

# A Clinical Study of Vitiligo in a Rural Set Up of Gujarat

Rita V. Vora, Bhumi B. Patel, Arvind H. Chaudhary, Malay J. Mehta, Abhishek P. Pilani

Department of Skin and Venereal Diseases, Pramukh Swami Medical College, Karamsad, Gujarat, India

## ABSTRACT

**Introduction:** Vitiligo is an acquired depigmentary condition caused by inactivation or destruction of melanocytes in epidermis and hair follicle. Worldwide incidence of 1% has been reported; similar to various dermatological clinics in India. Widespread prejudice, ignorance, taboos, lack of scientific appraisal, and confusion of vitiligo with leprosy makes it an immense psychological stress. **Aim:** To know the clinical profile of vitiligo patient with associated cofactors. **Materials and Methods:** Total 1,010 patients of vitiligo attended in outpatient department at Shree Krishna Hospital (SKH) and Matar camp, Gujarat over 1 year period from August 2011 to July 2012 were included in this study. Detail history and clinical examination of patients were done. **Results:** Out of 1,010 patients 57.3% were females and 42.7 % were males. Most cases developed vitiligo by 2<sup>nd</sup> decade of life. Progressive course was found in 60.9 % of patients. Vitiligo vulgaris (57.8%) was most common morphological type. Most common site of onset (41.5%) and involvement (75.7%) was lower limb. Family history was present in 20.4%. **Conclusions:** Vitiligo constitutes important dermatological disease especially in India. The data suggest that local epidemiological behavior of vitiligo need not be the same across different regions. Vitiligo differs substantially in various clinical aspects.

**Keywords:** Clinical study, clinico-epidemiology, Gujarat, vitiligo

## Introduction

Vitiligo is an acquired depigmentary condition caused by inactivation or destruction of melanocytes in epidermis and hair follicle. Vitiligo is a common pigmentary disorder seen in our country.<sup>(1)</sup> It is an idiopathic, acquired, circumscribed hypomelanotic/demelanotic skin disorder, characterized by milky white patches of different sizes and shapes and affects 1-2% of the world population.<sup>(2)</sup> The incidence of vitiligo is found to be 0.25-2.5% in India. Gujarat and Rajasthan states have highest prevalence ~8.8%.<sup>(2)</sup> Widespread prejudices, ignorance, taboos, lack of scientific appraisal, and confusion of vitiligo with leprosy all make it a social

embarrassment for the patients.<sup>(3)</sup> This disorder does not result in restriction of capacity to work or expectancy of life, but it causes cosmetic disfigurement leading to psychological trauma to the patients.<sup>(1)</sup> Since Gujarat shows high prevalence of vitiligo in India, the present study was conducted to know the various clinical patterns, positive family history, and to find out the various skin disorders associated with it at rural setup near Anand, Gujarat.

## Materials and Methods

All new cases of idiopathic depigmented clinically diagnosed as vitiligo attended in outpatient department of dermatology, Shree Krishna Hospital, Karamsad and Matar camp, Gujarat over 1 year period were included in this study after consent of the patients. All depigmented patches observed since birth as well as acquired depigmented patches due to infections, physical trauma, chemical injury, burns, nutritional deficiency, inflammatory dermatosis, and drugs were excluded. Ethical approval was taken from Hospital Ethical Committee to conduct the study. The diagnosis

Access this article online	
Quick Response Code: 	Website: <a href="http://www.ijcm.org.in">www.ijcm.org.in</a>
	DOI: 10.4103/0970-0218.137150

### Address for correspondence:

Dr. Rita V Vora, Department of Skin and Venereal Diseases, Pramukh Swami Medical College, Karamsad-388 325, Gujarat, India.  
E-mail: ritavv@charutarhealth.org

Received: 20-06-13, Accepted: 27-12-13

was made clinically. Detailed history and meticulous examination of each patient was carried out and recorded. Specific emphasis was given on age of onset, duration of disease, site of onset, most common site, most common type of vitiligo, precipitating factors, presence of leukotrichia, Koebner's phenomenon, family history, and any other cutaneous or systemic illness. The sociodemographic profile of the patients was also recorded. Apart from routine blood and urine examination, blood sugar and thyroid function test were done whenever necessary. According to area of body part involvement, they were classified into vitiligo vulgaris, acrofacial, segmental, universal, and mucosal.

## Results

A total of 1,010 patients were included in the study. Among these 578 (57.3%) were female and 432 (42.7%) were male. The female to male ratio was 1.5:1 [Table 1]. The age at onset was found to be in the 2<sup>nd</sup> decade of life in 274 (27.0%) patients, while majority of patients belonged to the age group between 21 and 30 years - 251 (24.8%) [Table 2]. Mean duration of disease presentation was 1-5 years 559 (55.5%) [Table 3].

A positive family history was present in 204 (20.4 %) and 24 (2.4%) patients had more than one family member affected [Table 4]. Koebner's phenomenon was noted in 223 (22.0%) patients. Trauma 80 (8%) was the most common precipitating factor followed by itching 63 (6.3%), friction 25 (2.5%), and stress 15 (1.5%). Mixed precipitating factors were present in 40 (4.01%) patients and 787 (77.9%) patients had no precipitating factor. Out of the total, 923 (91.3%) patients were vegetarian and 87 (8.6%) patients were on mixed diet. Progressive disease was present in 618 (61.1%) patients; however, spontaneous regression was found in 72 (7.2%) patients.

Initial site of lesion in majority of patients was lower limb (417, 41.5%) followed by scalp (254, 25.2%), face (204, 20.2%), upper limb (119, 11.7%), and trunk (16, 1.5%). Most common site affected was lower limb (758, 75.4%), followed by upper limb (688, 68.3%),

**Table 1: Age group affected**

Age (years)	Female (%)	Male (%)	Total (%)
1-10	30 (2.9)	32 (3.1)	62 (6.0)
11-20	142 (14.0)	843 (8.3)	226 (22.3)
21-30	156 (15.5)	95 (9.3)	251 (24.8)
31-40	118 (11.7)	82 (8.2)	200 (19.9)
41-50	87 (8.7)	58 (5.8)	145 (14.5)
51-60	29 (2.95)	57 (5.7)	86 (8.6)
61-70	15 (1.5)	20 (2.0)	35 (3.5)
71-80	2 (2.0)	6 (0.6)	8 (0.8)
>80 years	0 (0.0)	1 (0.1)	1 (0.1)
Total	578 (57.3)	432 (42.7)	1,010 (100)

face (503, 50.0%), trunk (458, 45.7%), and genitals (67, 6.7%) [Table 5]. Vitiligo vulgaris (580, 57.8%) was the commonest morphological pattern, other pattern seen were acrofacial (277, 27.6%), segmental (69, 6.6%), universal (69, 6.9%), and mucosal (15, 1.5%) [Table 6]. Majority of patients had bilateral distribution (721, 71.6%) and 613 (61.3%) patients had less than 25% body surface area involvement. Leukotrichia was seen in 104 (10%) patients.

The associated cutaneous diseases noted in our study were alopecia areata (19, 1.9%), lichen planus (7, 0.7%), and eczema (10, 1.0%). [Table 7]

## Discussion

The untiring efforts of scientists, over a period of many years, have failed to lift up the curtain of ignorance till

**Table 2: Age at onset**

Age (years)	Female (%)	Male (%)	Total (%)
1-10	130 (12.8)	82 (8.0)	212 (20.8)
11-20	160 (15.8)	114 (11.2)	274 (27.0)
21-30	131 (13.1)	88 (8.8)	219 (21.9)
31-40	88 (8.7)	56 (5.5)	144 (14.2)
>40	69 (6.9)	92 (9.2)	161 (16.1)
Total	578 (57.3)	432 (42.7)	1,010 (100)

**Table 3: Duration of diseases**

Duration (years)	Male (%)	Female (%)	Total (%)
<1	23 (2.2)	34 (3.3)	57 (5.5)
1-5	256 (25.4)	303 (30.1)	559 (55.5)
6-10	73 (7.2)	119 (11.8)	192 (19.0)
11-15	38 (3.7)	60 (5.9)	98 (9.6)
16-20	15 (1.5)	30 (3.0)	45 (4.55)
>20	27 (2.7)	32 (3.2)	59 (5.9)

**Table 4: Family history**

Relation with patient	Total (%)
Father	30 (3.0)
Mother	100 (10.0)
Both (M/F)	10 (1.0)
Brother	34 (3.4)
Sister	30 (3.0)
Total	204 (20.4)
>1 Fm	24 (2.4)

M = Male, F = female

**Table 5: Site affected**

Site	Total (%)
Scalp	161 (15.6)
Face	503 (49.7)
Upper limb	688 (68.3)
Lower limb	758 (75.4)
Trunk	462 (45.7)
Genitals	67 (6.7)

**Table 6: Types of vitiligo**

Type	Total (%)
Vitiligo vulgaris	580 (57.4)
Acrofacial	277 (27.6)
Segmental	69 (6.6)
Universal	69 (6.9)
Mucosal	15 (1.5)

**Table 7: Associated dermatological condition**

Dermatological condition	Total (%)
Alopecia areata	19 (1.9)
Lichen planus	7 (0.7)
Eczema	10 (1.0)
Psoriasis	4 (0.4)
A. Vulgaris	9 (0.9)
Fungal infection	13 (1.3)
Herpes zoster	2 (0.2)
Urticaria	3 (0.3)
LSA	1 (0.1)
Nevus	1 (0.1)
Total	71 (7.1)

today and as we know, the etiology of vitiligo is still an enigma. Various theories of origin, genetic, toxic, neurogenic, and autoimmune have been proposed by different workers, yet none is definite.<sup>(4)</sup>

The prevalence of vitiligo is high in India, varying in range of 0.46-8.8%. The different ethnic backgrounds of population residing in different geographic region with different environmental condition may contribute to the wide variation in prevalence of vitiligo in India.<sup>(5)</sup>

The female to male ratio in our study was 1.5:1. Most of the other reports shown that males and females were affected with almost equal frequency,<sup>(2)</sup> which was different from that reported by Handa and Kaur, Koranne *et al.*,<sup>(6)</sup> and Khaitan *et al.*,<sup>(7)</sup> showed, male was more commonly affected than female. A few studies show slightly higher prevalence in female population.<sup>(3,5)</sup> The number of female vitiligo patients were found to be higher than male because women notice the change in appearance and approach the doctors sooner than men and of the social stigma in the community, young females tend to report earlier due to matrimonial anxiety.

In our study mean age of onset was 2<sup>nd</sup> decade of life, consistent with the most reports from India and the west.<sup>(2,6,8)</sup> This shows that the disease starts at a younger age in the Indian population. However, one study from Denmark showed the age of onset to be between 40 and 60 years.<sup>(9)</sup>

Genetic factors play an important role in manifestation of vitiligo. Though various studies indicate involvement of genetic factors, the patterns are not consistent with single locus Mendelian transmission, but appear to be polygenic. One hypothesis postulates that recessive alleles

at multiple unlinked autosomal loci interact epistatically in pathogenesis of vitiligo.<sup>(10)</sup> In our study, 204 (22.4%) patients had positive family history of vitiligo, 24 (2.4%) patients had more than one family member affected. Familial occurrence has been reported to vary from 5 to 30% in different studies.<sup>(2,11-13)</sup> human leucocyte antigen (HLA) type significantly related to family history and early onset of vitiligo.<sup>(14)</sup> Positive family history is considered to be a poor prognostic factor.<sup>(2)</sup>

In our study, lower extremities was the commonly involved site in majority (75.4%) of cases which support the finding of other studies.<sup>(2,12,14,15)</sup> Next commonest sites was upper limb followed by face, trunk, and scalp. Most common site of onset was lower extremity this finding also similar with study by Shajil *et al.*<sup>(2)</sup> However, Gao *et al.*, shows most common site is back,<sup>(16)</sup> Alissa *et al.*, showed face was the most common site of onset.<sup>(17)</sup> One study by Karelson *et al.*, of 155 adult patients shows most common site of onset was upper limb.<sup>(18)</sup>

Majority (60.9%) of the patients had progressive vitiligo at the time of presentation.

Vitiligo vulgaris (57.4%) was most common type observed in our study followed by acrofacial, segmental, universal, and mucosal vitiligo which is similar with other studies.<sup>(2,3,6,13,19)</sup> This indicates that the process of depigmentation, either immune-mediated or toxic may occur simultaneously or subsequently at various unrelated distant sites.

Koebner phenomenon was observed in 208 (20.8%) patients, while in other study it was between 5 and 16%.<sup>(7,18,19)</sup> Trauma was most common precipitating factor (8%) in our study followed by itching, friction, and stress. Leukotrichia was seen in 100 (10.00%) patients in our study. Study by Shajil *et al.*, it was around 9%.<sup>(2)</sup> Leukotrichia is considered to be a poor prognostic factor. Some studies shows higher prevalence.<sup>(17,20)</sup>

Vitiligo is associated with many systemic as well as cutaneous disorders. In our study most common was diabetes mellitus was found to be 1.7% in our study, whereas the reported value was 1.18-2%.<sup>(2,7)</sup> Hypertension were found in 1.7% of patients. thyroid disease was seen in seven (0.70%) patients, which was reported to be 0.94% in study done by Shajil *et al.*,<sup>(2)</sup> and 7.8% by Martis *et al.*,<sup>(3)</sup> most common thyroid disease associated with vitiligo is hypothyroidism and autoimmune thyroiditis.

Vitiligo occurs most commonly in the 3<sup>rd</sup> decade with a female preponderance and should be entitled to more than ordinary consideration. The data suggest that local epidemiological behavior of vitiligo need not be the same across different regions. Variations did exist with

regards to certain clinico-epidemiological parameters Gujarat viz., prevalence of concomitant diseases, extent of involvement, etc.

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**How to cite this article:** Vora RV, Patel BB, Chaudhary AH, Mehta MJ, Pilani AP. A clinical study of vitiligo in a rural set up of Gujarat. *Indian J Community Med* 2014;39:143-6.

**Source of Support:** Nil, **Conflict of Interest:** None declared.