

# Assessment of Impact of Vitiligo and its Distribution on Psychosocial Life: A Cross-sectional Study

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## ABSTRACT

**Introduction:** Vitiligo is a common depigmenting disorder of skin/mucosa. Its aetiology is multifactorial. Clinically, it presents as milky white macules as a result of loss of melanocytes from skin, hair or both. It does not cause any physical hindrance but can cause cosmetic deformity, which has a serious effect on patient's quality of life.

**Aim:** To evaluate and compare the psychosocial impact on vitiligo patients having lesions on exposed and unexposed site using Vitiligo Impact Scale (VIS)-22.

**Materials and Methods:** A cross-sectional study was conducted on 70 vitiligo patients attending the Outpatient Department (OPD) of Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India, over a period of six months between October 2020 to March 2021. Patients were categorised into two groups i.e., exposed and non exposed group. VIS-22 scores were calculated and effect on quality of life in vitiligo patients was calculated. Demographic data and clinical characteristics were also documented. Appropriate

statistical software, including Statistical Package for the Social Sciences (SPSS) version 23.0 was used for statistical analysis and Chi-square test was applied.

**Results:** A total of 70 patients (24 males and 46 females) were enrolled in this study who were similar in demographic profile. A mean VIS score in exposed group was 31.51 and in non exposed group was 21.45 which indicated large effect and moderate effect on their psychosocial life respectively. Mean score of each question was calculated, with highest mean score of 2.68, showing that patients were worried regarding the progression of disease. Most patients felt that others do not think that the disease spreads by touch and this was indicated by the mean score of 0.75.

**Conclusion:** In this study, it was seen that patients having lesions on exposed sites had a greater impact on quality of life, interpersonal relationships and patients felt more depressed as compared to those on non exposed sites.

**Keywords:** Exposed, Non exposed, Psychological distress, Vitiligo Impact Scale-22

## INTRODUCTION

Vitiligo is a skin condition caused due to the destruction of melanocytes resulting in well-defined milky white patches [1]. The prevalence of vitiligo in India has been found to be around 8.8% [2]. In spite of the fact that it does not cause any physical impairment, it has an immense effect on one's appearance leading to a troublesome cosmetic deformity [1]. Vitiligo patients have to encounter stigmatisation in day to day life from their family members, relatives, friends and colleagues [3]. This can give rise to significant psychological problem in their everyday life. Patients have various degrees of emotional disturbances, including low mood, loss of pleasure, poor body image, poor self-care, low self-esteem and high stress [4]. Severe depression can even result in suicidal tendencies [2].

The aetiology and pathogenesis of vitiligo is complex and multifactorial, including theories of autoimmune, genetic, neural, cytotoxic, biochemical, oxidative, melanocyte, inflammatory, and hormonal origin. Multiple susceptibility genes and various environmental triggers have also been associated in the pathogenesis of vitiligo [5]. The quality of life is impaired in vitiligo patient due to the chronicity and relapsing nature of the disease. Vitiligo has a cynical influence on marital relationships and sexual life, which may end in divorce and physical abuse to the partner suffering from it. Wrong social beliefs like vitiligo is God's punishment for the sins done in past life and many more exacerbate the problems of patients suffering from the disease. In India, sometimes vitiligo is considered as white leprosy, which has a significant stigma [6]. A few people also believe that dietary restriction of certain food items will help to stop the progression of the condition, like some avoid taking milk and fish together or some stop taking sour food or rice in their diet.

The purpose of this study was to evaluate and compare the psychosocial impact and effect on day-to-day activities of vitiligo patients having lesions on exposed and non exposed site using VIS-22.

## MATERIALS AND METHODS

A cross-sectional study was carried out in the Dermatology OPD of Rohilkhand Medical College and Hospital, a tertiary hospital in Bareilly, Uttar Pradesh, India, between October 2020 to March 2021 after obtaining the Ethical Committee Clearance (IEC/71/2020/OCT). Convenient sampling was done and all patients who visited the Dermatology Outpatient Department within six months were included in the study. They were clinically diagnosed as having vitiligo by the consultant Dermatologist.

**Inclusion criteria:** Patients clinically diagnosed with vitiligo, aged 15-61 years, willing to be the part of the study were included.

**Exclusion criteria:** Patients with leukotrichia and those with any known medical co-morbidity like infections, other immunological disorders, or existing psychological disorder with ongoing treatment were excluded from the study.

Site of lesion was noted as being on areas that were exposed, which included lesions on face, neck, hands, forearms and feet and non exposed areas included lesions on the rest of the body. The body surface area of the lesion was not calculated, as the study was based on the site of the lesion, whether being exposed or non exposed and its effects on patient's day-to-day life. A total of 70 patients were included in the study of which 35 were in exposed group while the rest 35 were in non exposed group.

All the patients were explained about the nature of study and informed consent was obtained from patients who were willing to participate

in the study. Data collection was done from October 2020 to March 2021. The socio-demographic details of participants like age, sex, marital status, education and occupation were enquired. It also included details about vitiligo lesions like location and duration, and family history of vitiligo. VIS-22 questionnaire was used to assess and stratify impairment of vitiligo related quality of life [7]. It was self-administered by the patients. There are 4 categories of responses to every item ranging from 0-3, which indicate how much vitiligo affects patient's life:

- Not at all
- A Little
- A Lot
- Very much

## STATISTICAL ANALYSIS

Coding, entry of the data, its clearing and compiling was done in Microsoft (MS) Excel sheets. Appropriate statistical software, including SSPS version 23.0 was used for statistical analysis and Chi-square test was applied. A p-value of <0.05 was considered statistically significant.

## RESULTS

A total of 70 patients were interviewed. There were 24 males and 46 females in this study with the male to female ratio being 1:2.8 in exposed group and 1:1.3 in non exposed group. The age of the patients ranged from 17 years to 61 years with majority being in the 15 to 30 years age group for both the groups. Most of the patients in non exposed group were married (68.6%) while in exposed group, equal ratio between married and unmarried patients was observed. Illiteracy persisted in about 22.9% in 9 exposed group while in non exposed group it was 17.1%. In both the groups, most of the patients had completed their high school education. A negative family history of vitiligo was mostly seen in both the groups. Only a few patients had positive family history i.e., 11 (31.4%) and 14 (40%) in exposed and non exposed group respectively [Table/Fig-1].

The mean VIS score in exposed group was 31.51 and in non exposed group was 21.45 which indicated large effect and moderate effect on their psychosocial life, respectively. The overall mean VIS-22 score in the study participants was 26.48, significantly higher in exposed group.

Mean score of each question was calculated, with highest mean score of 2.6 (Q19), showing that patients were very worried

Demographic parameters	Exposed sites (n=35) n (%)	Non exposed sites (n=35) n (%)	p-value
<b>Gender</b>			
Male	9 (25.7%)	15 (42.8%)	0.130
Female	26 (74.3%)	20 (57.2%)	
<b>Age group</b>			
15-30 years	26 (74.3%)	24 (68.6%)	0.763
31-45 years	8 (22.9%)	11 (31.4%)	
>45 years	1 (2.8%)	0 (0)	
<b>Marital status</b>			
Married	18 (51.4%)	24 (68.6%)	0.143
Unmarried	17 (48.6%)	11 (31.4%)	
<b>Education status</b>			
Illiterate	8 (22.9%)	6 (17.1%)	0.672
10 <sup>th</sup> class	14 (40.0%)	15 (42.9%)	
12 <sup>th</sup> class	3 (8.6%)	6 (17.1%)	
Graduation and above	10 (28.5%)	8 (22.9%)	
<b>Occupation</b>			
Unemployed	8 (22.8%)	6 (17.1%)	0.657
Student	6 (17.1%)	4 (11.4%)	
Farmer	2 (5.7%)	5 (14.3%)	
Labourer	2 (5.7%)	3 (8.5%)	
Household work	9 (25.7%)	7 (20.0%)	
Professionals	8 (22.9%)	10 (28.6%)	
<b>Family history</b>			
Positive	11 (31.4%)	14 (40.0%)	0.454
Negative	24 (68.6%)	21 (60.0%)	

[Table/Fig-1]: Demographic profile of participants.

regarding the progression of disease. The mean score of 0.75 (Q4) showed most patients felt that others do not think that the disease spreads by touch. On comparing the mean score of exposed and non exposed group, all questions had a higher mean score in exposed group, except Q.19, 20. Difference in the mean score of both these groups was highest (0.97) in showing patient of exposed group felt more helpless and dependent. Wearing clothes of choice was more problematic in patients of exposed group with difference of mean score 0.86. Mean of Q20 and Q22 was not considered as all participants were not eligible to answer those question [Table/Fig-2].

Questions	Group	0	1	2	3	NA	Mean score of questions	Total mean	Difference of mean
Q1: Do you think the disease is incurable?	Exposed	5	11	15	4		1.51	1.21	0.60
	Non exposed	9	20	6	0		0.91		
Q2: Do you change your doctor?	Exposed	10	6	13	6		1.42	1.07	0.65
	Non exposed	19	7	7	2		0.77		
Q3: Do suggestions and advice from others about the disease bothers you?	Exposed	3	11	18	3		1.6	1.32	0.54
	Non exposed	14	5	16	0		1.06		
Q4: Do other people feel that this disease spreads by touch?	Exposed	14	8	8	5		1.11	0.75	0.71
	Non exposed	22	12	1	0		0.4		
Q5: Do you have problems in wearing your choice of clothes?	Exposed	4	13	12	6		1.57	1.14	0.86
	Non exposed	17	11	7	0		0.71		
Q6: Do you feel helpless?	Exposed	12	6	11	6		1.31	0.82	0.97
	Non exposed	25	8	2	0		0.34		
Q7: Do you face difficulties in adhering to treatment?	Exposed	4	15	11	5		1.48	1.18	0.6
	Non exposed	8	23	4	0		0.88		
Q8: Do your parents/spouse keep asking you to seek treatment?	Exposed	10	4	12	9		1.57	1.54	0.06
	Non exposed	8	11	6	10		1.51		

Q9: Do you feel life is not worth living with this disease?	Exposed	12	5	15	3		1.25	0.92	0.65
	Non exposed	23	4	7	1		0.6		
Q10: Do you feel depressed?	Exposed	2	10	19	4		1.71	1.38	0.66
	Non exposed	8	17	10	0		1.05		
Q11: Do you keep thinking about this disease?	Exposed	7	12	14	2		1.42	1.04	0.77
	Non exposed	19	9	7	0		0.65		
Q12: Have you stopped/reduced going to parties/get-togethers?	Exposed	9	7	14	5		1.42	1.07	0.71
	Non exposed	19	7	9	0		0.71		
Q13: Do your friends/relatives avoid you?	Exposed	7	13	13	2		1.28	0.95	0.66
	Non exposed	18	12	5	0		0.62		
Q14: Do you think about bringing your life to end?	Exposed	8	11	11	5		1.37	0.97	0.8
	Non exposed	19	12	4	0		0.57		
Q15: Do you observe any kind of dietary restriction?	Exposed	4	12	18	1		1.45	1.24	0.43
	Non exposed	14	6	15	0		1.02		
Q16: Does the amount of money you have spent on treatment bother you?	Exposed	1	24	10	0		1.25	1.24	0.03
	Non exposed	1	25	9	0		1.22		
Q17: Do you believe that this is the worst disease anyone can have?	Exposed	0	9	11	15		2.17	1.88	0.57
	Non exposed	0	20	9	6		1.6		
Q18: Do you get embarrassed when meeting people?	Exposed	0	3	21	11		2.22	1.97	0.51
	Non exposed	0	18	9	8		1.71		
Q19: How worried will you be if you develop new lesions?	Exposed	0	0	12	23		2.65	2.6	0.03
	Non exposed	0	0	11	24		2.68		
Q20: If married- Do your in-laws worry about your white patches? If unmarried- Are you facing problems in getting married?	Exposed	8	5	19	0	3	1.22	1.31	0.18
	Non exposed	5	7	21	0	2	1.40		
Q21: Do your colleagues treat you differently because of the disease?	Exposed	14	10	7	4		1.02	0.82	0.4
	Non exposed	21	6	8	0		0.62		
Q22: Do your classmates treat you differently because of the disease?	Exposed	13	8	3	0	11	0.40	0.25	0.29
	Non exposed	19	4	0	0	12	0.11		

**[Table/Fig-2]:** Effect of distribution of sites of lesions on individual aspects of Vitiligo Impact Scale-22.

\*Participants not applicable to answer Q20 from exposed group were 3 and from non exposed group were 2. Similarly, for Q22 were 11 and 12 from exposed and non exposed group respectively; There are 4 categories of responses to every item ranging from 0-3, which indicate how much vitiligo affects patient's life. 0- Not at all 1-A Little 2-A Lot 3-Very much; NA: Not applicable

## DISCUSSION

In this study, it was observed that vitiligo had a negative impact on a lot of quality of life indicators which included their dietary decisions, dressing style, interpersonal relationships with friends, family and partner. It was also noticed that patients had deteriorated their self-confidence due to cosmetic appearance. There was financial constraint observed among patients due to expenses and long duration of treatment. Patients were concerned regarding the spread of their vitiligo lesions, especially those who had progressive disease. Social isolation was quite troublesome for patients and a sense of insecurity and shame was observed among them.

In the present study, out of 70 patients, females were 65.7% and males were 34.3%. In both the groups, exposed and non exposed majority participants were females. These results were similar to the studies done by Salzes C et al., and Silverberg and Silverberg NB in which 62% and 71% were females and 38% and 29% males, respectively [8,9]. However, in studies conducted by Sawant NS et al., Wang KY et al., Pahwa P et al., more participants were males [2,4,10]. The age range of participants in this study was 17-61 years out of which majority participants were young adults in age group 15-30 years. Similar findings were seen by Sawant NS et al., and Gupta V et al., [2,7]; whereas Şenov A et al., and Patvekar MA et al., showed more patients of middle age [1,11].

In the present study, in non exposed group 68.6% of patients were married in comparison to exposed group which is present in 51.4% patients. This difference could be due to the vitiligo lesion present at exposed sites resulting in marriage rejections. Majority of the patients in study were married as observed by Şenov A et al., Patvekar MA et al., [1,11] and while in contrast to study done by Aghaei S et al., most patients were unmarried [3]. Positive family

history was not seen in most of patients in this study and similar results were seen in studies done by Şenov A et al., Sawant N et al., and Patvekar MA et al., [1,2,11].

Educational status of most participants in our study was up till matriculation that is 40% and 42.9% in exposed and in non exposed, respectively; whereas in study performed by Bin Saif GA et al., majority of patients had an educational status till graduation (54.6%) and Amer A and Gao XH study revealed academic background of most patients up till intermediate class [6,12]. Most patients enrolled in the present study were employed, out of which household work and professionals were the most common occupation observed. These findings were contrary to study done by Şenov A et al., where 44% of patients were unemployed [1].

The mean VIS-22 was calculated in the present study group and was found to be 26.48. A higher mean VIS-22 was observed in the exposed group which was 31.51. The findings were comparable to study performed by Patvekar MA et al., with a mean VIS-22 score of 32.57 and higher VIS-22 score of patients having lesions over face (41.23) and upper extremities (38.07) [11].

In the present study, patients were having lesions on exposed sites had a higher mean VIS-22 score which indicated more impact on their social life in comparison to those having lesions on non exposed sites. This was similar to the findings done by Zandi S et al., in which, those having lesions on head, face and neck and acral areas had mean DLQI score of 7.091 and 9.45, respectively in comparison to lesions on trunk having DLQI score of 7.4 [13]. Contrasting results were observed by Ongenae K et al., where no co-relation between DLQI score and localisation of body site grouped according to visibility was found [14].

In the present study, mean score for domains like leisure and for interpersonal relationship, work, and school (Q12, Q21, Q22) was 1.07, 0.82 and 0.25, respectively and this was comparable to the study done by Wang KY et al., in which work and school was 0.97, leisure was 1.77 and interpersonal relationship score was 1.31 [4].

### Limitation(s)

The sample size of the study was small and hence, did not reflect the prevalence of the general population. Study population included only adults and hence could not establish the findings in children. Further studies with a larger sample size can be conducted in future.

### CONCLUSION(S)

A considerable effect on quality of life was observed in patients having lesions on exposed sites and they felt more depressed as compared to those having vitiligo lesions on non exposed sites. Expenses for treatment and fear of spreading of disease to other sites had similar effect on both the groups.

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