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ORIGINAL PAPER

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Identifying Patients at Higher Risk of Depression Among Patients with Vitiligo at Outpatient Setting

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ABSTRACT

Introduction: Chronic skin diseases including vitiligo could have profound psychological burden. The factors influencing the expression of depression in patients with vitiligo received little attention both nationally and internationally. **Aim:** The aim of the current study was to estimate the burden and severity of depression and to characterize their associated sociodemographic and clinical characteristics among patients with vitiligo. **Methods:** A cross-sectional survey study was conducted among patients with vitiligo of both genders attending dermatology outpatient clinics at a tertiary care hospital during 2019. Modified Beck Depression Inventory Scale was used for screening for depression. **Results:** A total 308 patients with vitiligo have been included in the current analysis. The average age was 27 ± 14.5 years. Approximately 59.7% of the patients were males and the majority (63.6%) were single. A total 168 (54.5%) patients had some depressive symptoms. The majority of these patients had mild depression (52.4%), followed by moderate (33.3%) and severe (14.3%) depression. Moderate and/or severe depression were significantly higher among children and adolescents ($p=0.036$), single patients ($p=0.006$), those with lower than high school education ($p<0.001$), those with shorter duration of the disease ($p<0.001$), and those using phototherapy ($p=0.003$). Depression burden and severity were not significantly associated with gender and lesion distribution. **Conclusion:** Sociodemographic and clinical characteristics can easily characterize the risk of depression among patients with vitiligo. The current findings may help dermatologist to pick patients at higher risk of depression early after diagnosis of vitiligo. Dermatologists should have low threshold for referring such patients to psychiatry clinics.

Keywords: Vitiligo, depression, psychology, prevalence, risk factors, Saudi Arabia.

1. INTRODUCTION

Vitiligo is a relatively common depigmentary skin disorder characterized by well-demarcated, white macules of varying sizes and distributions (1). It affects all ages but frequently starts from childhood (1). It has been estimated that vitiligo affects between 0.06 to 2.28% of the world population (2). Similarly, it affects 2.5% of the Saudi population and represents between 5% and 7% of the skin disorders seen at hospital setting (3-5). Although the pathogenesis of vitiligo has been linked to genetic, immune, metabolic, and neurologic factors, the exact pathogenesis remains unclear (6).

Psychological stressors can work as triggers for the development of vitiligo (7). On the other hand, vitiligo and several other chronic skin disorders can affect the patients at multiple dimensions, including the quality of life and psychosocial status (8). Several studies pointed to the negative impact of vitiligo on the quality of life specially among young, females, and those with lesions in exposed skin areas (9, 10). As vitiligo is a cosmetically disfiguring disorder, it could have profound negative psychosocial impacts, with up to half of the patients have some depressive or anxiety symptoms (11-13). This may be mediated through poor self-esteem, distorted self-body image, and stigmatization (14, 15). Psychosocial impacts can reduce the compliance with treatments which can result in minimal improvement and consequently more psychosocial impacts (16).

Previous studies showed that more than half

of the patients with vitiligo in Saudi Arabia have depressive symptoms (17, 18). Nevertheless, the factors influencing the expression of depression in patients with vitiligo received little attention both nationally and internationally (19-21).

2. AIM

The objective of the current study was to estimate the burden and severity of depression and to characterize their associated sociodemographic and clinical characteristics among patients with vitiligo.

3. METHODS

Setting

The current study was conducted at the dermatology outpatient clinics of King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabia. KAMC is a tertiary care hospital that serves almost one million Saudi National Guard soldiers, employees and their families. It is governmentally funded and provides free medical care. On average, the dermatology outpatient clinics serve approximately 100 patients per day

Design and population

It was a cross-sectional survey study done among patients with vitiligo of both genders attending the dermatology outpatient clinics during 2019. Patients diagnosed with vitiligo within the last 3 months and those with other concomitant skin problems have been excluded. Additionally, those who had history of psychiatric diseases before the diagnosis of vitiligo were excluded. Ethical approval was obtained from the local research ethics committee.

Data collection and recruitment

The study questionnaire was created by the study investigators. It included questions about the demographics and clinical characteristics of the patients as well as the modified Beck Depression Inventory (BDI) Scale as a tool for depression screening (22). BDI consist of 13 statements about sadness, pessimism, sense of failure, dissatisfaction, guilt, self-dislike, self-harm, social withdrawal, indecisiveness, self-image change, work difficulty, fatigability, and anorexia. Four responses showing increasing intensity of depressive symptoms are allowed for each question scored between 0 and 3. Therefore, the total score ranges between 0 and 39. Scores of 0 to 4 were classified as normal, 5 to 7 as mild depression, 8 to 15 as moderate depression, and 16 or more as severe depression. All consecutive patients with vitiligo attending the dermatology outpatient clinics during the study period were invited to join the study and to explain the study objectives. Signing the consent was considered as approval to join the study. Out of 440 patients approached, 308 completed the study questionnaire (response rate of 70%)

Statistical analysis

Categorical variables were presented as frequencies and percentages. Continuous variables were presented as means and standard deviations (SD). Chi-squared test or Fisher's exact test, as appropriate, were used to compare the presence

and the severity of depression by demographic and clinical characteristics. All P-values were two-tailed. A p-value <0.05 was considered as significant. Statistical Package for the Social Sciences software (SPSS Version 25.0. Armonk, NY: IBM Corp) was used for all statistical analyses.

4. RESULTS

As shown in Table 1, 308 patients with vitiligo have been included in the current analysis. The average age was 27±14.5 years with approximately 48.7% of the patients aged between 15 and 30 years. Approximately 59.7% of the patients were males and almost half (48.7%) had lower than

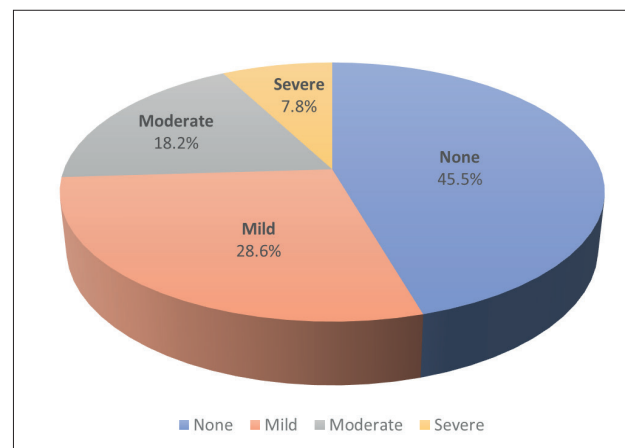


Figure 1. Prevalence of depression among the study participants (N=308)

	Total population	Prevalence of depression	p-value
Overall	308 (100%)	168 (54.5%)	--
Age (years)			
≤14	101 (32.8%)	69 (68.3%)	0.003
15-30	150 (48.7%)	70 (46.7%)	
> 30	57 (18.5%)	29 (50.9%)	
Gender			
Male	184 (59.7%)	100 (54.3%)	0.932
Female	124 (40.3%)	68 (54.8%)	
Marital status			
Single	196 (63.6%)	120 (61.2%)	<0.001
Married	112 (36.4%)	48 (42.9%)	
Education			
Intermediate school or lower	148 (48.7%)	96 (64.9%)	0.001
Secondary school or higher	156 (51.3%)	72 (46.2%)	
Duration of disease (years)			
<4	168 (54.5%)	112 (66.7%)	<0.001
≥4	140 (45.5%)	56 (40.0%)	
Affected body parts			
Head and face	28 (9.1%)	16 (57.1%)	0.837
Hands and feet	144 (46.8%)	76 (52.8%)	
Generalized	136 (44.2%)	76 (55.9%)	
Type of treatment			
Local	196 (67.1%)	100 (51.0%)	0.064
Additional phototherapy	96 (32.9%)	60 (62.5%)	

Table 1. Prevalence of depression by demographic and clinical characteristics

high school education. The majority (63.6%) of the patients were single. The duration of the disease was less than 4 years in approximately 54.5% of the patients. The most affect body part was the hands and feet (46.8%), followed by generalized distribution, and finally head and face (9.1%). The majority (67.1%) of the patients were treated by local creams while the rest (32.9%) were additionally receiving phototherapy.

Using a cut point ≥ 5 on modified Beck Depression Inventory Scale, 168 (54.5%) patients were categorized as having depressive symptoms. The majority of these patients had mild depression (52.4%), followed by moderate (33.3%) and severe (14.3%) depression. Table 1 shows the association of depression of any degree with demographic and clinical characteristics of the patients. The prevalence of depression was significantly associated with age ($p=0.003$), being highest (68.3%) among children and adolescents. Similarly, the prevalence of depression was significantly associated with marital status ($p<0.001$) and educational level ($p=0.001$), being highest among single patients (61.2%) and those with lower than high school education (64.9%). Additionally, depression was higher among patients with shorter duration of the disease compared with longer disease duration (66.7% versus 40.0%, $p<0.001$). There was a trend of association between depression and the use of phototherapy ($p=0.064$). On the other hand, depression was not significantly associated with gender of the patient ($p=0.932$) or the affected body part ($p=0.837$).

Table 2 shows the association between the severity of depression and demographic and clinical characteristics of the patients. Moderate and severe depression were significantly higher among children and adolescents, those with lower than high school education, and those with shorter duration of the disease (p -values 0.036, <0.001 , and <0.001 , respectively). Additionally, largely severe depression was significantly higher among single patients ($p=0.006$) while largely moderate depression was significantly higher among patients using phototherapy ($p=0.003$).

5. DISCUSSION

We are reporting 54.5% prevalence of depression among patients with vitiligo visiting outpatient clinics at a large tertiary care hospital in Saudi Arabia. This percentage is similar to previous local studies which showed that more than half of vitiligo patients are suffering from depressive symptoms (17, 18). However, the current prevalence is considerably higher than seen in similar studies done internationally where the prevalence of depression ranged between 16% and 44% (11-13). Interestingly, the current prevalence of depression is slightly higher than the prevalence of depression among primary care patients in Saudi Arabia which ranged between 41% and 50% (23, 24). Ad-

	None	Mild	Moderate	Severe	p-value
Age (years)					
≤ 14	32 (31.7%)	33 (32.7%)	24 (23.8%)	12 (11.9%)	0.036
15-30	80 (53.3%)	40 (26.7%)	22 (14.7%)	8 (5.3%)	
> 30	28 (49.1%)	15 (26.3%)	10 (17.5%)	4 (7.0%)	
Gender					
Male	84 (45.7%)	60 (32.6%)	28 (15.2%)	12 (6.5%)	0.124
Female	56 (45.2%)	28 (22.6%)	28 (22.6%)	12 (9.7%)	
Marital status					
Single	76 (38.8%)	64 (32.7%)	36 (18.4%)	20 (10.2%)	0.006
Married	64 (57.1%)	24 (21.4%)	20 (17.9%)	4 (3.6%)	
Education					
Intermediate school or lower	52 (35.1%)	24 (16.2%)	48 (32.4%)	24 (16.2%)	<0.001
Secondary school or higher	84 (53.8%)	64 (41.0%)	8 (5.1%)	0 (0.0%)	
Duration of disease (years)					
<4	56 (33.3%)	48 (28.6%)	44 (26.2%)	20 (11.9%)	<0.001
≥ 4	84 (60.0%)	40 (28.6%)	12 (8.6%)	4 (2.9%)	
Affected body parts					
Head and face	12 (42.9%)	4 (14.3%)	8 (28.6%)	4 (14.3%)	0.323
Hands and feet	68 (47.2%)	40 (27.8%)	24 (16.7%)	12 (8.3%)	
Generalized	60 (44.1%)	44 (32.4%)	24 (17.6%)	8 (5.9%)	
Type of treatment					
Local	96 (49.0%)	64 (32.7%)	24 (12.2%)	12 (6.1%)	0.003
Additional phototherapy	36 (37.5%)	24 (25.0%)	28 (29.2%)	8 (8.3%)	

Table 2. Severity of depression by demographic and clinical characteristics

ditionally, it is considerably higher than the prevalence of depression among the general population which was estimated at 8.6% (25). The link between vitiligo and depression is well-known and could be attributed to several consequences of the disfiguring stigma of the disease. The disease represents a profound psychological and emotional stressor that negatively impacts the self-esteem and self-body image (14, 15, 26). More than half of the patients have reduced potential of getting married [8] and the majority have poor quality of life (9, 10).

Depression in this study including moderate and/or severe depression were significantly higher among those with young age, single status, lower education, shorter duration of the disease, and using phototherapy. Consistent with the current findings almost all studies done nationally (17, 18) and internationally (19-21) showed that young patient are more prone to depression after getting vitiligo compared with older patients. This may be explained by their fears of stigmatization and rejection by the community, inability to secure a lifelong partner, and may be inability to get a job (8, 21). The association between depression and single status, lower education, shorter duration of the disease in the current study may be just a reflection of high depression burden among children and adolescents. The association between depression and using phototherapy may be ex-

plained by the fact that using phototherapy is a marker of disease severity. Perceived and objective severity of vitiligo has been shown as a strong predictor of distorted self-body image and poor quality of life (26).

Although the moderate and severe depression were slightly higher among females in the current study, we could not detect significant gender difference in depression. Previous studies were inconsistent regarding gender difference in depression, with some showing more depression in females (17, 20) and others showing similar depression in both genders (19, 21). In Saudi Arabia, approximately 28% of the patients with vitiligo believe it is caused by an evil eye and it is transmissible to offspring making the disease socially embarrassing irrespective of gender (17). Although patients with head and face lesions had more depression than those with lesions sparing the head and face, the affected body part was not a significant factor for depression in the current study and previous studies (19-21).

The current findings may be useful for the dermatologist to pick patients with vitiligo at higher risk of depression early after diagnosis. Providing psychological support for these patients at an earlier stage of the disease progression can help patients to accept their condition and reduce its social impact (27). Additionally, it can improve the medication adherence with consequent improvement of the disease presentation (16). The current findings encourage the dermatologist to have low threshold for referring such patients to psychiatry or specialized clinics.

6. CONCLUSION

More than half of patients with vitiligo are at risk of depression. Depression specially more severe forms was significantly higher among those with young age, single status, lower education, shorter duration of the disease, and using phototherapy. The current findings may be useful for the dermatologist to pick and manage patients with vitiligo at higher risk of depression early after diagnosis.

- **Declaration of Patient Consent:** The authors certify that they obtained all appropriate patient consent forms.
- **Authors contribution:** Author has been included in all steps of preparation this article. Final proof reading was made by the author.
- **Conflict of interest:** None declared.
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