%)	
Signs of nutritional deficiency	Absent	7(9.1%)	1(1.3%)	31(40.3%)	38(49.4%)	0.006*
	Present	0(0.0%)	1(33.3%)	1(33.3%)	1(33.3%)	
Splenectomy	Absent	7(9.5%)	1(1.4%)	32(43.2%)	34(45.9%)	0.019*
	Present	0(0.0%)	1(16.7%)	0(0.0%)	5(83.3%)	
Chelation therapy	Absent	0(0.0%)	0(0.0%)	5(100.0%)	0(0.0%)	0.046*
	Present	7(9.3%)	2(2.7%)	27(36.0%)	39(52.0%)	
No. of transfusion		263.57±81.28	290.00±296.99	85.91±60.54	186.18±84.67	<0.001*
Hb(gm/dl)		6.27±1.06	5.50±2.12	7.49±0.80	7.11±1.16	0.006*

Values are expressed as frequency (percentage) or mean±standard deviation, as appropriate. HAM-D: Hamilton Depression Rating Scale. Hb: Haemoglobin. N/A: Not applicable (definition to be clarified). Statistical analysis was performed using the chi-square test or Fisher's exact test for categorical variables and an appropriate test for continuous variables. *A p value <0.05 was considered statistically significant.

Table 5: Association of quality of life of paediatric patients with levels of Anxiety among them.

PedsQL-child score	HAM-anxiety classification			Total	P value
	MILD	MILD to MOD	N/A		
Physical	503.57±118.76	233.33±91.74	700.78±92.56	562.19±170.40	<0.001*
Emotional	379.76±63.97	275.00±52.44	469.53±59.82	407.81±83.68	<0.001*
Social	363.10±69.90	233.33±93.10	448.44±93.10	387.50±100.55	<0.001*
School	341.67±74.63	237.50±13.69	428.91±47.14	368.75±83.30	<0.001*
Total	69.05±11.73	42.57±8.20	89.03±10.41	75.05±17.22	<0.001*
Physical health summary	62.95±14.84	29.17±11.47	87.60±11.57	70.27±21.30	<0.001*
Psychosocial health summary	72.30±11.38	49.72±7.48	89.79±11.02	77.60±15.89	<0.001*

Values are expressed as mean ± standard deviation. PedsQL: Pediatric Quality of Life Inventory; HAM-A: Hamilton Anxiety Rating Scale; MOD: Moderate; N/A: Not applicable (definition to be clarified). Higher PedsQL scores indicate better health-related quality of life. Statistical comparisons were performed using the appropriate statistical test. *A p value <0.05 was considered statistically significant.

Table 6: Association of quality of life of paediatric patients with levels of depression among them.

PedsQL-child score	HAM- depression classification				P value
	Mild	Mild to MOD	N/A	Normal	
Physical	282.14±78.68	187.50±88.39	700.78±92.56	517.95±110.32	<0.001*
Emotional	307.14±18.90	212.50±17.68	469.53±59.82	385.26±63.02	<0.001*
Social	260.71±99.85	275.00±35.36	448.44±93.10	366.03±71.52	<0.001*
School	250.00±35.36	237.50±17.68	428.91±47.14	347.44±73.40	<0.001*
Total	47.83±8.76	39.67±3.84	89.03±10.41	70.29±11.21	<0.001*
Physical health summary	35.27±9.83	23.44±11.05	87.60±11.57	64.74±13.79	<0.001*
Psychosocial health summary	54.52±8.86	48.33±0.00	89.79±11.02	73.25±11.21	<0.001*

Values are expressed as mean ± standard deviation. PedsQL: Pediatric Quality of Life Inventory; HAM-D: Hamilton Depression Rating Scale; MOD: Moderate; N/A: Not applicable (definition to be clarified). Higher PedsQL scores indicate better health-related quality of life. Statistical comparisons were performed using the appropriate statistical test. *A p value <0.05 was considered statistically significant.

DISCUSSION

The present study was done among 80 children with thalassemia major. Among them 56% were male. The male preponderance seen in the present study could be due to the low sex ratio, lower enrolment of the girls in the school, underdeveloped infrastructures and scattered settlements as per data given by the Directorate of Economics and Statistics. In our study, 56% of the families belong to the upper lower socioeconomic class, with more than half of them residing in rural areas. These observations are consistent with the reports of previous researchers.[9–11]

For the evaluation of anxiety and depression among adolescent children we have used Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HDRS or HAM-D). Overall thalassemic children had more anxiety than depression. Similar finding was obtained by previous researchers.[12–14] Contrastingly, Mednick et al suggest that the majority of patients diagnosed with thalassemia do not experience significant symptoms of anxiety or depression.[15] This difference could be due to variation in the study population, and assessment measures.

Chronic anemia leading to easy fatigability, unavailability of blood, long distances from rural areas to the central hospital transfusion centre and irregular blood transfusion all have impact on physical activity, which explains low physical score in thalassemic patients.[16,17] the low emotional and psychological scores could also be cofactors in the deterioration of physical activities.[7,18,19]

Thalassemia major poses significant psychosocial challenges for patients, characterized by physical deformities, stunted growth, hepatosplenomegaly, jaundiced skin, and distinctive facial features, which impact self-esteem and confidence, leading individuals to feel socially isolated and different from others. Consequently, they often withdraw from social interactions, negatively affecting their quality of life and mental well-being (Maden et al).[20] The chronic nature of thalassemia, lifelong need for regular transfusions, and associated complications further compound these challenges, impacting physical health, psychological state, independence, social relationships, personal beliefs, and overall quality of life (Yesilipek et al and Anvar et al).[21,22]

Frequent hospitalizations, separation from family, activity limitations, pain, side effects of treatment, and fear of mortality contribute to feelings of anxiety, hopelessness, and depression, exacerbating the burden on individuals and society. Research indicates a high prevalence (80%) of psychosocial maladjustment among thalassemia major patients, who may encounter a range of emotional and behavioral issues throughout their lives, including frustration, grief, hostility, anxiety, and a sense of helplessness and isolation (Elzaree et al and Naderi et al).[23,24]

Physical performance was the most severely affected parameter in thalassemia patients as evidenced by the low physical health summary score in our study. While comparing the individual domains we also observed that the mean score of the physical domain (70.3) was the lowest compared to the other domains i.e. school (73.8), emotional (81.6), social domain (77.5) which is consistent with the findings of Jafari-Shakib et al and Jordanian children.[25,26] With the advancement in age the patients undergo more blood transfusion, a better understanding of the nature of the disease, evident morphological changes and frequent school absenteeism all these factors may result in poor self-esteem and a negative impact on QoL. Social withdrawal and low social performance will be the result.[27] Researchers in Thailand had different results compared to ours showing that the psychosocial summary score was lower than the physical summary score, with the lowest score in school functioning followed by the emotion functioning.[28] This

difference in the study might be due to the better knowledge and understanding of the disease amongst the parents and better medical infrastructures for the patients.

Yangli et al research was conducted at a district Hereditary Hemoglobinopathy Center, involving 88 patients diagnosed with BTM and 63 of their caregivers. The study utilized Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI) and Short Form-36 (SF-36) assessments administered through face-to-face interviews by a trained psychiatry resident. Results showed that 20.5% of BTM patients scored 17 or above on the BDI, though the difference was not statistically significant (P=0.248). Among BTM patients, 19.3% exhibited mild anxiety, while 14.8% and 4.5% had moderate and severe anxiety symptoms, respectively. The study revealed a negative correlation between BDI and BAI scores and the physical and mental health components of SF-36 in BTM patients. Linear regression analysis indicated that depression adversely impacted the physical and mental health of BTM patients. BTM was associated with increased rates of depression and anxiety in patients exerting negative effects on their physical and mental quality of life.[29]

Our research, in line with findings from Mettananda et al demonstrates that patients with transfusion-dependent beta-thalassemia (TDBT) often receive inadequate transfusions, resulting in lower pre-transfusion haemoglobin levels and diminished quality of life. Logistic regression analysis further revealed a higher prevalence of psychological symptoms, including conduct and peer relationship issues, among patients with lower pre-transfusion haemoglobin levels and those receiving lower transfusion volumes. These findings underscore the importance of ensuring adequate blood transfusions for individuals with TDBT to maintain pretransfusion haemoglobin levels above 9g/dL, thereby mitigating the risk of psychological symptoms.[30–32]

In the current study, adolescents scored significantly lower on self-reported, total, physical summary and psychological summary score in comparison to their younger counterparts. This finding has been reported in earlier studies.[33–35]

Children and adolescents with chronic illness experience apprehension about physical health, effects on puberty, school absences, body image and disruption of social activities (including play and recreation). Physical changes associated with thalassemia such as characteristic facies and stunted growth may affect a child's confidence and self-esteem, causing them to feel different or discriminated. The development of complications may affect the normal functioning of the child, such as daily routine and school attendance. Out of all domains, our study showed that the physical functioning domain has the lowest scores while the highest scores were seen in emotional functioning. While comparing among the sexes there were no significant differences between males and females in thalassaemic children, neither in the mean nor in any of its domains. However, it must be borne in mind that in our study sample males outnumbered females. An earlier investigation 41 also showed similar findings. A study by Ansari et al reported that female patients had significantly better quality of life than males.[7] The parent proxy and child's scores were significantly correlated in all domains which could also be seen in the study by Mikael NA et al and Sinlapamongkolkul P.[33,34]

CONCLUSION

Anxiety and depression levels were associated with various domains of child functioning, impacting physical, emotional, social, and school-related aspects. These findings underscore the importance of addressing psychological morbidity in pediatric thalassemia major patients to improve overall health outcomes and enhance quality of life.

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