



## Original Research Article

# Prevalence and Frequency of Depression in Patients with Vitiligo

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## ABSTRACT

Vitiligo is an acquired pigmentary disorder results from destruction of melanocytes in the context of autoimmune and neurologic disturbances. This disease is resistant to treatment and is concomitant with recurrence and spontaneous recovery. As this disease has undesirable effects on the beauty of many affected patients, it makes some social, mental and familial damages. Here we aimed to study the prevalence and severity of depression in patients with vitiligo and healthy controls. We performed a cross sectional study on 110 patients with vitiligo who were referred to the dermatology clinic of Farshchian hospital and 110 healthy controls matched for age and sex. Two questionnaires consisting of demographic features and Hamilton depression scale were employed to evaluate the patients and controls. There were 56/4% female and 43/6% male, ranging from 12-65 years old. Vitiligo was first diagnosed in 47/1% of patients under the age of 20 years old. Prevalence and score of depression was significantly higher (52/7%) in patients compared to controls (14/5%). There was significant relationship between depression score and age, sex and occupation. Depression was significantly higher in patients between 14-20 years old, female and unemployed. Mild depression was observed in both groups. Vitiligo may lead to the mental, social, occupational and psychological problems. Regardless of the prevalence of depression in these patients, there must be great consideration about the psychiatric problems. Dermatologists and psychologists should collaborate for further management of these patients.

### Keywords

Vitiligo,  
Depression,  
Hamilton  
depression  
scale

## Introduction

Vitiligo is an acquired disease which occurs in the setting of melanocyte damage (Farnaq *et al.*, 2002). Vitiligo is a systemic disease which presents with spots and patches that lack pigmented cells (Bleichen *et al.*, 1998). This disease is resistant to treatment and consist of relapse and spontaneous

recovery (James *et al.*, 2000). The incidence of vitiligo is similar between men and women. Half of the cases occur before the age of 20 years of age (Thomas Habib, 2011). Also, in 25% of the cases, it affects children aged below 10 years (Ahmadi Faezeh *et al.*, Comprehensive Textbook of

Dermatology). Thirty percent of the cases have a positive family history of vitiligo which shows a genetic factor in the incidence of this disease. This disease is classified into three types. Localized (includes focal, segmental and mucosall), Generalized (including vulgaris, acrofacial and mixed), and Universalized (Jean Bologna *et al.*, 2008). Vitiligo affects the quality of life. It lowers their self esteem, provides poor body image, and decreases the mental health of the patients. These morbidities are more frequent among children and adolescents (Bellet *et al.*, 2005). This disease reduces the patients' beauty and has poor effects on their private and social life and causes social malfunction and decreases their quality of life. Skin appearance determines a person's body image and any pathologic change in it can decrease their self esteem and isolate them from the society (Parsad *et al.*, 2003).

Despite many efforts, there is still no cure available for this disease. Also, since the people of our country have dark skin (type 3 and 4), the skin damage is more visible. Also, misbelieves relating to its contagious hardens the situation, especially for female patients (Maleki *et al.*, 1384). Patients with vitiligo especially women, seek treatment for their disease, even though they don't have any specific physical disability or social or familial dysfunction. A major portion of body image is consisted of skin health. Studies have shown that patients with skin problems are clearly depressed and have low self esteem (Shuster *et al.*, 1987).

Attractive people are better accepted by the society and have more social skills and are rarely judged by the society. On the other hand, less attractive people have to work harder to keep their relationships (Maleki *et al.*, 1384). A study showed that more than half of the vitiligo patients declared that

people stare at them, 20% said that they are labeled and 25% said that their disease causes problems in their relationships with strangers (Porter *et al.*, 1978; Porter *et al.*, 1986). Mental factors have important roles in the diagnosis and treatment of a patient with dermatology complains. The relation between mind, attitude and skin may have different types. For example many chronic inflammatory skin diseases such as eczema, psoriasis and acne flare up with emotional stress. On the other hand, the changes made in their skin can decrease their mental health. In many dermatologic diseases such as vitiligo and alopecia areata, mental dysfunction is the chief complaint (Farnaq *et al.*, 2002). Vitiligo can widely affect the personality of a person and increase their stress, shame and decrease confidence (Habif, 2004).

It can cause more mental damage if it affects their face, hands, arms and genitalia. Some patients are depressed and embarrassed or worried to interact with people (Ahmed *et al.*, 2007).

Comparing to other dermatological diseases such as psoriasis, few psychiatric studies have been conducted, even though this disease widely affects the individual and social life of a patient.

Along with social problems, these patients have serious familial problems and it seems that they do not receive proper support from their families. Therefore, many vitiligo patients are stressed and embarrassed.

Physician's willing to undermine vitiligo related difficulties is another problem of these patients. Supporting these patients, paying attention to other features of this disease and treating their psychiatric disorders can reduce their problems (Maleki *et al.*, 1384).

According to the high prevalence of vitiligo in our country, and its effects on their life and personality, and since very few psychiatry related studies has been conducted on these patients, we decided to assess the prevalence of depression in vitiligo patients and compare it with control group.

## **Patients and Methods**

This cross sectional study was done on patients with vitiligo referred to the dermatology clinic of Farshchian hospital. The control group was selected from healthy people and random alignment was considered. According to Maleki and colleagues (1384) the prevalence of depression was 46.2% among the patients and 5.8% among the control group. With considering an  $\alpha$  level of 5% and a power of 80%, the sample size of each group was 106.

Both groups filled in the Hamilton depression questionnaire. Those participants who had a score above 6 were referred to a psychiatrist for consultation. Also, another questionnaire was distributed to collect age, gender, marital status, occupation, educational level, age of onset of vitiligo, the first site of involvement, all the affected areas, and percent of skin involvement and type of the disease, history of systemic and autoimmune diseases in the patients and their families, family history of vitiligo and premature hair graying.

The Hamilton questionnaire consisted of 21 multiple choice questions which evaluates the severity of the signs and symptoms as: depressed mood, insomnia, agitation, anxiety and anhedonia. Each question contained three to five choices (Hamilton Depression Scale). A score below 6 indicated a normal person, between 7 and 17 was considered as mild depressed, 18 to 24 indicated moderate depression and a score

above 24 indicated severe depression. Skin involvement was determined according to the law of palm, so that the patient's palm was 1% of the patient's body surface area.

SPSS 16 was used for statistical analysis and descriptive statistics such as mean standard deviation and frequency were used. Also student's T test and chi-square were used to compare the two groups.

## **Result and Discussion**

There were 62 (56.4%) women and 48 (43.8%) men in the cases and the same proportion in the controls. The greatest number of the patients who participated in the study group were between 20-40 yrs (58.2%), 14-20 yrs (22.7%), higher than 40 yrs (17.3%) and under 14 yrs (1.8%). Of 110 patients, the most common age of onset of vitiligo was under 20 years old (47.1%), 40-20 years (44.3%) and above 40 years (8.1%) patients. Then the risk of disease was decreased with increasing age. In most of the patients, the most common site of primary lesions was hands. Distribution of lesions classified according to the anatomic location is shown in table 1. The most common sites for distributing patches were on the hands and feet and the lowest locations were on the face. The most common form of disease was generalized (49.2%), then Localized (31.8%) and Universalized (19.1%). Six (5.5%) of the patients had a history of systemic disease, and these include hypothyroidism (4 patients), type 2 diabetes (1 patient) and one patient had mitral valve prolapse. Also, 9 (8.2%) patients had a family history of systemic disease, and these include hypothyroidism (4 patients), and type 2 diabetes (5 patients). Among the patients, 3.6% reported the disease in their children, 2.7% in their mothers, 2.7% in their brothers and sisters

and 1.8% in their father and about 9.1% of patients reported the disease in other relatives (aunt, uncle, cousin, etc.). The majority of patients (75.5%) had skin involvement below 20%, 14.5% of the cases had skin involvement more than 50% and 10% between 20 and 50%. Of the studied groups 46.4% of patients had the lower than. These informations describe the demographic characteristics of the patients with vitiligo. Next, we aimed to describe the prevalence and severity of depression in patients with vitiligo according to the clinical forms of the disease, the patient's systemic disease, percent of skin involvement, education, age, gender, occupation and marital status as well as its comparison with the control group. The data from this study showed that there is no significant correlation between the anatomical location of the disease and severity of depression. As is shown in table 2, among all patients who were diagnosed with Universalized form of vitiligo, 61.9 % were depressed and depression was most common in this group. Although we observed differences between the prevalence of depression in various forms of the disease, but this association was not statistically significant ( $P=0.54$ ). In all clinical forms of vitiligo, depression level was mild. Of the 6 patients which had systemic disease simultaneously, 4 patients (66.7%) had depression, while in the 104 other patients without the systemic disease, 54 (51.9%) had depression, which suggests the influence of concomitant disorders; however the difference was not statistically significant.

We didn't find a significant correlation between depression and severity of skin involvement, however the prevalence of depression was greatest in patients with involvement of greater than 50% of body surface (62.5%), then in those below 20% of body surface area (53%) and then in those

between 20-50% of body surface (36.4%). There was not significant differences between depression score and percentage of skin involvement ( $p=0.41$ ).

According to our results, those with higher education had a lower depression level however the difference was not statistically significant ( $p=0.16$ ). The results in table 3 show that the mean depression score was significantly higher in women with vitiligo than in men. Of 110 patients with vitiligo, 66 were employed and 44 were unemployed. According to table 4, the mean depression score was significantly higher in unemployed patients ( $p<0.001$ ). Of all patients, 46 were single and 64 were married. The mean depression score was 7.72% (with  $SD=3/3$ ) in singles and 7.2% (with  $SD= 4$ ) in married patients. The results showed that the mean depression score in singles and married individuals is not statistically significant ( $p=0.46$ ). The mean depression score was highest in those between 14 – 20 years of age. Table 5 shows that there is not a significant relationship between age and depression scores ( $p=0.047$ ). Table 6 shows that mean depression score in patients with vitiligo was significantly higher than healthy individuals ( $p<0.001$ ). In all patients with vitiligo, 58 patients (52.7%) and in the control group, 16 patients (14.5%) were depressed. The high prevalence of depression in patients with vitiligo shows the significant effect on the mental health in these patients. The level of depressive disorder in patients with vitiligo and controls was in the range of mild depression.

In this study prevalence and severity of depression in patients with vitiligo was compared with control group. Results showed that vitiligo has a high impact on the mental health of the patients and depression in these patients is significantly higher than in healthy individuals. Consistent with our

findings, Mr. Gerry Kents and colleagues in a study on 668 patients with vitiligo showed that 35% of them have an increasing psychological problem in their life (Kents and Abadie, 1996). Similarly, in the study from the Schallreuter, Salzer, was shown that 75% of patients suffered from moderate to severe mental disorders (Salzer and Schallreuter, 1995). In another study by Mato *et al.* (2001) in India, the prevalence of depression in psoriasis and vitiligo was 22% and 20% respectively. Afsharzadeh and collaborators showed that the effects of the disease is clearly stated in their daily lives of majority of the patients, 38.84% of patients had depressed mood and 30.38% of them had major depression (Esfandyarpoor Iraj and Afsharzadeh Puran). Porter also performed several studies on patients with vitiligo and had similar results (Porter *et al.*, 1978, 1990, 1987). Ijaz Ahmad in his study showed that major depression and anxiety are high in patients with vitiligo (Ahmed *et al.*, 2007). Maleki and collaborators (1384), in line with Arycan and Parsad *et al.* (2003) also found statistically significant relationship between the incidence and severity of depression (Maleki *et al.*, 1384; Arycan *et al.*, 2008), however they did not showed the correlation between the visibility of the lesions and depression.

Visibility of the lesions is an important factor determining the depression scores in these patients. Feizi and colleagues (1385) showed that the quality of life and the visibility of lesions in the body were not statistically significant (lesions according to the Islamic dressing as the face and hands were the visible areas in women and the neck and forearm is added to list in men). Maleki and colleagues (1384) found similar results in their study (Maleki *et al.*, 1384). On the other hand the studies conducted by the Ijaz Ahmad and collaborators showed the contrary as the lesions spread on the visible areas, the people would suffer from

the emotional problems (Ahmed *et al.*, 2007). Mr. Noor and his colleagues in their study reported that patients with a greater degree of visible body parts suffer more mental health problems (Noor *et al.*, 2004).

Our study showed that the prevalence and severity of depression in single and married patients was not statistically significant. Consistently Maleki and collaborators (1384) did not found any statistically significant correlation between the depression score and marital status in patients with vitiligo. On the other hand, in the study conducted by Feizi and colleagues (1385), they showed that the quality of life Score is significantly correlated with the marital status, so that they have a higher score than the unmarried population. Pasargad and Dogra (2003) showed that the single women with vitiligo have more problems for finding their right husband and even the married women with vitiligo, or a woman who developed vitiligo after marriage, can also have a lot of marital problems that may even lead to divorce.

The presence of other systemic diseases did not worsen the depression of the patients. We showed that the depression has a low score in patients with and without systemic disease. However the depression was higher in the presence of systemic disease although the difference was not statistically significant. The most common comorbidities in our study were hypothyroidism, type 2 diabetes and mitral valve prolapse. In a study conducted in Turkey, the most common disease associated with vitiligo were autoimmune thyroiditis, type 2 diabetes, type 1 diabetes, asthma, alopecia areata, psoriasis and Idiopathic guttate hypomelanosis respectively (25). We did not found a significant correlation between the prevalence and severity of depression and skin involvement which is also confirmed by Feizi and colleagues (1385). Similar to Feizi

et al. we measured the involved area using the palm rule as the palm is 1% body surface area (1385). Based on the results, the prevalence of depression was significantly higher in women than in men with vitiligo. Esfandyarpoor Iraj and Afsharzadeh Puran (1382) reported a higher prevalence of depression in women than in men and this difference was statistically important. Gawkrödger and colleagues (2008) also reported that women with vitiligo were more depressed. Ijaz Ahmed also got a similar result in their study (2007). However in Maleki and Porter trial, no significant relationship between gender and depression score was found (Maleki *et al.*, 1384; Porter *et al.*, 1990; Porter *et al.*, 1987). Consistently Parsad *et al.* (2003) showed that the quality of life and gender were not

statistically significant predictors of depression in vitiligo (Feizi *et al.*, 1385; Ongenae *et al.*, 2005).

According to data obtained in our study, there was no significant relationship between age and depression score. Depression scores at the age of 40 years was the minimum and at the age of 14–20 years had the highest rate. Kingzduge and Link reported that a lower depression in older patients is the result of lower attention to people opinion in older ages and are less concerned to be abandoned in the society (Ginsburg and Link, 1989). Our Results showed that the prevalence of depression decreased with increasing level of education, but there was no statistically significant association.

**Table.1** Frequency of first presentation of vitiligo in different sites

Percent	Number	Anatomic site of first presentation
13/6	15	Head
55/5	61	Face
33/6	37	Anterior Abdomen
33/6	37	Posterior Abdominal chest
42/7	47	Upper Limb
41/8	46	Lower Limb
57/3	63	Hand and Foot
22/7	25	Genitalia

**Table.2** Frequency of the depression according to the clinical types

Depression		Clinical Feature
Normal	Depressed	
%38/1	%61/9	Universalis
%46/3	%53/7	Vulgaris
%66/7	%33/3	Acrofacial
%66/7	%57/1	Mix
%46/9	%53/1	Focal
%100/0	%0	Segmental
%100/0	%0	Mucosal

**Table.3** Comparing the mean of depression score between the groups according

P value	Test t	Standard Deviation	Mean depression score	Number	Sex
<0/001p	=5/1t	3/7	8/82	62	Female
		2/84	5/52	48	Male

**Table.4** Comparison of mean depression score based on employment status in patients with vitiligo

P value	Test t	Standard Deviation	Mean depression score	Number	Job
<0/001p	=3/192t	3/8	8/45	66	Unemployed
		3/1	5/8	44	Employed

**Table.5** Comparison of the depression score in patients with vitiligo according to age

p value	Test t	Standard Deviation	Mean depression score	Number	Age
=0/047p	=3/3f	1/4	7	2	Under 14
		3/3	8/3	25	14-20
		3/6	7/6	64	20-40
		4/3	5/6	19	Above 40

**Table.6** The mean depression score in patients with vitiligo is significantly higher than healthy individuals

P value	Test t	Standard Deviation	Mean depression score	Number	Group
<0/001p	=8/3t	2/4	3/9	110	Control
		3/7	7/4	110	Patient

Feizi in his study has stated that the quality of life and education did not have significant relationship (Feizi *et al.*, 1385). In our study, a significant correlation between depression score and employment status ( $p < 0.001$ ) was found and showed that employed patients have a better mood compared to the unemployed patients.

Finally, comparing the two groups, patients have a worse depression score ( $p < 0.001$ ) compared to controls. Prevalence of depression in patients is significantly higher than the control. We also showed that the depression was in the moderate level in most of the studied patients and none of them

showed the severe or high level of depression.

Vitiligo is a common acquired hereditary pigmentary disorder although not life-threatening, but is a physical deformity that can lead to psychological, social, communicational, occupational and familial problems for the patients. Therefore treatment is of great clinical importance in these patients. As we showed, most of these patients have psychological problems and to detect more aspects of these problems, a close collaboration between patients with psychologists will help them. Also as showed in this study, vitiligo affects the younger population, depression is more common in this group. Also a lower quality of life in patients with vitiligo is related to patients with mental health problems, and a psychological therapy in treatment of these individuals is multidimensional. Clinical measures that can reduce the development and appearance of vitiligo depigmentation are also beneficial. Recognition and treatment of mental illness and social implications must also be considered.

### **Acknowledgment**

This study is done in dermatologic research center and Department of Dermatology of Farshchian hospital in Hamedan University of medical sciences.

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