
ORIGINAL ARTICLE**Prevalence and Intensity of Depression in Mothers of Children with Beta-Thalassemia Major In Talghani Hospital of Gorgan, Iran**

Nargesbeygom Mirbehbahani¹, Mohammad Salehi², Azam Jahazi^{3*}, Mohebbeddin Karimi⁴

¹Department of Hematology, Golestan University of Medical Sciences, Gorgan, Iran, ²Department of Psychologist, Golestan University of Medical Sciences, Gorgan, Iran, ³Department of Midwifery, Gorgan Branch, Islamic Azad University, Gorgan, Iran, ⁴Hematology-Oncology Research Center, Thaleghani Hospital, Golestan University of Medical Sciences, Gorgan, Iran.

Abstract:

Background: Thalassemia is a chronic disease that it leads to psychological and social problems for parents. Mothers are at markedly increased risk of suffering from psychological distress and depression because they usually take on a considerable part of extra care that their children need. This study was designed to determine prevalence and intensity of depression in mothers with a thalassemic child. **Material and Methods:** In this cross – sectional study, 65 mothers of children with thalassemia major (case group) and 65 mothers of children without thalassemia major (control group) were assessed using the Beck Depression Inventory (BDI). Data were analyzed by using SPSS (v 16.0) for windows. **Results:** Prevalence of depression was significantly higher in case group than that in control group (84.6% vs. 56.9%, $p < 0.05$). Moderate depression had a highest prevalence in the both groups (33.4% in case group and 30.8% in control group). Prevalence of severe depression in case group was markedly higher than that in control group (29.2% vs. 3.1% $p < 0.05$). There was a significant difference between intensity of depression in mothers of case group that had another child with beta-thalassemia major ($p < 0.05$). **Conclusion:** Mothers of children with thalassemia major are vulnerable to depression. They need psychosocial support to promote their health.

Keywords: Beck Depression Inventory, Depression, Major beta-thalassemia, Mother.

Introduction:

Thalassemia is an inherited hemoglobin disorder that is becoming a major health problem in the world, especially in Mediterranean region, the Middle East, the

Indian subcontinent and South Asia. Each year, 300,000-400,000 babies with severe forms of haemoglobin disorders are born [1]. 50,000 to 100,000 children die of thalassemia major in low and middle income countries, while about 7% of the world's population is a carrier of a hemoglobin disorder [2]. The average life expectancy for thalassemia major is about 10 years [3].

Children with thalassemia appear healthy at birth, but develop anemia that becomes progressively worse due to the partial or total absence of hemoglobin. Because of this condition, they need regular blood transfusions and iron chelation to manage chronic anemia and serum iron levels [1]. The more severe form is beta-thalassemia major, which warrants regular blood transfusions from an early age. The aim of regular blood transfusions is to eliminate the primary complications of severe thalassemia by ameliorating anemia and suppressing erythropoiesis. The chronicity and complications of beta-thalassemia major affect the quality of life of victims and parents and cause physical, psychological, and economic problems [4].

As there is no definitive cure for this disease, the majority exclusively depend on blood transfusions as a treatment option that creates a burden not only on health system but also on the affected families, who are vulnerable to, social, and psychological problems [5, 6]. Thus, parents of these children are exposed to protracted physical and emotional suffering for their offsprings' devastating health problem. They usually feel the most responsible, guilty and hopeless, as well

as worried about the health and future of their children [7, 8].

Today, undiagnosed and untreated depression has become major health problems throughout the world. Nowadays, depression is so common that it is sometimes called "Psychological Flu" [9]. In several studies, the prevalence of depression has been reported to be about 10 to 30 percent [10, 11].

On the basis of World Health Organization report on burden of diseases, depression is on the top regarding the extent of its related disability and death: the risk of suicide is 30 times higher in depressed people as compared with the normal population [12].

In many studies, prevalence of depression in women is reported to be two times more than men and it is attributed to their biologic, psychological and socio-economic conditions [10, 13, 14]. Mothers have to deal with multiple roles inside and outside of the house which are sometimes opposing [15]. They usually take active roles in the care of their ill children and even might quit their jobs or favorite activities. Thus, they bear greater stresses than fathers and are at higher risks of depression [16]. On the other hand, mothers' depression may decrease their sense of responsibility regarding taking care of their children and getting involved in their education and proper nutrition. It may also give rise to rejecting behavior and hostility toward children [17-19]. In brief, depression affects almost all aspects of life and can eventually make normal life impossible. This is while many types of depression are amenable to treatment and the more the treatment is delayed the harder it becomes to treat the patient [10].

Several studies have indicated that presence of a patient or disabled child in the family can cause stress and depression in parents [7-8, 20-22].

Mothers with ill children had a significantly higher rate of depression compared to mothers of normal children ($p < 0.05$). There was no difference between mothers of diabetic and asthmatic children with respect of relative frequency of depression [23].

Despite molecular and genetics knowledge about thalassemia, there are few studies about psychosocial aspects of this disease in suffering families in Iran. Furthermore, Caspian's sea margin is assumed as one of the prevalent areas for beta-thalassemia major. We designed this study to determine and compare prevalence and intensity of depression in mothers with at least one thalassemic child and in mothers without thalassemic child in Talghani Hospital of Gorgan, Iran.

Material & Methods :

This is a cross-sectional study conducted between 1 April 2011 and 1 July 2011 in Talghani Hospital of Gorgan (a city located in the north of Iran). By The non-probability convenient sampling technique, 130 mothers referred to Talghani Hospital of Gorgan for treatment of their children were included and were recruited in two groups; first, case group: mothers of children with thalassemia major and second, control group consisting of mothers of children without thalassemia major referred to general clinic of the hospital for more general problems. Only the mothers of the children were included in the study. Grandmothers and step mothers were excluded.

The questionnaire used for data collection consisted of two parts: the first part was completed by interviewers and had 15 questions (10 about the mother and 3 about the child). The second part – a translated and validated version of BDI consisted of 21 questions which were filled in by the mothers, themselves. BDI is one of the self-administered tests which were used as an objective method for measuring the intensity of depressive symptoms. In this study mothers with BDI scores higher than 10 were considered depressed. Mothers with BDI scores 11-16 were classified as mild depression, BDI scores 17-30 were classified as moderate and in need of consultation for depression and BDI scores >30 were classified as severe depression.

The study was approved by the Golestan University of Medical Sciences Research Ethics Committee. Data

were analyzed by using SPSS (v 16.0) for windows. Frequency distribution, mean and chi-square tests were used.

Results:

We studied 130 mothers including 65 in case group (mothers of thalassaemic children) and 65 in control group (mothers of children without thalassemia).

There was no significant difference in age of the mothers, age of their children, maternal education, marital status and having a child with another disease

(any disease except thalassemia major) between the study groups. Demographic Characteristics of Mothers in the Case Group and Control Group are recapitulated in (Table 1).

In classifying the groups according to BDI score, 70.8% of all of the mothers, 84.6% of mothers of children with thalassemia and 56.9% of mothers of children without thalassemia had BDI score higher than 10 and there was a significant difference between the two groups (p< 0.05).

Table 1: Demographic Characteristics of Mothers in the Study Groups

Characteristic	Case group (n=65)	Control group (n=65)	Test Statistic	p value
Age of the mothers(mean±SD)	31.2 ± 6.2	29.8 ± 6.9	1.217	0.226
Age of their children(mean±SD)	08.6 ± 7.5	07.3 ± 5.9	1.098	0.274
Marital status (%)			0.219	0.640
Married	84.6% (55)	81.5%		
Divorced or widow	15.4% (10)	18.5%		
Educational Status (%)			0.366	0.546
Diploma or lower	23% (15)	27.7%		
Higher than diploma	77% (50)	72.3%		
Having a child with another disease (%)	06.2% (4)	07.7%	- 0.346	0.726

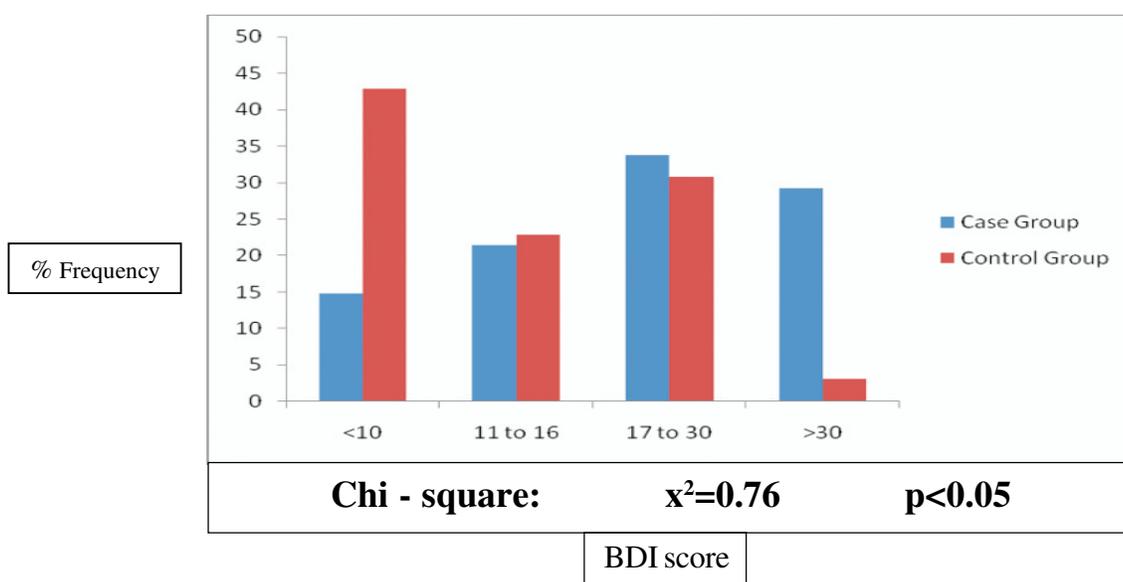


Fig 1: Prevalence and intensity of depression in the study groups

Table 2: Demographic Characteristics of Mothers in Case Group According to Intensity of Depression

BDI Score Characteristic	BDI Score			Test Statistic	p value
	0-16	17-30	>30		
Age of their thalassemic child (%)				0.427	>0.05
<10 years old	40.0	30.0	30.0		
>10 years old	31.4	37.2	31.4		
Marital status (%)				0.439	0.803
Married	40 (22)	30 (17)	30 (16)		
Divorced or widow	32.7 (3)	36.4 (4)	30.9 (3)		
Educational Status (%)				2.03	0.362
Diploma or lower	46.7 (7)	20 (3)	33.3 (5)		
Higher than diploma	34 (17)	40 (20)	26 (13)		
Having another child with thalassemia major (%)	16.7	50.0	33.3	1.54	0.01
Having a child with another disease (%)	50 (2)	25 (1)	25 (1)	0.136	>0.05

The mean BDI score for all mothers was 23.4 (0-60), which was 27.5 (4-60) for case group and 19.3 (0-53) for control group. There was a significant difference in the mean BDI score between the case and control groups ($p < 0.05$). Moderate depression (BDI score 17-30) was the most prevalent in two groups: 33.8% in case group and 30.8% in control group. Severe depression (BDI score >30) was more prevalent in case group than control group: 29.2% vs. 3.1% ($p < 0.05$) (Fig. 1).

In case group, intensity of depression of mothers (mild, moderate or severe) had no significant difference according to age of thalassemic child, maternal educational status, marital status and having a child with another disease (any disease except thalassemia major) ($p > 0.05$) but there was a significant difference between intensity of depression in mothers of case group that had another child with beta-thalassemia major ($p = 0.01$) (Table 2).

Discussion:

Based on the findings of our study, the prevalence of depression in mothers of children without thalassemia

was 56.9% and in mothers of children with thalassemia was 84.6% which is higher than other reports [9, 11, 16, 24].

Sharghi et al. 2006 studied 294 mothers using the Beck's depression Inventory (BDI) in Iran. They were recruited in three groups: mothers of children with thalassemia, mothers of children with blood malignancies and a control group. The mean BDI score for all mothers was 17.23 which was 17.9 for the first group, 20 for the second group and 13.81 for the control group. There was also significant difference between first and second groups with control group ($p = 0.01$); while, there was not any statistical difference between the first and second groups. The only variable bearing a statistically significant relationship with the depression score of mothers was the child's disease. The prevalence of depression in mothers of thalassemic children was 51% and in the control group was 31.4%. Also that study showed that the only variable bearing a statistically significant relation with the depression scores of mothers was the child's disease: for thalassemia ($p = 0.015$), for blood

malignancies ($p = 0.001$) [9]. In this study mothers with BDI scores equal to or higher than 19 were considered depressed but in our study mothers with BDI scores higher than 10 were considered depressed. This difference in definition of depression according to BDI score may be the reason of our high prevalence of depression in case and control groups.

In the study of Olsson from Sweden, 45% of mothers having children with intellectual disorders, 50% with children suffering from autism and 17% of the control group were depressed according to Beck depression Inventory [16]. Kheirabadi et al. 2007 compared the prevalence of depression in mothers of diabetic children, asthmatic children & normal children. Each group consists of 100 mothers. Relative frequency of depression in mothers of normal children, diabetic children & asthmatic children was reported to be 16%, 30% and 27% respectively. The prevalence of depression in mothers of diabetics and asthmatic children was higher than that in mothers of normal children; but that was less than that in mothers of thalassemic children [23].

In another study from Iran, Kaviani and colleagues (2002) assessed 1070 adults in a random sample of Iranian population living in the capital city of Tehran using the BDI test and clinical psychiatric interview. Their study showed that overall prevalence of depressive disorders in Tehran was about 22.5%: 30.5% among women (mean BDI score = 12.16) and 16% among men (mean BDI score = 8.47). There appeared to be a significant relationship between depression and educational level, marital status, and occupation [11].

The high prevalence of depression among our controls might be partially explained by the following reasons: as hospital-based controls, we selected mothers who had come themselves or had been referred to a university hospital seeking treatment for their ill

children. Thus this study has the shortcomings of using hospital versus community controls (they might have been of low socioeconomic class; the children's disease might have been refractory to general managements, etc). Unfortunately, we cannot quantify this as we do not have access to other characteristics of this control group.

In our study, the mean BDI score was 27.5 in case group and 19.3 in control group. Moderate depression was the most prevalent in two groups: 33.8% in case group and 30.8% in control group. Severe depression was more prevalent in case group than control group: 29.2% vs. 3.1%. According to a previous study from Iran, the mean BDI score for women in Tehran has been 12.16 [11] which is lower than BDI score of our two groups. This can indicate the role of child's disease on the depression score of the mother.

In another research report from Toronto, the mean BDI scores of women referring to a psychotherapy center has been 23.6 which is near to the BDI score of mothers with thalassemia children in our study. This similarity in BDI scores can implicate the unmet need of these mothers for receiving psychiatric services [24].

Existence of long-lasting diseases in children especially those which don't have definitive cures is a condition which causes stress for mothers and can put them at conflicts with life situations and predispose them to depressive disorders [9].

In medical centers for the care of chronically/seriously ill children, there should be some units providing psychiatric consultation in order to screen and manage depressive disorders among mothers. This can help them get through the child's disease more healthily and hopefully and let them remain effective caregivers for the ill child and also for the rest of the family.

References:

1. Wahyuni MS, Ali M, Rosdiana N, Lubis B. Quality of life assessment of children with thalassemia. *Paediatr Indone* 2011; 51(3): 163-169.
2. World Health Organization. WHO-TIF Meeting on the Management of haemoglobin disorders 2007; Geneva: WHO.
3. Lodhi Y. Economics of thalassemia management in Pakistan. In: Ahmad S, ed. Thalassemia Awareness Week (11-7) Rawalpindi: Friends of Thalassemia; 2003.
4. Weatherall DJ, Clegg JB. Inherited hemoglobin disorders: an increasing global health problem. *Bull World Health Organ* 2001; 79(8):704-712.
5. Shaligram D, Girimaji SC, Chaturvedi SK. Psychological problems and quality of life in children with thalassemia. *Indian J Pediatr* 2007; 74(8):727-730.
6. Bandyopadhyay B, Nandi S, Mitra K, Mandal PK, Mukhopadhyay S, Biswas AB. A comparative study on perceptions and practices among parents of thalassemic children attending two different institutions. *Indian J Comm Med* 2003; 28(3):128-132.
7. Saviolo-Negrin N, Cristante F, Zanon E, Canclini M, Stocco D, Girolami A. Psychological aspects and coping of parents with a haemophilic child : a quantitative approach. *Haemophilia* 1999; 5(1):63-68.
8. Aydinok Y, Eremis S, Bukusoglu N, Yilmaz D, Solak U. Psychosocial implications of thalassemia major. *Pediatr Int* 2005; 47: 84-89.
9. Sharghi A, Karbakhsh M, Nabaei B, Meysamie A, Farrokhi AR. Depression in mothers of children with thalassemia or blood malignancies: a study from Iran. *Clinical Practice and Epidemiology in Mental Health* 2006; 2:27.
10. American Medical Association. Essential guide to depression. New York: Simon & Schuster; 1998.
11. Kaviani H, Ahmadi abhari SA, Nazari H, Hormozi K. [Prevalence of depressive disorders in Tehran resident population, 2000]. *The Tehran University Medical Journal* 2002; 60: 393-399.
12. Kendell RE, Blackburn IM, Davidson KM. Cognitive therapy for depression and anxiety: a practitioner's guide. USA: Blackwell science; 1995.
13. Altshuler LL, Choen LS, Moline ML, Kahn DA, Carpenter D, Docherty JP, Ross RW. Treatment of depression in women: a summary of the expert consensus guidelines. *J Psychiatr Pract* 2001; 7(3):185-208.
14. Gazmararian JA, James SA, Lepkowski JM. Depression in black and white women. The role of marriage and socioeconomic status. *Ann Epidemiol* 1995; 5(6): 455-463.
15. Downey G, Coyne JC. Children of depressed parents: an integrative review. *Psychol Bull* 1990; 108(1): 50-76.
16. Olsson MB, Hwang CP. Depression in mothers and fathers of children with intellectual disability. *J Intellect Disabil Res* 2001; 45(6): 535-543.
17. Beck CT. Maternal depression and child behaviour problems: a meta-analysis. *J Adv Nurs* 1999; 29(3): 623-629.
18. Paykel ES. Which depressions are related to life stresses? *Acta Neuropsychiatr* 2002; 14(4):167-172.
19. Nolen-Hoeksema S, Keita GP. Women and depression: introduction. *Psychology of Women Quarterly* 2003; 27(2): 89-90.
20. Paykel ES. Life events and affective disorders. *Acta Psychiatr Scand* 2003; 108(Suppl.418): 61-66.
21. Tennant C. Life events, stress and depression: a review of recent findings. *Aust NZ J Psychiatry* 2002; 36(2):173-182.
22. Paternal reactions to a child with epilepsy: uncertainty, coping strategies, and depression. *J Adv Nurs* 2005; 49(4), 367-376.
23. Kheirabadi G, Malekian A, Fakharzadeh M. [Comparative study on the prevalence of depression in mothers with asthmatic, type I diabetic and healthy children]. *J Res In Behavio Scienc* 2007; 5(1): 21-25.
24. Ali A, Oatley K, Toner BB. Emotional abuse as a precipitating factor for depression in women. *Journal of Emotional Abuse* 1999; 1(4): 1-13.

*Author for Correspondence: Azam Jahazi, Islamic Azad University Gorgan Branch, Gorgan, Iran.
Phone: +981713351787, Fax No: +981713351913 E-Mail: ajahazi@gmail.com