

## A Dermatological Study on Levels of Depression and Anxiety among Vitiligo Patients in Adults

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### Abstract

The skin is represented as the Mirror of the Mind which responds to both endogenous and exogenous stimuli. Psychodermatology is a recent subfield of Psychosomatic Medicine which addresses the interaction between Mind (Psyche) and skin. The two disciplines are interconnected at the embryonal level by their origin from ectoderm and influenced by reciprocal action of neuroendocrine and immune systems. Patients with cutaneous disorders face emotional problems like shame, distorted self-image and a reduced self-esteem. The impact on the individual depends on various factors which include the patient's Sociocultural background, demographic profile, personality of the patient, life stressors and how the disease is perceived by others in society. Therefore this study was done to know the Impact of Vitiligo on Psychiatric Manifestations and to assess the frequency and pattern of psychiatric illness in patients with vitiligo and to assess the relationship of Psychiatric illness, Life Stressors, Hostility and Direction of Hostility and Quality of Life in Patients with Vitiligo

**Materials and Methods:** 70 patients clinically diagnosed to have vitiligo between 18 and 65 years of age attending the Outpatient Department of Dermatology, Venereology and Leprosy, Shri Atal Bihari Vajpayee medical college & research institute were enrolled for the study. A detailed clinical history including age, sex, socio-economic status, occupation, duration of the disease, marital status, other co-morbidities and any other psychiatric co-morbidities was taken.

**Results:** Most patients were between 36 and 50 years of age (39%). 47.1% of the population were males and 52.9% were females. Majority of the patients i.e. 68.6% belonged to Upper Lower Socioeconomic status. 70% were suffering from Nonsegmental type/Generalised type whereas 30% suffering from Localised/Segmental type of vitiligo. Among the 49 patients who had psychiatric illness the most common psychiatric illness was major depression constituting 31.4% followed by generalized anxiety disorder constituting 11.4%, mixed anxiety 8.6%, dysthymia 7.1%.

**Conclusion:** The study findings revealed that no difference in gender was found in prevalence of psychiatric illness among the patients with Vitiligo. Major depression disorder was the most frequent psychiatric disorder seen in patients with vitiligo. Longer duration of vitiligo was associated with increased prevalence of psychiatric illness. Patients with vitiligo who had psychiatric illness had a lower quality of life when compared to those who did not have psychiatric illness.

**Keywords:** Anxiety, Depression, Vitiligo.

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### Introduction

The interaction between the Mind and the Skin have been accepted and skin is recognised as the organ of expression. The skin is represented as the Mirror of the Mind which responds to both endogenous and exogenous stimuli. It senses and integrates environmental cues and transmits intrinsic conditions to the external world. Psychodermatology is a recent subfield of Psychosomatic Medicine which address the interaction between Mind (Psyche) and skin. The two disciplines are

interconnected at the embryonal level by their origin from ectoderm and influenced by reciprocal action of neuroendocrine and immune systems [1,2]. The role of psychoneuroimmunology in causation, course and prognosis of psychocutaneous disorders is focused upon in recent days. Dermatologists have realised the importance of Psychiatrist opinion for identification of psychological factors which are of prior concern in chronic intractable skin conditions like Vitiligo, Psoriasis, Eczema, Atopic dermatitis, Lichen planus, etc. Psychological stress leads to

activation of the Hypothalomo Pituitary Axis which can result in undesirable aggravation of cutaneous disorders and thus stress acts as a precipitating factor. Stress in dermatoses was mentioned few decades ago in eighties and early nineties by Cermack and Panconesi [3,4]. Patients with cutaneous disorders face emotional problems like shame, distorted self-image and a reduced self-esteem. The impact on the individual depends on various factors which include the patient's Sociocultural background, demographic profile, personality of the patient, life stressors and how the disease is perceived by others in society. Most importantly it depends on the natural history of the illness and the psychological vulnerability of the patient where a higher trait of anxiety may be one among the vulnerability factors [5,6]. It was reported that cutaneous disorders are common among persons who have an insufficiency in expressing their anger and hostility (Jublin et al, 1981). Stress is said to aggravate the dermatological condition in about 40-100 percent of the patients [8,7]. Psychiatric disorders have a high prevalence in patients with skin diseases. The prevalence of psychiatric comorbidities among patients with dermatological disorders is said to range from 25 to 43 percent (Picardi et al 2001, Humphreys et al 1998) [7,8]. Vitiligo is a Psychocutaneous disorder of Multifactorial etiology characterised by depigmented macules and patches in skin and mucosa which have unpredictable course with remission and exacerbation which can lead to psychosocial distress and social stigmatization thereby affecting functionality of patient [9]. Vitiligo provoke Negative Emotion like Shame, Embarrassment, lack of Confidence, low Self-esteem, Social phobia, Dysthymia, Sleep disturbances, Adjustment Disorders, Anxiety, Depression, Suicidality which greatly affects patients quality of life [10,11]. Vitiligo can be associated with many psychiatric co morbidities as high as 79.2% as reported in an Indian study [12]. The importance of Emotional and psychological factors have been emphasised upon recently to involved in incidence, progression, remission and relapse of Vitiligo [13]. Thus psychiatric conditions could potentially add to the burden of this disorder. As some of vitiligo patients with psychiatric problems may not be aware of their own illness and if it could have been undiagnosed, the association may be further stronger. These psychiatric comorbidities have a direct effect on the treatment seeking behaviour, compliance and hence the overall outcome of the patients. Therefore identifying these Psychiatric manifestations earlier

and treatment of the same will greatly reduce the disease process of Vitiligo and also will improve the quality of life in these patients. Therefore, this study was aimed at studying the Impact of vitiligo on psychiatric manifestations and thereby bringing an awareness into this area.

### Materials and Methods

70 patients who were clinically diagnosed to have Vitiligo, attending the Dermatological out Patient department of Shri Atal Bihari Vajpayee Medical College were enrolled for the study. A detailed clinical history including age, sex, socio-economic status, occupation, duration of the disease, marital status, other co-morbidities and any other psychiatric co-morbidities was taken. Systemic examination was conducted and few investigations like Hemoglobin%, TC, DC, ESR, Urine examination, Blood sugar, HbA1c, Thyroid Profile were done wherever necessary.

### Inclusion Criteria

- Patients diagnosed as cases of Vitiligo by Dermatologist as per ICD-10 Criteria (L80).
- Age group: Vitiligo Patient between 18 to 65 years of age.
- Patients who gave consent for the Study.

### Exclusion Criteria

- Patients with Mental Retardation and Delirium.
- Patients who have previous psychiatric illness.
- Patients who have other concurrent dermatological diseases like Systemic Lupus Erythematosus.

### Statistical Analysis

Statistical design was formulated using the data collected as above, for each of the scales and socio-demographic variables. Statistical analysis was done using SPSS (Statistical Package for Social Studies) trial version 14.0. The central values and dispersion were calculated. In comparison of the data for categorical variables chi-square and for numerical variables student t test were used. For multiple comparisons of more than two numerical variables, ANOVA and Scheffe post hoc tests were used. Correlation among variables was studied using Pearson's correlation coefficient. Then all variables were subjected to Multiple linear regression, with Quality of Life as the dependent Variable.

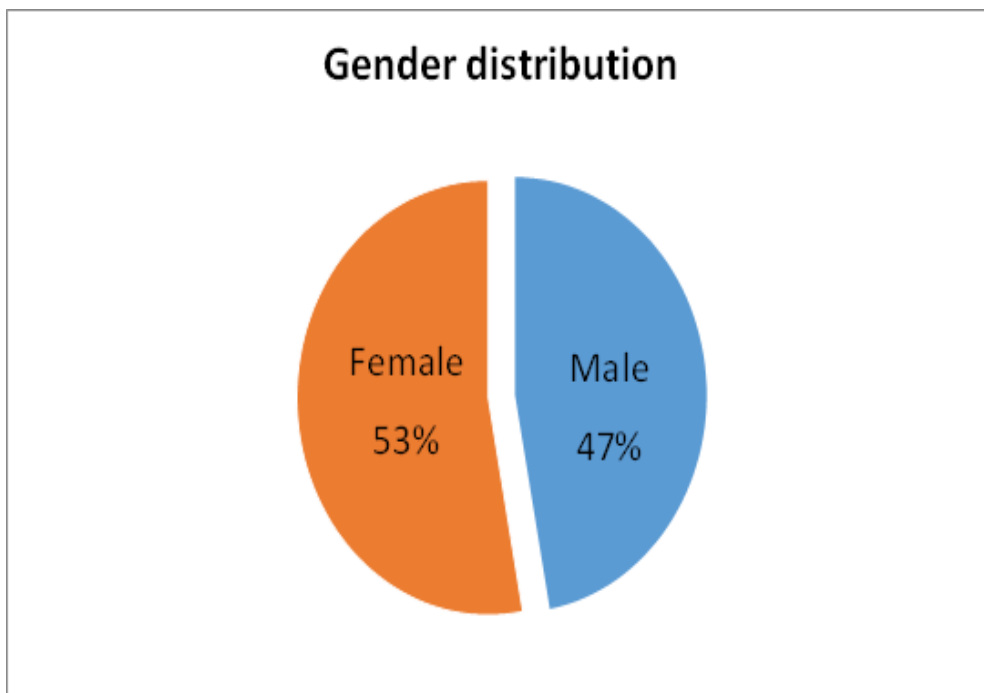
### Results

**Table 1: Showing Socio demographic Variables of the Sample Population**

S.No	Variable		Cases (N = 70) n	Percentage
1	Age	<35	24	34.3
		36-50	27	38.6
		51 and above	19	27.1
2	Sex	Male	33	47.1
		Female	37	52.9
3	Marital status	Married	43	61.4
		Unmarried	15	21.4
		Widow/Separated/Divorce	12	17.1
4	Socio-economic status	Lower	6	8.6
		Upper Lower	48	68.6
		Lower Middle	16	22.9
5	Religion	Hindu	64	91.4
		Non Hindu	6	8.6

From Table 1, it is inferred that majority (38.6%) of the sample population belongs to the age group between 36 to 50 years. The sample population consists of 52.9% females and 47.1% males. 61.4% were married and 21.4% unmarried. 17.1% were

single(widow/separated/divorced). Majority (68.6%) belong to the Upper Lower socioeconomic group. Majority of sample population were Hindus 91.4% and 8.6% Non-Hindus (Christians/Muslims/others).



**CHART 1: Shows gender distribution in patients with Vitiligo**

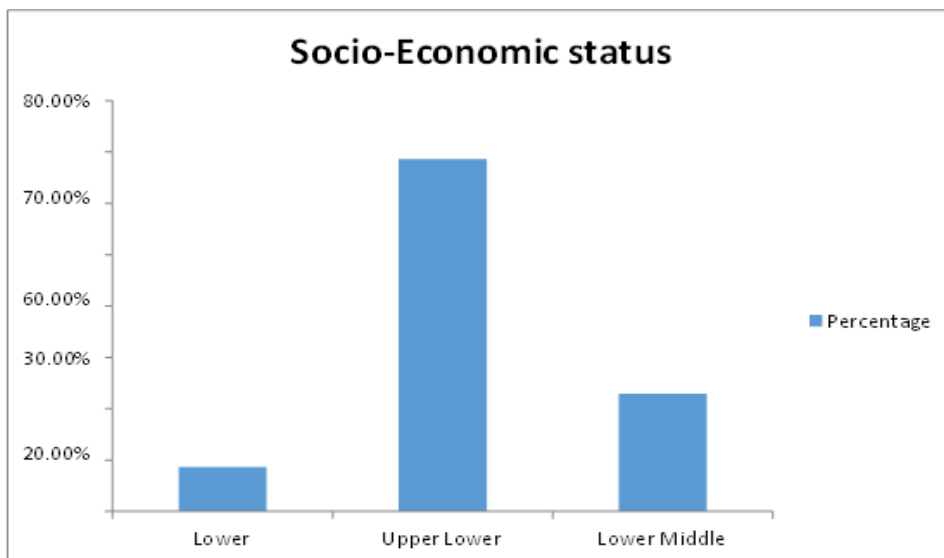


Chart 2: Shows distribution of Socioeconomic Status of patients with vitiligo

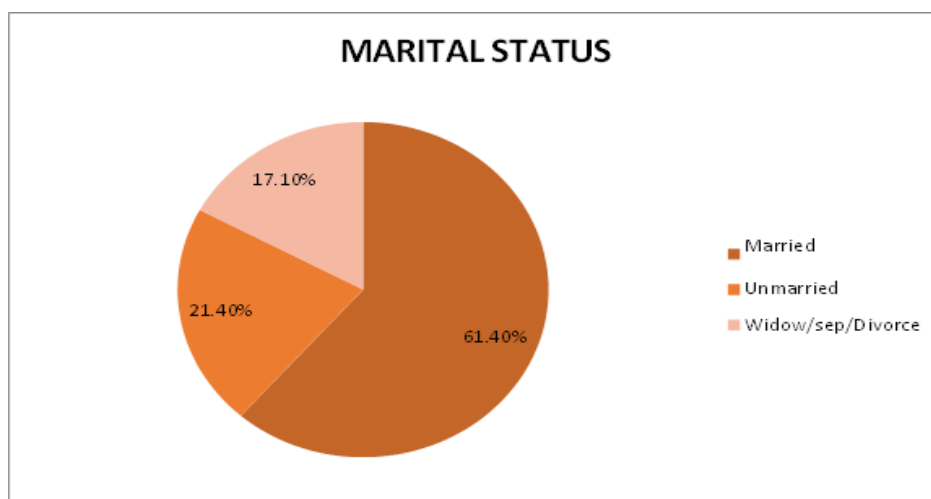


Chart 3: Show marital status in patients with Vitiligo

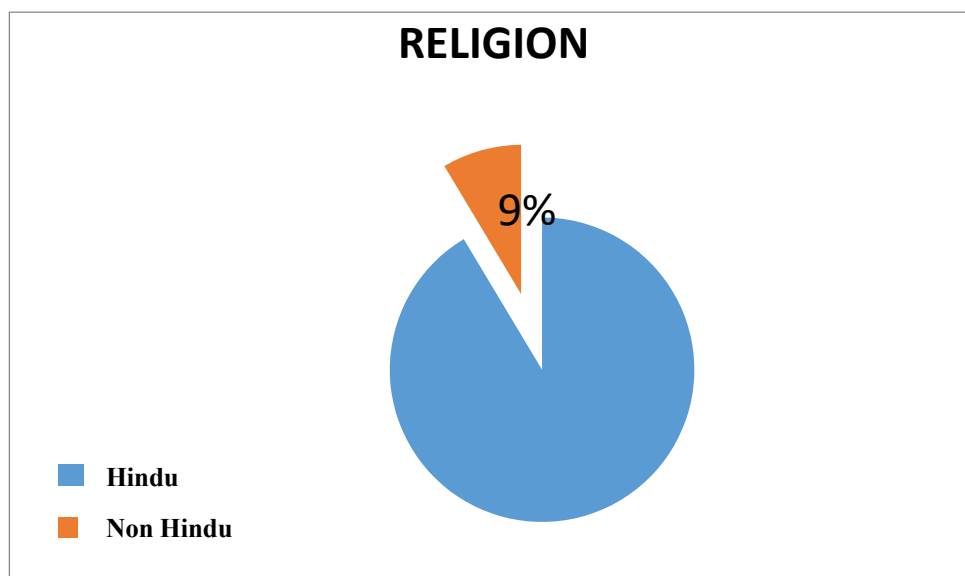


Chart 4: Show distribution of religion in patients with Vitiligo

**Table 2: Frequency Distribution of Vitiligo**

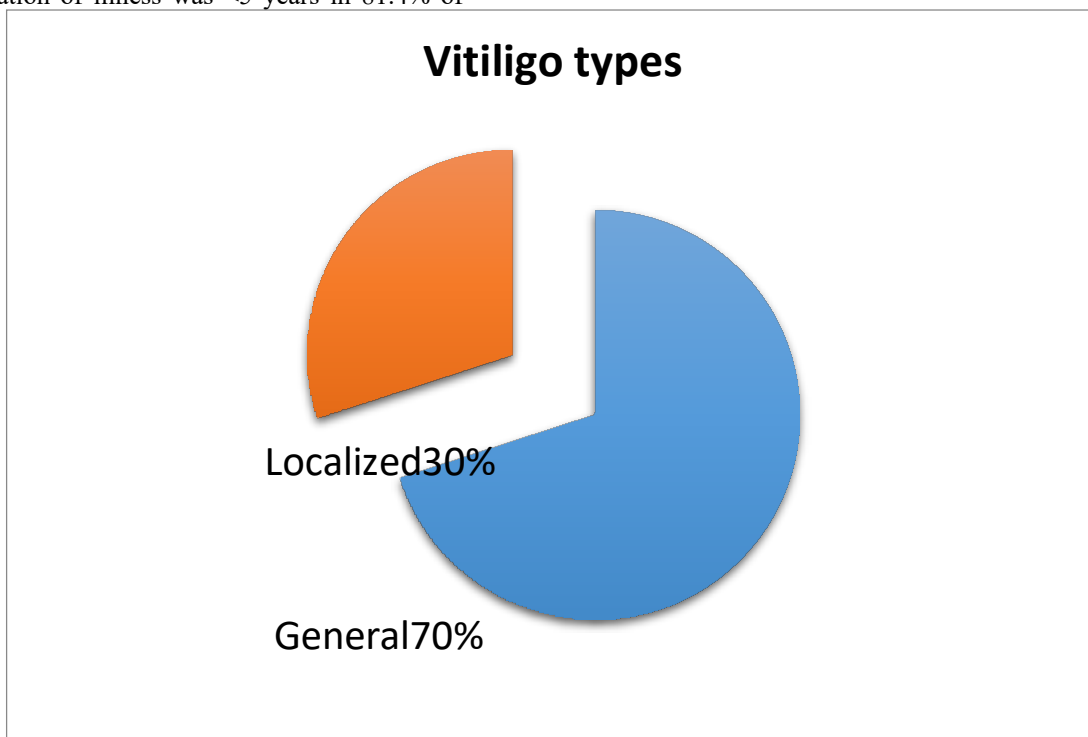
S. No.	Variable	Cases (N=70) N	Percentage
1.	Type of vitiligo	Generalised	49
		Localised	21
2	Duration of illness (Years)	<3	41
		4-6	18
		7 and above	11
3.	Type of Course	Progressive	23
		Regressive	9
		Stationary	25
		Remission and	
		Exacerbation	13

Table 2 shows the frequency distribution of the type of Vitiligo, duration of illness and type of course among the patients.

From the table, we see that 70% of the sample had Generalised vitiligo and 30% had localised type.

The duration of illness was <5 years in 81.4% of

patients, 6-12 years in 12.9% of patients and in 5.7%, it was > 13 years. The type of course was 35.7% stationary, 32.9% in progressive, 18.6% in Remission and exacerbation and 12.9% in Regressive type.



**Chart 5: Showing frequency of Major types of Vitiligo**

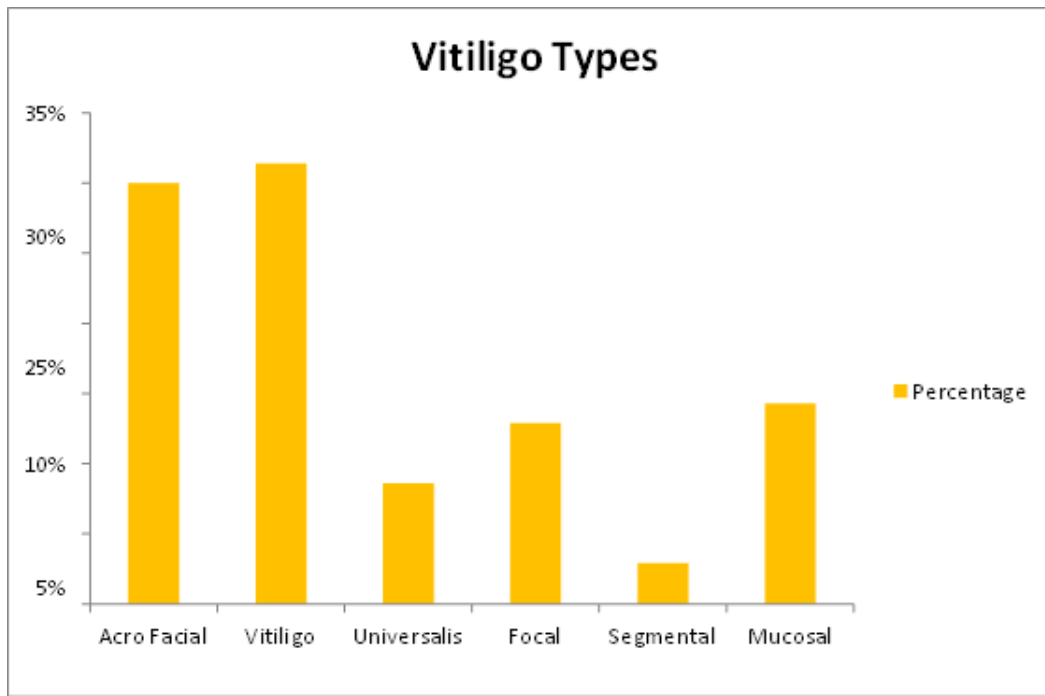


Chart 6: Shows distribution of subtypes of Vitiligo

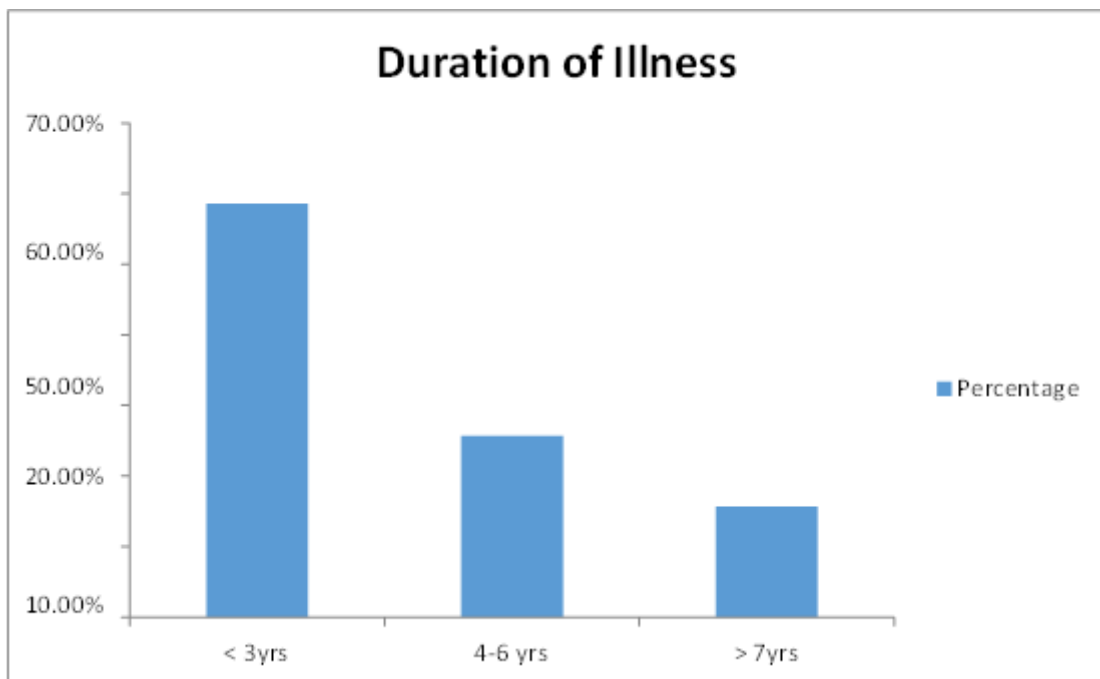


Chart 7: Shows distribution of Duration of illness in patients with Vitiligo

Table 3: Showing Frequency of Psychiatric Morbidity Among Patients With Vitiligo.

S. No.	Psychiatric Morbidity	Cases (N=70) n	Percentage (%)
1	Present	49	70.0
2	Absent	21	30.0

Table 3 shows the frequency of psychiatric illness in patients with Vitiligo.

Among the 70 patients taken up for the study 49 patients (70%) had some psychiatric illness and 21(30%) of the patients had no psychiatric illness.

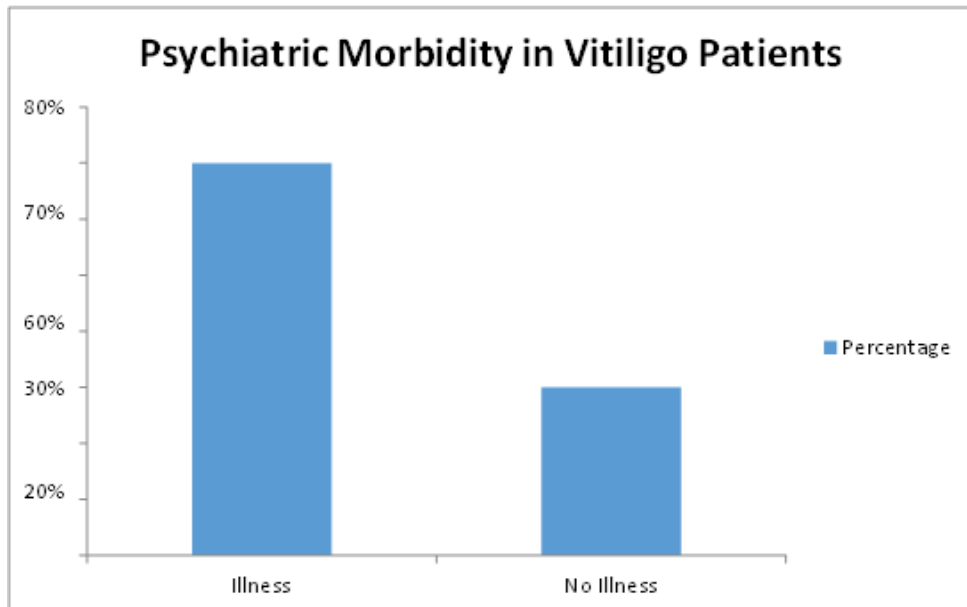


Chart 8: Shows distribution of Psychiatric morbidity in patients with Vitiligo

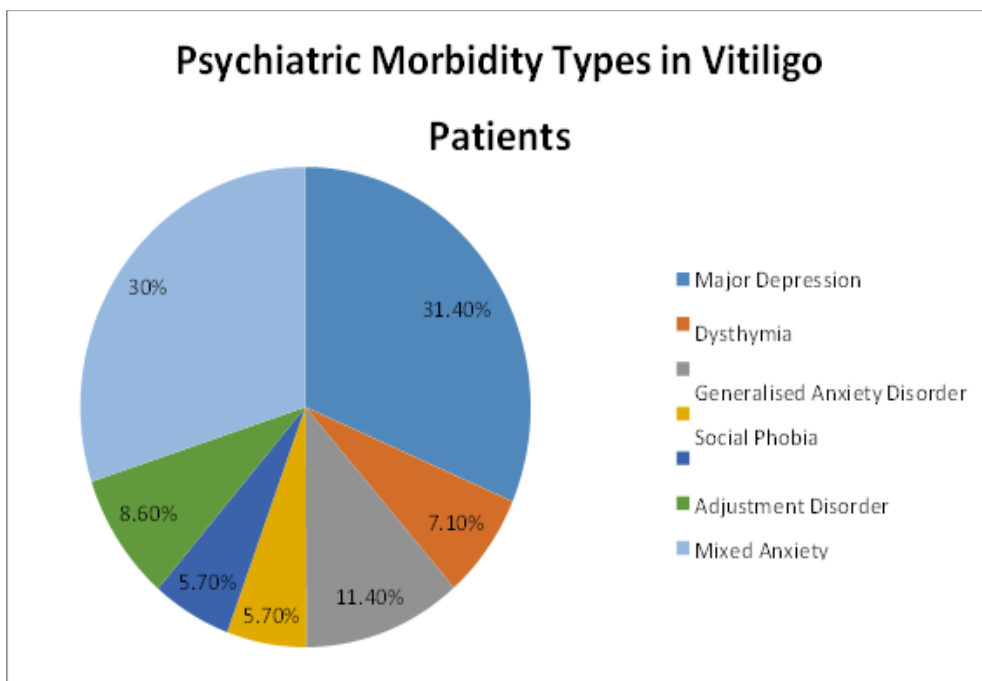


Chart 9: Shows distribution of various psychiatric comorbidity inpatient of vitiligo

Table 4: Showing the Type of Psychiatric Morbidity among Patients with Vitiligo

S. No.	Psychiatric Morbidity	Cases (N=70) n	Percentage(%)
1	Major Depressive Disorder	22	31.4
2	Dysthymic Disorder	5	7.1
3	Generalised Anxiety Disorder	8	11.4
4	Social Phobia	4	5.7
5	Adjustment Disorder	4	5.7
6	Mixed Anxiety And Depressed disorder	6	8.6
5	No Illness	21	30

Table 4 shows the distribution of various psychiatric illnesses among patients with Vitiligo.

Among the 49 patients who had psychiatric illness the most common psychiatric illness was major depressive disorder (n= 22) constituting 31.4% followed by generalized anxiety disorder (n=8) constituting 11.4%, dysthymic

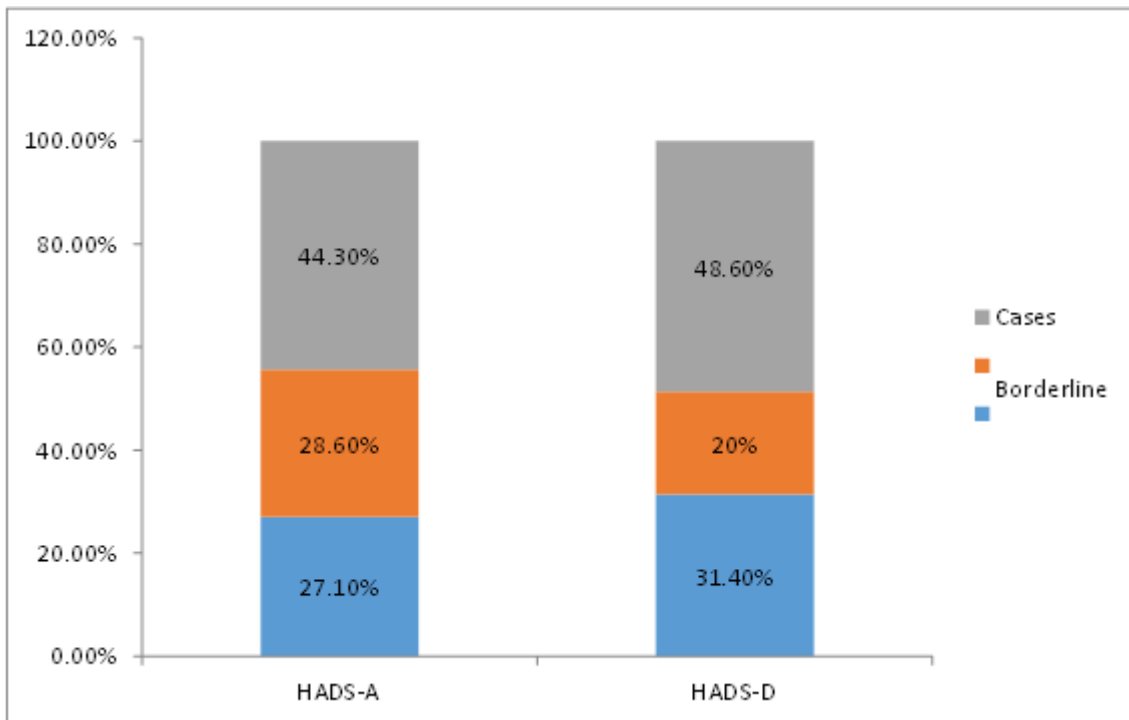
disorder 7.1%, social phobia and Adjustment disorder 5.7% each and Mixed anxiety and depressive disorder 8.6% the remaining 21(30%) patients had no psychiatric illness.

**Table 5: Showing Frequency Distribution of HADS/Rosenberg /VASI Scores in Patients with Vitiligo**

S. No.	Variable	n ( N=70)	Percentage	
1.	HADS - A	Normal	19	27.1
		Border line	20	28.6
		Cases	31	44.3
2.	HADS – D	Normal	22	31.4
		Border line	14	20
		Cases	34	48.6
5	Rosen	<15 Low SE	39	55.7
	Inference	>15 Normal	31	44.3
6.	VASI score	Mild	41	58.6
		Moderate	17	24.3
		Severe	12	17.1
7	HDHQ	Intropunitive Ness	57	81.4
		Extra punitiveness	13	18.6

Table 5 show the frequency and percentage scores of variables in the sample population. With respect to HADS score 48.6% for depression and 44.3% for anxiety. Patients with Psychiatric illness were about 70%, no illness group 30%. Among psychiatric Manifestations Major depression contribute more

31.4%. Rosenbergs Self-esteem score 55.7% score for low self-esteem. Majority of the sample population 58.6% score for mild category in VASI score. The above table, infer that the majority of the sample population have intropunitive hostility than extrapunitive hostility.



**Chart 10 : Shows comparison of HADS scores in Vitiligo patients**



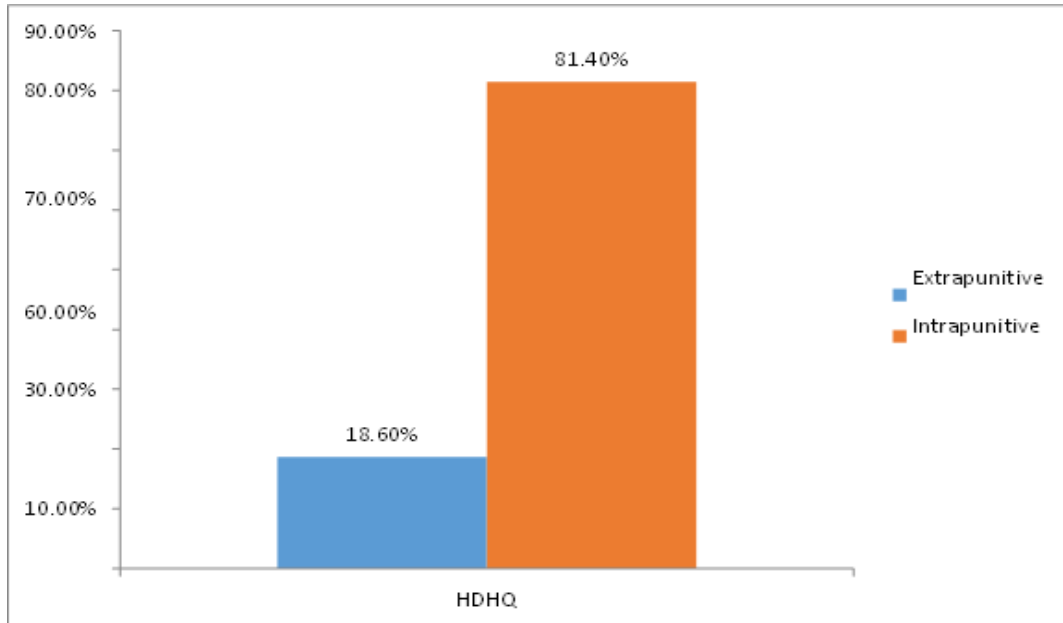


Chart 11: Shows Direction of hostility in the sample population

Table 6: showing socio demographic variables of patients with and without psychiatric morbidity

S.No	Variables		Cases (N=70) n	Psychiatric Morbidity		$\chi^2$
				Present (N=49)	Absent (N=21)	
1	Age	<35	24	15	9	0.613
		36-50	27	20	7	
		>51	19	14	5	
2	Sex	Male	33	22	11	0.609
		Female	37	27	10	
3	Marital status	Married	43	32	11	0.555
		Unmarried	15	9	6	
		Widow/separated/divorce	12	8	4	
4	Socio-economic status	Lower	6	4	2	0.721
		Upper lower	48	35	13	
		Lower Middle	16	16	6	

Table 6 The above table shows the comparison of socio demographic variables among the Vitiligo patients with and without psychiatric comorbidity. None of the variable had any significant relationship with Psychiatric morbidity.

Table 7: Comparing Prevalence of Psychiatric Morbidity and Gender Distribution Between Types of Vitiligo

S.No	Variable		Vitiligo Type		$\chi^2$
			Generalised n (N=49)	Localised n (N=21)	
1	Psychiatric Morbidity	Present	38	11	4.435*
		Absent	11	10	
2	Sex	Male	28	5	6.555*
		Female	21	16	

\*=P<0.05

Table 7 infers that the prevalence of Psychiatric morbidity is significantly higher in Generalised (Nonsegmental Vitiligo) than localized type.

With respect to gender the patients have significant difference between sex, hence it was inferred that there is higher prevalence of generalised vitiligo with vitiligo is seen with male patients than female patients.

### Discussion

This study was done to know the Impact of Vitiligo on Psychiatric Manifestations and to assess the frequency and pattern of psychiatric illness in patients with vitiligo and to assess the relationship of Psychiatric illness, Life Stressors, Hostility and Direction of Hostility and Quality of Life in Patients with Vitiligo. In addition Self esteem was assessed in all the patients. We selected 70 patients of Vitiligo who were attending the Dermatology outpatient Department in Shri Atal Bihari Vajpayee Medical College and Research Institute, Bengaluru based on the eligibility criteria and they were assessed using Hospital Anxiety and Depression scale, Presumptive Stressful Life Events Scale, Rosenberg Self esteem scale, Quality of life Among scale and the Hostility and Direction of Hostility Questionnaire. Among the patients in the sample, we found that 34.3% of patients were below 35 years, 38.6% were between the age of 36 to 50 years, 27.1% belonged to the age group of above 51 years.

47.1% of the population were males and 52.9% were females. A majority of the patients around 61.4 % were married, 21.4% of the patients were unmarried and 17.1% were separated/ widowed/ divorced.

On analysing the socio economic status of the patients, the majority of the patients, 68.6% belonged to Upper Lower Socioeconomic status, 22.9% belonged to Lower Middle socioeconomic status and 8.6% belonged to Lower socioeconomic status. Among 70 patients, 70% had Nonsegmental type/ Generalised type whereas 30% suffering from Localised/ Segmental type of vitiligo.

Among the subtypes of Non segmental Vitiligo patients 30% was Acro facial, 31.4% vitiligo vulgaris, 8.6% belong to universalis type. In localised variant mucosal type were around 14.3%, focal 12.9% and segmental least common 2.9%. The type of course was Progressive in 32.9%, Stationary in 35.7%, patients under remission and exacerbation was 18.6% and Regressive course type seen in 12.9% of total sample.

The duration of illness of the sample population is as follows-majority were in less than 3 years duration (58.6%), between 4 to 6 years was around 25.7%, and 15.7% were in above 11 years.

The severity of Vitiligo was assessed by using the Vitiligo Area Severity Index. Among the 70 patients, majority had mild severity 58.6%, moderate in 24.3% and 12% of patients had severe Vitiligo.

Our study findings were similar to the study done by Daniel and Sivanesan: DLQI and Psychiatric Morbidity in 200 Vitiligo Patients. In the above study done by Daniel et al there were 122 (61%) patients with generalized vitiligo, 36 (18%) had acro-facial vitiligo, only 2 (1%) patients with segmental vitiligo, and 40 (20%) had localized vitiligo [14]. This was in contrast to a study from Tunisia, where generalized vitiligo was present in 37.5%, acrofacial in 12.5%, and localized type in 25% of the study population [15]. A study from South India reported that generalized vitiligo was present in 48%, acrofacial type in 22.7%, and localized type in 16% and segmental type in 13.3%. 20 31 (15.5%) of the patients had family history of vitiligo. This was in contrast to the study done by Gopal et al [16], where the prevalence was found to be 36%. 172 (86%) patients had vitiligo involving the uncovered areas in the body. This was similar to Akremet al [17]., which was a study from Tunisia, where vitiligo in the uncovered areas was seen in 78.33% of the population. Borimnejad et al [18], from Iran reported location of vitiligo lesions over the visible areas in 53(76.4%) patients. In our study, we found that, among the 70 Vitiligo patients, 49 patients were suffering from psychiatric comorbidity, mounting to a proportion of 70%. Our study was supported by a study done by Ramakrishnan et al, 2014 [12] which reported 79.2% of psychiatric comorbidities. Among the 70 patients of Vitiligo nearly 49 patients (70%) had one or the other psychiatric illness and 21(30 %) of the patients had no psychiatric illness. Among the 49 patients who had psychiatric illness the most common psychiatric illness was major depression constituting 31.4% followed by generalized anxiety disorder constituting 11.4%, mixed anxiety 8.6%, dysthymia 7.1%. Adjustment disorder and social phobia were 5.7 % each. This is similar to an Indian study which reveals the prevalence of depressive episode (22%) and dysthymia (9%) in vitiligo (Matoo SK, Handa et al, 2001)[11] but it reported Adjustment disorder 56% in contrast to our study. In another recent study in patients with vitiligo , by Garg S & Sarkar R, (2014 ) [19] reports Dysthymia (7–9%), depression (10%), depressive episode (18–22%), sleep disturbance (20%), suicidal thoughts (10%), anxiety (3.3%) and suicidal attempts (3.3%). Though finding in our study were similar in accordance to proportion of patients with depression, patients with anxiety disorder was less reported which was in contrast with our study. This study also reports suicide attempt as 3.3% but our study did not report any suicide attempts in the study population.

### Conclusion

The study findings revealed that no difference in gender was found in prevalence of psychiatric illness among the patients with Vitiligo. Major

depression disorder was the most frequent psychiatric disorder seen in patients with vitiligo. Longer duration of vitiligo was associated with increased prevalence of psychiatric illness. Higher the number of stressful life events the severity of vitiligo also increased and this was statistically significant in our study. Patients with vitiligo who had psychiatric illness had a lower quality of life when compared to those who did not have psychiatric illness .

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