OPEN ACCESS

Research Paper

The Prevalence of Depression and its Clinical Characteristics among Thalassemic Patients in Baghdad

Riziq Abdulkareem Jasim[1], Mushtaq Talib Hashim[2]

ABSTRACT:

BACKGROUND:

Thalassemia disorder is an inherited blood disorder causes the body to produce less hemoglobin, it is classified to thalassemia major, thalassemia intermedia and thalassemia minor. Depression is a mood disorder that causes persistent feeling of sadness or emptiness and loss of interest that affects daily living..

OBJECTIVE:

To assess the prevalence of depression and its socio-demographic and clinical characteristics in a sample of thalassemic patients.

PATIENTS AND METHOD:

A cross-sectional study done with 140 thalassemic patients, from April 2022 to march 2023, the screening of depression was done by Beck Depression Inventory scale, the diagnosis of depression was made according to DSM-5 criteria for major depression disorder. The demographic and clinical data were also collected.

RESULTS:

The prevalence of depression was 32.9%, with the highest prevalence among thalassemia major patients 50%, while it was 37.5% among thalassemia intermedia patients and 12% among thalassemia minor patients. there was a significant association between depression and socio-demographics' data of thalassemia major and intermedia, And insignificant association in the data of thalassemia minor.

CONCLUSION:

Depression was common among thalassemic patients. And the severe type (thalassemia major) had the highest rate of depression, which makes them in increased need for psychosocial interventions and support.

KEY WORDS: Thalassemia, Depression, prevalence, demographic data.

[1]*M.B.Ch.B- F.I.C.M.S in Psychiatry, Abu Ghraib General Hospital.*
[2]*M.B.Ch.B.(C.A.B.Psych), Baghdad University College of Medicine.*

Iraqi Postgraduate Medical Journal, 2025; Vol. 24(2): 199-205
DOI: 10.52573/ipmj.2025.147808 *March 14, 2024* *Accepted: June 2, 2024*

INTRODUCTION:

Thalassemia is a form of inherited anemia that is caused by decreased or absent production of either the alpha-globin chains (alpha-thalassemia) or the beta-globin chains (beta-thalassemia) that are made to form the hemoglobin tetramers[(1)], Thalassemia is inherited as autosomal recessive trait. And it is classified according to severity to thalassemia major, intermedia, and minor[(2)]. Thalassemia presentation varies widely depending on the type and severity, which can range from mild to severe anemia needs blood transfusions, it's also affects multiple organs like liver, heart, spleen, musculoskeletal and endocrine systems leads to wide range of symptoms. Thalassemia minor is commonly asymptomatic and has a good prognosis and usually does not increase morbidity or mortality. Thalassemia major is the severe type, and the prognosis in long term relying on the treatment adherence to transfusion and iron chelation therapies [(3)].

The co-morbidity between depression and thalassemia is complex. With many factors playing a role in developing depression like biological, psychological, social and environmental factors. In thalassemic patients attending medical appointments can be physically difficult,

particularly if they have pain, fatigue, or other symptoms. For some, this could add to the stress of managing the condition, which may impact mental health. Reciprocally, if the patients had depression, they might struggle to keep up with their appointments, or ask for help when they have symptoms which might worsen their condition[4].

Depressive disorders are common, have a prevalence of 5–10% in primary health settings. The prevalence of depressive symptoms may reach to 30% in the general population, and women being twice more likely to be affected than men[5]. The etiology of major depressive disorder is believed to be multifactorial, including biological, genetic, environmental, and psychosocial factors, And it's main symptoms include: depressed mood most of the day, mostly every day, anhedonia, Weight change, disturbed sleep: insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive guilt, diminished ability to think or concentrate and recurrent thoughts of death or suicide. DSM-5 demands the presence of five or more from these symptoms (at least one of the symptoms be depressed mood or anhedonia) [6].

PATIENTS AND METHOD:

Design : A cross sectional study was done on 140 patients diagnosed with thalassemia. The samples were taken from 3 governmental hospitals in Baghdad. The research was taken from the 1st of April 2022 to 1st of march 2023. During research an ethical approval were obtained from the managing director of each medical centers, and an informed consent was taken from each patient participated in the study.

Data collection: A 140 participants were taken by using non probability convenience sampling method, and were agreed to take the questionnaire and had a direct structured interview, 50 out of 140 participants were diagnosed with thalassemia major, 40 out of 140 were diagnosed with thalassemia intermedia and 50 out of 140 were diagnosed with thalassemia minor. The inclusion criteria were patients of both sex diagnosed with thalassemia major, intermedia and minor. Age from 15 to 45 years and patients with complications caused by thalassemia (splenomegaly, hepatomegaly and heart failure). The exclusion criteria were patients with any other medical conditions like DM, hypertension, and patients with any previous psychiatric disorder or any family history of mental disorders. Data regarding basic socio-demographic information (age, sex, residence, occupation, level of education, marital status) and clinical information (blood transfusion intervals and complications regarding splenomegaly, hepatomegaly and heart failure) were all collected through direct interview with the patients and through file records after taking their consent. Each participant was screened and the severity of depression were assessed by using Beck Depression Inventory scale. And any participant with total score more than 10 in the scale interviewed to reassess the presence of depression by using the DSM-5 criteria for major depression disorder. The collected data were introduced to Microsoft Excel sheet and loaded into SPSS Statistical Package for the Social Sciences) version 26 Statistical program. Descriptive statistics were presented using tables and grafts. Inferential statistics were done using chi square and Fisher Exact test to find out significance of differences between related variables, p value less than 0.05 considered as cut off point.

RESULTS:

The results detect the prevalence of depression among patients with thalassemia major was 50%. Prevalence of depression between thalassemia intermedia patients was 37.5%. Prevalence of depression among patients with thalassemia minor was 12% . The overall prevalence of depression between different types of thalassemia was 32.9%, and the mean age of patients was 27 years old. The proportion of females was higher than the males represented 82 (58.6%) and 58(41.4%) respectively. More than two thirds of the patients live in rural area 101(72.1%) in comparison to those live in urban area represented 39 (27.9%).

Seventy-seven patients (55%) of sample were single, 57(40.7%) married, while others (divorced and widowed) were 6 (4.3%).

Nineteen patients (13.5%) of the sample achieved primary level of education, 21(15%) achieved secondary level, 60(42.9%) had high school achievement while 40(28.6%) of the sample had college and post graduate achievement.

Unemployed represented 60(42.9%) of the sample, while 50 patients (35.7%) were employed and the remaining 30 (21.4%) were students.

16 patients had blood transfusion every two weeks, 50 patients had monthly blood transfusion and 24 patients had more than month blood transfusion. 36 (25.7%) had complication as splenomegaly, cardiomegaly or heart failure.

The distribution of participants by depression and certain socio-demographic characteristics showed

that there was statistically significant association between depression and complication of thalassemia major p=0.0227, also between depression and job in thalassemia major patients (depression seen more in unemployed patients) as show in the table (1) below.

Table 1: Association between socio-demographic characteristics and depression among thalassemia major patients.

Variables		Total No. 50	Depression		P value
			YES (25)	**NO (25)**	
Age	Mean ± SD	23.46±5.124	23.1±4.1	23.84±6.039	**0.6145**
Gender	Male	22 (44%)	8 (36.4%)	14 (63.6%)	**0.0874**
	Female	28 (56%)	17 (60.7%)	11 (39.3%)	
Marital status	Single	39 (78%)	21 (53.8%)	18 (46.2%)	**0.2428**
	Married	10 (20%)	3 (30%)	7 (70%)	
	Other	1 (2%)	1 (100%)	0 (0%)	
Level of education	Primary	10 (20%)	6 (60%)	4 (40%)	**0.7159**
	Middle school	12 (24%)	7 (58.3%)	5 (41.7%)	
	High school	18 (36%)	8 (44.4%)	10 (55.6%)	
	College, post graduate	10 (20%)	4 (40%)	6 (60%)	
Job	Student	12 (24%)	3 (25%)	9 (75%)	**0.0168**
	Unemployed	28 (56%)	19 (67.9%)	9 (32.1%)	
	Employed	10 (20%)	3 (30%)	7 (70%)	
Residence	Urban	10 (20%)	4 (40%)	6 (60%)	**0.4795**
	Rural	40 (80%)	21 (52.5%)	19 (47.5%)	
Blood transfusion	Every two week	15 (30%)	10 (66.7%)	5 (33.3%)	**0.1228**
	Monthly	35 (70%)	15 (42.9%)	20 (57.1%)	
Complication	Yes	28 (56%)	18 (64.3%)	10 (35.7%)	**0.0227**
	No	22 (44%)	7 (31.8%)	15 (68.2%)	

In thalassemia intermedia group there was significant association between depression and age (seen more in young age groups), job (seen more in unemployed patients), residence (seen more in rural areas), blood transfusion (depression seen more in patients who need more frequent blood transfusions), and complications. p value =0.0056, p=0.0429, p=0.0223, p=0.0207, p=0.0010 respectively. table (2) below:

Table 2: Association between socio-demographic characteristics and depression among thalassemia intermedia patients.

Variables		Total no. 40	Depression		P value
			YES (15)	**NO (25)**	
Age	Mean ± SD	24.65±5.3759	27.6±5.616	22.88±4.456	**0.0056**
Gender	Male	17 (42.5%)	6 (35.3%)	11 (64.7%)	**0.8049**
	Female	23 (57.5%)	9 (39.1%)	14 (60.9%)	
Marital status	Single	22 (55%)	8 (36.4%)	14 (63.6%)	**0.8695**
	Married	18 (45%)	7 (38.9%)	11 (61.1%)	
	Other	0 (0%)	0	0	
Level of education	Primary school	0 (0%)	0	0	**0.6421**
	Middle school	6 (15%)	2 (33.3%)	4 (66.7%)	
	High school	23 (57.5%)	10 (43.5%)	13 (56.5%)	
	College, post graduate	11 (27.5%)	3 (27.3%)	8 (72.7%)	
Job	Student	9 (22.5%)	2 (22.2%)	7 (77.8%)	**0.0429**
	Unemployed	22 (55%)	12 (54.5%)	10 (45.5%)	
	Employed	9 (22.5%)	1 (11.1%)	8 (88.9%)	
Residence	Urban	11 (27.5%)	1 (9.1%)	10 (90.9%)	**0.0223**
	Rural	29 (72.5%)	14 (48.3%)	15 (51.7%)	
Blood transfusion	Every two week	1 (2.5%)	1 (100%)	0	**0.0207**
	Monthly	15 (37.5%)	9 (60%)	6 (40%)	
	More	24 (60%)	5 (20.8%)	19 (79.2%)	
Complication	Yes	8 (20%)	7 (87.5%)	1 (12.5%)	**0.0010**
	No	32 (80%)	8 (25%)	24 (75%)	

There was no significant association between socio-demographic characteristics of thalassemia minor patients with depression.

Table 3: Association between socio-demographic characteristics of depression among thalassemia minor patients.

Variables		Total 50	Depression		P value
			YES (6)	NO (44)	
Age	**Mean ± SD**	**32.62±10.028**	**34.5±9.268**	**32.159±10.559**	**0.6085**
Gender	Male	19 (38%)	1 (5.3%)	18 (94.7%)	**0.251**
	Female	31 (62%)	5 (16.1%)	26 (83.9%)	
Marital status	Single	16 (32%)	1 (6.25%)	15 (93.75)	**0.117**
	Married	29 (58%)	3 (10.3%)	26 (89.7%)	
	Other	5 (10%)	2 (40%)	3 (60%)	
Level of education	Primary	9 (18%)	1 (11.1%)	8 (88.9%)	**0.498**
	Secondary	3 (6%)	1 (33.3%)	2 (66.7%)	
	High school	19 (38%)	1 (5.3%)	18 (94.7%)	
	College, post graduate	19 (38%)	3 (15.8%)	16 (84.2%)	
Job	Student	9 (18%)	0 (0%)	9 (100%)	**0.391**
	Unemployed	23 (46%)	4 (17.4%)	19 (82.6%)	
	Employed	18 (36%)	2 (11.1%)	16 (88.9%)	
Residence	Urban	18 (36%)	3 (1.7%)	15 (83.3%)	**0.446**
	Rural	32 (64%)	3 (9.4%)	29 (90.6%)	

DISCUSSION:

The research finds out that the prevalence of depression among patients with thalassemia was 32.9%. The result was consistent with other studies in the nearby countries in Egypt the prevalence of depression between the patients with thalassemia was (32.1%)[7] , in Lebanon (35%)[8], in Turkey (20.5%)[9], in Iran the prevalence was (30.8%)[10]. While the highest prevalence was in Palestine (78.5%)[11] ,and this could be due to socio-cultural factors and unstable economical and political status of this country. The association between socio-demographic characteristics of patients with thalassemia and depression was also the main aim of this study. There was no significant association between age and depression in patients with thalassemia major. While there was significant association between age and depression in thalassemia intermedia (p value = 0.0056). This could be due to early onset of complications in patients with thalassemia major which affects their daily life activities and mental health in early stages, in comparison to patients with thalassemia intermedia subtype which are susceptible to complications in much later stages in life with less frequent blood transfusions and hospitalizations.

Females represented (58.6%) of the sample while male represented (41.4%) this was consistent with other studies: In Basra females represented (57.5%) and males (42.5%)[12]. In Palestine females represented (55.2%) and males (44.8%)[11].

This study showed insignificant association between gender and depression in patients with thalassemia and it was consistent with studies in Iran mentioned above[10,13].

The study detected statistically no significant association between depression and their marital status. However, the percentage of depression was higher among singles (54.6%) and the reason for it could be that stable marriage could creates a wide range of mental support and stability that singles, widowed and divorced might not have. Similar results were reported by a study in south of Iran[13].

Although there was no statistical significant association between level of education and depression but it observed that higher prevalence of depression among those uneducated or had lower level of education this consistent with the south of Iran study mentioned above[13], in addition the study in Palestine observed statistical significance between education and depression in thalassemia[11]. This might be due to the fact that

patients with higher level of education are having more knowledge about their conditions which could help the patients to adapt more to their symptoms or seeking early help regarding depression while patients with lower level of education lead them to misunderstanding, low self worth and self blame.

This study showed significant association between job and depression in thalassemia major (p value=0.0168), and in thalassemia intermedia (p value =0.0429). While there was no significant association in Thalassemia minor. This could be attributed to the disability or health problems caused by thalassemia major and intermedia that prevent them from getting or continue in a stable job, all that with the burden of economic challenges and high cost of medication leads to psychological problems and finally to depression.

There was statistical significance between living in rural area and depression in patients with thalassemia intermedia (p value =0.0223). This might be due to difficulties to access the health care services and life style differences between rural and urban area. This consistent with Shaligram study who discovered that 75% of the thalassemic patients in rural area were susceptible to depression[14].

There was significant association between blood transfusion and thalassemia (p value = 0.0207). Those with blood transfusion every 2 weeks were more vulnerable to depression, probably due to health problems and complications related to blood transfusions associated with increase of financial burden and its effect on their daily functioning level. There was significant correlation between depression and complications of thalassemia major (p value=0.0227), and also of thalassemia intermedia (p value =0.0010). Having complications like splenomegaly, hepatomegaly or heart failure, will impacts all aspects of the patient's life; psychologically, physiologically, socially and financially which make them more vulnerable to develop depression and vice-versa.

CONCLUSION:

The prevalence of depression among thalassemic patients in Baghdad was 32.9%. With the highest prevalence was among patients with thalassemia major subtype 50%. There was statistically significant association between depression and age, occupation, residence, blood transfusions and complications among patients with thalassemia major and intermedia. And no significant association between depression and socio-demographic characteristics of thalassemia minor patients.

REFERENCES:

1. Weatherall D, Akinyanju O, Fucharoen S, Olivieri N, Musgrove PInherited disorders of hemoglobin.In:, Jamison D T, Breman J G, Measham A R, Alleyne G, Claeson M, Evans D B, et al.., editors. Disease control priorities in developing countries. 2nd ed. Washington (DC): World Bank; 2006;34:663–80.
2. Modell B, Darlison M. Global epidemiology of haemoglobin disorders and derived service indicators. Bull World Health Organ. 2008;86:480–87.
3. Zhang H, Zhabyeyev P, Wang S, Oudit GY. Role of iron metabolism in heart failure: From iron deficiency to iron overload. Biochim Biophys Acta Mol Basis Dis. 2019;1865(7):1925-37.
4. National Institute of Mental Health, NIH publication No.21-MH-8015,chronic illness and mental health: recognizing and treating depression, revised 2021.
5. Semple D. & smyth R , depressive illness , oxford handbook of Psychiatry, 4th edition, New York NY 10096 US of America, oxford University press, 2019:242.
6. Semple D. & smyth R , depressive illness , oxford handbook of Psychiatry, 4th edition, New York NY 10096 US of America, oxford University press, 2019:246.
7. Yahia S, El-Hadidy MA, El-Gilany A-H, Anwar R, Darwish A, Mansour AK. Predictors of anxiety and depression in Egyptian thalassemic patients: a single center study. Int J Hematol . 2013;97(5):604–9.
8. Khoury B, Musallam KM, Abi-Habib R, Bazzi L, Ward ZAL, Succar J, et al. Prevalence of depression and anxiety in adult patients with β-thalassemia major and intermedia. Int J Psychiatry Med . 2012;44(4):291–303.
9. Yengil E, Acipayam C, Kokacya MH, Kurhan F, Oktay G, Ozer C. Anxiety, depression and quality of life in patients with beta thalassemia major and their caregivers. Int J Clin Exp Med. 2014 Aug 15;7(8):2165-72. PMID: 25232402; PMCID: PMC4161562.
10. Shafiee A, Nazari S, Jorjani S, Bahraminia E, Sadeghi-Koupaei M. Prevalence of depression in patients with β-thalassemia as assessed by the beck's depression inventory. Hemoglobin . 2014;38(4):289–91.
11. Sarhan AL, Modallal S, Mahamid FA, Berte DZ. Depression symptoms and associated factors

among thalassemia patients in the Palestinian Territories: a cross-sectional study. Middle East Curr Psychiatr . 2022;29(1).

12. Suhaim SK, Hamzawi A. Psychoneurotic Profiles Of Thalassemia. Al Qadisiyah Medical Journal. 2009;(8).

13. Sarafraz M, Mohammadzadeh A, Ataei B. Prevalence of Depression Among Patients With Thalassemia in Southern of Iran. International Electronic Journal of Medicine. 2018;7(1):38–42.

14. Shaligram D, Girimaji SC, Chaturvedi SK. Psychological problems and quality of life in children with thalassemia. Indian J Pediatr . 2007;74(8):727–30.