Evaluation of mental health and quality of life among β-thalassemia major patients

Original Article

Farzan Khairkhah (MD) [1]
Hassan Mahmoodi Nesheli (MD) [*2]
Alireza Yahyaei (MD) [2]
Elmira Khodabakhsh (MD) [3]
Seyed Reza Hosseini (Ph.D) [4]

1.Department of Psychology, Babol University of Medical Science, Babol, IR Iran.
2.Non-Communicable Pediatric Diseases Research Center, Amirkola Children's Hospital, Health Research Institute, Babol University of Medical Sciences, Babol, IR Iran
3.Babol University of Medical Sciences, Babol, IR Iran
4.Social Determinants of Health (SDH) Research Center, Babol University of Medical Sciences, Babol, IR Iran

∗ Correspondence:

Hassan Mahmoodi Nesheli, Non-Communicable Pediatric Diseases Research Center, No 19, Amirkola Children's Hospital, Amirkola, Babol, Mazandaran Province, 47317-41151, IR Iran.

E-mail: mahmoodi86@yahoo.com
Tel: +98 1132346963
Fax: +98 1132346963

Received: 25 April 2015
Revised: 22 May 2015
Accepted: 23 June 2015

Abstract:

Background: Since the reduction of mental health in patients with Thalassemia may affect the quality of life and cause dysfunction in various dimensions, so the assessment of this disorder is necessary to choose the appropriate treatment. Therefore, the aim of this study was to investigate the mental health and quality of life in patients with Thalassemia major.

Methods: In this cross-sectional descriptive study, all Thalassemia major patients with 15 or more than 15 years old, referred to Amirkola Institute, were recruited. Mental health status and quality of life were measured via GHQ28 and SF-36 standard questionnaires, respectively.

Results: A total of 80 women and 70 men with the mean age of 24.17±7.34 were included in the study. The results indicated that in case of quality of life, the physical activity part was significantly correlated with stress, social dysfunction, physical symptoms and depression (P<0.001). Social activity, mental health and general health (except depression) were significantly correlated (P<0.001). Social dysfunction was more prevalent in men (P=0.016) but there was no significant difference between men and women in quality of life.

Conclusions: There is an association between some of the areas of mental health and areas of quality of life, therefore a reduction in mental health status in thalassemia major patients may affect their quality of life. The incidence of mental disorders in this study was twofold more than previous studies and since none of patients met any psychologist during their treatment period, it is suggested that the screening test should be considered for mental disorders in Thalassemia major patients.

Keywords: Mental Health, Quality Of Life, Thalassemia Major

Citation:
Khairkhah F, Mahmoodi Nesheli H, Yahyaei AR, et al. Evaluation of mental health and quality of life among β-thalassemia major patients. Caspian J of Pediatr Sep 2015; 1(2): 54-59.

Introduction:

β-Thalassemia major is a chronic genetic disease caused by deficiency of one or more polypeptide globin chain synthesis that will be transmitted from generation to generation due to Mendelian genetic rules. According to the world health organization (WHO), Thalassemia is one of the most common chronic genetic disorders among 60 countries in the world, and it effects on 100000 children's life around the world every year[1]. Thalassemia is an important health problem especially in Iran and in south-east Asia such as Thailand in which %1 of population suffers from thalassemia [2]. Three million people are carriers of this disease. In Iran, the average rate of children suffering from major β-thalassemia is 0.73 in 1000 live births, and this rate differs from 0.8 to 3.52 in 1000 live births in States [3]. Observation shows that these rates have been decreasing. Psychologically, patients suffering from Thalassemia are under special pressure.

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]

These tensions threat and damage the psycho-somatic health of these people. Length of disease and duration of treatment, admission and increase in cost of treatment, mental state and social ills are such problems that affect person and his/her family[4-5]. Psychological problems have impacted on the life quality[6-7].

In the past, people believed that it could be possible to provide an optimal condition by effective treatment and controlling the illness. However, today evidence shows that we cannot achieve mental health and life quality only with controlling the symptoms. A pain that a patient suffers (like Thalassemia) is related to not only the sight of nurses and doctors but also personal feelings of patient [8].

Patients' responses to hospital admission are not the same and some of them show adverse reaction. The type and the extend of these responses are different considering their aspects of their personality, reaction time and so on[9-10].

Therefore, many of these diseases need to be helped in order to solve the patient problems. In Thalassemia center of Amirkola in Babol, about 700 patients are dependent on regular transfusion. It impelled us to study on the center in which we could take step towards improving the health of patients.

Methods:

This study is a descriptive, analytic and sectional one in which patients older than 15 years old suffering from major Thalassemia referred to Thalassemia center in Amirkola which is affiliated to Babol University of medical sciences. Patients who did not tend to participate were excluded from the current study. The demographic information of patients such as sex, age, marriage, education and number of transfusion a year was collected.

Also, mental health questionnaire (GHQ28) and life quality questionnaire (SF-36) containing 28 and 36 questions, respectively were set for evaluating the mental health and life quality in prospective patient [11].

The questions were asked face-to-face inquiry. The questionnaire was given to patient if he/ she tended to fill. The validity and the reliability of this study and its Farsi translation were supported [12].

This study has been done with ethical considera-tions such as absence of any obligation for patients, refusing to disclose secrets and private issues, protecting the confidentiality of information obtained and announcing the research results without mentioning the name and personal information. In the current study, the descriptive and inferential statistical indices had been used to compare the level of mental health and life quality of patient suffering from Thalassemia. SPSS.18 software was used to analyze the data. A GHQ_28 test was performed on population older than 15 years old in Iran by ministry of health [13-14] and suggested high validity and reliability that its cut-off point 23 with %84.2 sensitivity and 94.4 characteristic for diagnosis of psychological disorders [15].

Results:

In our study, 150 Thalassemia patients (aged 24.17±7.34 years) filled the questionnaire. About 46.7% of them were men and 53.3 % were women.

Mean of hematocrit and hemoglobin was %27 (Min=26% and Max=29%) and 9.5 g/dl (Min=7 g/dl and Max=12 g/dl), respectively. The average number of patients' transfusion is 16.3 times in a year with standard deviation of 5.4 (Table-1).

There is a notable point that with respect to the questionnaire, none of the patients was smoker and went to physiatrist. Also, with Kruskal Walis test among different age groups and statistical scope of mental health, physical signs, anxiety and social performance disorders there were significant differences. However, there was no relationship between age and depression.

Life quality factors had been examined in age groups and the results indicated that there were significant differences just between physical pain and aging. About the status of mental health of patients with major Thalassemia, the social performance disorders of mental health scope is 6.27% that is higher than other scopes.

Therefore, β-Thalassemia major has the most impact on person's social performance. In addition, minimal impact of disease on depression has average rate of 3.81 and standard deviation 4.7. Based on GHQ questionnaire, 82 of 150 patients had cut point below 23 and 68 of them had cut point higher than average.

For life quality condition of patients with β-Thalassemia major on the scale of 8 factors of SF_36, the highest average was related to physical performance scope and the least one was for limitation in enrolling due to physical problems. Average with 59.8 and 53.63 shows the mental health condition and the general state of patient, respectively.

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]

Mental health scopes had significant relationship with some of demographic features such as sex. Average score of disorders symptoms of social performance was higher in men than women, which are statistically significant. Although different scope of life quality for men and women were not the same, actually they were statistically significant.

Relationship between life quality scope and four mental health scopes using the correlation coefficient determined that life quality of patient with major Thalassemia was deeply affected by their mental health. In all scopes of life quality, there was a significant adverse relationship. For example, when the physical performance increases, the anxiety, depression and disorders decreases.

Moreover, it could be easily seen that when mental health increases, social performance disorders decrease. Furthermore, the level of mental health had been studied with number of monthly transfusion. We found that there was a significant relationship between them.

Table1: Comparing the frequency of demographic clinical factors.

Statistics / Specifications	Maximum	Minimum	Mean	Standard Deviation
Age	50	15	24.17	7.34
Body Mass Index (BMI)	32.18	13.84	20.93	2.86
Hematocrit (%)	29	26	27.18	0.85
Hemoglobin	12	7	9.8	0.912
Number of blood transfusion in year	36	5	16.3	5.4

Table2: Distribution of the frequency of mental health scopes in different age groups.

Age (year) / Mental Health	15-29		30-44		45-60		P-value
	Mean	SD	Mean	SD	Mean	SD	
Physical Signs	6	3.87	8	5.16	12	1.7	0.003*
Anxiety	5	4.32	8	5.9	12	1.4	0.006*
Social Function Disorder	6	2.8	7	3.23	9	2.22	0.046*
Depression	4	4.6	4	5.66	2	1.5	0.541

Table3: Distribution of the frequency of life quality dimensions in different age groups.

Age (year) / Life Quality	15-29		30-44		45-60		P-value
	Mean	SD	Mean	SD	Mean	SD	
Physical Function	82	18.91	72	27.21	56	40.9	0.145
Limitation in impression due to physical problems	52	41.7	39	43.2	31	37.5	0.283
Limitation in impression due to emotional problems	51	41.7	48	46.94	55	38.68	0.9
Physical pain	73	26.1	62	28.5	45	26.54	0.03*
Social function	75	24.73	66	32.8	56	21.56	0.134
Mental Health	60	17.72	59	20.66	46	22.27	0.44
General Health	54	22.64	54	18.46	38	22.17	0.4
Exuberance	62	41.7	48	18.93	40	18.71	0.09

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]

Table4: Comparing the frequency of SF_36 scores in Thalassemic patients.

Descriptive statistics / Life Quality	Mean	SD
Physical Function	79.43	21.5
Limitation in impression due to physical problems	49.17	41.9
Limitation in impression due to emotional problems	50.33	44.32
Physical pain	71	27
Social Function	72.8	26.23
Mental Health	59.8	18.33
General Health	53.63	22.1
Exuberance	61.63	18.5

Table5: Determining the relationship of social performance scope, physical performance, mental health and public health of life quality with 4 scopes of mental health.

Mental Health / Life Quality	Physical signs	Anxiety	Social Function disorder	Depression
	R	R	R	R
Physical Function	-0.343*	-0.382*	-0.293*	-0.25*
Social Function	-0.413*	-0.443*	-0.471*	-0.47
Mental Health	-0.562*	-0.579*	-0.371*	-0.503
General Health	-0.428*	-0.365*	-0.357*	-0.411

*** Significant (p<0.001)**

Discussion:

The results of our study show that Thalassemia has the most negative impact on mental health condition especially on social performance scope. In terms of life quality, Thalassemia has exerted the most limitation on physical performance. Our findings and Moorjani's support the neurotic problems in Thalassemic patients [16].

According to Khodaei's findings, most of major Beta_Thalassemia patients don't consider any problem for themselves [17]. The findings of this paper are similar to those of Hadi et al.'s[18] who studied on 250 Thalassemic patients. Their findings indicate that the life quality of Thalassemic patients is lower than average score of life quality of control group. Hosseini et al.'s study suggests that Thalassemic patients are at risk of being addicted to illness and different types of psychological disorders which depend on chronicity, treatment type, severity and side effects of disease [19].

Therefore, Thalassemic patients need to visit expert advisors for training life skills and the way of dealing with social and emotional problems. There were no differences between Thalassemic group and the control group in the study of Di Palma et al.'s in terms of social-mental development [20]. Azar Keivan believed that continuous transfusion, repulsive factors of iron and sampling for testing were the causes of creating mental problems [21].

Based on the results, there was a significant difference between men and women's social performance, while there were no differences between men and women's different scopes in terms of life quality and the results showed that physical symptoms, anxiety and social performance disorders had statistically significant differences. Nevertheless, there was no relationship between age and depression. By aging, the social and physical performance disorders and anxiety increases. Life quality factors had been studied too and only in physical pains we could see statistical differences which related with aging [22]. Hadi el al. emphasized that there was no relationship between life quality and age [18].

Whereas the aim of Khodaei et al.'s study was to determine the level of social-mental health of major

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]

Thalassemic adolescents [17]. The result illustrated that social-mental health had no significant relationship with patients' sex but for different age groups significant difference could be seen. Of course, Mikelly and Siantis (2004) showed that adolescent patients with major Thalassemia depressed had lower life quality than control group [23].

Furthermore, they encountered more mental disorders and chronic disabilities than control group. Mesina et al.'s studied on aspects of social-mental problems and mental disorders in adult patients suffering from major Thalassemia [24]. In this study, 147 patients were studied using 3 methods including WCQ, SF-36 and SCL-90-R. According to research results, there were no significant differences between factors of life quality of Thalassemic patients and sex and age. The results of life quality scopes with mental health indicated that the life quality of Thalassemic patient was deeply affected by their mental health. For example, when the physical performance increases, it could be seen that anxiety, depression and physical performance disorders decreases. In addition, the performance disorders were decreased by promoting the public and mental health. Noorbala et al.'s [25] conducted a study on 35014 patients using GHQ-28 questionnaire and they concluded that %21.3 of population in Iran and even Mazandaran have mental health disorders. In present study, the results are doubled and show the more importance of mental health in Thalassemic patients.

Regarding the main finding of current study and direct relationship of life quality of Thalassemic patients with their mental health, it should be considered that the mental health problems for Thalassemic patients have high importance and need more attention.

Recommendations:

Given to above finding, taking screen mental health and other necessary actions are recommended because none of the Thalassemic patients has visited psychotherapist.

Acknowledgment:

We are grateful to the Clinical Research Development Committee of Amirkola Children's Hospital, Research Council of Non-Communicable Pediatric Diseases Research Center and Health Research Center of Babol University of Medical Sciences and Mrs. Faeze Aghajanpour for their contribution to this study and Hereby, my special thanks is to honorable officials staffs of Thalassemia center of Amirkola and all trailers who helped us in this inquiry.

Funding: This study was supported by a research grant and GP thesis of Dr Elmira Khodabakhsh from the Non-Communicable Pediatric Diseases Research Center of Babol University of Medical Sciences. (Grant Number: 9032329).

Conflict of interest: There was no conflict of interest.

References:

1- Foundation of specific diseases, Thalassemia status in Iran 2002. [in Persian]

2- Gholami M, Pasha GH, Sodani M. Effects of Group Logotherapy on Life expectancy and general health of female patients with Thalassemia. Knowl res psychol 2009; 11(42): 25-4. [in Persian]

3- Sharghi A, Karbakhsh M, Nabaei B, et al. Depression in mothers of children with thalassemia or blood malignancies: a study from Iran. Clin Pract Epidemiol Mental Health: CP&EMH 2006; 2: 27. Available at: http://download.springer.com/static/pdf/162/art%253A10.1186%252F1745-0179-2-27.pdf?originUrl=http%3A%2F%2Fcpementalhealth.biomedcentral.com%2Farticle%2F10.1186%2F1745-0179-2-27&token2=exp=1462264164~acl=%2Fstatic%2Fpdf%2F162%2Fart%25253A10.1186%25252F1745-0179-2-27.pdf*~hmac=793a522da448456a139c92153ad28849637a702cdf74a39c219c6796bb51996c

4- Amini P. Investigation of difficulties of children and adolescents with diabetes mellitus referred to Isfahan gland and metabolism research center. Isfahan College of Nursery 2008; 9.

5- Telfer P, Constantinidou G, Andreou P, et al. Quality of life in thalassemia. Ann N Y Acad Sci 2005; 1054: 273-82.

6- Kullowatz A, Kanniess F, Dahme B, et al. Association of depression and anxiety with health care use and quality of life in asthma patients. Respir Med 2007; 101(3): 638-44.

7- Brenes G, Guralnik J, Williamson J. The influence of anxiety on the progression of disability. J Am Geriatr Soc 2005; 53(1): 34-9.

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]

8- Kollner V, Einsle F, Schade I, et al. The influence of anxiety, depression and post traumatic stress disorder on quality of life after thoracic organ transplantation. Zeitschrift fur Psychosomatische Medizin und Psychotherapie 2003; 49(3): 262-74.
9- Janssens AC, van Doorn PA, de Boer JB, et al. Anxiety and depression influence the relation between disability status and quality of life in multiple sclerosis. Multiple sclerosis (Houndmills, Basingstoke, England) 2003; 9(4): 397-403.
10- Shaligram D, Girimaji S, Chaturvedi S. Psychological problems and quality of life in children with thalassemia. Indian J Pediat 2007; 74(8): 727-30.
11- Ware JE Jr, Gandek B. Overview of the SF-36 health survey and the international quality of life assessment, IQOLA project. J Clin Epidemiol 1998; 51(11): 903-12.
12- Mortazavi M, Hosseini M. Quality of life in patients with Asthma in the viewpoints of paitiens. J Birjand Uni Med Sci 2003; 10(1): 9-15. [in Persian]
13- Jafari H, Lahsaeizadeh S, Jafari P, Karimi M. Quality of life in thalassemia major: reliability and validity of the Persian version of the SF-36 questionnaire. J Postgrad Med 2008; 54(4): 273-5.
14- Shamloo S. Mental Helath. Roshd publication, Tehran 2003.
15- Banihashem A. Transfusion rate in thalassemia major patients before and after splenectomy. Journal of Dental Medicine 1998.
16- Moorjani JD, Issac C. Neurotic manifestations in adolescents with thalassemia major. Indian J Pediatr 2006; 73(7): 603–7.
17- Khodai S, Karbakhsh M, Asasi N. Psychosocial Status in Iranian Adolescents with Beta-Thalassaemia Major. TUMJ 2005; 63(1): 18-23. [in Persian]
18- Hadi N, Karami D, Montazeri A. Quality of Life in Thalassemia Major Patients. Payesh J 2009.
19- Hosseini SH, Khani H, Khalilian AR, Vahidshahi K. Psychological Aspects in Young Adults with Beta-Thalassemia Major, control group. J Mazandaran Uni Med Sci 2007; 17(59): 51-60. [in Persian]
20- Di Palma A, Vullo C, Zani B, Facchini A. Psychosocial integration of adolescents and young adults with thalassemia major. Ann N Y Acad Sci 1998; 850: 355-60.
21- Azarkeivan A, Hajibeigi B, Alavian SM, et al. Associates of poor physical and mental health-related quality of life in beta thalassemia-major/intermedia. J Res Med Sci: official J Isfahan Uni Med Sci 2009; 14(6): 349-55.
22- Khani H, Majdi MR, Azad Marzabadi E. Quality of life in Iranian Beta-thalassemia major patients of southern coastwise of the Caspian Sea. J Behav Sci 2009; 2(4): 325-32. [in Persian]
23- Mikelli A, Tsiantis J. Depressive symptom and quality of life in adolescents with beta thalassemia. J Adolesc 2004; 27(2): 213-6.
24- Messina G, Colombo E, Cassinerio E, et al. Psychosocial aspects and psychiatric disorders in young adult with thalassemia major. Intern emerg Med 2008; 3(4): 339-43.
25- Noorbala AA, Mohammad K, Bagheri Yazdi SA, Yasemi MT. Mental health in individuals above 15 years old in Islamic Republic of Iran. Hakim Med J 2002; 5(1): 1-10. [in Persian]

[Downloaded from caspianjp.ir on 2026-09-05]

[DOI: 10.22088/acadpub.BUMS.1.2.54]