T.C.

ÇANKIRI KARATEKİN ÜNİVERSİTESİ
SAĞLIK BİLİMLERİ ENSTİTÜSÜ
PSİKİYATRİ HEMŞİRELİĞİ YÜKSEK LİSANS PROGRAMI

Evaluation of Depression Among Patients with Major Thalassemia in Thi-Qar Heredity Blood Disease Center

Yüksek Lisans Tezi

Nawres Ali Mohammed ALSHADOOD

Çankırı 2022

EVALUATION OF DEPRESSION AMONG PATIENTS WITH MAJOR THALASSEMIA IN THI-QAR HEREDITY BLOOD DISEASE CENTER

Nawres Ali Mohammed ALSHADOOD

Sağlık Bilimleri Enstitüsü

Hemşirelik Anabilim Dalı

Psikiyatri Hemşireliği Yüksek Lisans Programı

Yüksek Lisans Tezi

Tez Danışmanı

Dr.Öğr.Üyesi Serdar AYKUT

İkinci Danışman

PROF.DR. Ali KAREEM

Çankırı 2022

KABUL VE ONAY

ÇAKÜ, Sağlık Bilimleri Enstitüsü'nün 198202304 numaralı Yüksek Lisans öğrencisi Nawres Ali Mohammed AL-SHADOOD, ilgili yönetmeliklerin belirlediği gerekli tüm şartları yerine getirdikten sonra hazırladığı "Evaluation of Depression Among Patients with Major Thalassemia in Thi-Qar Heredity Blood Disease Center" başlıklı tezini aşağıda imzaları olan jüri önünde başarı ile sunmuştur.

Tez Savunma Tarihi :12.03.2022

Tez Danışmanı:	**Dr. Öğr. Üyesi Serdar AYKUT Çankırı Karetekin Üniversitesi**	**…… İmza**
Jüri Üyesi:	**Dr. Öğr. Üyesi Sakine YILMAZ Çankırı Karatekin Üniversitesi**	**…… İmza**
Jüri Üyesi:	**Dr. Öğr. Üyesi Dercan GENÇBAŞ Ankara Medipol Üniversitesi**	**…… İmza**

Yukarıdaki sonucu onaylarım
İmza
Prof. Dr. Özcan ÖZKAN
Enstitü Müdürü

Etik Beyannamesi

Yüksek Lisans tezi olarak hazırlayıp sunduğum **"Evaluation of Depression Among Patients with Major Thalassemia in Thi-Qar Heredity Blood Disease Center"** başlıklı tez; bilimsel ahlak ve değerlere uygun olarak tarafımdan yazılmıştır. Tezimin fikir/hipotezi tümüyle tez danışmanım ve bana aittir. Tezde yer alan araştırma tarafımdan yapılmış olup, tüm cümleler, yorumlar bana aittir.

Yukarıda belirtilen hususların doğruluğunu beyan ederim.

Signature
Date

Nawres Ali Mohammed ALSHADOOD

Acknowledgement

Thanks and praise are the most important reward that can be given to Asst. Prof. Dr. Serdar Aykut for his efforts to give us the moral impetus to move forward and to continue, and for helping us and supporting us in our most difficult circumstances and I thank my family for helping me to finish this thesis in a good way . I would like also to thank my second advisor andJuri Asst. Prof. Dr. Sakine YILMAZ and Juri Asst. Prof. Dr. Dercan GENÇBAŞwho ، .never lost his support in my work and never lost his trust in me

Table of Contents

Abbreviations and Symbols

WHO : World Health Organization

APA : American Psychiatric Association

NIMH : National Institute of Mental Health

HSGM : Ministry of Health General Directorate of Public Health

MAOIs : Monoamine Oxidase Inhibitors

ECT : Electroconvulsive Therapy

THD : Turkish Society of Hematology

CVS : Chorionic Villus Biopsy

BDE : Beck Depression Inventory

Figure List

List of Tables

THI-QAR KALITSAL KAN HASTALIKLARI MERKEZİNDE MAJÖR TALASEMİLİ HASTALARDA DEPRESYONUN DEĞERLENDİRİLMESİ

Özet

Alshadood ,Nawras . Thi-Qar Kalıtsal Kan Hastalıkları Merkezinde Majör Talasemili Hastalarda Depresyonun Değerlendirilmesi , (Yüksek LisansTezi), Çankırı, 2022.

Bu çalışma, Irak'ın Thi-Qar Eyaletindeki Thi-Qar Kalıtsal Kan Hastalıkları Merkezi'ne başvuran Majör Talasemi tanısı konan hastalarda depresyonun incelenmesine odaklanmaktadır. Majör Talasemi, şiddetli anemi ile karakterize bir hastalıktır. Hayatta kalma, serbest radikal oluşumundan dolayı çoklu organ hasarıyla sonuçlanan kaçınılmaz aşırı demir yükü ile düzenli kan transfüzyonuna bağlıdır. Tedavi süreci ve hayatta kalmak için gerekli işlemler oldukça zahmetli ve zahmetli olduğundan hastaların yaşam kalitesi bu hastalıktan olumsuz etkilenmektedir. Yaşam kalitesi, hastanın sosyal ve sosyal ilişkileri, mesleki becerileri ve iş yaşamı, günlük yaşamı ve motivasyonu gibi doğrudan psikoloji ile ilgili olan sosyal ve ekonomik faktörleri ifade eder. Bu çalışma kapsamında Thi-Qar Kalıtsal Kan Hastalıkları Merkezi'nde Major Talasemi tanısı doğrulanmış ve halen tedavi altında olan 40'ı erkek, 49'u kadın toplam 89 hasta incelenmiştir. Hastalara Veri Toplama (Anket) Formu ve Beck Depresyon Envanteri uygulandı. Hasta Grubunun Beck Depresyon Envanteri puan ortalaması 32,8874 olarak bulundu. Bu sonuç Major Talasemi Hastalarında şiddetli depresyonu doğrulamaktadır.

Anahtar Kelimeler: Majör Talasemi, Depresyon, Hemşirelik

EVALUATION OF DEPRESSION AMONG PATIENTS WITHMAJOR THALASSEMIA IN THI-QAR HEREDITY BLOOD DISEASE CENTER

Summary

Alshadood ,Nawras . Evaluation of Depression Among Patients with Major Thalassemia in Thi-Qar Heredity Blood Disease Center, (Master Thesis), Çankırı, 2022.

This study focuses on the examination of depression in patients diagnosed with Major Thalassemia and admitted to the Thi-Qar Center for Hereditary Blood Diseases in the Thi-Qar Province of Iraq. Major Thalassemia is a disease characterized by severe anemia. Survival depends on regular blood transfusion with an inevitable iron overload resulting in multiple organ damage due to free radical formation. Due to the fact that the treatment process and the procedures necessary for survival are quite demanding and laborious, the quality of life of the patients is adversely affected by this disease. Quality of life refers to social and economic factors directly related to psychology, such as the patient's social and social relations, professional skills and work life, daily life and motivation. Within the scope of this study, the diagnosis of Major Thalassemia was confirmed in Thi-Qar Hereditary Blood Diseases Center and a total of 89 patients, 40 men and 49 women, who are currently under treatment, were analysed. Data Collection (Questionnaire) Form and Beck Depression Inventory were administered to the patients. Beck Depression Inventory mean score of the Patient Group was found to be 32,8874. This result confirms severe depression in Major Thalassemia Patients.

Keywords: Major Thalassemia, Depression, Nursing

1. Introduction

Major Thalassemia is one of the genetic diseases common in Europe and the Arab world. Due to the inability of the bone marrow to produce red blood cells efficiently, the amount of hemoglobin decreases. This disease leads to high iron levels and complications as a result of the breakdown of red blood cells and damages vital organs of the body such as heart, liver, pancreas, spleen enlargement and osteoporosis (Weatherall, 2018).

After suffering from a disease that will accompany him throughout his life, the patient expresses a low level of satisfaction with his new quality of life, but it is seen that he suffers from feelings such as helplessness, powerlessness and inability to do any work, and this situation leads to a feeling of depression. According to this; psychological state is affected by physical state (Patel, Bhivandkar, Desai, & Antin, 2019).

According to Tyrrell and Elliott (2013), the patient's knowledge of the disease from the moment of diagnosis and throughout the treatment; He experiences a noticeable decrease in mood, weight, appetite and sleep, and a lack of motor activity, which leads to feelings of weakness, lack of concentration and suicidal thoughts.

In literature some studies proved that there is a relationship between depression and major thalassemia.

Sultan's (2017) study emphasized the importance of examining the relationship between mental depression and major thalassemia. The researcher believes that patients with major thalassemia should struggle with their illness not only medically but also psychologically. Major thalassemia patients go through different psychological stages that can directly affect their lives and social environment. In the study, it was emphasized that in various pathological cases, especially chronic or serious ones, in order to alleviate the disease and its severity, it is necessary to pay attention to the psychological aspect of each disease as one of the important factors and its importance. In this regard, Koutekelekos and Haliasos (2013), conducted a study

on children, adolescents and adults diagnosed with major thalassemia. In this study, the effects of major thalassemia on the mood of the individuals, its contribution to the formation of depression and its effect on the behavior of the patients were examined. Badur's study found that 70.3% of major thalassemia patients had mild depression, 18.5% had moderate depression and 11.1% had high depression (Badur, 2019). In another study conducted on 2014 by Yengil and his colleagues, Beck Depression Inventory scores were found in 20.5% of patients and 28.6% of those who were dependent on these patients. Mild anxiety symptoms were observed in 19.3% of patients, moderate anxiety symptoms in 14.8% and severe anxiety symptoms in 4.5%. In the study published by Ismet Kahraman in 2012, it is reported that psychological problems such as depression and anxiety are frequently seen in major Thalassemia patients and psychological support treatment is evaluated as beneficial in major Thalassemia patients (Kahraman, 2012).

And in some other literature, it has been proven that there is a relationship between quality of life, depression and thalassemia major.

For example a study conducted in 2017 by Kahraman and his colleagues investigated the effect of the disease on the quality of life of 34 major Thalassemia patients between the ages of 18 and 54. In this study, it was found that major Thalassemia patients have a much worse mental health than the healthy part of society and face serious mental problems (Kahraman et al., 2017). In the thesis study "Determining the Hope Levels of Adolescents with Thalassemia" published in 2014, 112 adolescents with thalassemia and 121 healthy adolescents were not found to have any significant difference in hope between the two groups, but the average degree of hope of adolescents who lost someone they knew due to thalassemia major was reported to be higher than that of those who did not experience loss and was evaluated as a statistically significant result (Uysal, 2014). The important thing to note at this point is that the research was carried out on children and adolescent patients.Also, In 2019, Dr. Refika Gör conducted research on the evaluation of depression, anxiety level, self-perception and quality of life in patients with a major diagnosis of thalassemia . In this study, 5 of the 13 major Thalassemia patients over the age of 18 showed mild signs of depression and 2 showed signs of moderate depression, while only 1 in 13

healthy individuals showed signs of mild depression. In this context, it is reported that the Beck Depression Scale scores of major Thalassemia patients were higher than the Beck Depression Scale scores of the healthy group (Gören, 2019).

Many literatures focused their attention specifically on the quality of life of caregivers who take care with thalassemia major patients and the importance of their presence.

A study was carried out by (Yengil et al., 2014) studied major thalassemia patients and the effects on depression status and quality of life of people who are responsible for their care are focused on. In this study, Yengin et al revealed that the mental health and quality of life of people with chronic diseases and their caregivers are affected by these health problems. In this study, patients were evaluated with the Beck Depression Inventory, Beck Anxiety Inventory and a questionnaire. Within the scope of the study, interviews were conducted face to face. Beck Depression Inventory scores were found to be 17 and above in 20.5% of the patients and 28.6% of their caregivers. Mild anxiety symptoms were observed in 19.3% of the patients, moderate anxiety symptoms in 14.8% and severe anxiety symptoms in 4.5% of the patients. In addition, it was observed that the anxiety levels of the patients and their caregivers were similar. In this study, it was shown that the disease causes an increase in the frequency of depression and anxiety in both patients and caregivers, negatively affecting their quality of life, physical and mental components.

In the literature, depression level in major Thalassemia patients is increasing with the age. In a study conducted in 2019 (Badur, 2019), it is reported that depression increases in major Thalassemia patients in a proportional way to increasing age and it is stated that the disease takes people's lives to a much more negative level day by day.

Some literature in Iraq has studied depression and the extent to which appropriate medical and professional support provided to depressed patients.

A study published by Al-Hamzawi and his colleagues in 2015interviewed 4,332 patients over the age of 18 in Iraq as part of world health organization mental health research and investigated the effects of major depression. In this study, it was associated that depression

may be the result of one of the chronic diseases, including thalassemia major. As a result of this study, it was found that the rates of patients with lifelong and twelve-month major depression disorders in Iraq were 7.4% and 4.0%, respectively. It is reported that depression attacks are very severe in 46% of patients with major twelve-month depression disorder, and cases are mostly concentrated among previously married female patients. Another notable aspect of the same study is that the rate of medical assistance and treatment benefits of people suffering from major depression and depression in Iraq is reported as 1/7. In other words, only 1 in 7 depression patients in Iraq receives adequate medical and professional support. Looking at the results of this study, it is seen that depression is a common disease in Iraq and that Iraqi depression and major depression patients have low opportunities and chances of benefiting from treatment (Al-Hamzawi et al., 2015). In addition, terrorist attacks and wars in the Middle East and especially on Iraqi soil lead to an increase in depression and other mental illnesses in Iraq.

Therefore, Arabs, and especially Iraqi researchers, have little to address the relationship of depression at different levels in thalassemia major patients in light of various variables, including marital status, education level and gender. We can say that this study is important due to this lack of research in the region it may related to religion . In the study, the phenomenon and types of depression, causes, factors, symptoms and diagnosis; General information about thalassemia major, causes, symptoms, symptoms, diagnosis and treatments is given. In addition, the relationship between depression and thalassemia major was examined. This relationship has been studied in theory with previous studies and in practice with the studies carried out in Thi-Qar Governorate of Iraq.

1.1. Purpose of The Study

Major Thalassemia is a disease characterized by severe anemia. Survival depends on regular blood transfusion with an inevitable excessive iron load resulting in multiple organ damage due to the formation of free radicals. (Fibach and Rachmilewitz, 2008). Due to the fact that the treatment process and the procedures required for survival are quite challenging and laborious, the quality of life of the patients is affected in a very negative way due to this disease. Quality of life and social and economic factors directly related to psychology such as social and social relations of the patient, professional skills and work life, daily life, motivation are expressed (Koutelekos and Haliasos, 2013) Research, assessing the psychological condition and degree of depression in patients with thalassemia majors, finding the major relationship between depression and thalassemia, and how it affects the relationship between chronic diseases and the emergence of certain mental illnesses purposes to find.

1.2. Importance of Study

Major Thalassemia is an inherited disease also known as Cooley Anemia and Mediterranean Anemia and is detected by an anomaly in hemoglobin values. The cause of this disease is a mutation in the β chain of the hemoglobin molecule. In this type of hemoglobinopathy, oxygen cannot be properly connected and released (Origa, 2000). Therefore, symptoms such as chronic fatigue, bone deformities and ultimately death can be seen. The most well-known approach to treatment is blood transfusion approximately every 3 – 6 weeks. Another treatment approach is based on the removal of iron from the body by using a mattress to bind to excess iron in the body and support the removal of iron from the body (Ghanizade et al., 2006). From here, it is possible to see that Major thalassemia has a negative effect on the lives of patients in many ways. These effects affect the quality of life negatively by affecting factors such as social life, social activities,

professional activities and work life, self-care skills, life interest, general happiness level. However, the social and psychological negatives that come with the disease also have very serious consequences. One of the negative social and psychological consequences caused by thalassemia is depression. The effects of depression can be long-lasting or depression can recur. In other words, patients suffer from long-term depression or may repeat depression in the future. Depression significantly negatively affects a person's daily life, quality of life and, most importantly, their ability and ability to live (James et al., 2018). As with all chronic diseases, Major Thalassemia patients are vulnerable to emotional and behavioral problems (Keskek et al., 2013). Especially the vulnerability to depression brought about by this disease is even greater in children and the elderly (Messina et al., 2008). Major Thalassemia affects the moods, daily activities, family life and professional abilities of patients and those responsible for caring for them due to complex, challenging and burdensome therapeutic processes that last a lifetime. Anxiety and depression are common in children with chronic hematologic disorders due to social problems such as separation from family, limited social activities, physical and facial deformities, death anxiety, restrictions on school and play activities (Pradhan et al., 2003) In children and adults diagnosed with Major Thalassemia, it is seen in the medical consequences of the disease as well as at severe levels of psychological outcomes (Yellowlees and Kalucy, 1990). When we look at the Iraqi National Thesis Database, PubMed and YÖK National Thesis Center databases, it is seen that the number of studies carried out is less than expected. Therefore, our study is important for examining the depression status in patients diagnosed with major talesemia and evaluating the methods of coping with depression. In addition, our study has a great importance in the context of both scientific and social responsibility with its informative nature for patients who encounter this diagnosis in the future.

2. Depression and Major Thalassemia

In this section , detailed information is provided about depression , thalassemia major and depression in patients with thalassemia major .

2.1 Major Thalassemia

Thalassemia, a hereditary blood disease, is characterized by a decrease in hemoglobin production, which occurs due to the anomaly in the synthesis of alpha and beta globin chains (Samadlı, 2020). Although thalassemia is a genetic blood disease, Turkish Society of Hematology (THD) draws attention to the fact that this disease is preventable (THD, 2021 – a)

Thalassemia occurs in different intensities in patients. The severity of thalassemia ranges from asymptomatic to severe anemia (Galanello and Origa, 2010)

Thalassemia was discovered by Thomas Cooley in 1925 (Cooley and Lee, 1927). However, the name of the disease was given by Whipple and Bradford in 1932 (Whipple and Bradford, 1936). Since the disease is especially seen on the Mediterranean coasts, it is also known as Beta Thalassemia, Mediterranean Anemia today (THD, 2021 – b). Indeed, when we look at the word meaning of Thalassemia, it is seen that it is derived from the combination of the Greek word Thalassa, which means sea, and the word anemia (Whipple and Bradford, 1936).

2.1.1 Epidemiology

The World Health Organization (WHO) draws attention to the fact that children with thalassemia are mostly born in low-income countries. (Modell and Darlison, 2008). Survival rate in patients is possible with the combination of treatment and prevention programs (Alwann and Modell, 2003). In areas where treatment and prevention programs are carried out together, the success rate for the prevention of the disease increases, the birth rate affected by thalassemia decreases and the number of patients can be kept at a stable point (Angastiniotis and Hadjiminas, 1981; Loukopoulos, 1996; Tongsong et al., 2000). Today, treatment approaches for thalassemia are developing, awareness and awareness of the disease are increasing, preventive policies are put into effect and the disease is taken under control day by day (Alwann and Modell, 2003).

When we look at the world in general, it is seen that approximately 4.5 out of every 10 thousand live births (0.045%) are diagnosed with Thalassemia. About 5% of the world population has a variation in the alpha or beta part of the hemoglobin molecule, but not all are symptomatic and some are known as silent carriers. In fact, only 1.7% of the global population has the markers as a result of gene mutations known as the thalassemia trait. However, certain ethnic groups are more likely to be affected, and among these groups, 5-30% of the population may be symptomatic. (Modell and Darlison, 2008; GBD, 2013)

The following statistical information is taken from the Bulletin data carried out by Modell and Darlison in 2008 and published by the World Health Organization, and from the Global Burden of Disease Study (GBD 2013) conducted in 2013 and published by the Lancet in 2015:

Alpha thalassemia is particularly prevalent among populations of Southeast Asian descent, and a large number of carriers exist in Sub-Saharan Africa and the Western Pacific regions. The prevalence of different population groups according to the geographical region of the world is as follows:

- America: 0-5% of the population has the trait of thalassemia, up to 40% can be genetic carriers

- Eastern Mediterranean: 0-2% of the population has the trait of thalassemia, up to 60% can be genetic carriers

- Europe: 1-2% of the population has the trait of thalassemia, up to 12% can be genetic carriers

- Southeast Asia: 1-30% of the population has the trait of thalassemia, up to 40% can be genetic carriers

- Sub-Saharan Africa: 0% of the population has the trait of thalassemia, up to 50% can be genetic carriers

- Western Pacific: 0% of the population has the trait of thalassemia, up to 60% can be genetic carriers

Beta-thalassemia is most common among populations of Mediterranean, African, and South Asian ancestry. The prevalence of different population groups according to the geographical region of the world is as follows:

- America: 0-3% of the population is affected by a gene mutation

- Eastern Mediterranean: 2-18% of the population is affected by a gene mutation

- Europe: 0-19% of the population is affected by a gene mutation

- Southeast Asia: 0-11% of the population is affected by a gene mutation

- Sub-Saharan Africa: 0-12% of the population is affected by a gene mutation

- Western Pacific: 0-13% of the population is affected by a gene mutation

Both alpha and beta thalassemia are more common, particularly in tropical and subtropical regions of the world where malaria is endemic or is common. Although the reason for this has not been clearly determined, it is thought to be due to the fact that carriers of the gene

mutation have some degree of protection against malaria. Southern regions of Italy and Greece are the regions most likely to be affected in Europe and countries in the north of the African continent. The Maldives, along with other countries with tropical climates such as India and Thailand, have a particularly high prevalence of thalassemia (16% of the population) in Asia. (Smith ve Pharm, 2018)

In a study published by Baghdad University researchers in 2017, the epidemiological profile of Thalassemia in Iraq was discussed (Kadhim et al., 2017). In the aforementioned study, it is reported that as of 31 December 2015, there are 16 Hereditary Blood Disease Centers in Iraq and the number of patients with hereditary anemia who applied to these centers is 16,862. Kadhim et al. report that 56 out of every 100 thousand people in Iraq have hereditary anemia, and 66.2% of these patients, 11.165, have Thalassemia. In the same study, it is emphasized that the prevalence of Thalassemia in Iraq is 37.1 per 100 thousand people, and it is also noted that 27.4 out of every 100 thousand people suffer from Major Thalassemia. The aforementioned study reports that it constitutes 73.9% of Major Thalassemia types in Iraq.

In Iraq, the highest prevalence of Thalassemia is 54.5 per 100 thousand in Basra Province, while the lowest prevalence is 19.7 per 100 thousand in Muthanna Province. In Tikar Province, where our study was carried out, the rate is 30 per 100 thousand (Kadhim et al., 2017)

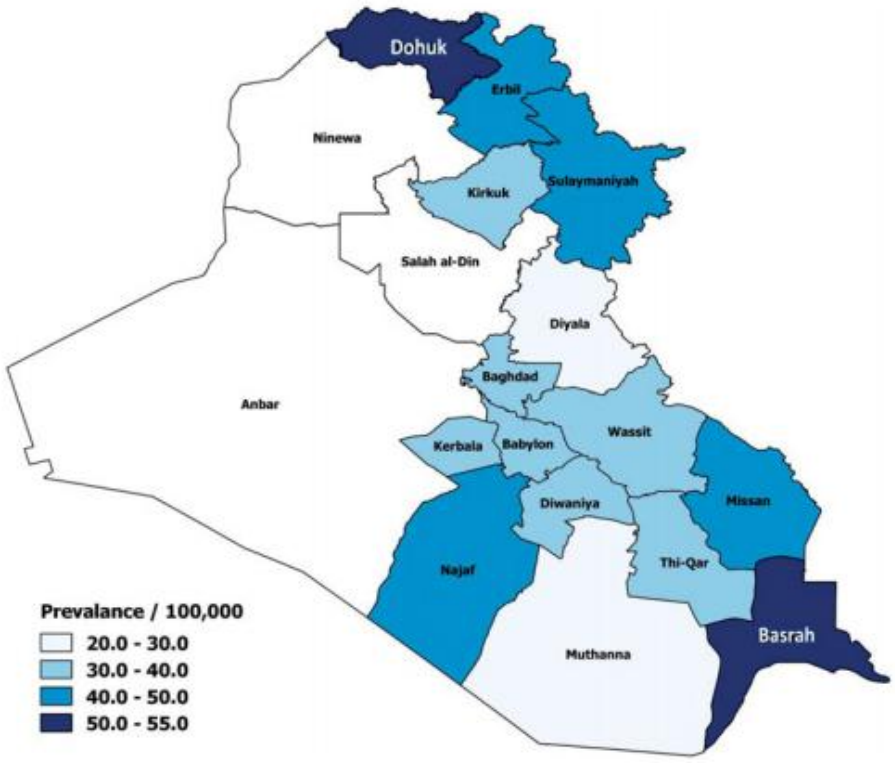

Figure 1. Thalassemia prevalence per 100,000 people by place of birth in Iraq, 2015 (Source: Kadhim et al., 2017)

It would be appropriate to point out that our study focuses on major Thalassemia. In the classification and diagnosis of the disease, alpha – beta and minor – major distinctions are given.

2.1.2 Etiology

The etiology of thalassemia and naturally Major Thalassemia is based on heredity. Turkish Society of Hematology reports that thalassemia is an autosomal recessive disease, that is, the disease is transmitted by recessive genes (THD, 2021 – a). Therefore, the cause of the disease is only heredity, that is, the genetic factor, rather than environmental factors.

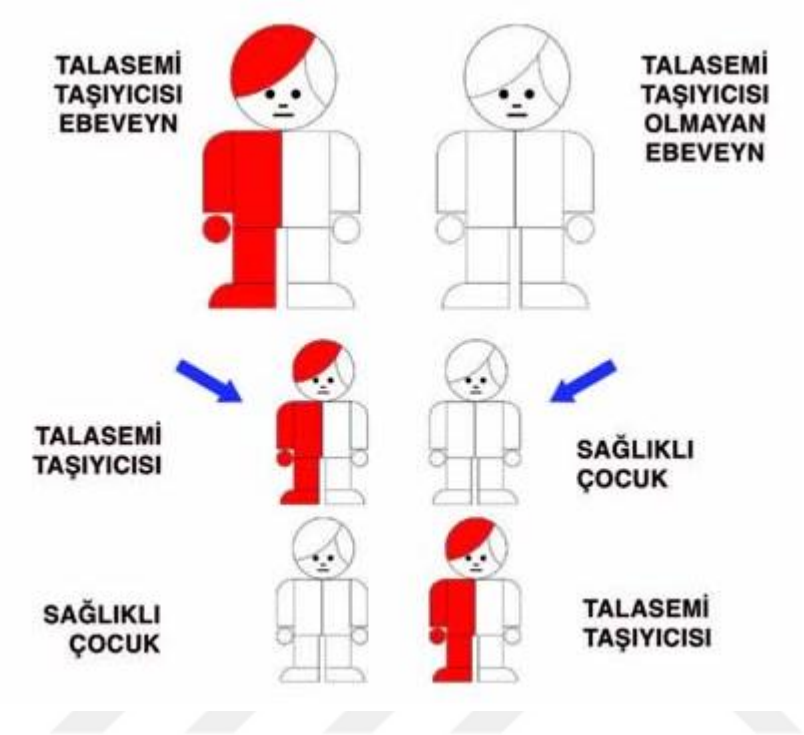

Figure *– 2: If only the mother or only the father carries the disease gene, "every" child to be born has a 50% chance of being a carrier 50% (Source: Turkish Hematology Association, 2021-a)*

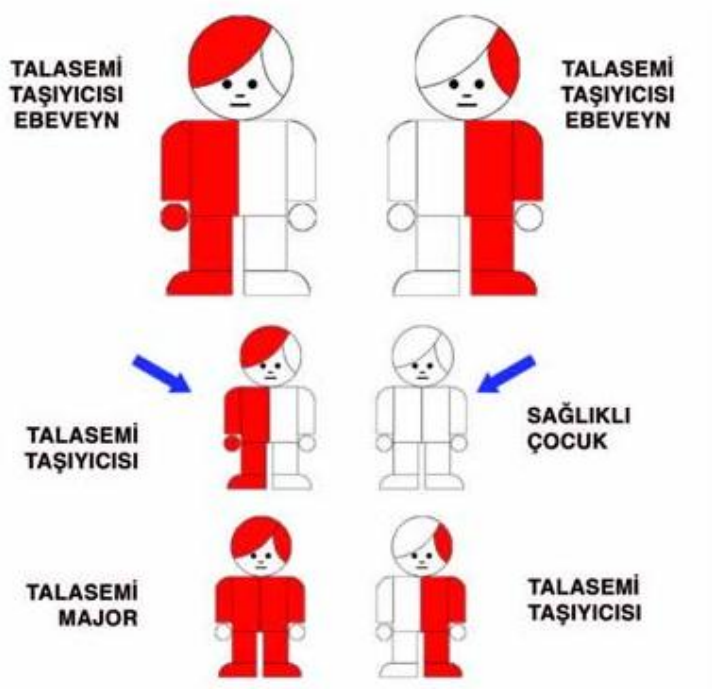

***Figure** – 3: If both parents are carriers, "each" child to be born has a 25% health, 50% carrier and 25% disease probability (Source: Turkish Hematology Association, 2021-a)*

2.1.3 Signs and Symptoms

All types of thalassemia, including Major Thalassemia, can be detected by blood tests and genetic controls, basically as a result of screening. In Major Thalassemia, rather than the signs and symptoms, it would be appropriate to directly address the complications of this disease, since it is an inherited disease.

It can be said that the signs and symptoms of thalassemia are the factors that are considered to raise suspicion of the disease before genetic and blood tests are performed, in cases where the diagnosis of the disease before birth is not possible. These complications can be classified as follows (Samadlı, 2020):

i. Complications associated with inadequate transfusion and ineffective erythropoiesis

a. Hypersplenism and gallstones

b. Thrombosis

c. Skeletal changes

d. Infection

ii. Complications associated with iron accumulation

a. Liver complications

b. Cardiac complications

c. Endocrine complications

i. Growth retardation and short stature

ii.. Delayed puberty and hypogonadism

iii. Hypothyroidism

iv. Impaired glucose metabolism

v. Hypoparathyroidism

2.1.4 Diagnosis and Classification

Screening tests used to diagnose thalassemia include (THD, 2021 – a):

- Complete blood count

- Primary separation (examination of blood cells under a microscope)

- Hemoglobin electrophoresis

- Genetic studies when deemed necessary by the physician.

There are three different methods for prenatal diagnosis in thalassemia (THD, 2021 – a):

- Chorionic Villus Biopsy (CVS)

- Amniocentesis

- Cordocentesis.

The production of hemoglobin is dependent on genetic characteristics. Any genetic problem that will affect the production of hemoglobin causes a deterioration in the construction of the globin chains that make up the hemoglobin. Thalassemia is the disease that occurs in this disorder and insufficiency. As the Turkish Society of Hematology reports, whichever of the globin chains cannot be synthesized or whose synthesis is decreased, thalassemia is known by its name. In beta thalassemia, the change in beta globin synthesis is taken into account. Due to the problem in beta globin synthesis, destruction of hemoglobin cells occurs rapidly and anemia occurs. (THD, 2021 – b).

Major Thalassemia is the dominant and severe disease state in beta thalassemia, in which both the mother and the father are carriers and the recessive gene is transmitted to the child from both the mother and the father. The diagnosis of Thalassemia Major is usually made between the ages of 6 and 12 months. The following are the signs that the baby has Thalassemia major (THD, 2021 – b):

- Fatigue

- Pale skin color

- Loss of appetite

- Restlessness and Discomfort

- Abdominal swelling due to enlarged Liver and/or Spleen

- Enlargement and thinning of bones

- Flattened nasal root

- Protrusion of forehead and other facial bones

- Abnormal facial appearance.

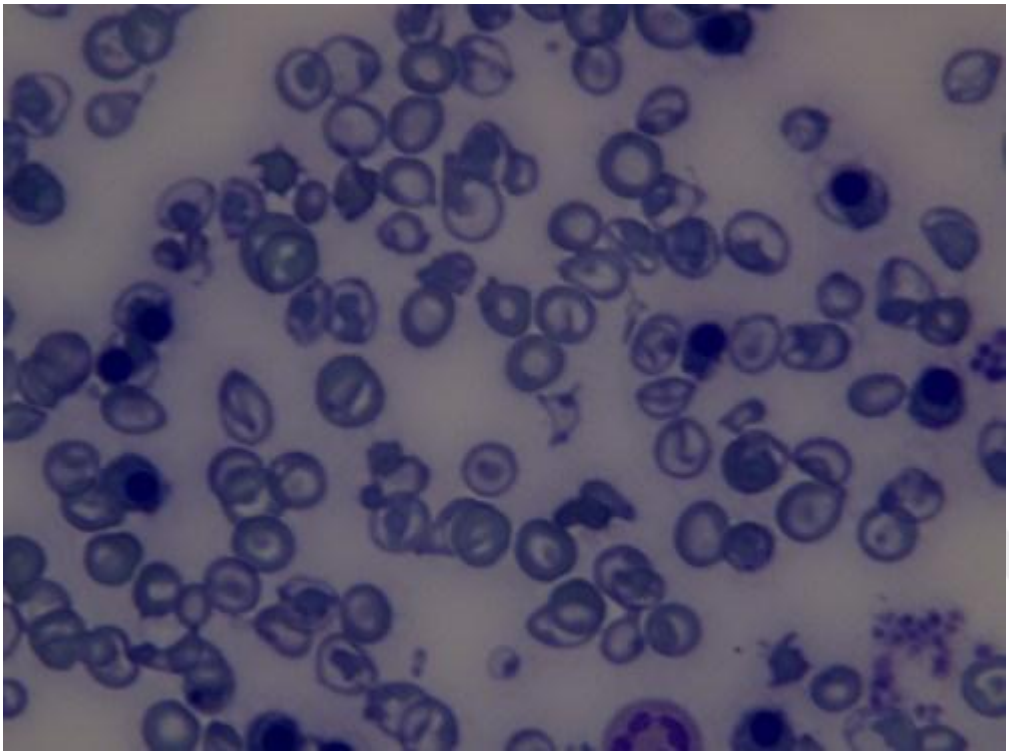

Figure 4. Appearance of erythrocytes in peripheral blood smear in patients with Beta Thalassemia Major (Source: THD, 2021 – b).

In Thalassemia Minor, the patient is only a carrier and only mild anemia is seen. Very slight decreases in the hemoglobin value can be observed. This thalassemia carrier state is not considered a disease (THD, 2021 – b).

2.1.5 Treatment

The Turkish Society of Hematology defines a number of criteria for the treatment and monitoring of patients with major thalassemia (THD, 2021 – b). It is possible to list these criteria as follows:

- Patients should undergo a blood transfusion every 3 – 4 weeks.

- The hemoglobin level of a thalassemia patient should always be kept above 9.5 g/dl.

- Blood transfusions to correct anemia lead to the accumulation of iron in the body. This accumulation of iron causes cell damage in organs such as the heart, liver, thyroid, pancreas, and spleen. Patients have problems such as heart failure, diabetes, developmental delay and hormonal failure. In order to prevent these problems and to prevent iron accumulation, patients usually start taking a drug (desferrioxamine) given by subcutaneous infusion lasting 8-12 hours, at least 5 days a week with a special pump around the age of 3.

- Complete blood count, blood iron level, heart, liver and hormonal system are regularly evaluated in patients with thalassemia; attention is paid to blood-borne diseases. If the annual blood consumption exceeds 1.5 times the norm, the spleen is removed by surgery at an advanced age. Removal of the spleen reduces the need for blood, but is not the definitive solution.

- A bone marrow transplant is a treatment that can completely correct the disease. A bone marrow transplant is a procedure in which the bone marrow is removed from the patient's body. But in some cases, various serious problems may occur during or after a bone marrow transplant, or the transplant ends in failure.

Four precautionary approaches are taken to protect against major thalassemia disease:

1. Community education

2. Identification of carriers

3. Genetic counseling

4. Prenatal diagnosis

2.2 Depression

Depression is a very prominent topic in both scientific and popular context. Depression is described in similar ways in medical dictionaries. In the Dictionary of Turkish Medical Terms of Middle East Technical University, depression is defined as "Mental and physical collapse , reluctance", while depression is defined as " collapse or suppression" in the Turkish Medical Language Guide of Kocaeli University Faculty of Medicine. The American Psychiatric Association (APA), formally known as the American Psychiatric Association, defines Depression as a common and serious medical disease that negatively affects how people feel, think and behave. (APA, 2021). According to the APA, depression is manifested by various symptoms of different severity, from mild to very severe. It is possible to list these symptoms as follows:

- Feeling sad or experiencing a depressive mood

- Lossing of interest in activities once enjoyed or no longer enjoyed these activities

- Changes in appetite: Weight loss or weight gain that is not dependent on the diet.

- Too much sleep or difficulty sleeping

- Energy loss or increased fatigue

- Increasing in aimless physical activity (e.g., inability to sit still, step, shake hands) or slowing movements or speech (these actions should be severe enough to be observed by others)

- Feeling worthless or guilty

- Difficulty thinking, concentrating or making decisions

- Thoughts of death or suicide (APA, 2021). Each of these symptoms is discussed in detail under a separate heading below.

The incidence of major depression in society is increasing day by day and depression is becoming a more serious health problem every day. Unless psychological, professional and medical help is obtained, it can have extremely sad consequences. (NIMH, 2021). When taken as a term, it can be explained as depression, exhaustion, feeling worthless and constantly sad. In latin, the term depression, which deries from the word "depressus", which means sunken, sunken, has become a very publication and serious disease today (Kaplan, 2016; Yazıcı, 2001; Işık vd., 2013; Bernard, 2018).

2.2.1 Epidemiology

The World Health Organization (WHO), in its most comprehensive data study to date, titled Depression and Other Common Mental Disorders, published on January 3, 2017, reported that 322 million people around the world He states that he is suffering from depression. Of the worldwide diagnosed depression patients, 85.67 million are in South East Asia, 66.21 million in the Western Pacific Region, 52.98 million in the Eastern Mediterranean, 29.19 million in Africa, 40.27 million in Europe. It is reported that 48.16 million of them live in the Americas. As can be seen here, half of all depression cases in the world are in Southeast Asia and the Western Pacific Region. This is not surprising considering that two countries with populations over one billion each, such as China and India, are in this region. (WHO, 2017)

According to the WHO, depression is more common among women than among men. While 5.1% of all women in the world were diagnosed with depression, this rate was 3.6% for men. These rates increase with age and reach the peak between the ages of 55 and 74. So much so that more than 7.5% of women aged 55 – 74 and more than 5.5% of men struggle with depression (WHO, 2017). In another report (WHO, 2014), the WHO reports that one in ten people today have an existing mental illness, while depression accounts for about 4.5% of the global burden of disease. As of 2017, 1,263,249 people were diagnosed with depression in Iraq. This amounts up to 3.7% of iraq's population (WHO, 2017).

This increase in the number of cases of depression and major depression, which are increasing day by day in the world and Iraq and reaching a very serious level, reaches alarming levels. At this point, it is worth noting how depression, which severely affects even those who do not have any additional disorders, is associated with a serious disease such as major Thalassemia, what its effects are, and how much suffering patients suffering from such a large disease suffer from depression.

2.2.2 Etiology

Etiology is the approach that studies the causes of diseases. It is aimed to explain the factors that cause depression by considering the depression as etiological. Under this title, the factors that cause depression are considered separately as biological and psychological or, in other words, psychosocial factors.

2.2.2.1 Biological Factors

Biological factors that cause depression; can be divided into hereditary (genetic) and biochemical factors.

2.2.2.1.1 Heditable (Genetic) Factors

Hasan Herken's 2002 study, "Genetic Evidence in the Etiology of Depression", states that the genetic aspect of depression is highly complex, but it is underlined that the genetic factors that influence depression are noteworthy (Herken, 2002). In various studies (Townsend, 2016; Çam and Engin, 2014; Uzuner and Akman, 2017) are noted for the influence of genetic factors. Especially studies with identical twins (Uzuner and Akman, 2017; Joska and Stein, 2011; Hales,

2008) supports the hereditary characteristics of depression based on evidence that the same diseases occur at the same time.

2.2.2.1.2 Biochemical Factors

The second of the biological factors that affect depression are biochemical factors. Endocrine, i.e. hormonal factors, are also counted among biochemical factors. Today, it is seen that numerous studies have been carried out on the relationship between depression and biomarkers or biochemical parameters in other words.

In a 2018 study conducted by Harun Düğeroglu, the relationship between the frequency of depression and anxiety and biomarkers was investigated in patients admitted to the internal medicine outpatient clinic. In this study, an association was found between uric acid levels in the blood and anxiety severity, but no association with other blood parameters was detected (Düğeroglu, 2018).

The study titled "Neurobiological Factors in Depression Etiology", published in 2004 by Albayrak and Ceylan, focuses on neuroendocrine and neuroimmunological factors as well as the effects of neurotransmitters. Looking at the results of this study, it is seen that B12 and folate levels are low in depression patients, there is a linear relationship between nitric oxide level and major depression, and there is a relationship between immunity level and depression severity (Albayrak and Ceylan, 2004).

A study, published in 2010 by Kartalcı, focused on the relationship between testosterone and depression. In this study, the effects of androgens on mood were investigated and both low and high testosterone levels were found to be associated with depression (Kartalcı, 2010). There are numerous studies to explain the relationship between depression and biochemical parameters,

hormones and other chemicals, and what all these studies have in common is that biochemical and hormonal effects in depression are a fact.

2.2.2.2 Psychosocial Factors

Psychosocial factors that influence depression vary according to the environment, environment and source of the effect. For example, psychosocial factors associated with work (Netterstrom et al., 2008) and socioeconomic psychosocial effects (Koster et al., 2006) are different psychosocial factors in origin.

Therefore, it is possible to note that the psychosocial factors of depression are very diverse. Indeed, when we look at the studies, it can be seen that the psychosocial factors of depression are a scientific interest that attracts a lot of attention and involves intensive studies. Psychosocial factors associated with depression and especially major depression are quite diverse and differ from person to person and have subjective qualities.

Individuals are affected by childhood traumas, loss of relatives or people they care about, exposure to violence, being victims of sexual abuse, and many other factors. Such factors cause depression attacks to begin or recur (Ozturk et al., 2011; Kaplan, 2016; Alloy and Abramson, 2007). Depression due to psychosocial factors is also considered as psychosocial problems. In some studies, factors such as boredom, introversion, anxiety, helplessness and anger, which are considered symptoms of depression, are each considered as psychosocial problems (Özdemir and Tasci, 2013).

All these factors are especially important during the diagnosis phase of depression. It is possible to talk about the existence of different psychology theories and schools in the research of psychosocial elements of depression and psychosocial factors that are effective in depression. These theories are mainly divided into three as psychoanalytic theory, cognitive theory and behavioral theory. Each theory evaluates the psychosocial factors of depression according to their

own teachings and prioritizes different factors (Taylor and Richardson, 2005; Yüksel et al., 2020; Tukel et al., 2017).

2.2.3 Signs and Symptoms

According to the United States National Institute of Mental Health (NIMH), the signs and symptoms of a depression are listed as follows (NIMH, 2021):

- Chronic anxiety and sadness,
- Feeling oneself "in the void",
- State of irritability
- Feeling of guilt, worthlessness and helplessness,
- Decreased interest in and/or less enjoyment of hobbies or activities,
- Decreased energy, increased feeling of fatigue,
- Slowing down in movements and speech,
- Feeling restless, having difficulty staying still,
- Difficulty concentrating, remembering and making decisions,
- Difficulty sleeping, waking up too early in the morning or sleeping too much.
- Changes in appetite and/or weight,
- Thoughts of death and/or suicide. Suicide attempt,
- The occurrence of pain, especially headaches and cramps, or digestive problems that do not go away even with a specific physical cause and/or treatment.

The UK Ministry of Health (NHS), on the other hand, divides the signs and symptoms of depression into three: psychological, physical and social. These symptoms are listed below (NHS, 2021):

Psychological Symptoms and Signs:

- Chronic low mode (mood)
- Chronic sadness
- Feeling hopeless and helpless
- Low self-esteem
- Feeling tearful
- Feeling of guilt
- Feeling intolerant of others
- Irritability
- Decreased motivation and interest
- Difficulty in making decisions
- Not enjoying life
- Feeling anxious and/or scared
- Having thoughts of suicide and/or self-harm.

Physical Symptoms and Signs:

- Moving slower than normal
- Normally speaking slower
- Decrease and/or increase in appetite and/or weight
- Difficulty defecating (constipation)

- Unexplained aches and pains

- Reduction in energy

- Decreased sexual desire (Loss of libido)

- Changes in the menstrual cycle

- Sleep disorders

Social Symptoms and Signs:

- Decrease in relationships with friends, less contact, less involvement in social activity,

- Neglecting hobbies and interests

- The emergence of difficulties at home, at work or in family life.

Republic of Turkey Ministry of Health General Directorate of Public Health (HSGM) lists the signs and symptoms of depression as follows (HSGM, 2021):

- Prolonged and persistent low mood

- Not enjoying activities previously enjoyed

- Feelings of guilt, hopelessness and pessimism,

- Excessive preoccupation with body complaints

- Change in appetite and weight

- Persistent sleep disorder

- Loss of sexual desire

- Suicidal thoughts

- Delusions of guilt

Erenköy Mental and Neurological Diseases Training and Research Hospital lists the signs and symptoms of depression as follows in a guide that it has prepared and published institutionally (Erenköy Psychiatric Diseases Training and Research Hospital, 2021):

- Difficulty concentrating and distraction
- Difficulty understanding what is read or said
- Difficulties in conversation, slowing of speech, monotony of voice
- Complete loss of interest in things normally enjoyed,
- Unhappiness, sadness and desire to cry throughout the day
- Appetite disorders,
- Sleep disorders,
- Fatigue and exhaustion,
- Feeling of worthlessness
- Feeling of guilt
- Worsening in self-care
- Despair.

As can be seen, there is a worldwide consensus on the signs and symptoms of depression. From this point of view, a depressed person, at the stage of receiving this diagnosis, has a low attention, constantly feels sad, tired, exhausted, unhappy, helpless and hopeless, encounters difficulties in social relations, has communication problems, sometimes has an unexplained or unexplained. It is seen that they have pain and suffering.

2.2.4 Diagnosis and Classification

Depression is diagnosed based on the signs and symptoms of depression. In addition, there are studies that focus specifically on diagnosis. Beck et al. investigated the relationship between clinical diagnosis of depression and helplessness and suicidality in 1993 (Beck et al., 1993). In a study carried out in 1995, the relationship between depression symptoms and mist and the diagnosis of depression was discussed in the context of the difference in psychosocial functions (Gotlib et al., 1995). In 2009, Mitchell et al. conducted a meta-analysis study on the clinical diagnosis of depression (Mitchell et al., 2009).

In addition, there are many studies examining the relationship between the diagnosis of depression and different variables. However, in all studies, the basic element of diagnosis comes from the logical relationship between signs and symptoms.

Today, it is possible to talk about the existence of a guide that includes the basic elements that are taken as a basis when diagnosing depression. This guide is a guide whose original name is "Diagnostic and Statistical Manual of Mental Disorders" . This Guide was published by the American Psychiatric Association in 1952. Today, the fifth version, which was updated in 2013, is used and it is called DSM-V (5) for short. According to DSM-5, in order to diagnose depression, it is necessary to confirm that five of the symptoms and signs of depression, at least one of which is related to mood, are seen in the patient for at least 15 days (Köroğlu, 2018).

In the book DSM-5 Diagnostic Criteria Reference Manual, translated into Turkish by Köroğlu and published in 2018, the criteria sought for the diagnosis of depression are explained as follows (Köroğlu, 2018).

- Depressed Mood (Depressed mood)

- Significant decrease in interest in hobbies and activities, lack of pleasure

- Appetite and weight changes

- Sleep problems

- Psychomotor agitation or slowing down

- Low energy

- Feelings of worthlessness, guilt

- Concentration and decision-making difficulties

- Thoughts of death/suicide.

If five or more of these factors, at least one of which is related to mood, are present for fifteen days, the patient is diagnosed with depression.

2.2.5 Treatment

It is possible to talk about the existence of various methods in the treatment of depression. The first and most commonly known of these methods is pharmacological, that is, drug therapy. Depression is treated with drugs called antidepressants. Antidepressants used in the treatment of depression differ according to their content, purpose and disease. Antidepressants are generally divided into eight (Örsel, 2004):

1. Monoamine Oxidase Inhibitors (MAOIs)

2. Tricyclic Antidepressants

3. Selective Serotonin Reuptake Inhibitors

4. Alpha – 2 Adrenoreceptor Antagonists

5. Selective Noradrenergic Reuptake Inhibitors

6. Noradrenaline and Dopamine Reuptake Inhibitors

7. Serotonergic and Noradrenaline Reuptake Inhibitors

8. Serotonergic Drugs

The second method used in the treatment of depression is the electroconvulsive therapy (ECT) method. This method was discovered in 1933 and is a method used in the acute treatment

of depression. In this treatment, the brain is stimulated with electricity (Kokaçya et al., 2008). The situations in which ECT will be preferred as the first choice in the treatment of depression are listed as follows (Tomruk & Oral, 2007):

- Cases requiring quick and precise response

- Cases with a high risk of suicide

- Cases with severe psychomotor retardation and associated nutritional deficiency or physical deterioration

- Treatment-resistant cases

- Cases of concern about possible teratogenic effects of antidepressants and antipsychotics (eg pregnancy)

- Patient's choice.

The third approach preferred in the treatment of depression is the psychotherapy approach. This approach is generally referred to psychosocial interventions. Psychosocial interventions focus on social rather than biological factors of depression. Psychosocial initiatives can be listed as follows (Başoğul and Buldukoğlu, 2015):

- Behavioral therapy

Behavioral therapy, like any other psychiatric disorder, offers a comprehensive approach to depression. In this sense, it includes both psychopathological theory and diagnostic psychological assessment and the corresponding therapeutic procedure. Lewinsohn et al. (Lewinsohn & Gotlib, 1995; Lewinsohn, Hoberman, Teri & Hautzinger, 1985) have developed various forms of behavioral therapy in terms of reduction in positively reinforced behavior and/or inadequate social skills regarding the concept of depression.

1) The fun activities program consists of a 12-session highly structured program that aims to change the quantity and quality of a depressed patient's interactions through a combination of

strategies that include assertive training, relaxation, decision making, problem solving, communication and time management.

2) Social skills training is also a program structured as 12 sessions. It is intended to develop three types of behavior: negative affirmation (includes behaviors that enable a person to defend one's rights and act in the interests of others), positive affirmation (related to the expression of positive feelings towards others), speaking skills (from the beginning, asking questions) , explaining yourself appropriately, until the end of speeches).

3) Course on depression, CAD, is also a highly structured program consisting of 12 sessions with 2 additional sessions (monthly and 6 months) taken in groups. It has been practiced since the late 1970s, based on the text Check Your Depression (Lewinsohn, Muñoz, Joungren & Zeiss, 1978). Originally designed for adults with depression, the course was designed to include adolescents, the elderly, elderly caregivers, minority groups, and diverse populations and conditions such as relapse prevention, primary and secondary prevention (Lewinsohn & Golib, 1995).

4) Rehm's (1977) self-control treatment suggests that depression is characterized by a certain inability to manage an individual's behavior. The treatment I recommend consists of a structured program of 6 to 12 sessions that focuses on every aspect of the individual's behavior. Group app also available.

It has been shown that inter-couple behavioral therapy is as effective as individual cognitive therapy in reducing depression in patients with marital discord, but it is also superior in increasing marital satisfaction. However, cognitive therapy was found to be better than behavioral therapy in depressed patients without marital discord. Consequently, behavioral therapy will be the treatment of choice when depression is present (Reavell, Hopkinson, Clarkesmith, & Lane, 2018).

- Cognitive therapy

Like Behavioral Therapy, cognitive therapy offers a comprehensive approach to depression so that it has a theory, a diagnostic assessment, and a therapeutic procedure. Describes

depression in terms of negative thoughts about oneself, the world, and the future due to certain depressogenic schemas and logical errors in information processing.

Cognitive Depression Therapy is a highly structured procedure consisting of 12 core sessions, 15 to 25 sessions with continuation and termination sessions.

One study also compared cognitive therapy with imipramine (Rush, Beck, Kovacs & Hollon, 1977). Although both treatments significantly reduce depression, cognitive therapy is superior to pharmacological therapy. This advantage has been preserved one year later.

- Interpersonal Psychotherapy

Unlike behavioral therapy and cognitive therapy, IPT does not offer a general theory of depression, but rather a clinical-empirical-based therapeutic procedure. It focuses on the clinical observation of the importance of the four domains of depression (grief, interpersonal conflicts, role transition, and deficits in social skills) (Dennis et al., 2020).

Interpersonal Psychotherapy is a therapy that is structured according to the stages and goals according to the specified areas, planned weekly (usually, first twice a week, then once a week) 16 sessions, for 50-60 minutes (Dennis et al., 2020).

Interpersonal Psychotherapy has also shown efficacy in the treatment of adolescent depression compared to the clinical follow-up control group (Mufson, Weissman, Moerau & Garfunkel, 1999). In its practice with adolescents, interpersonal psychotherapy has been directly compared with cognitive therapy (Roselló & Bernal, 1999). Both treatments significantly reduced depressive symptoms compared to the control group. However, interpersonal psychotherapy showed a higher trend than cognitive therapy in both the percentage of adolescents reaching functional range after treatment (82% vs. 59%) and improving self-concept and social cohesion. The authors discuss this superiority of IPT (within the effectiveness of both) in terms of greater compatibility of IPT with Puerto Rican cultural values, noting the preference and disposition for personal contact in social situations (Roselló & Bernal, 1999).

- What about other psychological therapies?

Short dynamic therapies (12 sessions) are less exploratory and more focused on specific goals and are therefore more similar to the therapies reviewed here (Roth & Fonagy, 1996). Regarding IPT, it showed comparable efficacy with cognitive therapy, although its efficacy was slightly lower (Shapiro et al., 1994). It should now be noted that this therapy is more interpersonal than the psychodynamic itself, so perhaps its effectiveness is comparable to cognitive therapy. It is also possible that the psychodynamic will undermine greater effectiveness, in this case comparable to interpersonal psychotherapy.

In one study, non-directive psychotherapy of a psychodynamic nature, including behavioral therapy and drug therapy, was used together (Cuijpers et al., 2019). The worst results in this psychotherapy (even in terms of relaxation) have been achieved, but the rate of improvement (and now important for valuation) is sufficient.

Other therapies that might have a chance in depression, such as systemic family therapy or strategic therapy, were not presented with results (if any) as the rest of the therapies did. In any case, it can be represented by the contribution of J. M. Coyne, a writer (family-systemic) who is known and recognized beyond the limits of the aforementioned approach (Holmes et al., 2018). In any case, all these therapies can be said to be in the "experimental stage", if any.

According to Başoğul and Bulduk, these psychosocial initiatives are based on different theories and approaches, and in some, more than one approach is adopted.

In conclusion, pharmacological interventions are recommended in major depression and moderate-sized cases, ECT in urgent and extremely severe cases, and psychosocial interventions as first-line treatment in moderate and mild cases. The supportive role of psychosocial initiatives is quite positive.

2.3 Major Thalassemia and Depression

Major Thalassemia adversely affects the lives of patients, the treatment process is difficult and tiring, it psychologically wears out patients and their relatives. The process, which leads to intense stress suffered by major thalassemia patients, negatively affects the mental health of patients and their relatives.

As mentioned in the previous section, the effects on the appearance of depression are biological and environmental factors. Although there are some differences in the body of major Thalassemia patients due to these diseases, it seems possible to say that the formation of depression in such cases is mainly due to environmental / psychosocial factors. Because major Thalassemia disease is as tiring, debilitating and laborious as the treatment process. The quality of life of patients is negatively affected by this disease and the disease restricts the movements of people and negatively shapes their thoughts and perceptions.

It is possible to list the factors that cause the formation of depression in patients with major thalassemia as follows (Badur, 2019; Gören, 2019):

- The exhausting treatment process, the fact that they depend on constant transfusion, constant opening of the vascular pathway,

- The negative impact of constant hospital visits on social life

- Negative effects on working life and employment

- Negative effects on academic achievement

- Physical pain

- Physical difficulties

- Difficulties in treatment adaptation

- Cognitive difficulties that are likely to occur due to iron accumulation

- Negative effects of the disease on the quality of life.

2.3.1 Treatment of Major Thalassemia and Depression

Looking at the studies conducted, it seems that there are no special approaches or treatment recommendations for treating depression in patients with Major thalassemia. On the contrary, Ashutosh Lal, in his study published in 2016, refers to the use of antidepressants to deal with chronic pain in thalassemia, with the exception of depression (Lal, 2016). The important thing to consider in the treatment of depression with antidepressant drugs in thalassemia patients will be the interaction of the drug that the doctor deems appropriate with the drugs used to treat thalassemia or the evaluation of the effects of the drug on the disease. In such a situation, the decision of the attending physician is important. In this context, in a study conducted by Kumar et al. in 2009, it was reported that Thalassemia patients deserve special attention and attention when using SSRI-class antidepressants (Kumar et al., 2009).

In addition to drug therapy or as an alternative to drug therapy in mild cases, approaches such as psychosocial interventions and, in particular, psychotherapy and behavioral training may be preferred in patients with thalassemia. as a result of a study conducted by Duyan and her colleagues in 2014, in which 603 female participants were included, it was found that families with a family member with thalassemia have problems with emotional response and behavior control. (According to Duyan et al., 2014). It is known that psychotherapy and other psychosocial interventions are effective in solving such problems.

2.4 Nursing Approaches

Nurses are tasked with helping patients understand the risks of significant thalassemia as well as the ramifications of not following the prescribed chelation therapy regimen (Kelsey, 2015).

As the first point of contact with the health care team, nursing professionals must be able to communicate effectively. The nurse's ability to empathize and be sensitive to the needs of the patient is considered essential (Kruijver et al., 2000).

When the patient and the nurse have open lines of communication, it is easier for the nurse to provide support, encouragement, and reassurance, which in turn facilitates positive feedback . The nurse's primary responsibility is to encourage and assist the patient in taking an active role in his or her own health care (Aimiuwu et al., 2012). Since nurses aid patients both emotionally and intellectually, they must be committed to meeting their needs on a personal level as well as in terms of their training and education . When it comes to discussing the patient's quality of life expectations, nurses are a valuable resource to have in addition to the doctors (Gharaibeh et al., 2010) As a result, they must display a grasp of the patient's requirements and communicate effectively using a language that can be understood while also being cognizant of boundaries in interactions with the patient (Mok, & Chiu, 2004). A patient's quality of life is also managed by nurses, who help to prevent unnecessary problems and provide therapy that minimizes interference with educational and professional responsibilities . Instructions to the patient and their loved ones on how to recognize and report dangerous symptoms such as fever or pain, as well as promoting engagement with other health care providers, including the psychologist. Thalassemia management relies heavily on family support, which is made easier by keeping in touch on a frequent basis and responding quickly to any family members' needs (Scalone et al,. 2008).

According to a recent study conducted in Iraq by Kelsey and his collegues, nurses believe they play a small role in determining healthcare decisions. Nurses are allowed to perform a wide range of duties, regardless of their level of training, and some have the same job description regardless of their training (Kelsey et al,. 2015). Moreover, the findings of (Shabila and others

who studied the quality of health care services in Erbil, Iraq's Kurdistan area, are in line with this conclusion. They discovered that nurses in this Center were confined to a small role, which could have a negative impact on patient care (Shabila et al,. 2010). It was found in a study that patients who first meet nurses and then spend more time with them have a greater sense of trust in the nurses' abilities and abilities (Aimiuwu, .‹wt al 2012.(According to the results of one study, the majority of people with thalassemia major suffer from serious psychosocial issues (Sawada et al,. 2010). According to their findings, nurses should provide psychosocial support to help children and families cope with the disease and lessen its effect on families. The family's sentiments, fears, and wants must also be taken into consideration by nurses and other health care workers . Psychiatric and psychological care should be incorporated into the medical treatment of these individuals, according to some experts (Lazzeri et al,. 2009). As a result, mental health professionals such as psychologists, psychiatric psychiatrists, and nurses play an essential role in helping these patients cope mentally.

Nurses play an important role in educating patients and their families about the dangers of non-adherence to chelation medicines. If the patients or their families do not take the danger into consideration, nurses will ask for help from social workers to talk to the families and patients and educate them about their behavior. To ensure that patients and their families receive the best possible care, recent studies have shown that a patient's psychosocial status, awareness of the disease, and willingness to take deferoxamine all have an impact on how well the drug is taken (Al- Kloub et al,. 2014).

who proved the link between systematic education for patients and caregivers to increase their treatment adherence and the necessity of practical knowledge for thalassemia major patients in order to advance their adherence to treatment (Garred .‹et al 1993 .(

Assessing for severe anemia, liver or splenomegaly, infections, bleeding tendencies (such as epistaxis), and anorexia are all part of the nursing examination of patients with significant thalassemia (Hagler et al,.2019) .

The most common nursing diagnoses are ineffective tissue perfusion, activity intolerance, imbalanced nutrition, and ineffective family coping) Herdman, 2011).

Nursing care for a major thalassemia patient includes the following:) Elewa, & Elkattan, , 2017)

- To help the client plan and prioritize daily activities (ADLs), aid the client in constructing a daily activity and rest routine, and emphasise the significance of periodic rest times.

- When teaching health and wellness, explain the necessity of diagnostic procedures (such as the complete blood count and bone marrow aspiration) and the language and functions of blood elements (white and red blood cells, as well as platelets). Avoid infection by checking for symptoms like fever, chills, swollen lymph nodes, pain and general malaise, and teaching the patient to avoid contact with people who already have an infection. The patient should also be taught to avoid eating raw fruits, vegetables, and uncooked meat, as well as stressing the importance of daily hygiene, oral hygiene, and perineal care.
- Make sure there is no bleeding from the nose or mouth, gums or vagina, as well as check the platelet count.
- In order to ensure that medical professionals are well-versed in genetics, an emphasis on genetic education and practice is required .

3. Material and Method

The study was carried out at the Thi-Qar Hereditary Blood Diseases Center in Thi-Qar Province, Iraq. Accordingly, approval was obtained from the chief medical officer's board and the ethics committee of the hospital to which the center is affiliated.

3.1 Methodology

This study was carried out at the Hereditary Blood Diseases Center in Thi-Qar Province, Iraq. For this purpose, the ethics committee approval of the hospital to which the center is affiliated was obtained and the patients who participated in the study within the experimental group were informed and the consent form was obtained. The study was conducted for adults. It is aimed to contribute to the development of awareness in order to minimize the negative effects on social and professional life by addressing the problems created by the talesm in adults. The study is based on the reason for the preference of adults rather than children, their reasoning and higher awareness. Information obtained from adults can be considered as the primary source. In the third part of the study, each step related to the collection, processing and evaluation of the data is detailed. In the study, it is mainly shaped within the framework of the descriptive approach. So much so that the primary objective of the study is to identify the psychosocial effects of major thalassemia on the formation of depression on patients.

3.2 Selection of Patients

At the time of the study, 102 cases diagnosed with Major Thalassemia were entered at the Thi-Qar Hereditary Blood Diseases Center. It is seen that 11 of these case records are duplicated records. The total number of individual applications was determined as 91. Although it was aimed to reach all 91 people in our study, it was determined that one patient died on a date before the beginning of the study, one patient was affected by the COVID-19 outbreak and was sick during the study. Other patients agreed to participate in the study. Therefore, this study was carried out with the voluntary participation of 89 patients.

The selection of the patients who participated in the study is based on the following criteria:

- be over 18 years of age (No upper age limit criteria are specified).
- Be literate
- Not having any mental disabilities.

The study was conducted for adults. Thalassemia problems created by adults toward minimizing negative impacts to be addressed in social and professional life in the direction of the study aimed to contribute to the development of an awareness to be preferred by adults rather than children, is based on reasoning and awareness due to being higher. The information obtained from adults can be considered as the primary source.

3.3 Data Collection

In this study, which is a descriptive and cross-sectional study, the population of the study is Thi-Qar Hereditary Blood Diseases Center located in Tikar Province of Iraq, and the sample of

the study is adult patients diagnosed with and confirmed with Major Thalassemia Disease admitted to Thi-Qar Hereditary Blood Diseases Center.

The data were collected through face–to-face interviews, paying attention to COVID-19 measures and following the rules that taken by the Iraqi Government, Tikat Governorate and the Ministry of Health. Three stages were followed as a data collection tool, the first of which is the interview, the second is the implementation of the data collection form (questionnaire) , and the third is the implementation of the Beck Depression Inventory.

For face and face interview , patients were interviewed individually, in accordance with social distance and mask rules, and information was given about the reason, purpose, content, importance of the study and the academic background of the researcher. Meanwhile, a physician and a nurse from Tikar Hereditary Blood Center participated in the interviews as observers.

Data collection (questionnaire) form consisting of four parts and thirty-one questions was applied to the patients. The data collection form was applied in the same session consecutively with the Beck Depression Inventory (BDE) and the results were evaluated at the same time.

In the first part of this form, there are five questions in which general information about the patients is investigated. These are questions aimed at finding out the gander ,age december, marital status, the number of dependents and the presence of a dependent on the patient. In the second part of the form, four questions are included to investigate the disease status of patients. These are the questions about the time from the date of diagnosis of major Thalassemia to the date of the study (the time lived with the disease), whether there is a different disease caused by or associated with major Thalassemia, whether regular blood transfusion therapy is performed, and at what period of the patient's life the disease begins. The third part of the form contains thirteen questions related to the professional work life and working status of patients. In this section, respectively, the patients; income status, working status, whether it is an obstacle to the operating state of patients for illnesses, diseases and the disease of the patients, it does not leave the patient of the disease, which affects their performance, which affects the income of the disease, which affects patients 'relationships with peers in a negative way the disease affects patients' relationships with managers and administrators whether their attitude towards patients,

patients should be executed in a lower position than they deserve because of the disease she had considered whether, whether due to illness is concerned about losing their jobs due to illness and the work environment for professional relationships where shunned diseases you thought you were not where they thought they would be more successful if the disease reduces asked whether the study of requests for it. The fourth part of the form contains nine questions related to the social relations of the patients. The fourth and final section, respectively, of patients and its relationships with friends all ties with its immediate environment, activities for ill, the perception of loneliness, the constraints of social life, the perception of exclusion from the community, whether they consider themselves to be disadvantaged, meeting new people of the effects of the disease, the disease of the hobby, courses, and events such as the influence of social initiatives were investigated.

The Beck Depression Inventory. The BDI was first introduced in 1961. The BDI was developed by Beck and Steer (1986) and has been widely used in many countries both in community-based studies and in clinical studies. The BDI was designed to assess the severity of depression among psychiatric patients. This inventory measures cognitive, affective, somatic, neuro-vegetative and endogenous aspects of depression. The self-report questionnaire is rated on a four-point scale ranging from 0 (no symptom) to 3 (severe symptom). The items were designed to assess only the severity of depression and not to reflect any particular theory of depression. The 21 symptoms and attitudes assessed by the BDI include mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-dislike, self-accusation, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work difficulty, insomnia, fatigability, loss of appetite, weight loss, somatic preoccupation and loss of libido. BDI scores are obtained by summing the ratings given by the responder for each of the 21 items. The overall depression scores range from 0 to 63 and are normally divided into four categories. Scores of 0 to 9 are considered within the normal range or asymptomatic, scores 10 to 15 indicate mild depression, scores 16 to 23 indicate moderate depression and scores 24 to 63 indicate extremely severe depression Mahmoudi et al., 2019).

There are acceptable validity and reliability for BDI-II in Arabic countries. Alpha Cronbach ranged from 0.82 to 0.93 in these countries (Rahat et al., 2012)

Psychometrics is a sub-branch of psychology that determines the emotional states of people with various measurement methods (tests, questionnaires, etc.), digitizes these values, and is used to express the results in a concrete, clear and concise way. The first psychometric studies of BDI were based on 606 patients who routinely applied to the psychiatry outpatient clinic and inpatient wards of a large metropolitan hospital serving low socioeconomic classes (Steer et al, 1986).

Later studies on the psychometric properties of BDI summarize the advantages and shortcomings of the inventory.

The Beck Depression Scale has many advantages such as high internal consistency, high content validity, validity of difference between depressed and non-depressed, sensitivity to change, and international diffusion. In addition, disadvantages such as High item difficulty, Lack of representative norms, Questionable objectivity of interpretation, Controversial factor validity, Instability of scores in short time intervals, and poor discriminant validity against Anxiety can also be mentioned. The Beck Depression Inventory has been confirmed to have good psychometric properties by numerous empirical studies. In addition, BDI is often used as a touchstone to confirm other depression scales (Richter et al, 1998).

3.4 Evaluation of Results

The data collected with the Data Collection form and Beck Depression Inventory were statistically analyzed with the IBM SPSS 28.0 program and the results were interpreted and the final result was compared with previous studies in the literature.

4. Findings

In this section, the data collection (questionnaire) form applied to 89 patients at Thi-Qar Hereditary Blood Diseases Center and the statistical analysis of the Beck Depression Inventory results and the interpretation of these results are included.

Table 1. *Participants' sociodemographic characteristics*

Variables		f	%
Gender	Male	40	44,9
	Female	49	55.1
	Total	89	100
Age	18 - 25	57	64,0
	25 - 34	30	33,7
	34 - 49	2	2,2
	Total	89	100,0
Marital status	Single	77	86,5
	Married	4	4,5
	Widow	8	9,0
	Total	89	100,0
Do you have dependents?	0	82	92,1
	1	4	4,5
	1+	3	3,4
	Total	89	100,0
Is there a person who is obliged to take care of you on a regular basis, or is there a person who takes care of you on a regular basis	There is	48	53,9
	There is not	41	46,1
	Total	89	100,0

The finding in this table shows that 55,1% of patients are females. The number of patients aged 18 to 25 years is 57, which corresponds to 64% of the total number of patients. The number of single patients is 77, which corresponds to 86.5% of the total number of patients. The number of

patients without dependents is 82, which corresponds to 92.1% of the total number of patients. The number of patients who are regularly provided with their care by a caregiver is 48, which corresponds to 53.9% of the total number of patients.

Table 2. *Difference in Beck score between genders groups*

Ranks					**Mann-Whitney U**	**Z**	**Asymp. Sig. (2-tailed)**
	Gender	N	Mean Rank	Sum of Ranks			
Depression	Male	40	39.65	1586.00	766.000	-1.772	.076
	Female	49	49.37	2419.00			

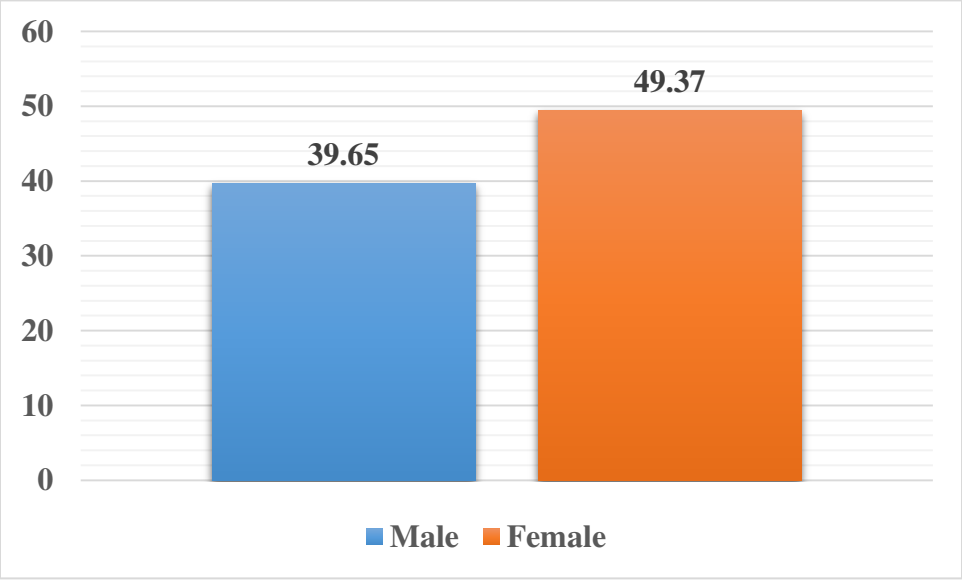

Figure 5. *Gender-wise difference in Beck Depression score*

There is no statistically significant difference in Beck depression score between gender groups.

Table 3. *Difference in Beck score among marital status groups*

Ranks				Chi-square	df	Asymp. Sig.
	Marital Status	**N**	**Mean Rank**			
Depression	Single	77	46.45	1.914	2	.384
	Married	4	37.13			
	Widower/Divorced	8	35.00			

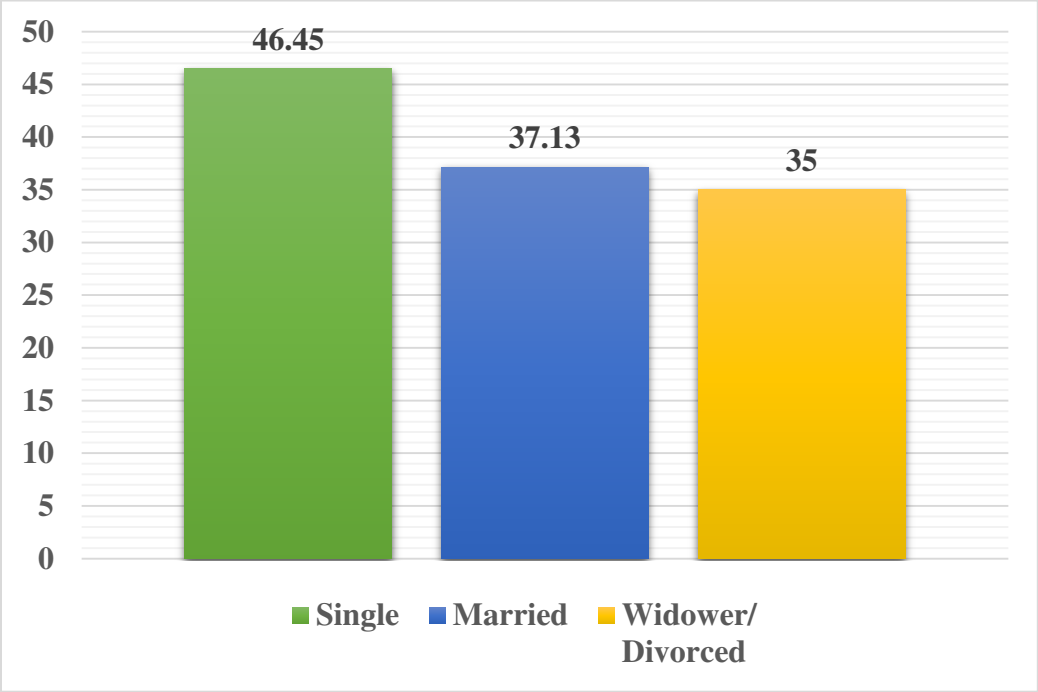

Figure 6. *Difference in Beck score among marital status groups*

There is no statistically significant difference in Beck score among marital status groups.

Table 4. *Difference in Beck depression score between age groups*

Ranks					Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
	Age	N	Mean Rank	Sum of Ranks			
Depression	18-25	68	41.24	2804.00	458.000	-2.484	.013
	26-34	21	57.19	1201.00			

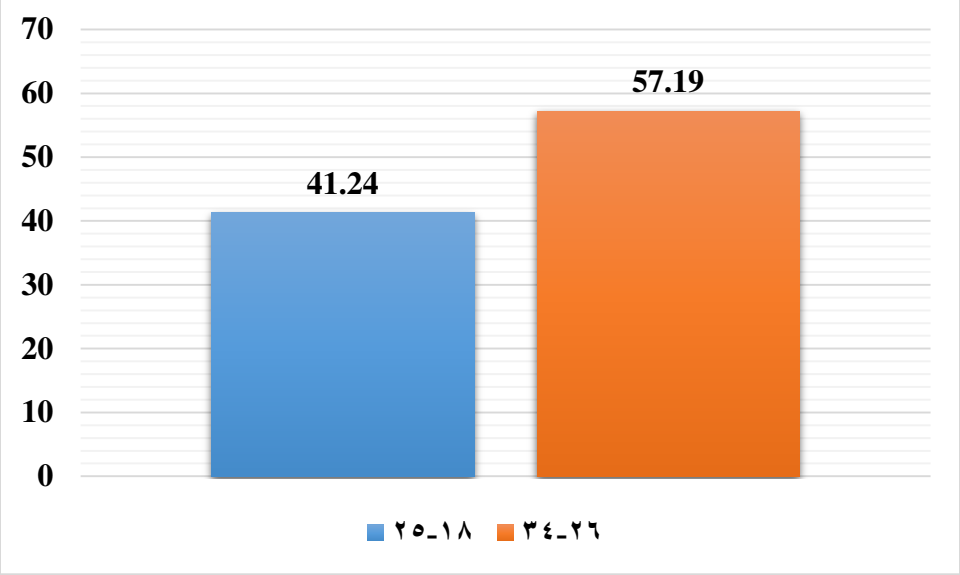

Figure 7. *Difference Beck score between age groups*

There is a statistically significant difference in Beck depression score between age groups (p-value = 0.013). Subjects who age 26-34-years scored higher depression than those who age 18-25-years.

Table 5. *Difference in Beck depression score between availability of caregiver groups*

Ranks					Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
	Is there a caregiver who cares for you regularly?	N	Mean Rank	Sum of Ranks			
Depression	Yes	48	40.13	1926.00	750.000	-2.660	.008
	No	41	50.71	2079.00			

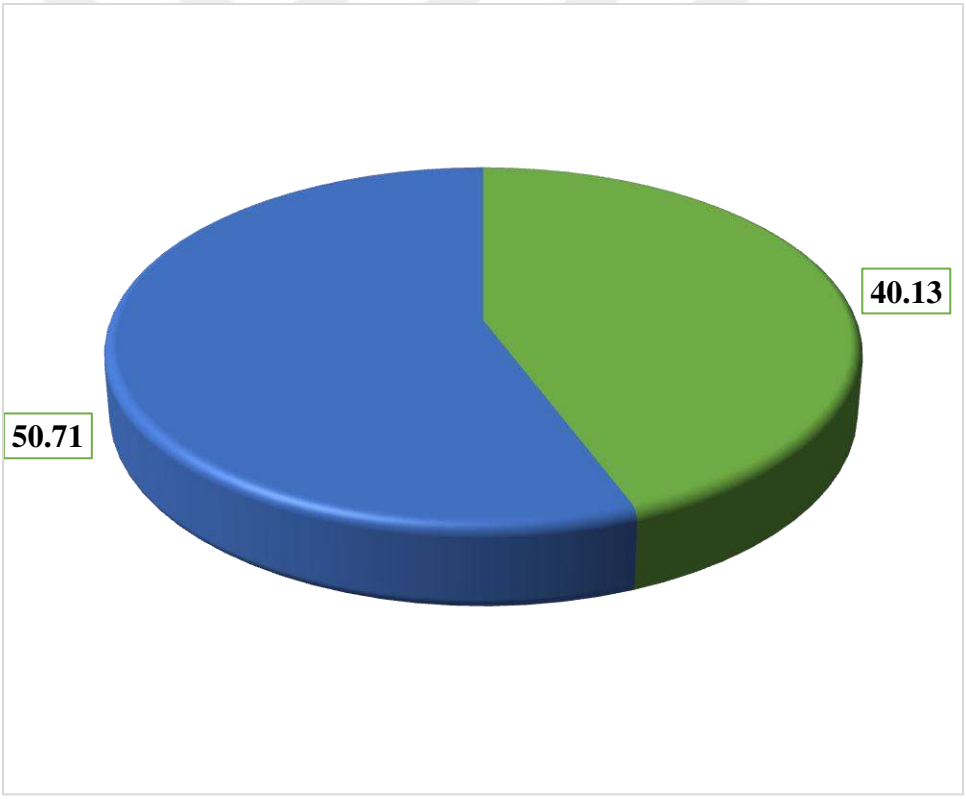

Figure 8. *Difference in Beck depression score between availability of caregiver groups*

There is a statistically significant difference in Beck depression score between availability of caregiver groups (p-value = 0.038). Subjects who reported that there is no caregiver who cares for them regularly scored higher depression.

Table 6. *Difference in Beck depression score among having other chronic disease groups*

Ranks					Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
	Having other chronic disease	N	Mean Rank	Sum of Ranks			
Depression	Yes	83	46.52	3861.00	123.000	-2.847	.004
	I do not know	6	24.00	144.00			

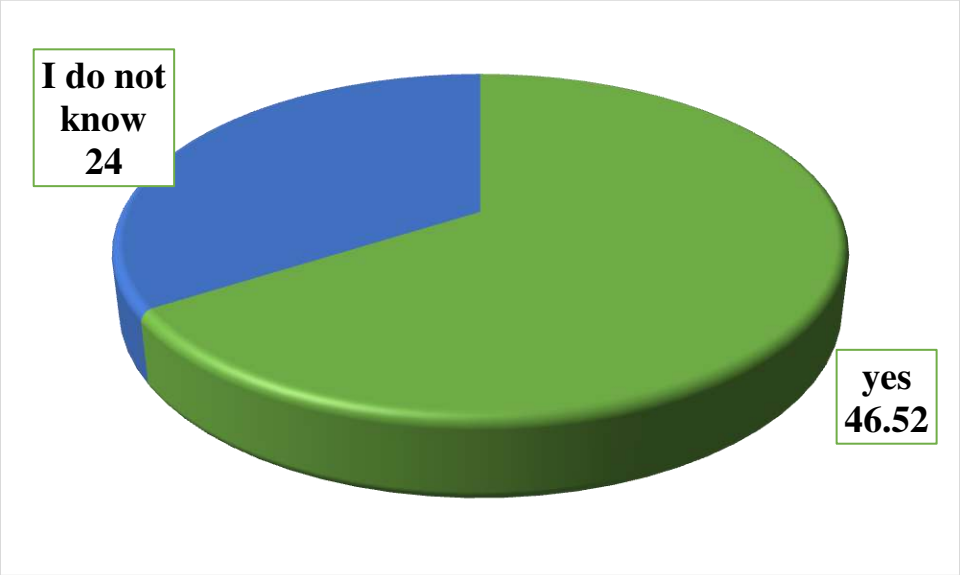

Figure 9. *Difference in Beck depression score between having other chronic disease groups*

There is a statistically significant difference in Beck depression score between having other chronic disease related to Thalassemia groups (p-value = 0.004). Subjects who reported that they have chronic disease(s) scored higher depression.

Table 7. *Difference in Beck depression score among receiving regular blood transfusion groups*

Ranks				Kruskal-Wallis H	df	Exact Sig.
	Receiving regular blood transfusion	**N**	**Mean Rank**			
Depression	Yes	85	46.43	5.847	2	.029
	No	2	13.25			
	No longer receive it	2	16.00			

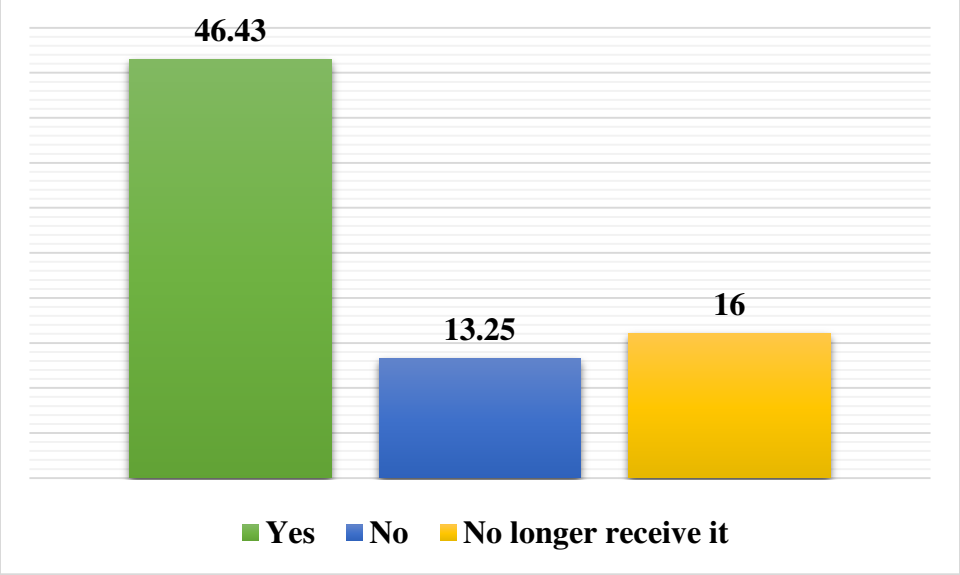

Figure 10. *Difference in Beck depression score among receiving regular blood transfusion*

There is a statistically significant difference in Beck depression score among receiving regular blood transfusion groups (p-value = 0.029). Subjects who reported that they are receiving regular blood transfusion scored higher depression.

Table 8. *Difference in Beck depression score between income source groups*

Ranks					Mann-Whitney U	df	Asymp. Sig. (2-tailed)
	Income source	N	Mean Rank	Sum of Ranks			
Depression	Own	48	31	29.18	17.984	1	.000
	Family aid	41	58	53.46			

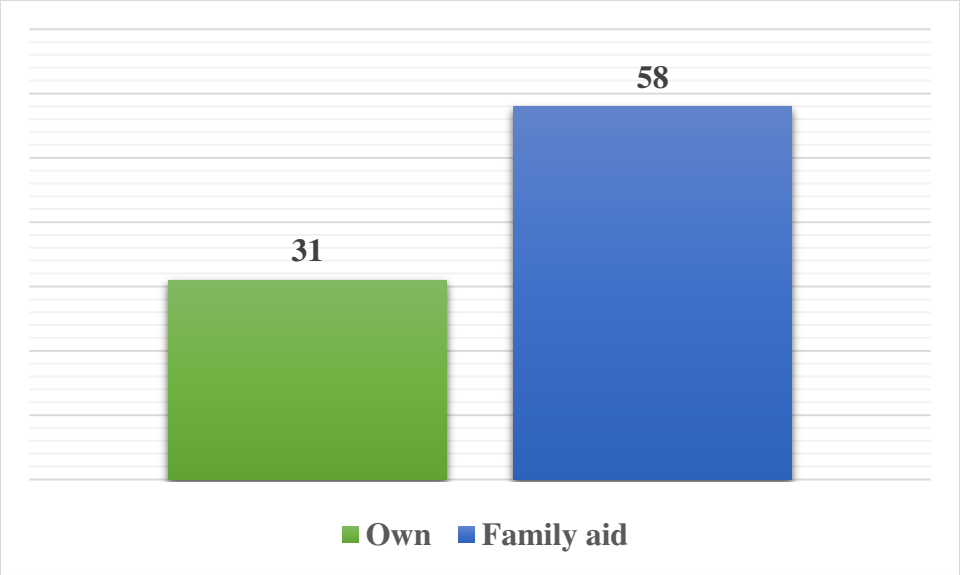

Figure 11. *Difference in Beck depression score income source*

There is a statistically significant difference in Beck depression score between income source groups (p-value = 0.000). Subjects who reported that their income is family aid scored higher depression.

Table 9. *Difference in Beck depression score among working status groups*

Ranks				Kruskal-Wallis H	df	Asymp. Sig.
	Working Status	N	Mean Rank	23.457	2	0.000
Depression	I'm working	27	26.91			
	I do not work	57	54.89			
	I have an irregular work	5	30.00			

Figure 12. *Difference in Beck depression score among working status*

There is a statistically significant difference in Beck depression score among working status groups (p-value = 0.000). Subjects who reported that they do not work scored higher depression.

Table 10. *Difference in Beck depression score among effect of illness on working status groups*

Ranks				Kruskal-Wallis H	df	Asymp. Sig.
	Have you had to leave your job due to your illness	N	Mean Rank	9.843	2	.007
Depression	Yes	60	47.60			
	No	22	47.23			
	Turn out	7	15.71			

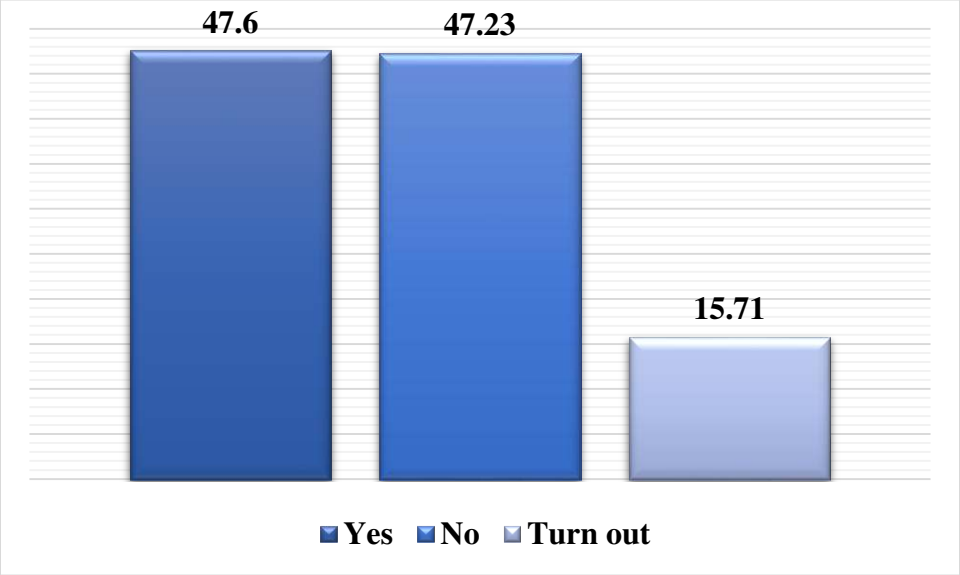

Figure 13. *Difference in Beck depression score among effect of illness on working status groups*

There is a statistically significant difference in Beck depression score among effect of illness on working status groups (P-value = 0.007). Subjects who reported that who had to leave their job due to their illness scored higher depression.

Table 11. *Difference in Beck depression score between illness-working interference groups*

Ranks					Mann-Whitney U	Z	Asymp. Sig. (2-tailed)
	Does your illness prevent you from working?	N	Mean Rank	Sum of Ranks			
Depression	Yes	58	49.69	2882.00	627.000	-3.235	.001
	Sometimes	31	36.23	1123.00			

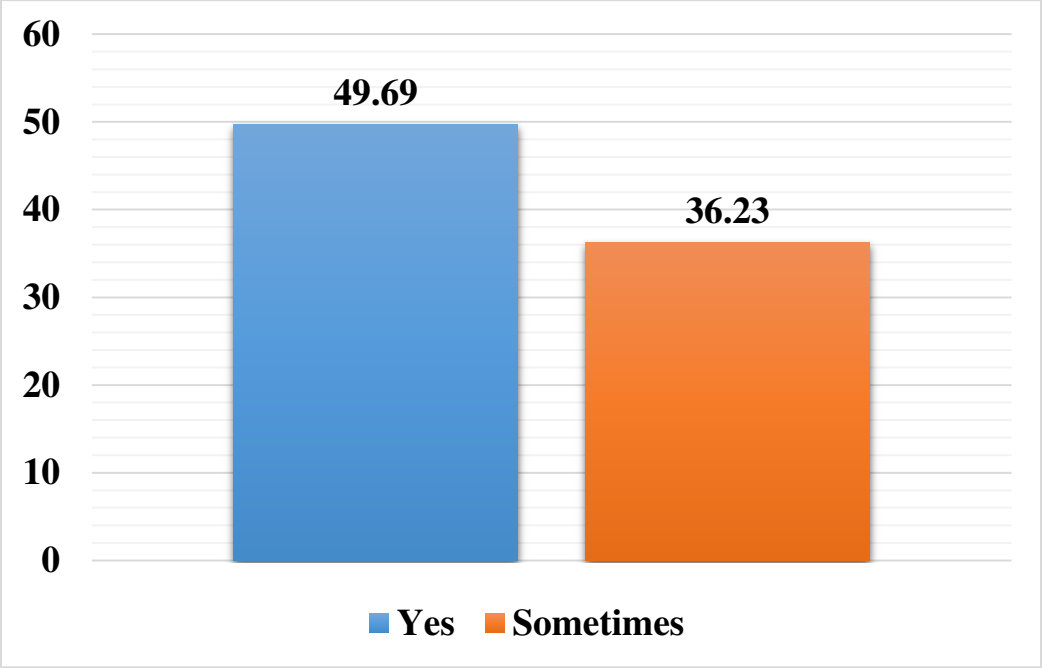

Figure 14. *Difference in Beck depression score between illness-working interference*

There is a statistically significant difference in Beck depression score between illness-working interference groups (p-value = 0.01). Subjects who reported that their illness prevent them from working scored higher depression.

Table 12. *Difference in Beck depression score among effect of illness on work groups*

Ranks				Kruskal-Wallis H	df	Exact Sig.
	Does your illness affect your income?	N	Mean Rank			
Depression	Yes	57	53.91	19.327	2	.000
	Sometimes	15	31.83			
	Never	17	26.74			

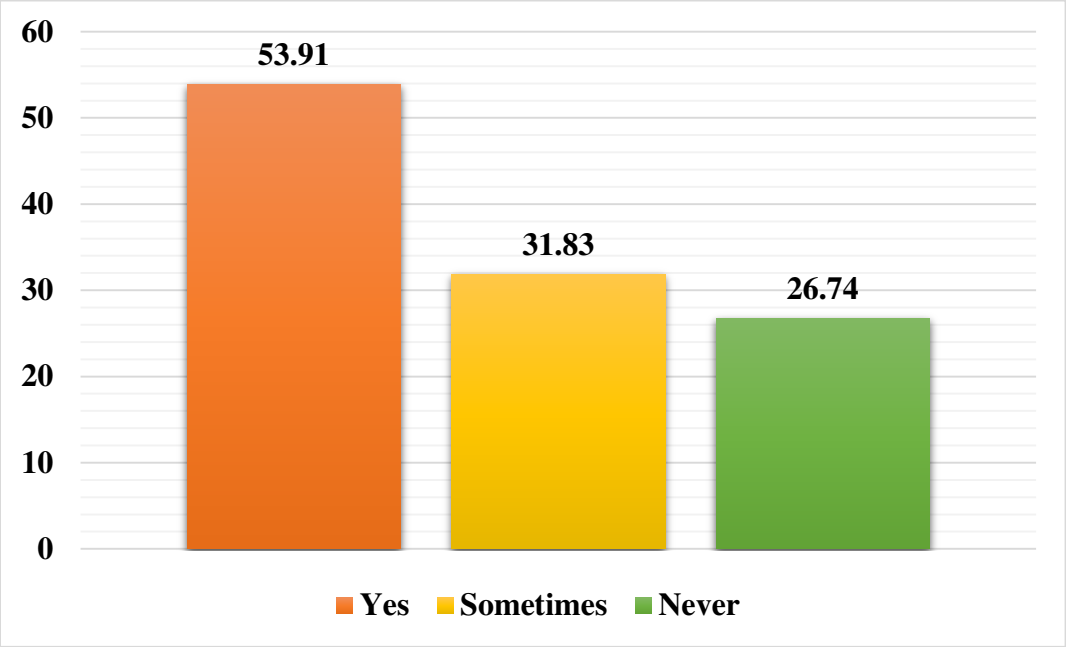

Figure 15. *Difference in Beck depression score among effect of illness on work groups*

There is a statistically significant difference in Beck depression score among effect of illness on work groups (p-value = 0.000). Subjects who reported that their illness affect their income scored higher depression.

Table 13. *Difference in Beck depression score among effect of illness on relationship with colleague groups*

Ranks				Kruskal-Wallis H	df	Exact Sig.
	Does your illness negatively affect your relationships with your colleagues?	N	Mean Rank			
Depression	Yes	22	24.23	19410	2	.000
	Sometimes	28	49.57			
	No	39	53.44			

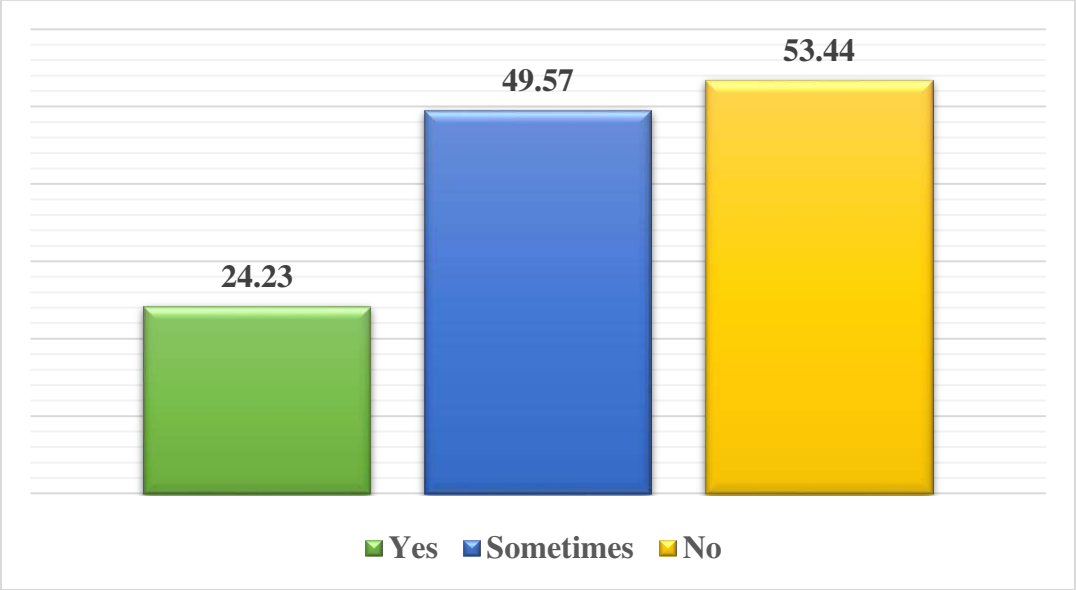

Figure 16. *Difference in Beck depression score among effect of illness on relationship with colleague groups*

There is a statistically significant difference in Beck depression score among effect of illness on relationship with colleague groups (p-value = 0.000). Subjects who reported that their illness negatively affect their relationships with their colleagues.

Table 14. *Difference in Beck depression score among effect of illness on relationship with colleague groups*

Ranks				Kruskal-Wallis H	df	Exact Sig.
	Does your illness negatively affect your relations with managers and your managers' attitudes toward you?	N	Mean Rank			
Depression	Yes	19	38.58	25.039	2	.000
	Sometimes	50	56.18			
	No	20	23.15			

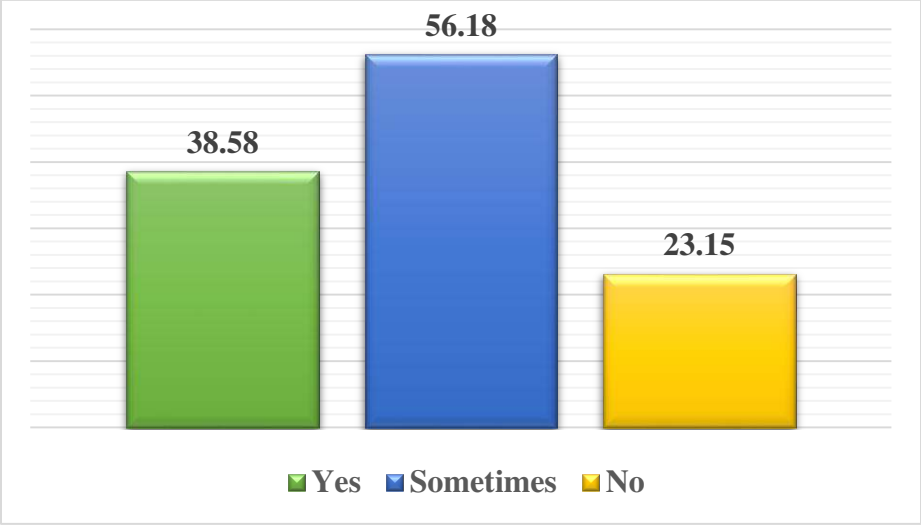

Figure 17. *Difference in Beck depression score among effect of illness on your relations with managers and your managers' attitudes toward you groups*

There is a statistically significant difference in Beck depression score among effect of illness on relations with managers and their managers' attitudes toward them groups (p-value = 0.000). Subjects who reported that their illness negatively affect their relations with managers and their managers' attitudes toward them.

Table 15. *Difference in Beck depression score among effect of illness on relationship with colleague groups*

Ranks				Kruskal-Wallis H	df	Exact Sig.
	Do you think you are working in a position that is lower than the position you deserve because of your illness?	N	Mean Rank			
Depression	Yes	25	23.42	31.874	2	.000
	Sometimes	42	59.77			
	No	22	41.32			

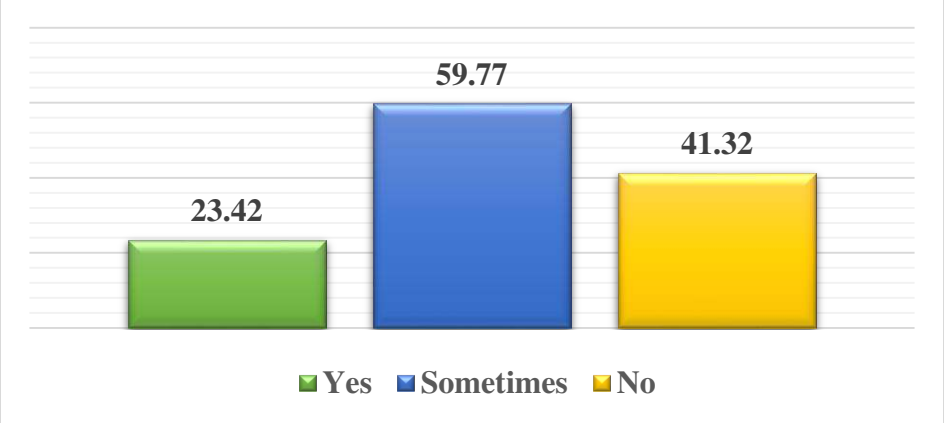

Figure 18. *Difference in Beck depression score among effect of illness on your belief that you are working in a position that is lower than the position you deserve because of illness groups*

There is a statistically significant difference in Beck depression score among effect of illness on your belief that you are working in a position that is lower than the position you deserve because of your illness groups (p-value = 0.000). Subjects who sometimes think they are working in a position that is lower than the position they deserve because of their illness scored higher depression.

Table 16. *Difference in Beck depression score among effect of illness on worry about losing your job due to your illness groups*

Ranks				Kruskal-Wallis H	df	Asymp. Sig.
	Are you worried about losing your job due to your illness?	N	Mean Rank			
Depression	Yes	15	12.07	35.426	2	.000
	Sometimes	11	34.32			
	No	63	54.71			

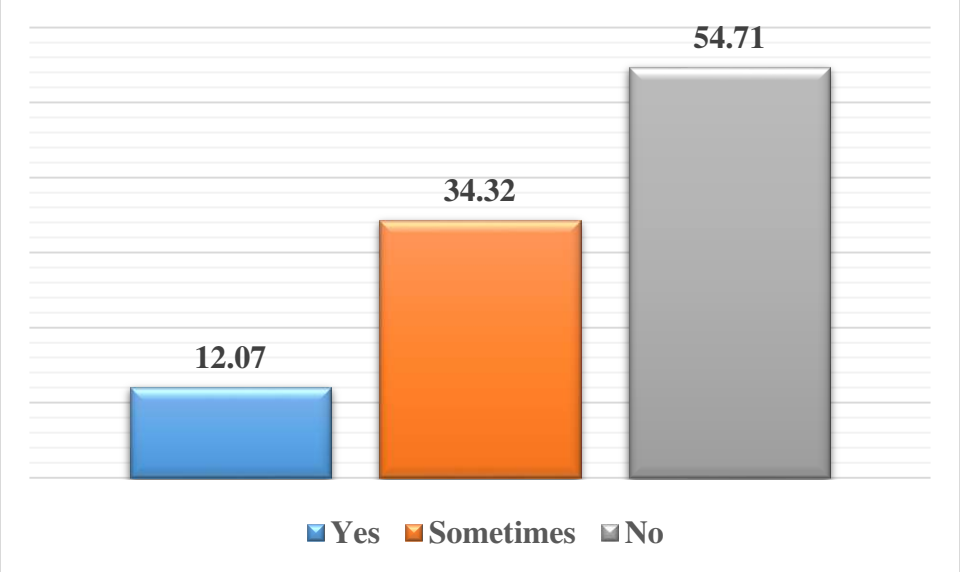

Figure 19. *Difference in Beck depression score among worry about loss of work because of illness groups*

There is a statistically significant difference in Beck depression score among worry about loss of work because of illness groups (p-value = 0.000). Subjects who reported that they do not feel worried about losing their job due to their illness scored higher depression.

Table 17. *Difference in Beck depression score among effect of illness on belief that you are excluded from your work environment and professional relationships due to your illness groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think that you are excluded from your work environment and professional relationships due to your illness?	N	Mean Rank			
Depression	Yes	44	57.50	32.523	2	.000
	Sometimes	33	40.79			
	No	12	10.75			

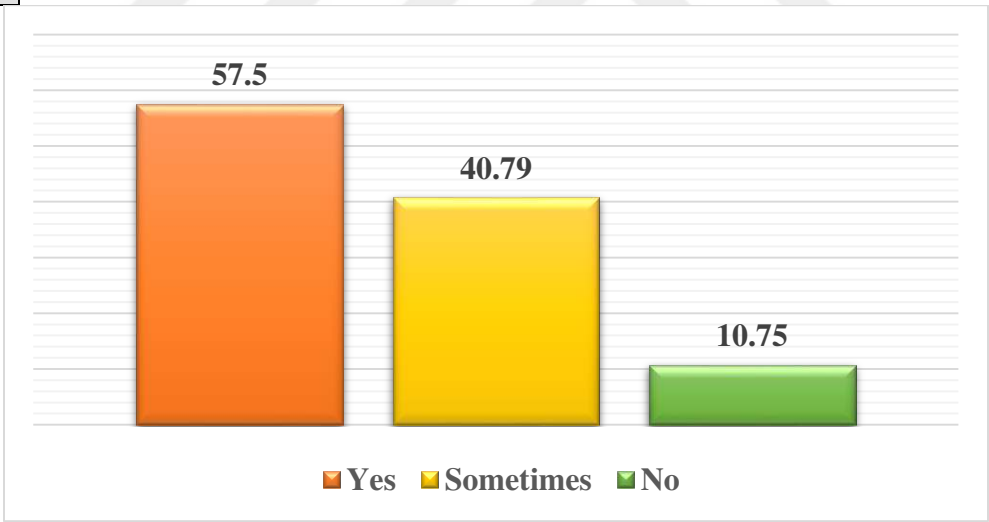

Figure 20. *Difference in Beck depression score among belief that you are excluded from your work environment and professional relationships due to your illness groups*

There is a statistically significant difference in Beck depression score among belief that you are excluded from your work environment and professional relationships due to your illness groups (p-value = 0.000). Subjects who think that they are excluded from their work environment and professional relationships due to their illness scored higher depression.

Table 18. *Difference in Beck depression score among effect of illness on belief that you think you would have been more successful if you had no illness groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think you would have been more successful if you had no illness?	N	Mean Rank			
Depression	Yes	59	53.76	22.298	2	.000
	Sometimes	23	31.43			
	No	7	15.71			

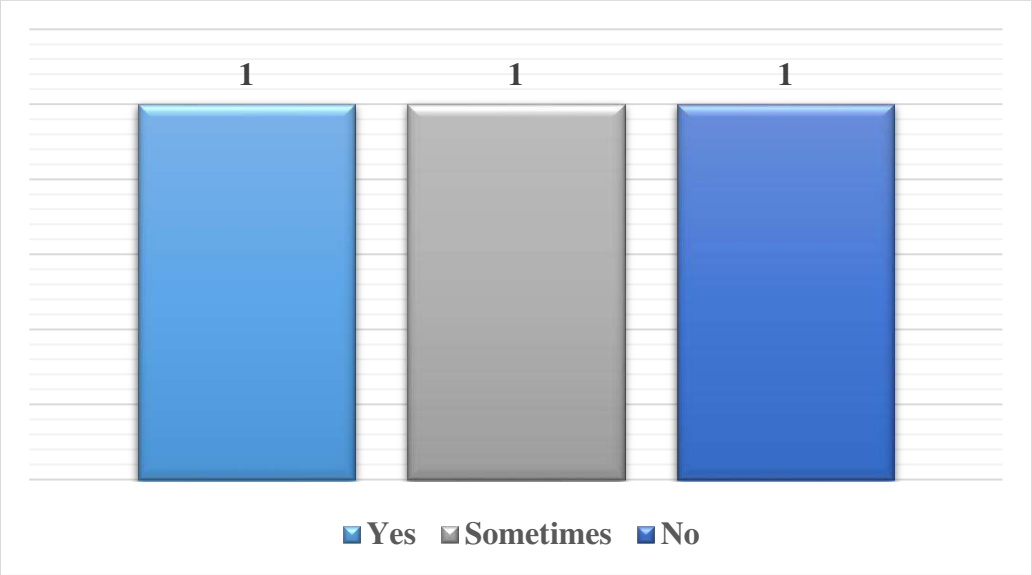

Figure 21. *Difference in Beck depression score among effect of illness on belief that you think you would have been more successful if you had no illness groups*

There is a statistically significant difference in Beck depression score among effect of illness on belief that you think you would have been more successful if you had no illness groups (p-value = 0.000). Subjects who think they would have been more successful if they had no illness scored higher depression.

Table 19. *Difference in Beck depression score among effect of illness on belief that you think you would have been more successful if you had no illness groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think your illness reduces your will to work?	N	Mean Rank			
Depression	Yes	42	59.86	30.019	2	.000
	Sometimes	22	24.23			
	No	25	38.32			

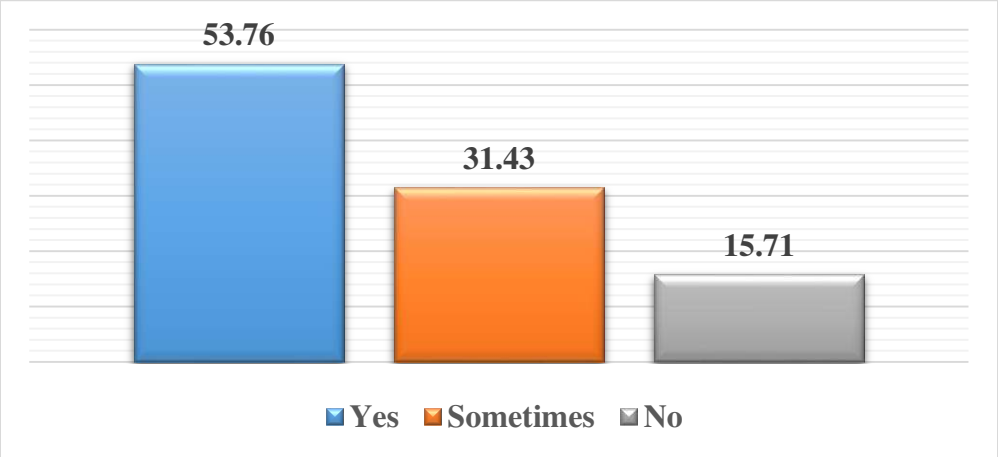

Figure 22. *Difference in Beck depression score among effect of illness belief that you think you would have been more successful if you had no illness groups*

There is a statistically significant difference in Beck depression score among effect of illness on belief that you think you would have been more successful if you had no illness groups (p-value = 0.000). Subjects who think their illness reduces their will to work scored higher depression.

Table 20. *Difference in Beck depression score among effect of illness on relationships with your friend groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think your illness negatively affects your relationships with your friends?	N	Mean Rank			
Depression	Yes	55	55.05	22.358	2	.000
	Sometimes	18	26.06			
	No	16	31.78			

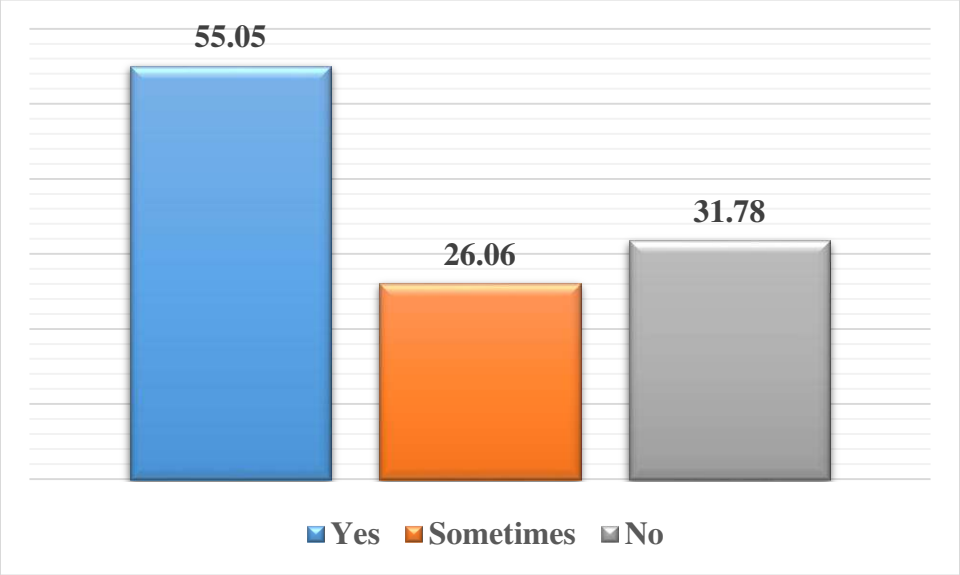

Figure 23. *Difference in Beck depression score among effect of illness on relationships with your friend groups*

There is a statistically significant difference in Beck depression score among effect of illness on relationships with your friend groups (p-value = 0.000). Subjects who think their illness negatively affects their relationships with their friends scored higher depression.

Table 21. *Difference in Beck depression score among effect of illness on relationships with your immediate environment groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think that your illness negatively affects your relationships with your immediate environment (family, friends, relatives)?	N	Mean Rank			
Depression	Yes	44	42.95	.933	2	.627
	Sometimes	31	45.40			
	No	14	50.54			

There is no statistically significant difference in Beck depression score among effect of illness on relationships with your immediate environment groups.

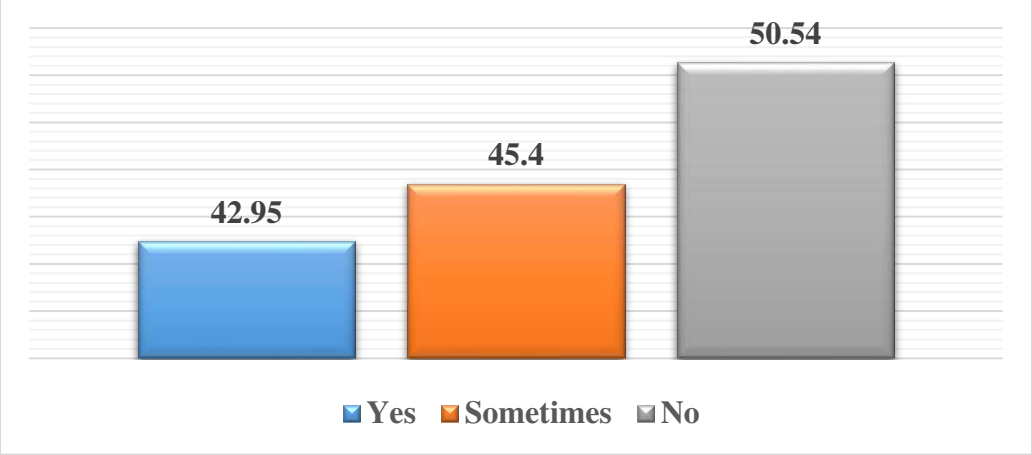

Figure 24. *Difference in Beck depression score among effect of illness on relationships with your immediate environment groups*

There is no statistically significant difference in Beck depression score among effect of illness on relationships with your immediate environment groups.

Table 22. *Difference in Beck depression score among effect of illness on belief that your illness condemns you to loneliness groups*

Ranks				Kruskal-Wallis H	Df	Exact Sig.
	Do you think your illness condemns you to loneliness?	N	Mean Rank			
Depression	Yes	48	53.67	17.066	2	.000
	Sometimes	29	40.78			
	No	12	20.54			

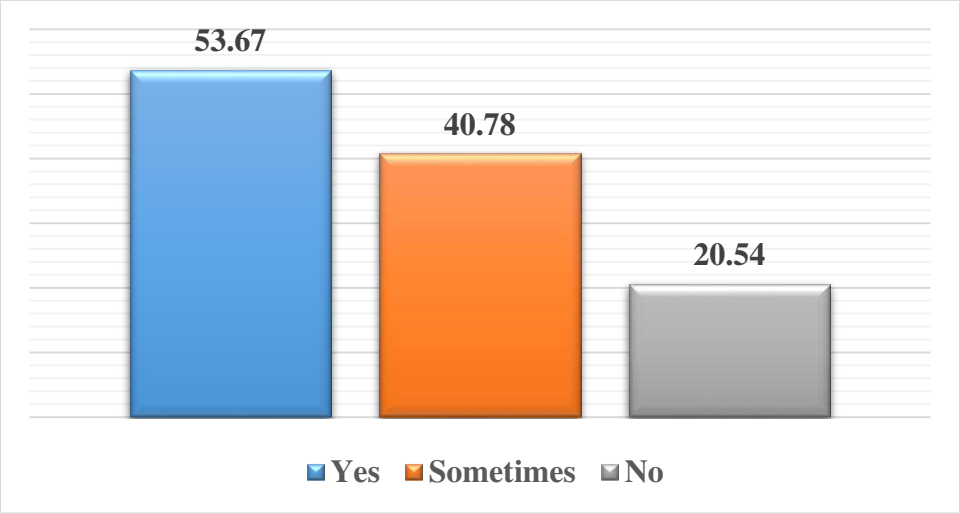

Figure 25. *Difference in Beck depression score among effect of illness on belief that your illness condemns you to loneliness groups*

There is a statistically significant difference in Beck depression score among effect of illness on belief that your illness condemns you to loneliness groups (p-value = .000). Subjects who think that their illness condemns they to loneliness scored higher depression.

Table 23. *Distribution of disease information*

Variables		f	%
The time you have been living with the disease	10+	89	100,0
Do you have a different disease caused by or associated with Major Thalassemia	Yes	83	93,3
	I don’t know	6	6,7
	Total	89	100,0
Do you receive regular blood transfusion treatment?	Yes	85	95,5
	No	2	2,2
	I Don't receive Anymore	2	2,2
	Total	89	100,0
At what time did your illness start in your life?	Childhood (Before the Age of 18)	89	100,0

All patients have been living with a diagnosis of major Thalassemia for more than 10 years. The number of patients with a different disease caused by or associated with Major thalassemia is 83, which corresponds to 93.3% of the total number of patients. The number of patients undergoing regular blood transfusion therapy is 85, which corresponds to 95.5% of the total number of patients. The disease of all patients was diagnosed in childhood before the age of 18.

Table 24. *Distribution of occupational life*

Variables		f	%
Income status	My Own Earning	31	34,8
	Family Assistance	58	65,2
	Total	89	100,0
Working status	I'm working	27	30,3
	I am not working	57	64,0
	I Have an unstable Job	5	5,6
	Total	89	100,0
Does your illness prevent you from working?	Yes	58	65,2
	Sometimes	31	34,8
	Total	89	100,0
Did you have to leave your job because of your illness? (Retirement, Compulsory Retirement, Disability Retirement, Resignation)	Yes	60	67,4
	No	22	24,7
	From a Previous job	7	7,9
	Total	89	100,0
Do you think your illness is affecting your work performance	Yes	89	100,0
Does your illness affect your income?	Yes	57	64,0
	Sometimes	15	16,9
	No	17	19,1
	Total	89	100,0
Does your illness negatively affect your relationships with colleagues	Yes	22	24,7
	Sometimes	28	31,5
	No	39	43,8
	Total	89	100,0
Does your illness negatively affect your relationships with managers and the attitudes of your managers towards you	Yes	19	21,3
	Sometimes	50	56,2
	No	20	22,5
	Total	89	100,0
Do you think that you are working in a position that is lower than the position that you deserve because of your illness	Yes	25	28,1
	Sometimes	42	47,2
	No	22	24,7
	Total	89	100,0
Are you worried about losing your work due to your illness	Yes	15	16,9
	Sometimes	11	12,4
	No	63	70,8
	Total	89	100,0
Do you think that you are excluded from the work environment and professional relationships due to your illness	Yes	44	49,4
	Sometimes	33	37,1
	No	12	13,5
	Total	89	100,0
Do you think that you would be more successful if you didn't have the disease	Yes	59	66,3
	Sometimes	23	25,8
	No	7	7,9
	Total	89	100,0
Do you think that your illness reduces your desire to work?	Yes	42	47,2
	Sometimes	22	24,7
	No	25	28,1
	Total	89	100,0

The number of patients who earn a living with family assistance is 58, which corresponds to 65.2% of the total number of patients. The number of unemployed patients is 57, which corresponds to 64.0% of the total number of patients. 58 patients report that their illness interferes with their working status, which corresponds to 65.2% of the total number of patients. The number of patients who had to leave their jobs due to their illness was 60, which corresponds to 67.3% of the total number of patients. All patients think that their illness negatively affects their working performance. 57 patients consider that the disease affects their income, this corresponds to 64.0% of the total number of patients. The number of patients who think that the disease does not adversely affect their relationship with colleagues is 39, which corresponds to 43.8% of the total number of patients. The number of patients who think that the disease sometimes negatively affects their relationship with managers and the attitude of managers towards them is 50, which corresponds to 56.2% of the total number of patients. The number of patients who sometimes think that they are working in a lower position than they deserve due to their illness is 42, which corresponds to 47.2% of the total patients. The number of patients who are not worried about losing their jobs due to their illness is 63, which corresponds to 70.8% of the total number of patients. The number of patients who felt excluded from the work environment and professional relationships due to their illness was 44, which corresponds to 49.4% of all patients. The number of patients who thought that they would be more successful if they did not have the disease is 59, and this corresponds to 66.3% of the total patients. The number of patients who think that the disease reduces the desire to work is 42, and this corresponds to 47.2% of the total number of patients.

Table 25. *Distribution of social relationship*

Variables		F	%
Do you think that your illness is negatively affecting your relationships with friends	Yes	55	61,8
	Sometimes	18	20,2
	No	16	18,0
	Total	89	100,0
Do you think that your illness negatively affects your relationships with your close environment (family, friends, relatives)?	Yes	44	49,4
	Sometimes	31	34,8
	No	14	15,7
	Total	89	100,0
Do you think that your illness restricts or prevents your social activities	Yes	89	100,0
Do you think that your illness has condemned you to loneliness	Yes	48	53,9
	Sometimes	29	32,6
	No	12	13,5
	Total	89	100,0
Do you think that your illness restricts your social life	Yes	89	100,0
Do you think that you are excluded from society because of your illness	Yes	47	52,8
	Sometimes	29	32,6
	No	13	14,6
	Total	89	100,0
Do you consider yourself a disadvantaged individual because of your illness	Yes	77	86,5
	Sometimes	5	5,6
	No	7	7,9
	Total	89	100,0
Do you think that your illness prevents you from meeting new people?	Yes	50	56,2
	Sometimes	16	18,0
	No	23	25,8
	Total	89	100,0
Do you think that your illness is an obstacle to a new social initiative, such as a course, activity, hobby	Yes	78	87,6
	Sometimes	7	7,9
	No	4	4,5
	Total	89	100,0

The number of patients who think that the disease negatively affects their relationship with friends is 55, which corresponds to 61.8% of the total number of patients. The number of patients who think that the disease negatively affects their relationship with their close environment is 44, which corresponds to 49.4% of the total number of patients. All patients think that the disease restricts or inhibits their social activities. The number of patients who think that the disease condemns them to loneliness is 48, which corresponds to 53.9% of the total number of patients. All of the patients think that their diseases restrict their social lives. The number of patients who consider themselves excluded from society due to their illness is 47, which corresponds to 52.8% of the total number of patients. The number of patients who consider themselves to be a disadvantaged individual due to their illness is 77, which corresponds to 86.5% of the total number of patients. The number of patients who think that the disease is an obstacle to meeting new people is 50, and this corresponds to 56.2% of the total number of patients. The number of patients who consider the disease to be an obstacle to social initiatives is 78, which corresponds to 87.6% of the total number of patients.

Table 26. *Patients response to Beck depression - sadness*

Q. 1. Sadness	**f**	**%**
I feel sad and distressed	11	12,4
I am always sad and distressed. I can't get rid of it.	44	49,4
I am so sad and distressed that I can't take it anymore	34	38,2
Total	89	100,0

For Sadness item, participants scored higher for the answer "I am always sad and distressed. I can't get rid of it" (*n = 44*; 49,4%).

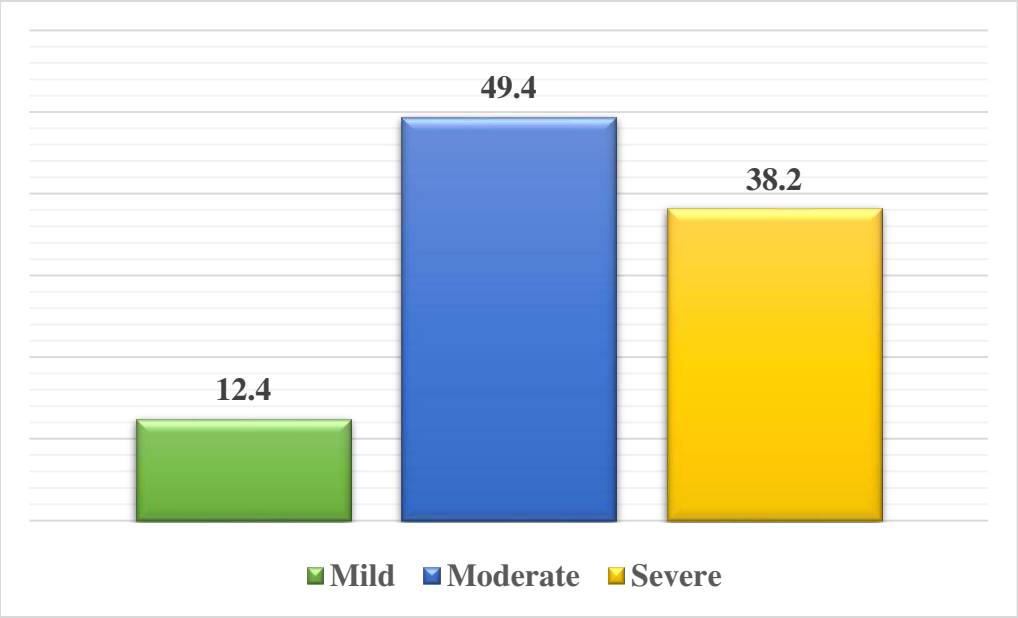

Figure 26. *Level of sadness*

Less than a half experience moderate depression represented by sadness (*n = 44*; 49.4%), followed by those who experience severe sadness (*n = 34*; 38.2%), and those who experience mild sadness (*n = 11*; 12.4%).

Table 27. *Patients' response to Beck depression - pessimism*

Q. 2. Pessimism	**f**	**%**
I am not unhappy and pessimistic about the future	3	3,4
I'm pessimistic about the future	14	15,7
I have nothing to expect from the future	36	40,4
I am desperate about my future and it feels like nothing is going to get better	36	40,4
Total	89	100.0

For Pessimism item, participants scored higher, equally for each of "I have nothing to expect from the future" and "I am desperate about my future and it feels like nothing is going to get better" (*n* = 36 40.4%) for each of them.

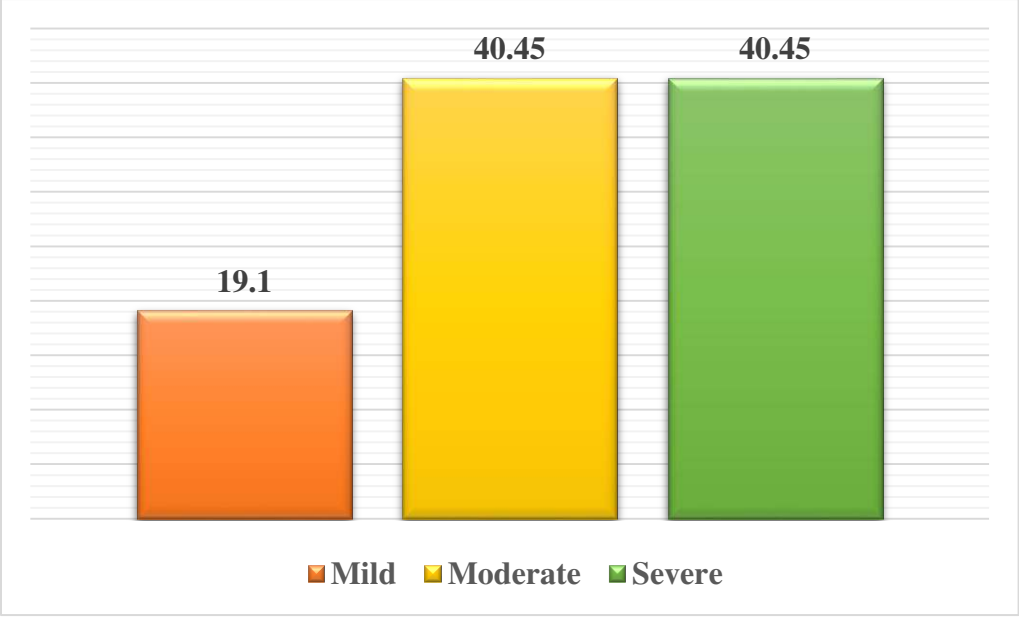

Figure 27. *Level of pessimism*

Around two-fifth experience both moderate and severe depression represented by pessimism (*n* = *36*; 40.45%) for each of them, followed by those who experience mild pessimism (*n* = *17*; 19.1%).

Table 28. *Patients' response to Beck depression related to past failure*

Q. 3. Past Failure	**f**	**%**
I don't consider myself a failed person	5	5.6
I feel like I've had more failures than many people around me	27	30.3
Looking back, I see that it was full of failure	32	36.0
I consider myself a complete failure	25	28.1
Total	89	100.0

For Past Failure item, participants scored higher for the answer "As I look back on my life, all I can see is a lot of failures" (*n = 32*; 36.0%).

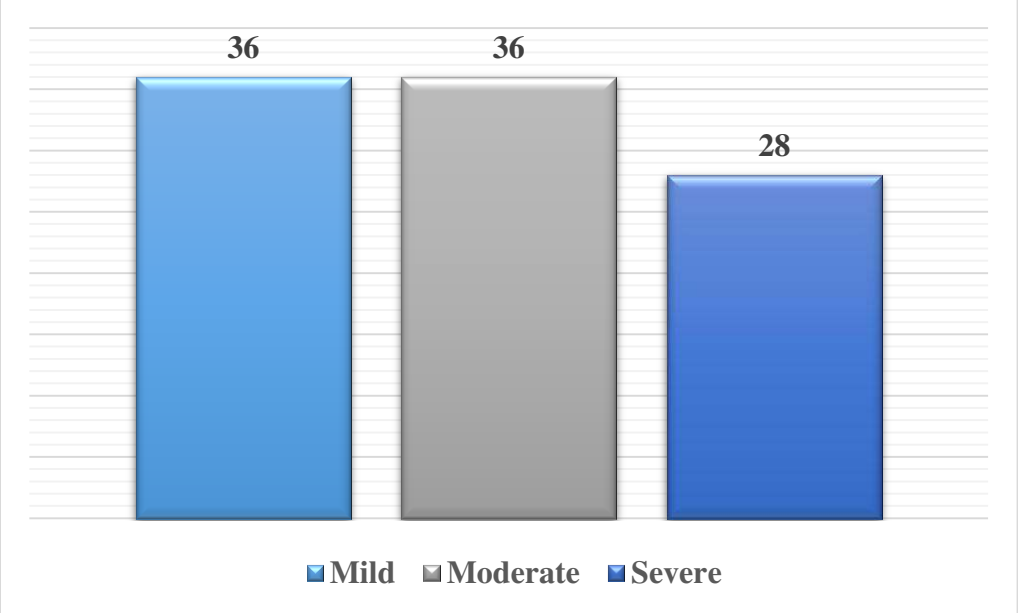

Figure 28. *Level of past failure*

More than a third experience both mild and moderate depression represented by past failure (*n = 36*; 40.45%) for each of them, followed by those who experience severe depression represented by past failure (*n = 25*; 28.0%).

Table 29. *Patients' response to Beck depression related to loss of pleasure*

Q. 4. Loss of Pleasure	**f**	**%**
I enjoy a lot of things as much as I used to	4	4.5
I don't like anything as much as I used to	24	27.0
Nothing gives me complete pleasure anymore	37	41.6
I'm getting bored of everything	24	27.0
Total	89	100.0

For Loss of Pleasure item, participants scored higher for the answer "Nothing gives me complete pleasure anymore" (*n = 37*; 41.6%).

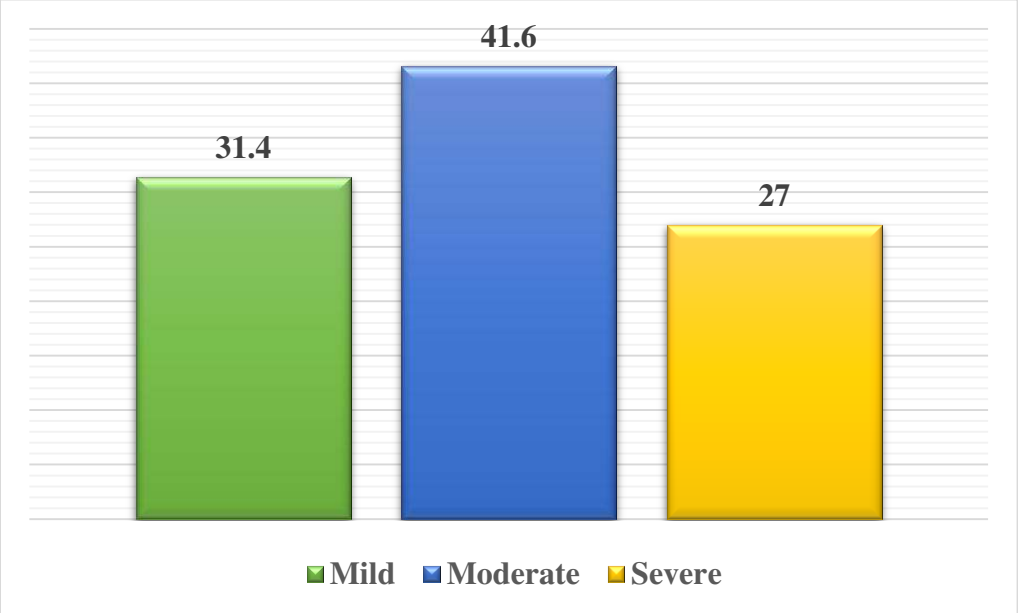

Figure 29. *Level of loss of pleasure*

More than two-fifth experience moderate depression represented by loss of pleasure (*n = 37*; 41.6%), followed by those who experience mild depression represented by loss of pleasure (*n* = 28; 31.4%), and those who experience mild depression represented by loss of pleasure (*n = 24*; 27.0%).

Table 30. *Patients' response to Beck depression related to guilty feeling*

Q. 5. Guilty Feelings	**f**	**%**
I do not feel guilty in any way	19	21.3
I always feel guilty	36	40.4
I often feel guilty	18	20.2
I always feel guilty	16	18.0
Total	89	100.0

For Guilty Feelings item, participants scored higher for the answer "I always feel guilty" (*n = 36*; 40.4%).

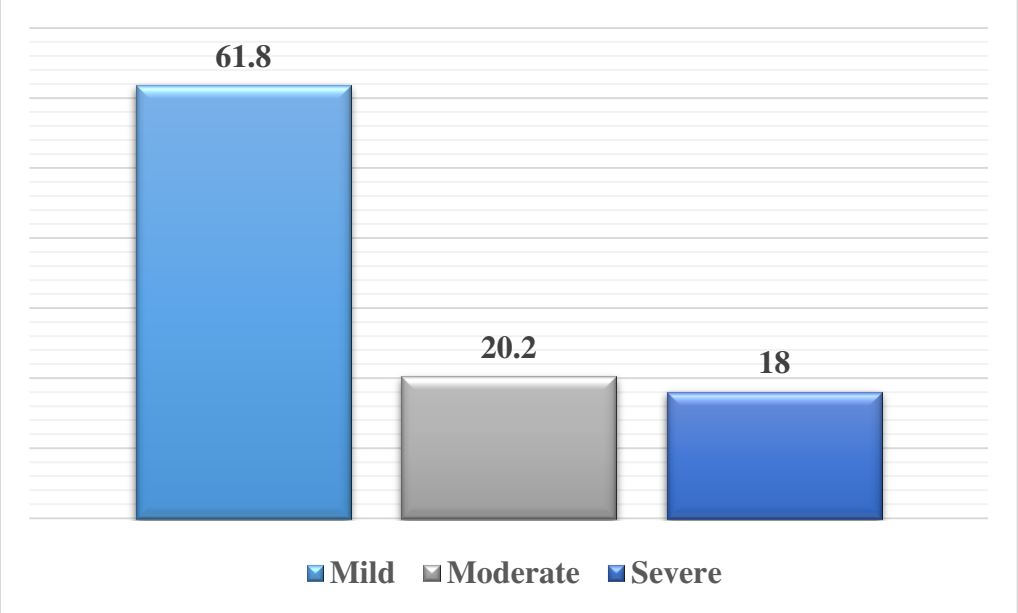

Figure 30. *Level of guilty feeling*

Most experience mild depression represented by guilty feeling (*n = 55*; 61.8%), followed by those who experience moderate depression represented by guilty feeling (*n = 18*; 20.2%), and those who experience severe depression represented by guilty feeling (*n = 16*; 18.0%).

Table 31. *Patients' response to Beck depression related to punishment feelings*

Q. 6. Punishment Feelings	**f**	**%**
I don't feel like I've been punished	39	43.8
I feel like I could be punished	8	9.0
I'm waiting to be punished	5	5.6
I feel I was being punished	37	41.6
Total	89	100,0

For Punishment Feelings item, participants scored higher for the answer "I feel I was being punished" (*n = 39*; 43.8%).

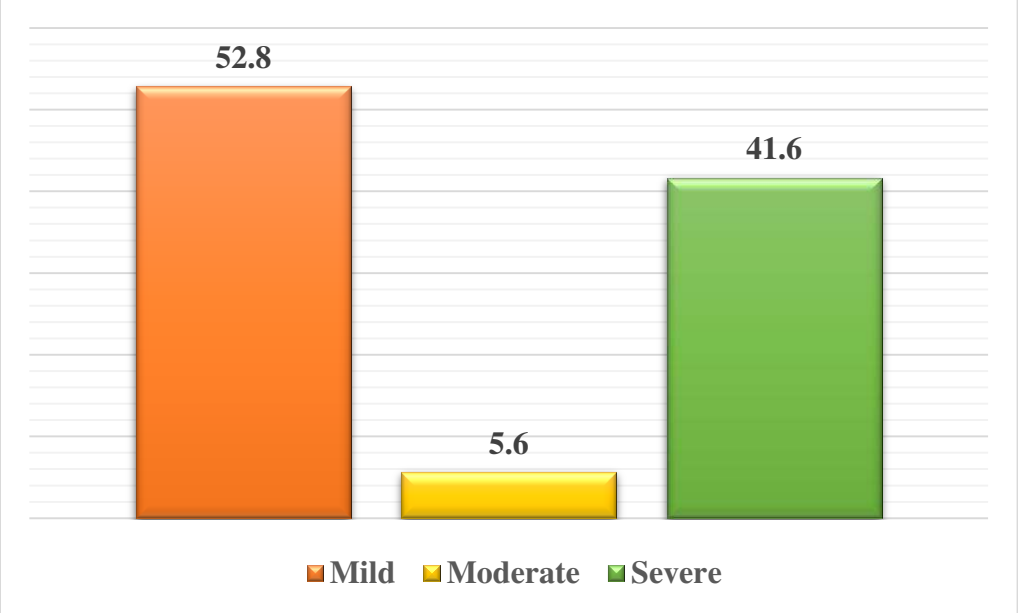

Figure 31. *Level of loss of pleasure*

Most experience mild depression represented by loss of pleasure (*n = 47*; 52.8%), followed by those who experience severe depression represented by loss of pleasure (*n* = 37; 41.6%), and those who experience moderate depression represented by loss of pleasure (*n = 5*; 5.6%).

Table 32. *Patients' response to Beck depression related to self-dislike*

Q. 7. Self-Dislike	**f**	**%**
I am satisfied with myself	25	28.1
I'm not very happy with myself	40	44.9
I'm so mad at myself	8	9.0
I hate myself	16	18.0
Total	89	100.0

For Self-Dislike item, participants scored higher for the answer "I'm not very happy with myself" (*n = 40*; 44.9%).

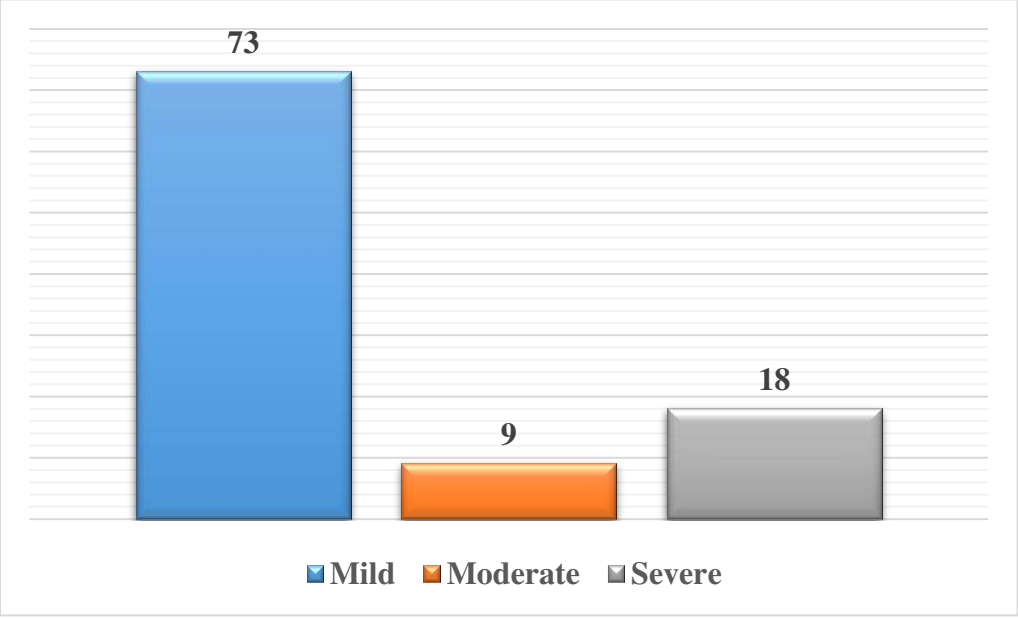

Figure 32. *Level of self-dislike*

Most experience mild depression represented by self-dislike (*n = 65*; 73.0%), followed by those who experience severe depression represented by self-dislike (*n* = 16; 18.0%), and those who experience moderate depression represented by self-dislike (*n = 8*; 9.0%).

Table 33. *Patients' response to Beck depression related to self-criticalness*

Q. 8. Self-Criticalness	**f**	**%**
I don't think I'm worse than others	42	47.2
I criticize myself for my weaknesses or mistakes	27	30.3
I always blame myself for my mistakes	13	14.6
In the face of every setback, I find myself wrong	7	7.9
Total	89	100.0

For Self-Criticalness item, participants scored higher for the answer "I don't think I'm worse than others" (*n = 42*; 47.2%).

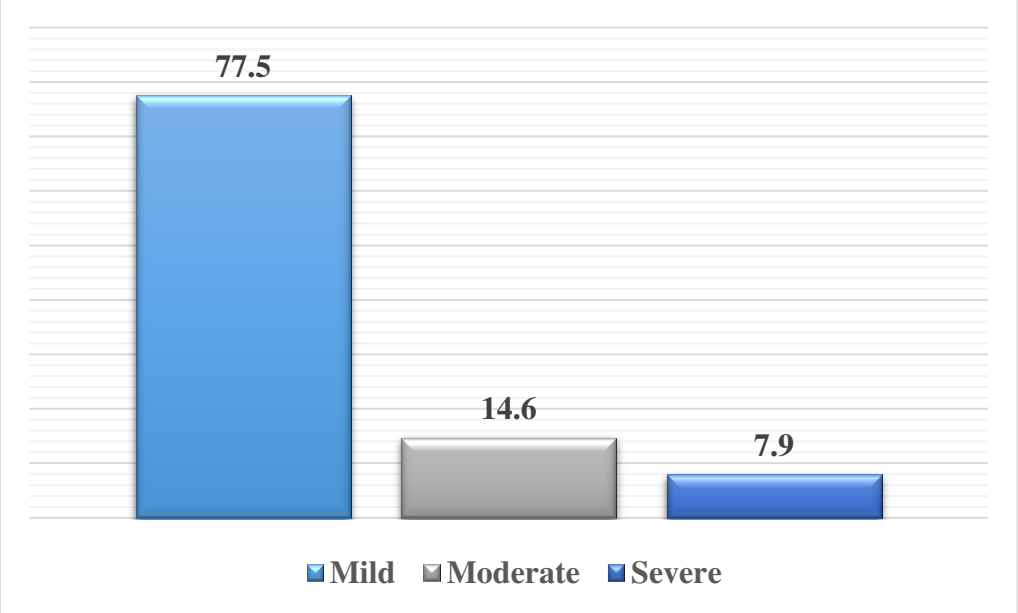

Figure 33. *Level of self-criticalness*

Most experience mild depression represented by self-criticalness (*n = 69*; 77.5%), followed by those who experience moderate depression represented by self-criticalness (*n* = 13; 14.6%), and those who experience severe depression represented by self-criticalness (*n = 7*; 7.9%).

Table 34. *Patients' response to Beck depression related to suicidal thoughts or wishes*

Q. 9. Suicidal Thoughts or Wishes	**f**	**%**
I have no thoughts of killing myself	53	59.6
From time to time, I think of killing myself. but I don't	21	23.6
I would like to kill myself	10	11.2
I would kill myself if I had the chance	5	5.6
Total	89	100.0

For Suicidal Thoughts or Wishes item, participants scored higher for the answer "I have no thoughts of killing myself" (*n = 53*; 59.6%).

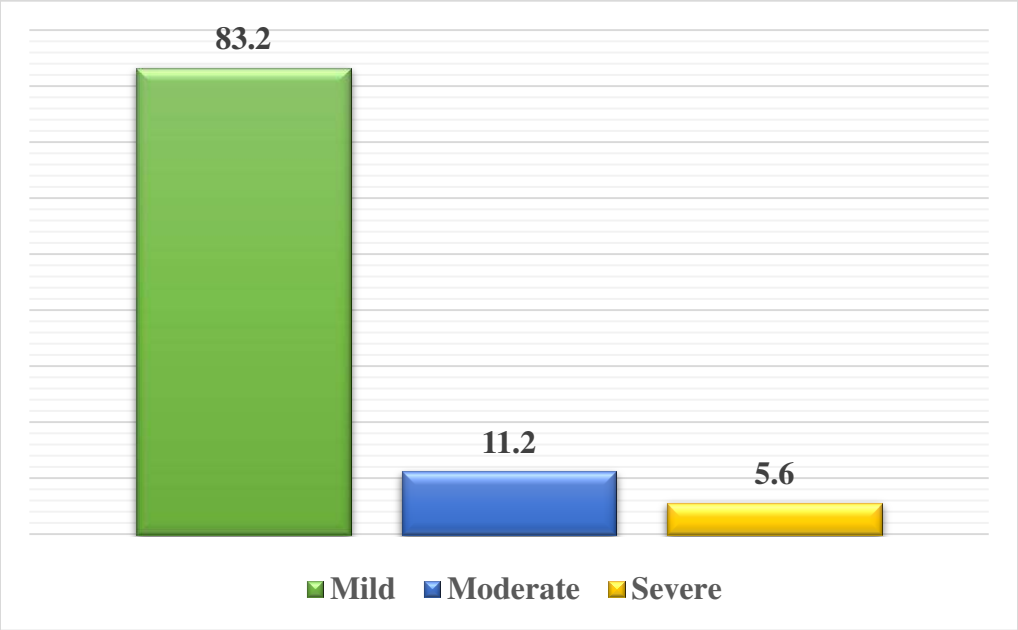

Figure 34. *Level of suicidal thoughts or wishes*

The majority experience mild depression represented by suicidal thoughts or wishes (*n = 74*; 83.2%), followed by those who experience moderate depression represented by suicidal thoughts or wishes (*n* = 10; 11.2%), and those who experience severe depression represented by suicidal thoughts or wishes (*n = 5*; 5.6%).

Table 35. *Patients' response to Beck depression related to crying*

Q. 10. Crying	**f**	**%**
I don't feel like crying anymore than usual	14	15.7
I feel like crying from time to time	57	64.0
I cry most of the time	13	14.6
I used to be able to cry now I can't even cry if I want to	5	5.6
Total	89	100.0

For Crying item, participants scored higher for the answer "I feel like crying from time to time" (*n = 57*; 64.0%).

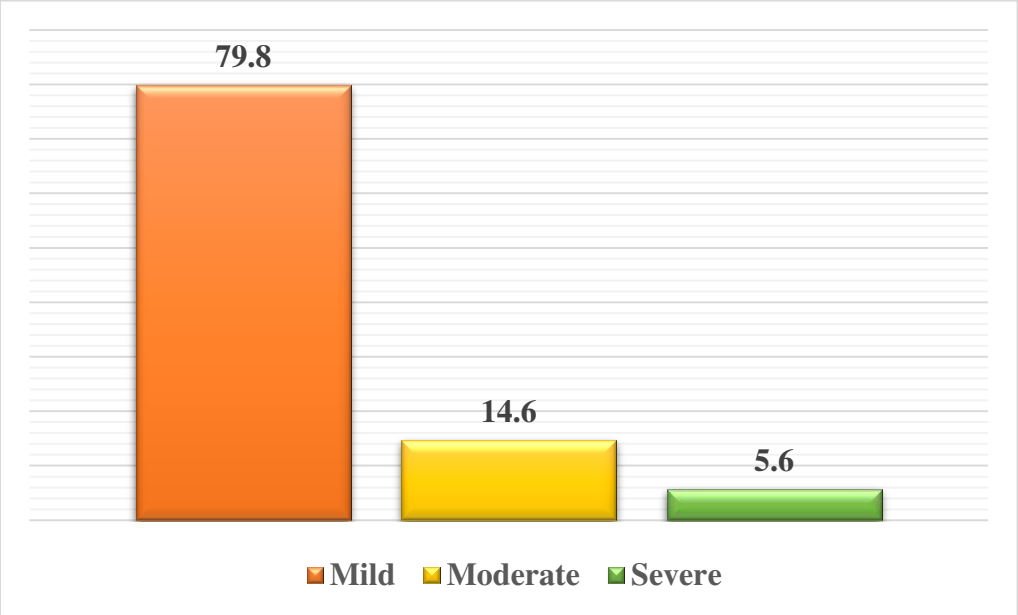

Figure 35. *Level of crying*

Most experience mild depression represented by crying (*n = 71*; 79.8%), followed by those who experience moderate depression represented by crying (*n* = 13; 14.6%), and those who experience severe depression represented by crying (*n = 5*; 5.6%).

Table 36. *Patients' response to Beck depression related to agitation*

Q. 11. Agitation	**f**	**%**
I'm no more frustrated now than I've always been	9	10.1
I get angry or annoyed more easily than before	42	47.2
I'm always angry these days	29	32.6
Things that once made me angry now don't make me angry at all	9	10.1
Total	89	100,0

For Agitation item, participants scored higher for the answer "I get angry or annoyed more easily than before" (*n = 42*; 47.2%).

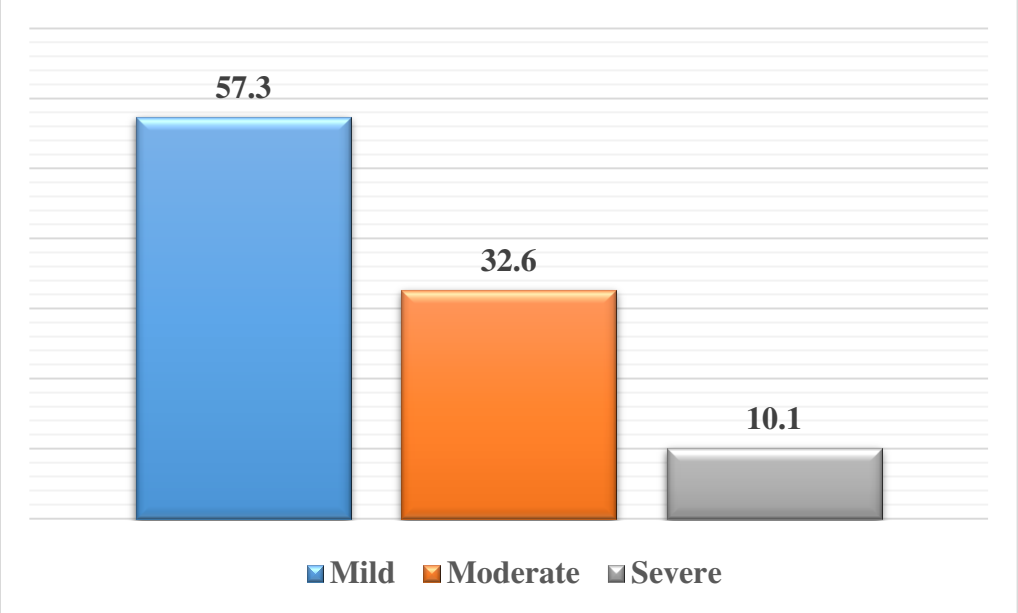

Figure 36. *Level of agitation*

More than a half experience mild depression represented by agitation (*n = 51*; 57.3%), followed by those who experience moderate depression represented by agitation (*n* = 29; 32.6%), and those who experience severe depression represented by agitation (*n = 9*; 10.1%).

Table 37. *Patients' response to Beck depression related to loss of interest*

Q. 12. Loss of Interest	**f**	**%**
I have not lost my desire to meet and talk with others.	21	23.6
I want to talk less, to meet with others before	33	37.1
I have lost the desire to talk and meet with others.	22	24.7
I don't want to talk to anyone	13	14.6
Total	89	100.0

For Loss of Interest item, participants scored higher for the answer "I I want to talk less, to meet with others before" (*n = 33*; 37.1%).

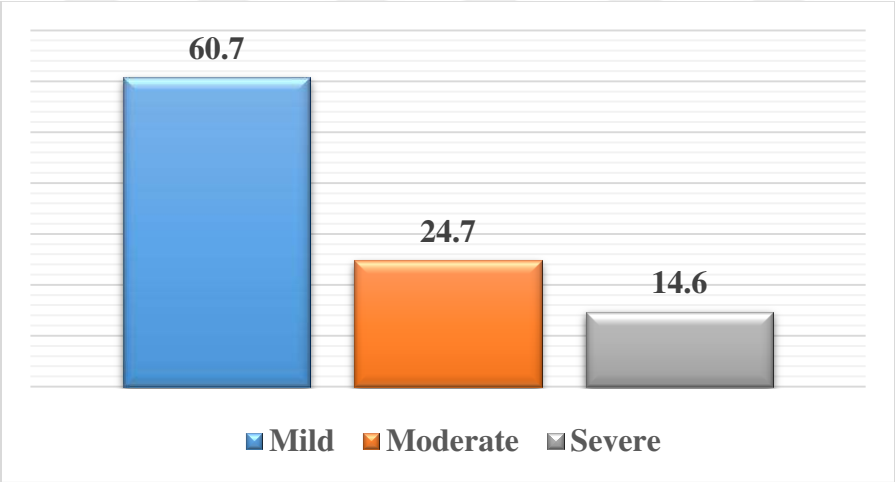

Figure 37. *Level of loss of interest*

Most experience mild depression represented by loss of interest (*n = 54*; 60.7%), followed by those who experience moderate depression represented by loss of interest (*n* = 22; 24.7%), and those who experience severe depression represented by loss of interest (*n = 13*; 14.6%).

Table 38. *Patients' response to Beck depression related to indecisiveness*

Q. 13. Indecisiveness	**F**	**%**
I can easily make decisions like I used to	20	22.5
I can't make decisions as easily as I used to	38	42.7
I'm having a lot of difficulty making a decision compared to before	25	28.1
I can't decide anymore	6	6.7
Total	89	100.0

For Indecisiveness item, participants scored higher for the answer "I can't make decisions as easily as I used to" (*n = 38*; 42.7%).

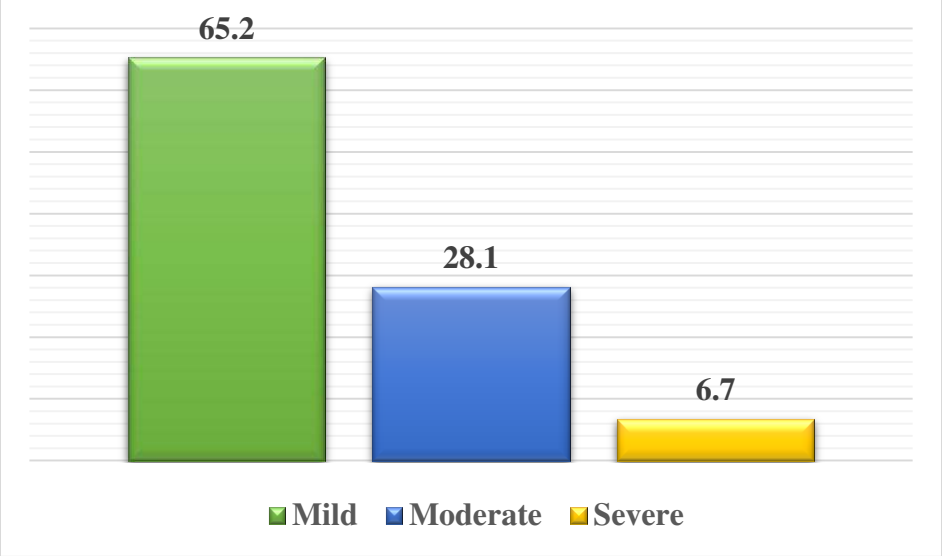

Figure 38. *Level of indecisiveness*

Most experience mild depression represented by indecisiveness (*n = 58*; 65.2%), followed by those who experience moderate depression represented by indecisiveness (*n* = 25; 28.1%), and those who experience severe depression represented by indecisiveness (*n = 6*; 6.7%).

Table 39. *Patients' response to Beck depression related to worthlessness*

Q. 14. Worthlessness	**F**	**%**
I don't see any changes when I look at myself in the mirror	2	2.2
It feels like I'm getting older and uglier	13	14.6
I feel that my appearance has changed a lot and I have become ugly	42	47.2
I find myself very ugly	32	36.0
Total	89	100.0

For Worthlessness item, participants scored higher for the answer "I feel that my appearance has changed a lot and I have become ugly" (*n = 42*; 47.2%).

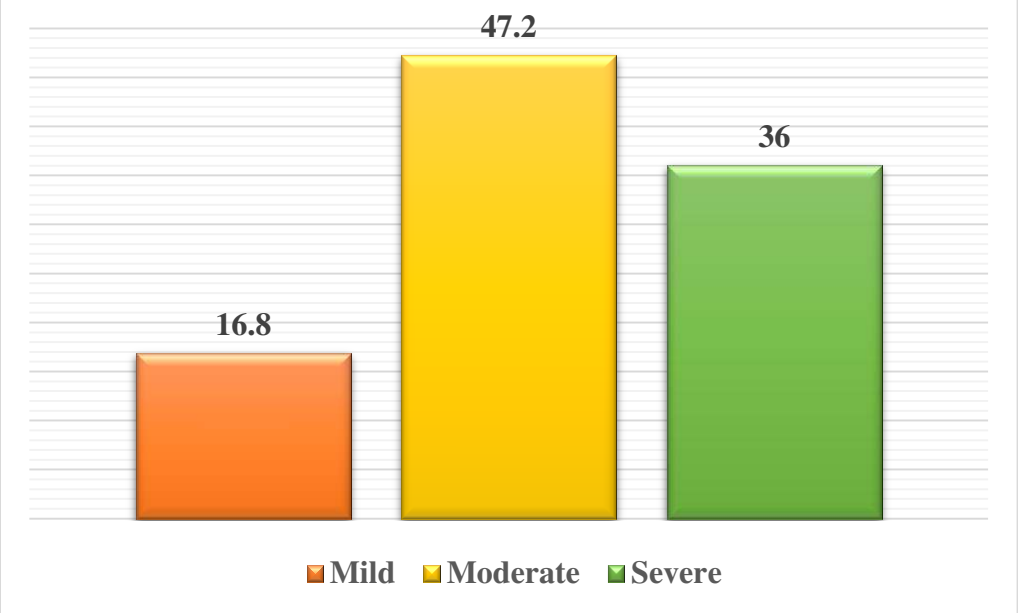

Figure 39. *Level of worthlessness*

Most experience moderate depression represented by worthlessness (*n = 42*; 47.2%), followed by those who experience severe depression represented by worthlessness (*n* = 32; 36.0%), and those who experience mild depression represented by worthlessness (*n = 15*; 16.8%).

Table 40. *Patients' response to Beck depression related to loss of energy*

Q. 15. Loss of Energy	**F**	**%**
I can work as well as I used to	1	1.1
I need to make an effort to be able to do something	15	16.9
I have to push myself very hard to be able to do anything	51	57.3
I can't do anything	22	24.7
Total	89	100.0

For Loss of Energy item, participants scored higher for the answer "I have to push myself very hard to be able to do anything" (*n = 51*; 57.3%).

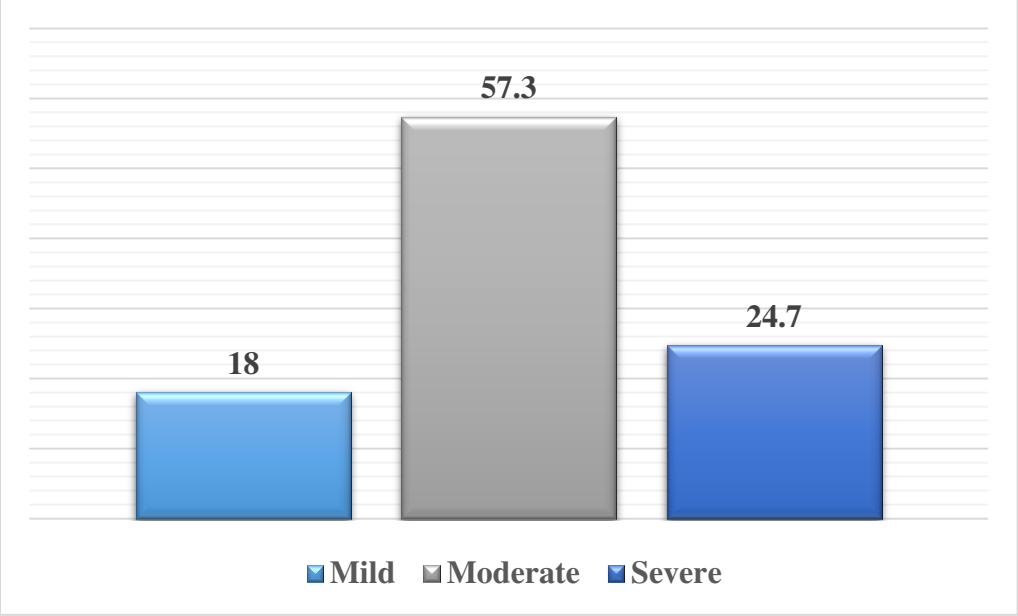

Figure 40. *Level of loss of energy*

More than a half experience moderate depression represented by loss of energy (*n = 51*; 57.3%), followed by those who experience severe depression represented by loss of energy (*n* = 22; 24.7%), and those who experience mild depression represented by loss of energy (*n = 16*; 18.0%).

Table 41. *Patients' response to Beck depression related to changes in sleep pattern*

Q. 16. Changes in Sleep Pattern	**F**	**%**
I can sleep well as usual	14	15.7
I don't sleep as well as I used to	52	58.4
I wake up 1 - 2 hours earlier than usual and I can't sleep again	18	20.2
She wakes up much earlier than usual and I can't sleep again	5	5.6
Total	89	100,0

For Changes in Sleep Pattern item, participants scored higher for the answer "I don't sleep as well as I used to" (*n = 52*; 58.4%).

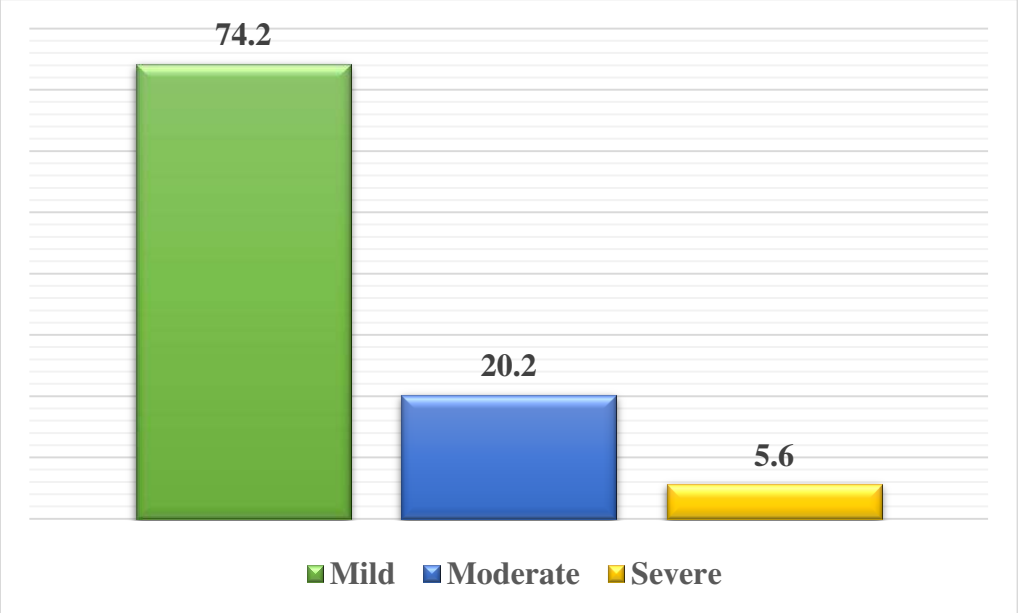

Figure 41. *Level of changes in sleep pattern*

Most experience mild depression represented by changes in sleep pattern (*n = 66*; 74.2%), followed by those who experience moderate depression represented by changes in sleep pattern (*n* = 18; 20.2%), and those who experience severe depression represented by changes in sleep pattern (*n = 5*; 5.6%).

Table 42. *Patients' response to Beck depression related to irritability*

Q. 17. Irritability	**F**	**%**
I don't get more tired than usual.	0	0.0
I'm getting tired faster than usual	20	22.5
Everything I do makes me tired	41	46.1
I feel so tired that I can't do anything right away	28	31.5
Total	89	100.0

For Irritability item, participants scored higher for the answer "Everything I do makes me tired" (*n = 41*; 46.1%).

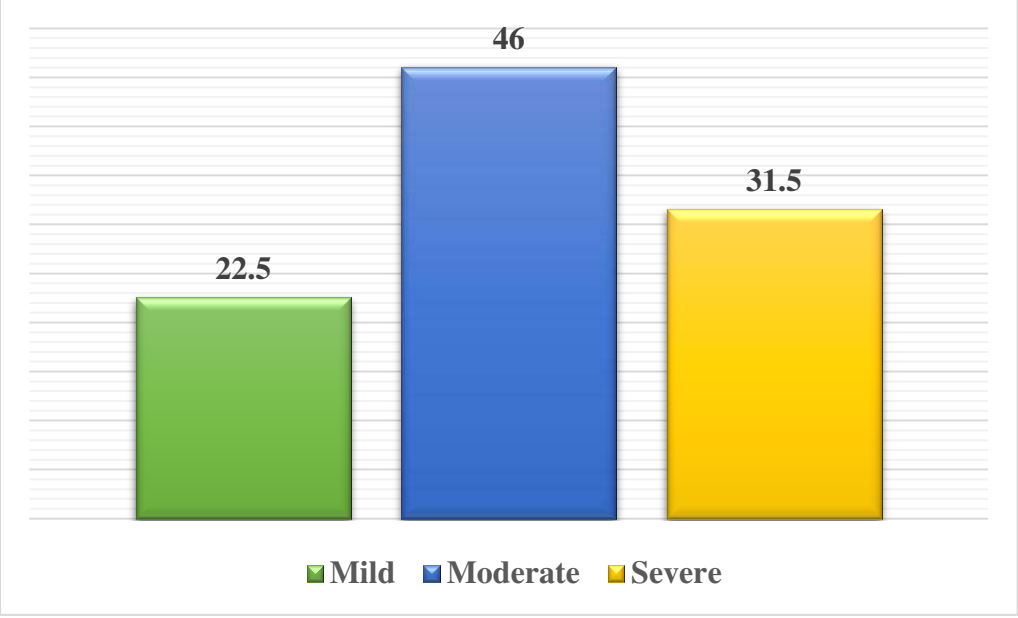

Figure 42. *Level of irritability*

Most experience moderate depression represented by irritability (*n = 41*; 46.0%), followed by those who experience severe depression represented by irritability (*n* = 28; 31.5%), and those who experience mild depression represented by irritability (*n = 20*; 22.5%).

Table 43. *Patients' response to Beck depression related to changes in appetite*

Q. 18. Changes in Appetite	**F**	**%**
My appetite is as usual	17	19.1
My appetite is not as good as usual	29	32.6
My appetite has decreased a lot	33	37.1
I don't have any appetite anymore	10	11.2
Total	89	100.0

For Changes in Appetite item, participants scored higher for the answer "My appetite has decreased a lot" (*n = 33*; 37.1%).

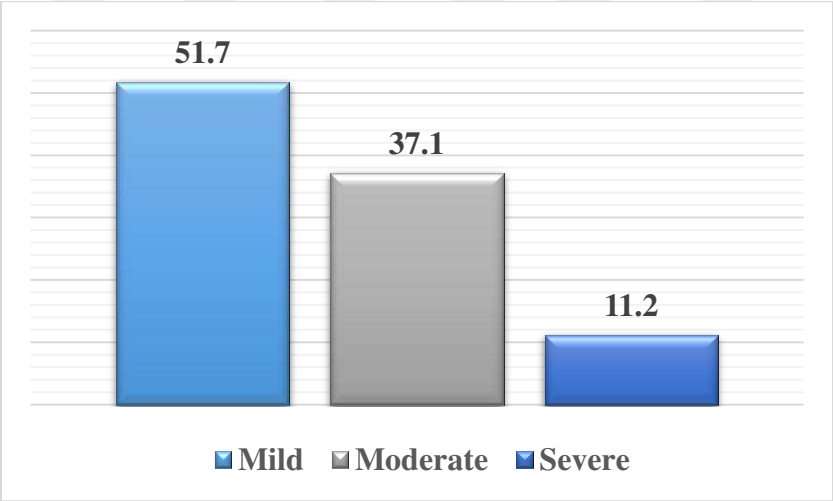

Figure 43. *Level changes in appetite*

More than a half experience mild depression represented by changes in appetite (*n = 46*; 57.1%), followed by those who experience moderate depression represented by changes in appetite (*n* = 33; 37.1%), and those who experience severe depression represented by changes in appetite (*n = 10*; 11.2%).

Table 44. *Patients' response to Beck depression related to concentration difficulty*

Q. 19. Concentration Difficulty	**f**	**%**
I haven't lost weight recently	36	40.4
I lost more than two kilograms of weight	33	37.1
I lost more than four kilograms of weight	17	19.1
I have lost more than six kilograms of weight	3	3.4
Total	89	100.0

For Concentration Difficulty item, participants scored higher for the answer "I haven't lost weight recently" (*n = 36*; 40.4%).

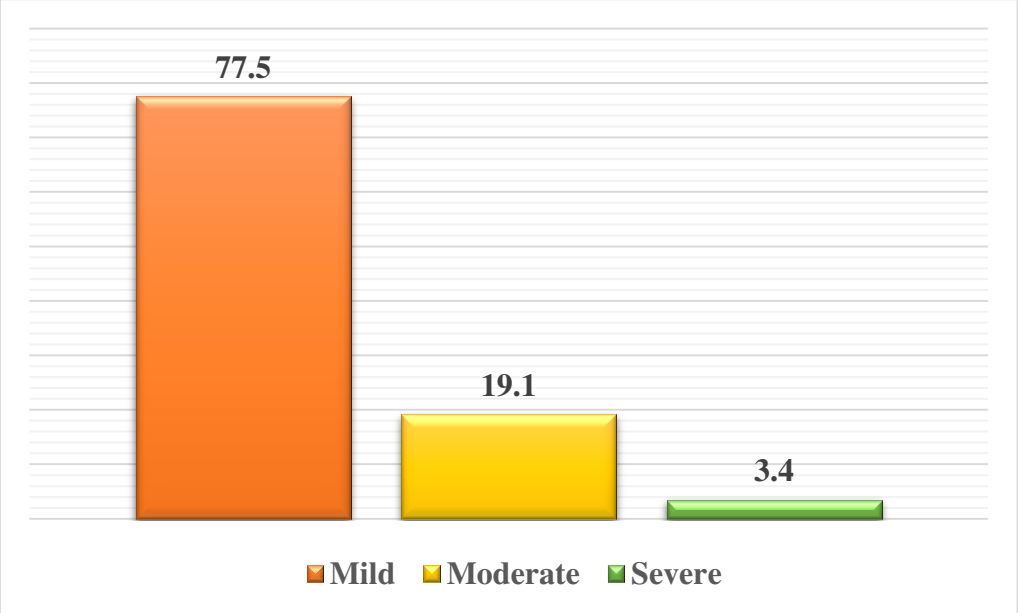

Figure 44. *Level of concentration difficulty*

Most experience mild depression represented by concentration difficulty (*n = 69*; 77.5%), followed by those who experience moderate depression represented by concentration difficulty (*n* = 33; 37.1%), and those who experience severe depression represented by concentration difficulty (*n = 10*; 11.2%).

Table 45. *Patients' response to Beck depression related to tiredness or fatigue*

Q. 20. Tiredness or Fatigue	**f**	**%**
My health does not worry me much	3	3.4
Ailments such as pain, pains, stomach upset, or constipation worry me.	8	9.0
Because my health worries me, it becomes difficult to think about other things	44	49.4
I am so worried about my health that I can't think of anything else	34	38.2
Total	89	100.0

For Tiredness or Fatigue item, participants scored higher for the answer "Because my health worries me, it becomes difficult to think about other things" (*n = 44*; 49.4%).

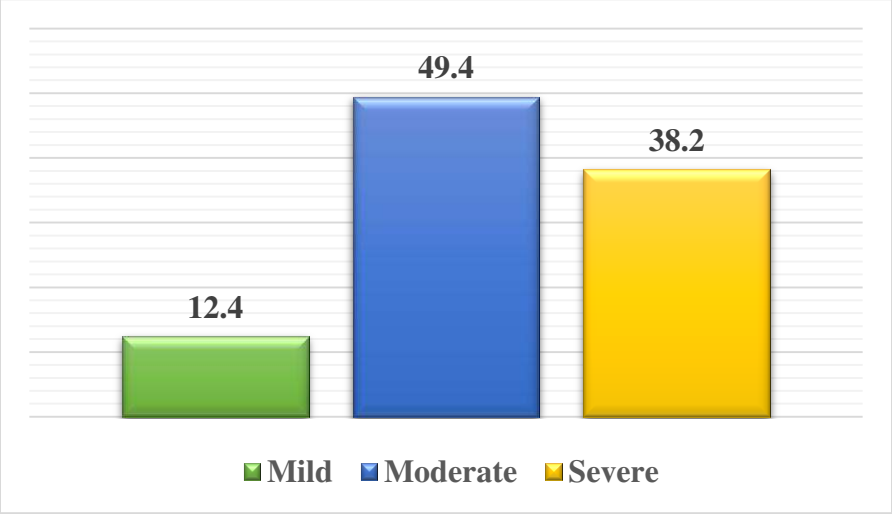

Figure 45. *Level of tiredness or fatigue*

Most experience moderate depression represented by tiredness or fatigue (*n = 44*; 49.4%), followed by those who experience mild severe depression represented by tiredness or fatigue (*n* = 34; 38.2%), and those who experience depression represented by tiredness or fatigue (*n = 11*; 12.4%).

Table 46. *Patients' response to Beck depression related to loss of interest in sex*

Q. 21. Loss of Interest in Sex	**F**	**%**
I haven't noticed a change in my interest in sexual issues lately	4	4.5
I'm less interested in sexual issues than I used to be	8	9.0
I am much less interested in sexual issues now	29	32.6
I have completely lost interest in sexual issues	48	53.9
Total	89	100,0

For Loss of Interest in Sex item, participants scored higher for the answer "I have completely lost interest in sexual issues" (*n = 48*; 53.9%).

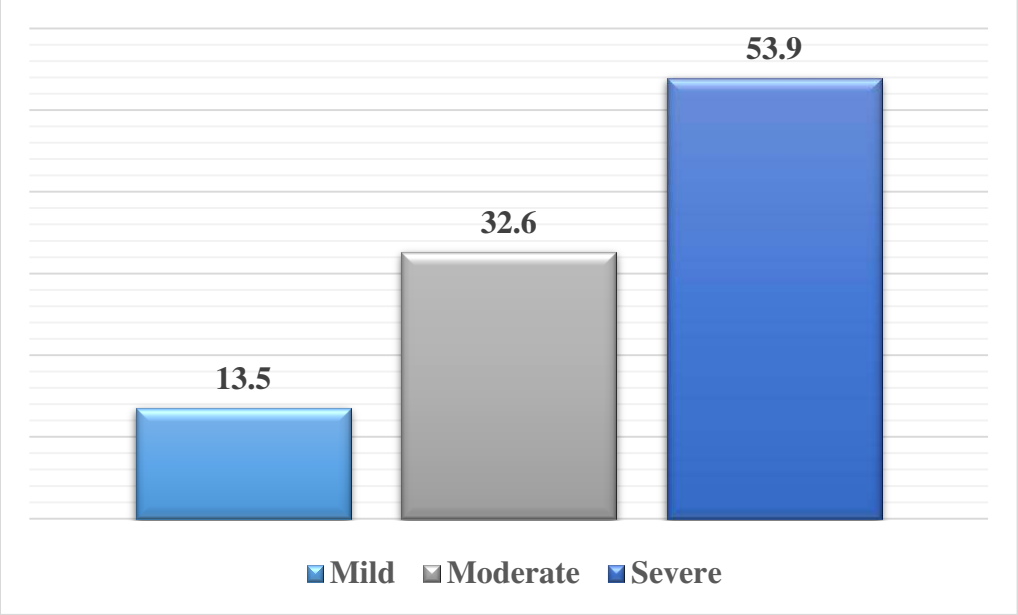

Figure 46. *Level of tiredness or fatigue loss of interest in sex*

Most experience severe depression represented by tiredness or fatigue (*n = 48*; 53.9%), followed by those who experience moderate depression represented by tiredness or fatigue (*n* = 29; 32.6%), and those who experience mild depression represented by tiredness or fatigue (*n = 12*; 13.5%).

Table 47. *Level of overall depression*

Level of Overall Depression	Frequency	Percent
Mild to moderate Depression	1	1.1
Moderate Depression	19	21.4
Severe Depression	69	77.5

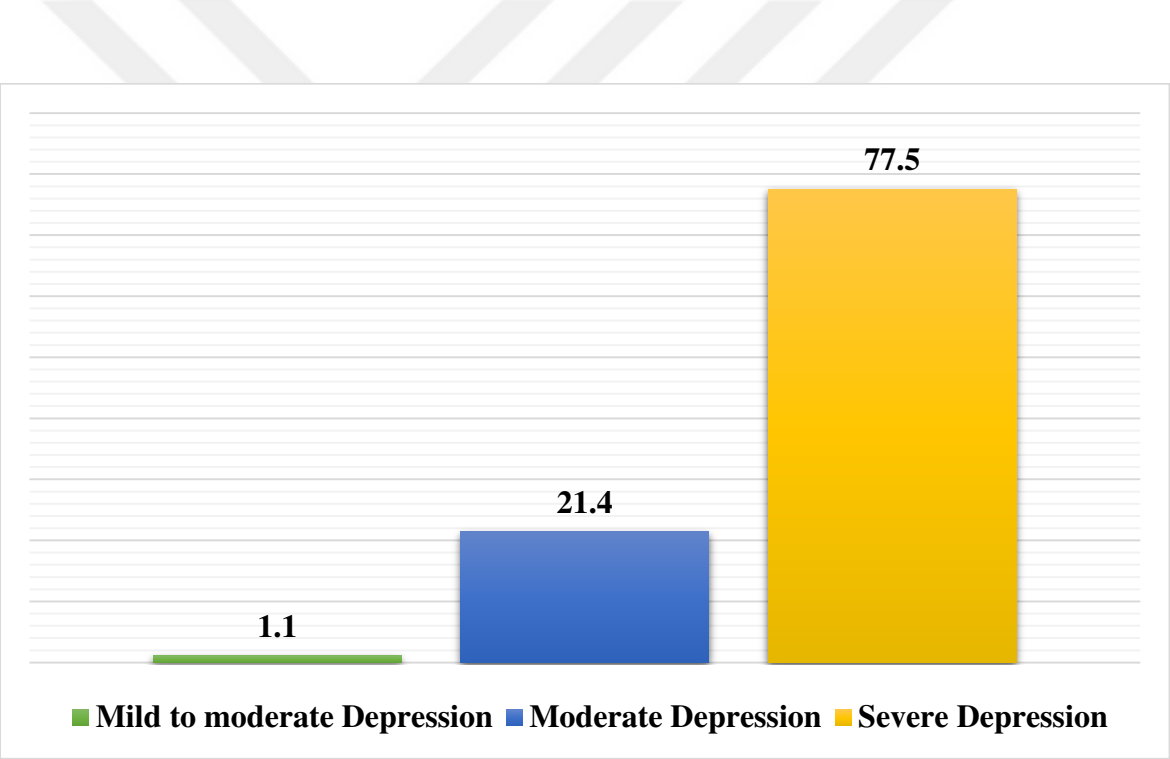

Figure 47. *Levels of overall depression*

Most experience severe depression (*n = 69*; 77.5%), followed by those who experience moderate depression (*n = 19*; 21.4%), and one who experiences mild to moderate depression (*n = 1*; 1.1%).

5. Discussion

As a result of the study, it is seen that 97.8% of the patients admitted to Tikar Hereditary Blood Diseases Center are under the age of 34, 100% have been living with the disease for more than ten years, the disease has been diagnosed in childhood in all patients, and severe depression can be observed.

Major Thalassemia is difficult for patients to marry and establish a home due to their illness.

86.5% of patients are single, 9.0% are widowed or divorced, while only 4.5% are married. This chronic state of loneliness undoubtedly contributes to the formation of depression (Köroğlu, 2018).

While 92.1% of patients do not have a dependent, 53.9% regularly benefit from the caregiver's services. 46.1% of patients are not with any care provider. Care can be provided by a family member, spouse, state or private institution. It is assessed that lack of care and inability to benefit from care services can contribute to the formation of depression. (Köroglu, 2018).

93.3% of patients reported having a different disease caused or associated with Major Thalassemia, while 6.7% of patients reported that they did not have any different diseases caused or associated with major Thalassemia. However, 95.5% of patients undergo regular blood transfusion treatment. The effect of disease status on the development of depression is known. (Köroglu, 2018).

While 34.8% of patients earn their own income, 65.2% do not earn their own income and receive help from their families. However, 64.0% of patients are unemployed and 5.6% are in irregular jobs. The proportion of patients with a regular job is 30.3%. Material income and social status are effective in the development of depression. (Koster et al., 2006; Netterstrom et al., 2008).

While 65.2% of patients stated that their disease constantly affects their working condition, only 34.8% state that it sometimes does. This data is compatible with the previous run

status data. In addition, 67.4% of patients had to quit their jobs due to illness. This includes terminations, retirement, compulsory retirement, disability pension, resignation and dismissal. 7.9% of the patients left their previous job due to illnesses but then started a regular or irregular job. 24.7% of patients did not have to lose their jobs due to their illness. 100% of patients report that the disease affects their working performance. The income of 80.9% of patients is affected by the disease.

Depression is associated with social relationships and professional relationships. (Koster et al., 2006; Netterstrom et al., 2008, Köroglu, 2018). In this context, when we look at the social relations and professional relationships of the patients, it is observed that the conditions that trigger the symptoms of depression are observed. The diseases of 56.2% of patients affect their relationship with their colleagues. 77.5% of patients report that their disease affects their relationship with managers and the attitudes of managers towards them. In addition, only 24.7% of patients argue that their disease does not affect their working position. Considering that the majority of patients are already unemployed, it is seen that the proportion of patients who are afraid of losing their job is 29.2%. However, it should be noted again that 30.3% of patients have a regular job. In other words, almost all working patients are afraid of losing their jobs. 86.5% of patients think that they are excluded from the work environment and professional relationships due to their diseases. 92.1% of patients who think they would be more successful without the disease. Major Thalassemia reduces the willingness of 71.9% of patients to work.

In the context of social life, a wide range of negative effects of the disease are seen. These social negativity also accelerates the development of symptoms that lead to depression. (Koster et al., 2006; Netterstrom et al., 2008, Köroglu, 2018). 82.0% of patients think that their disease negatively affects their relationship with their friends. In addition, 84.3% of patients think that the disease negatively affects their relationship with their immediate circle (family, friends, relatives). 100% of patients think that the disease restricts or inhibits their social activity.

86.5% of patients think that the disease condemns them to loneliness. 100% of patients think that the disease restricts their social life. 85.4% of patients think they are excluded from society due to their disease. 92.1% of patients consider themselves disadvantaged individuals due

to the disease. 74.2% of patients state that the disease prevents meeting new people. 95.5% of patients report that their disease prevents social initiatives such as courses, activities and hobbies.

Looking at the results of this data form, it is seen that patients are really prone to developing symptoms of depression. Indeed, when the results of the Beck Depression Inventory are evaluated, it is seen that the results of the data form and the Results of the Beck Depression Inventory are consistent.

The average score of the Beck Depression Inventory for Major Thalassemia Patients was 32.8874. Beck is rated 27 points or more in the Depression Inventory as a case of severe severe depression. Accordingly, the presence of severe depression is confirmed in major thalassemia patients.

When you look at the average scores of the Beck Depression Inventory, it is seen that the score of 7 is greater than 2 in the mean. The most severe of these symptoms are the complete loss of interest in sexual matters with 2.3596, feeling unbelievably distressed and distressed with 2.2584, health concerns with 2.2247, Despair about the future with 2.1798, finding yourself very ugly in the mirror with 2.1685, not having the strength to do anything with 2.0562, losing weight with the least severe symptoms 0.8539, feeling worse than others with 0.8315 and finally killing yourself with 0.6292 can be listed as the idea.

The results obtained within the scope of this study point to similar results from the study published by Yengil and his colleagues in 2014, published in 2013 by Koutekelekos and Haliasos, and the study results conducted by Mednick and his colleagues in 2010.

6. Conclusion and Recommendation

The study concluded that females with thalassemia more than males, their age (18-25) years, most of them were single, they have more than 10 years with the disease with another associated complication with major thalassemia. Most of them not working and dependent of family assistant due to the disease. Thalassemia has negative effect on patients' job, performance, income, relationship with colleagues and their work. Thalassemia has negative effect on patients' relationship with family, friends, social life and activities. Patients feel loneless. Most of patients with thalassemia always sad and distressed. They have nothing to expect from the future. They feel in failure. They loss interest to pleasure and feel guilty. They feel like crying and easy to be angry. They can't make decisions. They fell the appearance has changed a lot and they have become ugly.

They work hard to be able to do anything. They have problem in sleep. They become tired easily, loss of appetite and weight. they can't to think in any think. They completely lost interest in sexual issues.

It is important to initiate educational sessions to teach patients with thalassemia how to deal with disease. Educate patients how to deal with depression and manage their sadness, hopeless, feeling and negative thoughts. Encourage physical activity and spending their time in leisure. Encourage patients to make social relationship with other people (family, friends, relatives) and spend time together. Enhance the economic status of patients through spend their time in many simple jobs that not effect in their life. Teach patient how to control their thought and make decision in their life

REFERNCEES

Abubakar, I. I., Tillmann, T., & Banerjee, A. (2015). Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet, 385(9963), 117-171.

Aimiuwu E., Thomas, A., Roheemun, N., Khairallah, T., Nacouzi, A. N., Georgiou, A., & PAPADOPOULOU, C. (2012). A guide for the haemoglobinopathy nurse. Teamup Creations Ltd.

Aimiuwu, E., Thomas, A., Roheemun, N., Khairallah, T., Nacouzi, A. N., Georgiou, A., & PAPADOPOULOU, C. (2012). A guide for the haemoglobinopathy nurse. Teamup Creations Ltd.)

Albayrak, E. Ö., & Ceylan, M. E. (2004). Depresyon etiyolojisinde nörobiyolojik etkenler. Düşünen Adam: Psikiyatri ve Nörolojik Bilimler Dergisi, 17(1), 27-33.

Al-Hamzawi, A. O., Bruffaerts, R., Bromet, E. J., AlKhafaji, A. M., & Kessler, R. C. (2015). The epidemiology of major depressive episode in the Iraqi general population. PloS one, 10(7), e0131937.

Al- Kloub, M. I., Nayel Salameh, T., & Froelicher, E. S. (2014). Impact of psychosocial status and disease knowledge on deferoxamine adherence among thalassaemia major adolescents. International Journal of Nursing Practice, 20(3), 265-274.). These findings are corroborated by Garred and others

Alloy, L. B., & Abramson, L. Y. (2007). The adolescent surge in depression and emergence of gender differences: A biocognitive vulnerability-stress model in developmental context.

Al-Nimer, M. S. (2010). Measuring mental health following the 6-year American invasion of Iraq. A General Health Questionnaire analysis of Iraqi medical and dentistry students. *Neurosciences Journal*, *15*(1), 27-32.

Alwan, A., & Modell, B. (2003). Recommendations for introducing genetics services in developing countries. *Nature Reviews Genetics*, *4*(1), 61-68.

American Psychiatric Association (2021). "What is Depression?" https://www.psychiatry.org/patients-families/depression/what-is-depression (Erişim Tarihi: 10.03.2021).

Angastiniotis MA. (1981). Hadjiminas MG. Prevention of thalassaemia in Cyprus. Lancet 1981; 1: 369-71

Başoğul, C., & Buldukoğlu, K. (2015). Depresif bozukluklarda psikososyal girişimler. *Psikiyatride Güncel Yaklaşımlar*, *7*(1), 1-15.

Beck, A. T., Steer, R. A., Beck, J. S., & Newman, C. F. (1993). Hopelessness, depression, suicidal ideation, and clinical diagnosis of depression. *Suicide and Life‐Threatening Behavior*, *23*(2), 139-145.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of general psychiatry*, *4*(6), 561-571.

Bemporad, J. R. (1995/1999). Psicoterapia individual. En I. D. Glick, ed., Tratamiento de la depresión. Barcelona: Granica

Bernard, J. E. R. (2018). Depression: A review of its definition. *MOJ Addict. Med. Ther*, *5*, 6-7.

Çam, O., & Engin, E. (2014). *Ruh sağlığı ve hastalıkları hemşireliği bakım sanatı*. İstanbul Tıp Kitabevi.

Çamur-duyan, G., Çelenk, Ö., & DUYAN, V. (2014). Talasemili üyesi olan ailelerin aile işlevlerinin kadın bakış açısından değerlendirilmesi: Hatay ili örneği. *Hemşirelikte Araştırma Geliştirme Dergisi*, *16*(1), 46-55.

Cooley, T. B., Witwer, E. R., & Lee, P. (1927). Anemia in children: With splenomegaly and peculiar changes in the bones report of cases. *American Journal of Diseases of Children*, *34*(3), 347-363.

Cuijpers, P., Cristea, I. A., Karyotaki, E., Reijnders, M., & Hollon, S. D. (2019). Component studies of psychological treatments of adult depression: A systematic review and meta-analysis. *Psychotherapy Research*, *29*(1), 15-29.

Dennis, C. L., Grigoriadis, S., Zupancic, J., Kiss, A., & Ravitz, P. (2020). Telephone-based nurse-delivered interpersonal psychotherapy for postpartum depression: nationwide randomised controlled trial. *The British Journal of Psychiatry*, *216*(4), 189-196.

Drinkwater, B. L. (1965). A comparison of the direction-of-perception technique with the Likert method in the measurement of attitudes. *The journal of social psychology*, *67*(2), 189-196.

Düğeroğlu, H. (2018). İç hastalıkları polikliniğine başvuran hastalarda depresyon-anksiyete sıklığı ve biyokimyasal parametrelerle ilişkisi. *Klinik Tıp Bilimleri*, *6*(1), 1-5.

Edwards, A. L., & Kenney, K. C. (1946). A comparison of the Thurstone and Likert techniques of attitude scale construction. *Journal of Applied psychology*, *30*(1), 72.

Elewa, A., & Elkattan, B. A. E. A. (2017). Effect of an educational program on improving quality of nursing care of patients with thalassemia major as regards blood transfusion. American Journal of Nursing Research, 5(1), 13-21.

Erenköy Ruh ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi – Duygudurum Bozuklukları https://erenkoyruhsinireah.saglik.gov.tr/yazdir?E63A0045C5C58C6BC4D7630B11F861AB

Fibach, E., & Rachmilewitz, E. (2008). The role of oxidative stress in hemolytic anemia. *Current molecular medicine*, *8*(7), 609-619.

Galanello, R., & Origa, R. (2010). Beta-thalassemia. *Orphanet journal of rare diseases*, *5*(1), 1-15.

Garred, P., Brygge, K., Sørensen, C. H., Madsen, H. O., Thiel, S., & Svejgaard, A. (1993). Mannan-binding protein—levels in plasma and upper-airways secretions and frequency of genotypes in children with recurrence of otitis media. Clinical & Experimental Immunology, 94(1), 99-104.

Ghanizadeh, A., Khajavian, S., & Ashkani, H. (2006). Prevalence of psychiatric disorders, depression, and suicidal behavior in child and adolescent with thalassemia major. *Journal of pediatric hematology/oncology*, *28*(12), 781-784.

Gharaibeh . H., Oweis, A., & Hamad, K. H. (2010). Nurses' and midwives' knowledge and perceptions of their role in genetic teaching. International nursing review, 57(4), 435-442.

Gören, R. (2019). Talasemi major tanısı ile izlenen hastalarda depresyon, kaygı düzeyi, benlik algısı ve yaşam kalitesinin, hastaların ebeveynlerinde depresyon ve kaygı düzeyinin değerlendirilmesi.

Gotlib, I. H., Lewinsohn, P. M., & Seeley, J. R. (1995). Symptoms versus a diagnosis of depression: differences in psychosocial functioning. *Journal of consulting and clinical psychology*, *63*(1), 90.

Hagler, D., Harding, M. M., Kwong, J., Roberts, D., & Reinisch, C. (2019). Clinical Companion to Medical-Surgical Nursing E-Book: Assessment and Management of Clinical Problems. Elsevier Health Sciences.

Hales, R. E. (2008). The American psychiatric publishing textbook of psychiatry. American Psychiatric Pub.

Halk Sağlığı Genel Müdürlüğü – Yaşlı Sağlığı ve Depresyon - https://hsgm.saglik.gov.tr/tr/yasli-sagligi/liste1/yaşlı-sağlığı-depresyon.html

Herdman, T. H. (Ed.). (2011). Nursing diagnoses 2012-14: definitions and classification. John Wiley & Sons.

Herken, H. (2002). Depresyonun etiyolojisinde genetik kanıtlar. *Klinik Psikiyatri Dergisi*, *5*(Supp: 4), 5-10.

Holmes, E. A., Ghaderi, A., Harmer, C. J., Ramchandani, P. G., Cuijpers, P., Morrison, A. P., ... & Craske, M. G. (2018). The Lancet Psychiatry Commission on psychological treatments research in tomorrow's science. *The Lancet Psychiatry*, *5*(3), 237-286.

Işık, E., Işık, U., & Taner, Y. (2013). Çoçuk, ergen, erişkin ve yaşlılarda depresif ve bipolar bozukluklar. *Ankara, Rotatıp Kitapevi*.

James, S. L., Abate, D., Abate, K. H., Abay, S. M., Abbafati, C., Abbasi, N., ... & Briggs, A. M. (2018). Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, *392*(10159), 1789-1858.

Jordans, M. J., Luitel, N. P., Garman, E., Kohrt, B. A., Rathod, S. D., Shrestha, P., ... & Patel, V. (2019). Effectiveness of psychological treatments for depression and alcohol use disorder delivered by community-based counsellors: two pragmatic randomised controlled trials within primary healthcare in Nepal. *The British Journal of Psychiatry*, *215*(2), 485-493.

Joska, J. A., SA, F. P., & Stein, D. J. (2011). Mood disorders. *Essentials of Psychiatry*, 151.

Kadhim, K. A., Baldawi, K. H., & Lami, F. H. (2017). Prevalence, incidence, trend, and complications of thalassemia in Iraq. *Hemoglobin*, *41*(3), 164-168.

Kahraman, İsmet.(2012) Talasemi Majör Tanısı ile İzlenen Hastalarda Gelişen Komplikasyonların Belirlenmesi, Çocuk Sağlığı ve Hastalıkları Anabilim Dalı Tıpta Uzmanlık Tezi, Ankara Üniversitesi Tıp Fakültesi, Ankara:2012

Kahraman, S. Beta Talasemi Major Hastalarında SF-36 Anketi Ile Yaşam Kalitesinin Değerlendirilmesi: Tek Merkez Deneyimi. *Klinik Tıp Bilimleri*, *5*(1), 23-28.

Kalafee, Y., & Adib, M. (2000). Survey of Association Between Combat Related Post-Traumatic Stress Disorder and Quality of Life Among Iran-Iraq War Veterans.

Kaplan, H. I., & Sadock, B. J. (1988). *Synopsis of psychiatry: Behavioral sciences clinical psychiatry*. Williams & Wilkins Co.

Kartalcı, Ş. (2010). Testosteron ve depresyon. *Psikiyatride Güncel Yaklaşımlar*, *2*(4), 457-472.

Kelsey , J. A., Azize, P. M., & Tahir, F. A. (2015). Nurses' knowledge and role in the management of thalassemic disease in the Sulaimania Thalassemia Centre.

Kelsey, J. (2015). Nurses' knowledge and role in the management of Thalassemic patients in Sulaimania Thalassemia Center. Iraqi National Journal of Nursing Specialties, 2(28), 59-70.

Keşkek, Ş. Ö., Kırım, S., Turhan, A., & Turhan, F. G. (2013). Depression in subjects with beta-thalassemia minor. *Annals of hematology*, *92*(12), 1611-1615.

Kocaeli Üniversitesi Tıp Fakültesi Türkçe Tıp Dili Kılavuzu - http://tip.kocaeli.edu.tr/docs/ttdk_2007.pdf

Kokaçya, M. H., Savaş, H. A., & Selek, S. (2008). İdame Elektrokonvulsif Terapi (EKT) ile Tedavi Edilen Dört Depresyon Olgusu. *Klinik Psikofarmakoloji Bulteni*, *18*(2).

Köroğlu, Ertuğrul.(2018). DSM-5 Tanı Ölçütleri Başvuru Elkitabı, HYB Yayıncılık, Ankara.

Koster, A., Bosma, H., Kempen, G. I., Penninx, B. W., Beekman, A. T., Deeg, D. J., & van Eijk, J. T. M. (2006). Socioeconomic differences in incident depression in older adults: The role of psychosocial factors, physical health status, and behavioral factors. *Journal of psychosomatic research*, *61*(5), 619-627.

Koutelekos J., Haliasos N.(2013). Depression and Thalassemia in children, adolescents and adults. Health Society Journal. 2013:7-3:229-246

Kruijver, I. P., Kerkstra, A., Francke, A. L., Bensing, J. M., & van de Wiel, H. B. (2000). Evaluation of communication training programs in nursing care: a review of the literature. Patient education and counseling, 39(1), 129-145.).

Kumar, D., Saaraswat, T., Sengupta, S. N., & Mehrotra, S. (2009). Upper gastrointestinal bleeding in a patient with depression receiving selective serotonin reuptake inhibitor therapy. *Indian journal of pharmacology*, *41*(1), 51.

Lal, A. (2016). Assessment and treatment of pain in thalassemia. *Annals of the New York Academy of Sciences*, *1368*(1), 65-72.

Lazzeri, C., Tarquini, R., Giunta, F., & Gensini, G. F. (2009). Glucose dysmetabolism and prognosis in critical illness. Internal and emergency medicine, 4(2), 147-156.

Lewinsohn, P. M., & Gotlib, I. H. (1995). Behavioral theory and treatment of depression.

Lewinsohn, P. M., Clarke, G. N., Hops, H., & Andrews, J. (1990). Cognitive-behavioral treatment for depressed adolescents. *Behavior Therapy*, *21*(4), 385-401.

Lewinsohn, P. M., Steinmetz, J. L., Antonuccio, D., & Teri, L. (1984). Group therapy for depression: The coping with depression course. *International Journal of Mental Health*, *13*(3-4), 8-33.

Loukopoulos, D. (1996, January). Current status of thalassemia and the sickle cell syndromes in Greece. In *Seminars in hematology* (Vol. 33, No. 1, pp. 76-86).

Mahmoudi, O., Paydar, M., Amini, M. R., Mohammadi, F., & Darvishi, M. (2019). Beck Depression Inventory: Establishing the Reliability and Validity of the Kurdish Version Among Earthquake Survivors of Kermanshah, Iran. *International Journal of Health and Life Sciences*, *5*(1).

Markowitz, J. C. (1994). Psychotherapy of dysthymia. *The American journal of psychiatry*.

Mednick, L., Yu, S., Trachtenberg, F., Xu, Y., Kleinert, D. A., Giardina, P. J., ... & for the Thalassemia Clinical Research Network. (2010). Symptoms of depression and anxiety in patients with thalassemia: prevalence and correlates in the thalassemia longitudinal cohort. *American journal of hematology*, *85*(10), 802-805.

Messina, G., Colombo, E., Cassinerio, E., Ferri, F., Curti, R., Altamura, C., & Cappellini, M. D. (2008). Psychosocial aspects and psychiatric disorders in young adult with thalassemia major. *Internal and emergency medicine*, *3*(4), 339-343.

Mitchell, Alex J.; Vaze, Amol; RAO, Sanjay.(2009). Clinical diagnosis of depression in primary care: a meta-analysis. The Lancet, 374.9690: 609-619.

Modell, B., & Darlison, M. (2008). Global epidemiology of haemoglobin disorders and derived service indicators. *Bulletin of the World Health Organization*, *86*, 480-487.

Mok, E., & Chiu, P. C. (2004). Nurse–patient relationships in palliative care. Journal of advanced Nursing, 48(5), 475-483.

Mufson, L., Weissman, M. M., Moreau, D. & garfinkel, R. (1999). Efficacy of interpersonal psychotherapy for depressed adolescents. Archi ves of General Psychiatry, 56: 573-579.

National Health Service UK – Sympyoms – Clinical Depression - https://www.nhs.uk/mental-health/conditions/clinical-depression/symptoms/

National Institute of Mental Health (NIMH) – Depression - https://www.nimh.nih.gov/health/topics/depression/index.shtml

National Institute of Mental Health (NIMH).(2021). "Major Depression" https://www.nimh.nih.gov/health/statistics/major-depression.shtml (Erişim Tarihi: 11.03.2021).

Netterstrøm, B., Conrad, N., Bech, P., Fink, P., Olsen, O., Rugulies, R., & Stansfeld, S. (2008). The relation between work-related psychosocial factors and the development of depression. *Epidemiologic reviews*, *30*(1), 118-132.

Origa R. Beta-Thalassemia. 2000 Sep 28 [Updated 2018 Jan 25]. In: Adam MP, Ardinger HH, Pagon RA, et al., editors. Seattle (WA): University of Washington, Seattle; 1993-2020.

Örsel, S. (2004). Depresyonda tedavi: Genel ilkeler ve kullanılan antidepresan ilaçlar. *Klinik Psikiyatri*, *4*, 17-24.

Orta Doğu Teknik Üniversitesi Tıp Sözlüğü - https://srm.metu.edu.tr/tr/tip-sozlugu

Özdemir, Ü., & TAŞCI, S. (2013). Kronik Hastaliklarda Psikososyal Sorunlar ve Bakim. *ERÜ Sağlık Bilimleri Fakültesi Dergisi*, *1*(1), 57-72.Öztürk O, Uluşahin A. Ruh Sağlığı ve Bozuklukları, 11. Baskı, Ankara: Nobel Tıp Kitabevi, 2011: p.337-428

Özgüç, S. (2020). Depresyon hastalarına verilen üstbiliş eğitiminin depresyon ve bilişsel çarpıtma düzeylerine etkisi.

Patel, K., Bhivandkar, S., Desai, R., & Antin, T. (2019). The burden of psychiatric illnesses in adult patients with beta-thalassemia: a 5-year nationwide inpatient evaluation in the United States. Annals of hematology, 98(4), 851-860.

Pradhan, P. V., Shah, H., Rao, P., Ashturkar, D., & Ghaisas, P. (2003). Psychopathology and self-esteem in chronic illness. *The Indian Journal of Pediatrics*, *70*(2), 135-138.

Rahat, M., Rahimi, C., & Mohamadi, N. (2012). Psychometric properties of the arabic version of the obsessive compulsive beliefs questionnaire-44 in a student population. Iranian journal of psychiatry, 7(4), 184–190.

Reavell, J., Hopkinson, M., Clarkesmith, D., & Lane, D. A. (2018). Effectiveness of cognitive behavioral therapy for depression and anxiety in patients with cardiovascular disease: a systematic review and meta-analysis. Psychosomatic medicine, 80(8), 742-753.

Rehm, L. P. (1977). A self-control model of depression. Behavior Therapy, 8: 787-804.

Richter, P., Werner, J., Heerlein, A., Kraus, H. S. (1998). On the Validity of the Beck Depression. Psychopathology 1998; 160–8.

Rosselló, J. & Bernal, G. (1999). The efficacy of cognitive-behavioral and interpersonal psychotherapy treatments for depression in Puerto Rican adolescents. Journal of Consulting and Clinical Psychology, 67, 5: 734-745.

Roth, A. & Fonagy, P. (1996). What works for whom. A critical review of psychotherapy research. Nueva York: Guilford.

Rush, A. J., Beck, A. T., Kovacs, M. & Hollon, S. D. (1977). Comparative efficacy of cognitive therapy and pharmacotherapy in the treatment of depressed outpatients. Cognitive Therapy and Research, 1, 17-37.

Sawada, A., Ikeda, H., Kimura- Ohba, S., Matsuzawa, S., Awaya, T., Shiotani, Y., ... & Tomiwa, K. (2010). Head growth evaluation in early childhood, from the Japan Children's study. Pediatrics International, 52(3), 343-346.).

Scalone, L., Mantovani, L. G., Krol, M., Rofail, D., Ravera, S., Grazia Bisconte, M., ... & Cappellini, M. D. (2008). Costs, quality of life, treatment satisfaction and compliance in patients with β-thalassemia major undergoing iron chelation therapy: the ITHACA study. Current medical research and opinion, 24(7), 1905-1917.

Shabila, N. P., Al-Tawil, N. G., Tahir, R., Shwani, F. H., Saleh, A. M., & Al-Hadithi, T. S. (2010). Iraqi health system in Kurdistan region: medical professionals' perspectives on challenges and priorities for improvement. Conflict and Health, 4(1), 1-6

Steer, R. A., Beck, A. T., Garrison, B. (1986). Applications of the beck depression inventory. Assessment of Depression, 1986;123–142.

Sultan Adel. (2017).Misrata Onkoloji Merkezine başvuran kanser hastaları örnekleminde psikolojik depresyon düzeyi.Misurata Üniversitesi Edebiyat Fakültesi Dergisi,(10).169-190.

Taylor, D., & Richardson, P. (2005). The psychoanalytic/psychodynamic approach to depressive disorders. *Oxford Textbook of Psychiatry*, 127-136.

Tomruk, N. B., & Oral, T. (2007). Elektrokonvulsif tedavinin klinik kullanımı: Bir gözden geçirme. *Anadolu Psikiyatri Dergisi*, *8*(4), 302-309.

Tongsong, T., Wanapirak, C., Sirivatanapa, P., Sanguansermsri, T., Sirichotiyakul, S., Piyamongkol, W., & Chanprapaph, P. (2000). Prenatal control of severe thalassaemia: Chiang Mai strategy. *Prenatal Diagnosis: Published in Affiliation With the International Society for Prenatal Diagnosis*, *20*(3), 229-234.

Türk Hematoloji Derneği .(2021-a). Talasemi Hasta Kılavuzu - (2021 – a) https://www.thd.org.tr/THD_Halk/?sayfa=talasemi

Türk Hematoloji Derneği .(2021-b).Akdeniz Anemisi – (2021 – b) https://www.thd.org.tr/thd_halk/?sayfa=akdeniz_anemisi

Türksoylu, A. (2020). Düzenli fiziksel aktivitenin dikkat eksikliği ve hiperaktivite bozukluğu olan çocuklardaki etkisinin araştırılması.Smith Yolanda, Pharm B., Thalassemia Prevelance, 2018 [INTERNET] - https://www.news-medical.net/health/Thalassemia-Prevalence.aspx

Tyrrell, M., Elliott,R. (2013). The depression learningpath, What you need to know about hoe depression works and how to beat it (2th ed). London: Uncommon knowledge.

Uysal, D. D. (2014). *Talasemili ergenlerin umut düzeylerinin belirlenmesi* (Master's thesis, Adnan Menderes Üniversitesi, Sağlık Bilimleri Enstitüsü).

Uzuner, A. (2017). Akman M. *Depresyonun nörobiyolojisi, Türkiye Klinikleri J Fam Med-Special Topics*, *8*(1), 7-14.

Weatherall, D. J. (2018). The evolving spectrum of the epidemiology of thalassemia. Hematology/Oncology Clinics, 32(2), 165-175.

Whipple, G. H., & Bradford, W. L. (1936). Mediterranean disease-thalassemia (erythroblastic anemia of Cooley): associated pigment abnormalities simulating hemochromatosis. *The Journal of Pediatrics*, *9*(3), 279-311.

World Health Organization .(2014). Mental Health Atlas. Geneva: World Health Organization: 2014.

World Health Organization. (2017). *Depression and other common mental disorders: global health estimates* (No. WHO/MSD/MER/2017.2). World Health Organization.

Yazici Olcay.(2001). Depresif bozukluklarda eş tanı (komorbidite), Psikiyatri Dünyası. 5: 89-96.

Yellowlees, B. M., & Kalucy, R. S. (1990). Psychobiological aspects of asthma and the consequent research implications. *Chest*, *97*(3), 628-634.

Yengil, E., Acipayam, C., Kokacya, M. H., Kurhan, F., Oktay, G., & Ozer, C. (2014). Anxiety, depression and quality of life in patients with beta thalassemia major and their caregivers. *International journal of clinical and experimental medicine*, *7*(8), 2165.

Yüksel, N., İşeri, E., Dönmez, R., Türkçapar, M., Coşar, B., Yetkin, S., ... & Şener, Ş. (2020). Ruhsal hastalıklar.

Appendix 1 : Questionnaire of the study (in English language)

(General Information)
(Genel Bilgiler)

1. Mark your age range.
◯18 – 25 ◯ 25 – 34 ◯ 34 – 49 ◯ 50 – 64 ◯ 65 and above

2. Mark your marital status.
◯ Single ◯ Married ◯Widow (Divorced or Spouse Deceased)

3. Are there any dependents? Mark the number. Otherwise, tick the zero option.
◯0 ◯ 1 ◯More than 1 …… (Please specify)

4. Is there a regular caretaker or a person who cares for you regularly?
◯ yes ◯ no

II
(Disease Information)

5. Please mark the time elapsed since you were diagnosed with Major Thalassemia.
(The time you live with the disease)
◯ 0 – 5 years ◯ 5 – 10 years ◯ 10 years or more

6. Do you have any other disease caused or related to Major Thalassemia?
◯Yes ◯No ◯I don't know

7. Do you receive regular blood transfusion treatment?
◯Yes ◯No ◯I don't see any more

8. When did your illness start in your life ?
◯ Childhood (before the age of 18) ◯Adolescence (18 years and above) ◯ Not sure

III
(Professional Work Life and Working Status)

9. Mark your income status
◯ My own income ◯State assistance ◯Family assistance

10. Mark your working status

◯ I am working ◯ I do not work ◯ I have an irregular job (Daily work etc.)

11. Does your illness prevent you from?
◯ Yes ◯Sometimes ◯No

12. Have you had to leave your job due to your illness? (Retirement, Compulsory Retirement, Invalid Retirement, Resignation)

◯Yes ◯No ◯I left my previous job / jobs for this reason, now I am working in a different place

13. Do you think your illness is affecting your work performance ?
◯ Yes ◯Sometimes ◯No

14. Does your illness affect your income ?
◯ Yes ◯Sometimes ◯No

15. Does your illness negatively affect your relationships with your colleagues ?
◯ Yes ◯Sometimes ◯No

16. Does your illness affect your relations with managers and your managers' attitudes towards you negatively ?
◯ Yes ◯Sometimes ◯No

17. Do you think you are working in a position that is lower than the position you deserve because of your illness ?
◯ Yes ◯Sometimes ◯No

18. Are you worried about losing your job due to your illness ?
◯ Yes ◯Sometimes ◯No

19. Do you think that you are excluded from your work environment and professional relationships due to your illness ?
◯ Yes ◯Sometimes ◯No

20. Do you think you would have been more successful if you had no illness ?
◯ Yes ◯Sometimes ◯No

21. This is a control question, please tick yes
◯ Yes ◯Sometimes ◯No

22. Do you think your illness reduces your will to work ?
◯ Yes ◯Sometimes ◯No

III
(Social relations)

23 - Do you think your illness is affecting your relationships with your friends negatively?
◯ Yes ◯Sometimes ◯No

24. Do you think that your illness affects your relationships with your immediate environment (family, friends, relatives) negatively ?
◯ Yes ◯Sometimes ◯No

25. Do you think your illness restricts or prevents your social activities ?
◯ Yes ◯Sometimes ◯No

26. Do you think your illness condemns you to loneliness ?
◯ Yes ◯Sometimes ◯No

27. Do you think your illness restricts your social life ?
◯ Yes ◯Sometimes ◯No

28. Do you think you are excluded from society because of your illness ?
◯ Yes ◯Sometimes ◯No

29. Do you see yourself as a disadvantaged individual because of your illness ?
◯ Yes ◯Sometimes ◯No

30. This is a control question, please tick sometimes .
◯ Yes ◯Sometimes ◯No

31. Do you think your illness prevents meeting new people?
◯ Yes ◯Sometimes ◯No

32. Do you think that your illness prevents a new social enterprise such as course, activity or hobby ?
◯ Yes ◯Sometimes ◯No

BECK DEPRESSION SCALE

This scale is an application to investigate how you have felt in the last week. The scale consists of 21 items. There are four responses for each item. In each item, mark the answer that best suits you and that you think expresses your situation in the best way.

1- 0. I don't feel sad or troubled.
1. I feel sad and troubled .
2. I am always sad and troubled. I can't get rid of this .
3. I am so sad and distressed that I can no longer stand it .

2- 0. I am not unhappy and pessimistic about the future .
1. I am pessimistic about the future .
2. There is nothing I expect from the future .
3. I am desperate about my future and it feels like nothing will improve .

3- 0. I do not see myself as an unsuccessful person .

1. I feel like I have had failures more than many people around me .
2. When I look back, I see that it is full of failures .
3. I consider myself a completely unsuccessful person .

4- 0. I enjoy many things as much as before

1. I don't like everything like I used.
2. Nothing gives me full pleasure anymore .
3. I'm bored with everything .

5- 0. I don't feel guilty in any way .
1. I feel guilty at times .
2. I feel guilty most of the time .
3. I always feel guilty .

6- 0. It seems to me that I have been punished .
1. I feel I can be punished .
2. I am waiting to be punished .
3. I feel punished .

7- 0. I am satisfied with myself .

1. I am not very satisfied with myself .
2. I am very angry with myself .
3. I hate myself .

8- 0. I don't think I am worse than others .
1. I criticize myself for my weaknesses or mistakes .
2. Because of my mistakes and I always find myself at fault .
3. I find myself wrong in the face of every setback .

9- 0. I have no thoughts like killing myself .
1. From time to time it happens that I think of killing myself. But I don't .
2. I would like to kill myself .
3. I would kill myself if I got the chance .

10- 0. . I don't feel like crying more than usual .
1. From time to time comes crying .
2. I cry most of the time .
3. I used to cry, now I cannot cry even if I wanted to .

11- 0. Now I am not more angry than I always have been .
1. I get angry or angry more easily than before .
2. Now I'm always angry.
3. Things that once pissed me off don't piss off now .

12- 0. I have not lost the will to meet and talk with others. .
1. I want to talk and meet with others less than before .
2. I have not lost the will to talk and meet with others.
3. I don't want to talk to anyone .

13- 0. I can decide easily as before .
1. I cannot decide as easily as before .
2. I have difficulty in making a decision compared to the past .
3. I can't make any decision anymore .

14- 0. When I look at myself in the mirror, I don't see any change .
1. It feels like I'm older and uglier .
2. I feel that my appearance has changed a lot and I am getting ugly .
3. I find myself very ugly .

15- 0. I can work as well as before .
1. I have to make an effort to do something .
2. I have to push myself hard to do anything .
3. I can't do anything. .

16- 0. I can sleep well as usual .
1. I cannot sleep as well as I used to .
2. I wake up 1-2 hours earlier than usual and cannot go back to sleep .
3. I wake up much earlier than usual and cannot go back to sleep .

17- 0. I am not getting tired faster than usual .
1. I get tired faster than ever before. .03:24
2. Everything I do is tiring me .
3. I feel so tired that I can do nothing right away .

18- 0. My appetite is as usual .
1. my appetite is not as good as usual.
2. My appetite has decreased a lot .
3. I no longer have any appetite .

19- 0. I haven't lost weight lately .
1. I have lost more than two kilos .
2. I lost more than four kilos .
3. I'm trying to lose more than six kilos .
Yes..... No .....

20- 0. My health does not worry me much .
1. Pain, aches, stomach upset or constipation do not worry me .
2. My health worries me, making it difficult to think of other things .
3. I'm so worried about my health that I can't think of anything else

21- 0. I haven't noticed a change in my interest in sexual matters lately
1. I am less interested in sexual matters than before .
2. I am much less interested in sexual matters now .
3. I completely lost interest in sexual matters

Appendix 2 : Questionnaire of the study (in Arabic language)

(معلومات عامة)

1. حدد الفئة العمرية الخاصة بك

◯ 25-18 ◯ 34-25 ◯ 49-34

◯ 50 -64 ◯ 65 – فما فوق

2. ضع علامة على حالتك الاجتماعية

◯ اعزب ◯متزوج ◯ أرملة(مطلقة أو أرملة)

3. هل لديك معالون؟ ضع علامة على الرقم. خلاف ذلك ، حدد خيار الصفر.

◯ صفر ◯ واحد ◯ أكثر من واحد ... (يرجى التحديد)

4. هل هناك مقدم رعاية منتظم أو شخص يعتني بك بشكل منتظم؟

◯ نعم ◯ لا

ثانيًا

(معلومات المرض)

5. حدد الوقت المنقضي من تاريخ تشخيص إصابتك بالثلاسيميا الكبرى حتى الوقت الحاضر.

(الوقت الذي تعيش فيه مع المرض)

◯0 - 5 سنوات ◯ 5 - 10 سنوات ◯ عشر سنوات واكثر

6. هل لديك أي مرض آخر يسببه أو يرتبط بمرض الثلاسيميا الكبرى؟

◯ نعم ◯ لا ◯ لا أعلم

7. هل تتلقى علاجًا منتظمًا لنقل الدم؟

◯ نعم ◯ لا ◯ نعم لكن لم اعد افعل ذلك

8. في أي فترة من حياتك بدأ مرضك؟

◯ الطفولة (قبل سن 18) ◯البلوغ (18 سنة وما فوق)

◯ لست متأكدًا

ثالثا

(الحياة المهنية والوضع العملي)

9. حدد وضع دخلك؟

◯ الدخل الخاص بي ◯ مساعدة الدولة ◯ مساعدة الأسرة

10. ضع علامة على حالة العمل الخاصة بك

◯ انا اعمل ◯ انا لا اعمل

◯ لدي وظيفة غير منتظمة (عمل يومي وما إلى ذلك)

11. هل مرضك يمنعك من العمل ؟

◯ نعم ◯ في بعض الأحيان ◯ لا

12. هل اضطررت لترك عملك بسبب مرضك؟

(تقاعد ، تقاعد إجباري ، تقاعد باطل ، استقالة)

◯ نعم ◯ لا

◯ لقد تركت وظيفتي / وظيفتي السابقة لهذا السبب ، والآن أعمل في مكان مختلف

13. هل تعتقد أن مرضك يؤثر على أداء عملك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

14. هل مرضك يؤثر على دخلك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

15. هل يؤثر مرضك سلبًا على علاقاتك بزملائك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

16. هل يؤثر مرضك على علاقاتك مع المديرين ومواقف مديرك تجاهك بشكل سلبي؟

◯ نعم ◯ في بعض الأحيان ◯ لا

.17هل تعتقد أنك تعمل في وظيفة أقل من الوظيفة التي تستحقها بسبب مرضك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

18. هل أنت قلق من فقدان وظيفتك بسبب مرضك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

19. هل تعتقد أنك مستبعد من بيئة عملك وعلاقاتك المهنية بسبب مرضك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

20. هل تعتقد أنك كنت ستنجح أكثر إذا لم يكن لديك مرض؟

◯ نعم ◯ في بعض الأحيان ◯ لا

21. هذا سؤال تحكم ، يرجى وضع علامة "نعم".

◯ نعم ◯ في بعض الأحيان ◯ لا

22. هل تعتقد أن مرضك يقلل من إرادتك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

رابعا

(علاقات اجتماعية)

23- هل تعتقد أن مرضك يؤثر سلبًا على علاقتك بأصدقائك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

٢٤. هل تعتقد أن مرضك يؤثر سلبًا على علاقاتك مع بيئتك المباشرة (العائلة ، الأصدقاء ، الأقارب)؟

◯ نعم ◯ في بعض الأحيان ◯ لا

25. هل تعتقد أن مرضك يقيد أو يمنع أنشطتك الاجتماعية؟

◯ نعم ◯ في بعض الأحيان ◯ لا

26. هل تعتقد أن مرضك يحكم عليك بالوحدة؟

◯ نعم ◯ في بعض الأحيان ◯ لا

27. هل تعتقد أن مرضك يقيد حياتك الاجتماعية؟

◯ نعم ◯ في بعض الأحيان ◯ لا

28. هل تعتقد أنك مستبعد من المجتمع بسبب مرضك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

29. هل تعتبر نفسك شخصًا محرومًا بسبب مرضك؟

◯ نعم ◯ في بعض الأحيان ◯ لا

30. هذا سؤال تحكم ، يرجى وضع علامة في بعض الأحيان.

◯ نعم ◯ في بعض الأحيان ◯ لا

31. هل تعتقد أن مرضك يمنع مقابلة أشخاص جدد؟

◯ نعم ◯ في بعض الأحيان ◯ لا

32. هل تعتقد أن مرضك يمنع مقاولة اجتماعية جديدة مثل دورة أو نشاط أو هواية؟

◯ نعم ◯ في بعض الأحيان ◯ لا

مقياس الاكتئاب

هذا المقياس هو تطبيق للتحقيق في ما شعرت به في الأسبوع الماضي. المقياس يتكون من 21 بندا. هناك أربعة ردود لكل عنصر. في كل عنصر ، حدد الإجابة التي تناسبك والتي تعتقد أنها تعبر عن وضعك بأفضل طريقة.

1- 0. لا أشعر بالحزن أو القلق.
1. أشعر بالحزن والاضطراب.
2. أنا حزين ومضطرب دائمًا. لا يمكنني التخلص من هذا.
3. أنا حزين للغاية ومكتئب لدرجة أنني لم أعد أستطيع تحمله.

2- 0. لست حزيناً ومتشائماً بشأن المستقبل.
1. أنا متشائم بشأن المستقبل.
2. لا يوجد شيء أتوقعه من المستقبل.
3. أنا يائس بشأن مستقبلي وأشعر أنه لن يتحسن أي شيء.

3- 0. أنا لا أرى نفسي كشخص فاشل.
1. أشعر وكأنني تعرضت لإخفاقات أكثر من العديد من الأشخاص من حولي.
2. عندما أنظر إلى الوراء ، أرى أنه مليء بالفشل.
3. أنا أعتبر نفسي شخصًا فاشلاً تمامًا.

4- 0. أنا أستمتع بالعديد من الأشياء كما كان من قبل
1. أنا لا أحب كل شيء كما اعتدت.
2. لا شيء يمنحني السعادة الكاملة بعد الآن.
3. أشعر بالملل من كل شيء.

5- 0. لا أشعر بالذنب بأي شكل من الأشكال.
1. أشعر بالذنب في بعض الأحيان.
2. أشعر بالذنب معظم الوقت.
3. أشعر دائما بالذنب.

6- 0. يبدو لي أنني عوقبت.
1. أشعر أنني يمكن أن أعاقب.
2. أنا في انتظار أن يعاقب.
3. أشعر بالعقاب.

7- 0. أنا راضٍ عن نفسي.
1. أنا لست راضيا جدا عن نفسي.
2. أنا غاضب جدًا من نفسي.
3. أنا أكره نفسي.

8- 0. لا أعتقد أنني أسوأ من الآخرين.
1. أنتقد نفسي على نقاط ضعفي أو أخطائي.
2. بسبب أخطائي وأجد نفسي دائمًا على خطأ.
3. أجد نفسي مخطئا في مواجهة كل نكسة.

9- 0. ليس لدي أي أفكار مثل قتل نفسي.
1. يحدث من وقت لآخر أنني أفكر في قتل نفسي. لكني لا أفعل.
2. أود أن أقتل نفسي.
3. سأقتل نفسي إذا سنحت لي الفرصة.
10- 0.. لا أشعر برغبة في البكاء أكثر من المعتاد.
1. من وقت لآخر يأتي البكاء.
2. أبكي معظم الوقت.
3. كنت أبكي ، الآن لا أستطيع البكاء حتى لو أردت ذلك.

11- 0. الآن أنا لست غاضبًا أكثر مما كنت عليه دائمًا.
1. أشعر بالغضب أو الغضب بسهولة أكبر من ذي قبل.
2. الآن أنا دائما غاضب.
3. الأشياء التي أغضبتني ذات مرة لا تغضب الآن.

12- 0. لم أفقد الرغبة في الالتقاء والتحدث مع الآخرين. .
1. أريد أن أتحدث وألتقي بالآخرين أقل من قبل.
2. لم أفقد الرغبة في التحدث واللقاء مع الآخرين.
3. لا أريد التحدث إلى أي شخص.

13- 0. يمكنني أن أقرر بسهولة كما كان من قبل.
1. لا أستطيع أن أقرر بسهولة كما كان من قبل.
2. أجد صعوبة في اتخاذ قرار مقارنة بالماضي.
3. لا يمكنني اتخاذ أي قرار بعد الآن.

14- 0. عندما أنظر إلى نفسي في المرآة ، لا أرى أي تغيير.
1. أشعر أنني أكبر سنًا وأقبح.
2. أشعر أن مظهري قد تغير كثيرًا وأصبحت قبيحة.
3. أجد نفسي قبيحة جدا.

15- 0. يمكنني العمل كما كان من قبل.
1. لا بد لي من بذل جهد للقيام بشيء ما.
2. لا بد لي من دفع نفسي بقوة لفعل أي شيء.
3. لا أستطيع فعل أي شيء. .

16- 0. أستطيع أن أنام جيدا كالمعتاد.

1. لا أستطيع النوم كما اعتدت.
2. أستيقظ أبكر من المعتاد بساعة إلى ساعتين ولا أستطيع العودة إلى النوم.
3. أستيقظ في وقت أبكر بكثير من المعتاد ولا أستطيع العودة إلى النوم.

17- 0. أنا لا أتعب أسرع من المعتاد.

1. لقد تعبت أسرع من أي وقت مضى.
2. كل ما أفعله يرهقني.
3. أشعر بالتعب الشديد لدرجة أنني لا أستطيع فعل أي شيء على الفور.

18- 0. شهيتي كالمعتاد.

1. شهيتي للطعام ليست جيدة كالمعتاد.
2. انخفضت شهيتي كثيرا.
3. لم يعد لدي أي شهية.

19- 0. لم أنقص وزني مؤخرًا.

1. لقد فقدت أكثر من كيلوغرامين.
2. فقدت أكثر من أربعة كيلوغرامات.
3. أحاول أن أخسر أكثر من ستة كيلوغرامات.

نعم / لا .....

20- 0. صحتي لا تقلقني كثيرا.

1. الآلام والأوجاع واضطراب المعدة أو الإمساك لا تقلقني.
2. صحتي تقلقني ، مما يجعل من الصعب التفكير في أشياء أخرى.
3. أنا قلق جدًا بشأن صحتي لدرجة أنني لا أستطيع التفكير في أي شيء آخر

21- 0. لم ألاحظ أي تغيير في اهتمامي بالأمور الجنسية مؤخرًا

1. أنا أقل اهتماما بالمسائل الجنسية من ذي قبل.
2. أنا الآن أقل اهتماما بالمسائل الجنسية.
3. لقد فقدت الاهتمام بالأمور الجنسية تمامًا

Appendix 3 : Currriculum Vitae

Curriculum Vitae

Personal data

Name: Nawres Ali Mohammed Alshadood

Date of birth:

Social status : Married

Address: Thi-Qar\ Nasiriyah

Phone:

Email:

Educational qualification

College: College of Nursing, University of Thi_Qar

Specialization: Academic nurse specialist

Graduation Year: 2016

Skills

Dealing with computer programs (word, excel, and power point)

Dealing with Internet programs

Languages

Arabic language - English language - Turkish language