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Original research article

Vitiligo and Depression: Study from Rajiv Gandhi Institute of Medical Sciences (RIMS), Adilabad, Telangana

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Abstract

Background: Vitiligo is a condition that causes pale, white patches to develop and affect any area of the skin. Most of the patients with involvement of exposed areas of the body suffer from low self-esteem, embarrassment, emotional stress ultimately leading to social isolation. These factors along with a sense of stigma increase the risk of psychological disorders including depression.

Methods: It was a hospital-based cross-sectional study conducted at Rajiv Gandhi Institute of Medical Sciences (RIMS), Adilabad, Telangana, which is a tertiary care center and serves a large cater of sections including tribal areas. The duration of the study was for 8 months. The total sample size of the study was 80; out of which 40 were vitiligo patients and the other n=40 were non-vitiligo patients. A pre-designed proforma was used to get the basic demographic data and the Zung Self-rating Depression scale was used to assess depression in both groups. Statistical analysis was done using Epi Info 3.4.3 version which is a public domain software provided by the Centre for Disease Control and Prevention (CDC), Atlanta.

Results: Age group ranged from 18-60 years of age. The mean age among the Vitiligo patient group was 36.3±10.53 years and in the control group was 40.8±10.87 years. Sex distribution showed that among vitiligo patients 28 were male and 12 females. The overall prevalence of clinical depression among vitiligo patients was 55% compared to only 10% in controls and this association was found to be statistically significant. Among the patients with clinical depression, nearly two-thirds (63.6%) were male and 36.4% female indicating a high prevalence of clinical depression among males compared to females.

Conclusions: Present study found a high prevalence of clinical depression among vitiligo patients using the Zung Depression Scale. Clinicians should evaluate vitiligo patients for depression and provide appropriate referrals or advice to manage the condition accordingly.

Keywords: Vitiligo, Depression, Zung Depression Scale

Introduction

Depression is a common illness worldwide, with more than 264 million people affected. [1] Depression comes in many shapes and forms; in some, it can persist at a low level for months to years and in others, it may lead to serious consequences including suicide. Risk factors can be a family history of depression, lack of social support, stressful life events, current substance abuse, medical co-morbidities, and others. The World Health Organization (WHO) has predicted that by 2030, depression will be the second biggest health problem worldwide and the leading cause of disability and death worldwide, second only to heart disease. Recognizing the importance of the condition, World Health Organization (WHO) observed Depression as a

world health day theme for the year 2017 with the caption of 'Let's talk'. [2] Mental health disorders are characterized by a combination of abnormal perceptions, emotions with different presentations rampantly occurring globally with burden increasing in middle- and low-income countries also. [3] There are various effective strategies and treatments for preventing and curing mental health disorders but access to health care and availability of medical personnel along with family & social support is the key. According to the National Mental Health Survey (NMHS) of India which is the largest mental health survey showed that the overall weighted prevalence of mental morbidity was 10.6% for current and 13.7% for lifetime. With regards to Depression disorder, the prevalence was 2.68% for current and 5.25 for a lifetime during the year 2015-16. Assessment of depression at an early stage is a very significant factor in the prevention of various mental disorders which are interrelated to depression such as suicide. Various scales have been designed to assess depression. Among them, four of the most commonly used depression scales for adults are the Beck Depression Inventory (BDI), the Centre for Epidemiological Studies Depression Scale (CES-D), the Geriatric Depression Scale (GDS), and the Zung Self Rating Depression Scale (SDS). Skin is the largest organ of the body protecting against microbes and many hazards. There are many skin disorders including Vitiligo. Vitiligo is referred to by various names such as 'Phulbahari', 'Bars', 'Sweta Kushta', however, the origin of the term vitiligo is obscure like the disease itself. It is characterized by depigmented white patches of varying sizes. Though this disorder does not cause restriction incapacity to work or life expectancy, it leads to cosmetic disfigurement causing considerable psychological trauma to patients. Vitiligo can occur in both exposed parts such as the face and unexposed parts. In cases affecting exposed parts, vitiligo leads to chances of low self-confidence where patients try to avoid exposing their vitiligo-affected parts. Vitiligo is a common, acquired, primary, progressive, melanocytopenia of unknown etiology, manifesting clinically as circumscribed achromic macules often associated with leucotrichia and histologically by degeneration and disappearance of melanocytes in the involved skin and not infrequently in pigment epithelium of the eyes, leptomeninges, and inner ear.

The average prevalence of vitiligo is between 0.5% to 2% of the world population, but local numbers may vary from 0.004% to 9.98%, depending on the region and age group. The total number of people suffering from vitiligo is estimated at around 65-95 million people worldwide. However, the actual number may be much higher because vitiligo is an underreported disease. [4 - 6] The pathogenesis of vitiligo is complex and not well understood. Over the years, multiple aspects of immunological, genetic, and biochemical aspects thought to be played a role but so far, no convincing concepts describing the interplay of these contributing factors have been formulated. Stress both acute and chronic was temporally associated especially, chronic, or uncontrolled psychological stress decreases the immune response in a different phase. In vitiligo patients, although the conditions do not affect the physical health of the patients, cosmetic affects their, psychologically appearance negatively. It's said that vitiligo is real and can go much deeper than the skin. In developing including India, Leprosy is still omnipresent both classical and undiagnosed cases. Leprosy patients face stigma in society and Vitiligo sharing a common complaint of white patch often mistaken as Leprosy and they are discriminated. These factors have a profound aspect on mental health conditions. Most of the patients with involvement of exposed areas of the body suffer from low self-esteem, embarrassment, emotional stress ultimately leading to social isolation. These factors along with the sense of stigma increase the risk of psychological disorders including depression. [7] There is existing literature on the association between vitiligo and depression in India but there were limited studies in the study setting. With this background, the objective of the present study was to determine the association between Vitiligo and Depression among

Vitiligo patients admitted to Rajiv Gandhi Institute of Medical Sciences (RIMS), Adilabad, Telangana.

Material and Methods

The study was conducted in the Department of Psychiatry, Rajiv Gandhi Institute of Medical Sciences (RIMS), Adilabad, Telangana, which is a tertiary care center and serves a large cater of sections including tribal areas. It was a hospital-based cross-sectional study. The duration of the study was for 8 months from February to September 2020. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study.

Inclusion criteria

1. Patients diagnosed with Vitiligo
2. Aged between 18 to 60 years
3. Both males and females
4. Age and sex-matched normal individuals taken as controls

Exclusion criteria

1. Patients already diagnosed with Depression and on medications
2. Those not fitting in inclusion criteria
3. Those not willing to participate in the study

The total sample size of the study was n=80 out of which n=40 were vitiligo patients and other n=40 were non-vitiligo patients. Non-vitiligo patients have been used as the control group. The purpose of the study was explained to the study participants and informed oral consent was taken before the start of the study and confidentiality was ensured. A pre-designed proforma was used to get the basic demographic data such as age, sex, duration, and Zung Self-rating Depression scale was used to assess depression in both groups. Proforma was pre-designed and pretested and necessary changes were made accordingly. The Zung Self-Rating Depression Scale, a widely used screening tool for depression consisting of a 20-item self-report questionnaire. It was developed by Duke University Psychiatrist Dr.William W. K. Zung. [8] Questions in scale were translated into the local language and each question was explained to the study participant. The questionnaire takes about 10 minutes to complete, and items are framed in terms of positive and negative statements. Each item is scored on a Likert scale ranging from 1 to 4. A total score is derived by summing the individual item scores and ranges from 20 to 80. If the score was more than 50%, it was considered clinical depression and less than 50% non-depression. *Statistical Analysis:* Statistical analysis was done using Epi Info 3.4.3 version which is a public domain software provided by the Centre for Disease Control and Prevention (CDC), Atlanta. Data was represented in percentages. Numerical data using mean and standard deviation. Association between variables was assessed using the chi-square test with a p-value less than 0.05 considered to be statistically significant.

Results

In the present hospital-based cross-sectional study, total study participants were n=80; out of which n=40 were Vitiligo patients and the other 40 were Controls. The age group ranged from 18-60 years of age. Sex distribution showed that among vitiligo patients n=28 were male and n=12 females and in the control group n=20 each. More than three fourth (85%) of them were married. More than one-fourth (30%) of them were illiterate and the majority of them were agricultural laborers.

The mean age among the Vitiligo patient group was 36.3±10.53 years and in the control group was 40.8±10.87 years. The mean duration of Vitiligo was 8 years. The most common variety observed was vitiligo Vulgaris (55%) followed by mucosal (12%), focal (9%), facial (9%), and segmental (8%). With regards to the pattern of involvement, 81% had involvement of exposed areas. Among the Vitiligo patients, comorbidities observed were diabetes mellitus (12%), hypertension (8%), and other comorbidities such as thyroid disorders (5%). More than two-thirds (68%) of vitiligo patients were on treatment.
Zung Depression Scale was used to assess the clinical depression which had the following observations.

Table 1: Zung Depression Scale among Study Participants

Depression Score	*Vitiligo*		*Controls*	
	N	%	N	%
<50	18	45%	36	90%
>50	22	55%	04	10%
Total	40	100%	40	100%
Chi-square value=18.46, P-value 0.00001* (Statistically significant)				

Among Vitiligo patients, more than half the proportion (55%, n=22) had a depression score of more than 50 compared to controls (10%, n=4). Hence the overall prevalence of clinical depression among vitiligo patients was 55% compared to only 10% in controls and this association was found to be statistically significant (p=0.00001).

Table 2: Association between Gender and Clinical Depression

Clinical Depression	*Vitiligo*		*Controls*	
	N	%	N	%
Male	14	63.6%	01	25%
Female	08	36.4%	03	75%
Chi-square value=2.07, P value 0.1 (Not significant statistically)				

Among the patients with clinical depression, nearly two-thirds (63.6%) were male and 36.4% female. This indicates a high prevalence of clinical depression among males compared to females, but this was not significant statistically.

Discussion

Vitiligo influences the overall life of an affected individual. It can influence psychological impact, social relations, work due to its noticeable contrast. The present study has been done to determine the prevalence of clinical depression among vitiligo patients. Vitiligo is a pigmentary disorder of the skin and mucous membrane which manifests as white patches due to loss of melanocytes. A typical lesion in vitiligo is a well-defined depigmented macule, which shows several depigmented hair and without any change in skin texture. The disease is gradual in onset and progressive in nature. Lesions widely vary in size, shape, number, and location. Initial macules generally occur on the exposed parts of the body such as hands, elbows, legs, knees, neck, and face followed by body folds. Besides genetic predilection, there are diverse epigenetic factors that also play a role in etiopathogenesis. An alteration in the microenvironment of epidermal melanin units, related possibly to immunological, neurochemical factors also has been presumed. The following hypothesis has been formulated such as Neural hypothesis, self-destructive theory, autoimmune theory, convergence theory, melanocyte growth factor reduction hypothesis, antioxidant deficient theory, apoptosis in melanocytes and the new integrated theory which considers melanocyte detachment and

transepidermal elimination, neuro-biochemical and autoimmune hypothesis. The diagnosis of Vitiligo is based mainly on clinical examination, however, careful rule out of differential conditions needs to be ruled out. In case required, non-invasive and invasive procedures may be required. Important things to consider before giving the treatment are age, duration of illness, course of the disease, type of vitiligo, associated diseases like diabetes or autoimmune diseases, previous medications, and others. Some types of vitiligo may be responsive to treatment. Segmental type and younger age have been associated with more refractory disease. There are various medical and surgical modalities for the treatment of Vitiligo. Under medical management, topical corticosteroids, topical calcineurin inhibitors, and narrowband ultraviolet (UV)-B phototherapy are the mainstay treatment options. No single therapy for vitiligo is predictably good and the response to highly variable. In the present study, more than half the proportion of vitiligo patients had clinical depression with a greater number of male patients with depression than females. More than half the proportion (55%, n=22) had a depression score of more than 50 compared to controls (10%, n=4). Hence the overall prevalence of clinical depression among vitiligo patients was 55% compared to only 10% in controls and this association was found to be statistically significant (p=0.00001). Among the patients with clinical depression, nearly two-thirds (63.6%) were male and 36.4% female. This indicates a high prevalence of clinical depression among males compared to females, but this was not significant statistically. These findings were in concurrence with a study by Mana Al-Harbi et al., [9] on the prevalence of depression in vitiligo patients here 54.5% were found to be depressed, most with mild depression.

In contrast to the present study findings, a study done by Chan MF et al., [10] found that 17.2% (n = 25) had been identified as depressed. Their study found age below 50 years, females, longer duration of illness of more than 5 years, patients with low self-esteem, and poor quality of life to be significant risk factors for depression. A meta-analysis on the prevalence of Depression in Patients with Vitiligo by G. Wang et al., [11] found that the prevalence of depressive symptoms was 33% and patients with vitiligo were 4.96 times more likely to display depression compared with controls. In contrast to the present study, the study showed that the prevalence of depression was significantly higher among female patients with vitiligo compared to male ones. This could be due to more male patients in the present study with vitiligo comparatively. Another study by Ghadah I Alhetheli on the impact of Vitiligo on Patients' Psychological Status and Sexual Function: Cross-Sectional Questionnaire-Based study observed that 45% had mild depression and 8.7% had moderate depression. The study also observed that the sense of being unattractive, disappointed in self, and discouragement about the future as the most significant underlying causes of depression. [12]

As been stated previously Vitiligo is a common skin disorder with varied geographical variations with earliest authentic reference to this condition can be traced back to the period of Aushooryan (2200 BC). Existing literature on demographic characteristics showed vitiligo patients affecting at any age group and female prevalence is higher due to greater concern about the cosmetic defect. Y C Lai et al., [13] on a systematic review and meta-analysis of observational studies on vitiligo and depression found that the prevalence of depression among patients with vitiligo was 0.253. Using self-reported questionnaires, the pooled prevalence of depressive symptoms was 0.336. The pooled odds ratio of depression among patients with vitiligo was 5.05 vs. controls. Quality of life and visibility of the lesions are important factors in determining the depression scores as shown in Feizi and colleagues though it was statistically significant. Similar findings were shown in Maleki and Colleagues in their study. In contrast, emotional problems were more among Vitiligo patients in whom lesions were on visible areas as shown in Ahmed et al., [15] study. These studies gave us the factors which directly or

indirectly have an impact on the mental health aspects of Vitiligo patients. Mr. Noor and his colleagues in their study reported that patients with a greater degree of visible body parts suffer more mental health problems. [16]

Prevalence and Frequency of Depression in Patients with Vitiligo study by M Saleki et al., [17] from Iran did a cross-sectional study on n=110 patients with vitiligo who were referred to the dermatology clinic of Farshchian hospital and n=110 healthy controls matched for age and sex. There was slight female preponderance with age ranging from 12-65 years. Similar to the present study findings, prevalence and depression score was more in young female and unemployed patients. In concurrence, the prevalence was also more among the patient's group compared to controls, though mild depression was observed in both groups. Age, sex, and occupation are significantly associated with higher depression scores. The only contrast is that they have used the Hamilton Depression scale instead of the Zung Depression scale in the present study. Their study concluded by stating the vitiligo may lead to mental, social, occupational, and psychological problems and the need for collaborative management between dermatologists and psychologists. Rathi SR et al., [18] study on the prevalence of depression in patients of vitiligo in the tertiary care center in South India observed that most of the patients in this study were in the 3rd to 5th decade. The mean age is n=42 years. Of these, males were n=44 and females were n=56. Of these, n=25 (25%) patients did not show any signs of depression, n=45 (45%) patients showed mild depression, n=20 (20%) patients showed moderate depression, and n=10(10%) patients showed severe depression. Limitations of the study were that since the study design itself was cross-sectional, there was no follow-up of the study participants, and treatment was done after the study. But the study participants who had a score of more than 50 on the Zung Self-Rating Depression Scale were advised about the condition and the need for a proper complete evaluation of their mental health condition. Since the study was done in a single hospital-based setting, findings cannot be generalizable. But since the study setting was itself from the Tribal area, study participants were from in and around the tribal areas of Adilabad District. Very few studies were done in that context highlighting the importance of the study. Similar large-scale multi-centric studies need to be done to get a real estimate of the condition. As per the World Health Organization (WHO) which has stressed the importance of Mental Health, proper evaluation of Mental Health conditions especially Depression is vital among dermatological patients such as Vitiligo patients who have a lot of mental health aspects associated with it.

Conclusions

Vitiligo is a secondary psycho cutaneous disorder that has psychiatric comorbidity in the form of depression. Vitiligo has an impact on the Physical component and Depression on the Mental component. In the present study, Vitiligo patients were relatively young with male preponderance. A high prevalence of clinical depression among vitiligo patients was found with more than half the proportion of cases being detected as having depression using the Zung Depression scale. Depression was found more among male patients. Clinicians should evaluate vitiligo patients for depression and provide appropriate referrals or advice to manage the condition accordingly. The assistance of a psychiatrist or psychologist is crucial to provide appropriate mental care to the patient and prevent their impact. Affective coordination between the Department of Dermatology and the Department of Psychiatry should be there to encourage cross-referral of Vitiligo patients for proper evaluation and detection at an early stage.

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