

## **The Socio-demography and Clinical Profile of Vitiligo in Sudan.**

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### **Abstract:**

**Introduction:** Vitiligo is a chronic skin disease that causes loss of pigment, resulting in irregular pale patches of skin. The precise cause of vitiligo is complex and not fully understood. There is some evidence suggesting it is caused by a combination of auto-immune, genetic, and environmental factors. The population incidence worldwide is considered to be between 0.1% and 2%. The disease has different clinical types but generally, it consists of areas of macular depigmentation, commonly on extensor aspects of extremities, on the face or neck, and in skin folds.

Age of onset is often in young adulthood and the condition tends to progress gradually with lesions enlarging and extending until a quiescent state is reached.

**Objective:** To define the socio-demography and clinical profile of vitiligo in Sudan. **Study design:** This study is a cross-sectional, clinico-epidemiological and hospital-based study, done in Khartoum Dermatologic Hospital (KDH). The data were collected between June 2007 and November 2007.

**Results:** The total number of patients with vitiligo in the study was 113. Male patients were 47 (42%). Children were 13 (11%), adults were 90 (80%) and elderlies were 10 (9%). The mean age of onset of the disease was found to be 11.5 yrs in 22.5% of the patients. Patients with acute (< 1 yr) disease were 6 (5.4 %), while those with chronic ( $\geq$  1 yr) disease were 107 (94.6 %). The most commonly affected tribe was Alгаа'liyeen tribe (27 %). The commonest precipitating factor for vitiligo has been found to be emotional disturbances (in 27 % of patients). Commonest symptom of the disease was depigmented patch/es (64.8 %). Severe ( $\geq$ 10 %) involvement of skin surface area was found in 59 % of patients, while mild (<10 %) involvement was found in 41 %. Koebner sign was found to be present in 42 % of patients. The disease was active in 47.3 % of patients. The bilaterally symmetrical pattern of distribution was the commonest pattern (in 85 %). The commonest clinical type of vitiligo was the generalized type (82.3 %). 35 % of patients with vitiligo had positive family history.

**Conclusion:** The clinical profile of vitiligo in Sudan was not so different from that found worldwide.

**Key words:** Vitiligo; Clinical profile; Khartoum Dermatologic Hospital (KDH).

**V**itiligo is the most common pigmentary disorder worldwide affecting 0.1-2% of the world's population, irrespective of race and gender<sup>1</sup>.

It is a chronic skin condition that causes loss of pigment, resulting in irregular pale patches of skin. The precise cause of vitiligo is complex and not fully understood. There is some evidence suggesting it is caused by a combination of auto-immune, genetic, and environmental factors. Vitiligo is characterized by the appearance of patchy

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discoloration evident in the form of typical chalky-white or milky macule(s). The macules are rounded and / or oval in shape, often with scalloped margins<sup>2, 3</sup>. The size of the macules may vary from a few millimeters to several centimeters with the lesions affecting the skin and / or mucous membranes. By large, the lesions are asymptomatic, although itching / burning may precede or accompany the onset of the lesions in a few patients<sup>3, 4</sup>. Vitiligo is a slow and progressive disease and may have remissions and exacerbations correlating with triggering events<sup>3, 5</sup>. Occasionally, the lesions of vitiligo may begin to form around a pigmented nevus [Sutton's nevus, leukoderma aquisitum centrifugum] and then go on to affect distant regions<sup>6-8</sup>.

Although any part of the skin and / or mucous membranes is amenable to develop vitiligo, the disease has a predilection for normal hyperpigmented regions such as the face, groin, axillae, aerolae and genitalia. Furthermore, lesions may develop in other areas like the ankles, elbows, knees, which are subjected to repeated trauma / friction, an outcome of Koebner's phenomenon<sup>9</sup>. Poliosis circumscripta, as well as canities and premature graying, can be observed; mucosae are rarely involved. In the event of extensive disease, the lesions are symmetrically distributed with an exclusive dermatomal distribution or mucous membrane involvement<sup>10</sup>. Lip-tip syndrome, another variant of vitiligo is characterized by depigmentation of the terminal phalanges and the lips. Vitiligo may show morphological variations in the form of: trichrome, quadri-chrome, penta-chrome or blue vitiligo.

Nordlund established a clinical classification based on distribution and extension of lesions<sup>11</sup>. Three types have been delineated: localized, generalized and universal vitiligo.

#### **Methodology:**

##### **Study area and duration:**

The study was enrolled in Khartoum Dermatologic Hospital (KDH), between July 2007 and November 2007. KDH is the biggest dermatological hospital in Sudan. It

provides medical care for patients coming from all states of the country. The number of patients daily attending the out-patient clinic of this hospital ranges from 200 to 300 patients.

##### **Study population:**

The population of this study was the patients with vitiligo attended the hospital in the above mentioned period. All Sudanese patients were included regardless to age, sex, race, religion, social status or occupation.

##### **Exclusion criteria:**

- 1- Foreign patients.
- 2- Those with depigmentation caused by chemicals, burns or other disease/s.

##### **Sampling and data collection:**

All patients with vitiligo were sequentially included in this study. Consent was taken from the patient before he / she was studied. The diagnosis was made by experienced dermatologists and was essentially clinical. A complete history regarding age, sex, tribe, age of onset, duration, precipitating factors, first symptoms and family history was taken. A thorough clinical examination was done. The site and pattern of the lesions were noted as well as the activity of the disease which was evidenced by the appearance of new lesions and/or increase in the size of pre-existing lesions over the past six months. The percentage of the affected skin was assessed by using the palmar size of the patient which equals 1% of the total body surface. The cases were classified into six groups according to the standard Nordlund classification of clinical types of vitiligo [11]. Presence of leukotrichia and Koebner phenomenon were noted.

##### **Results:**

The total number of patients with vitiligo in the study was 113. Male patients were 47 (42%). Children were 13 (11%), adults were 90 (80%) and elderlies were 10 (9%) [Table (1)].

The mean age of onset of the disease was 11.5 yrs in 22.5% of the patients [Fig.(1)]. Patients with acute (< 1 yr) disease were 6 (5.4 %) patients, while those with chronic ( $\geq$  1 yr) disease were 107 (94.6 %).

**Table (1):** Numbers and frequency of Vitiligo patients by sex & age-group

Factor	Level	Frequency	N
Sex	male	42 %	47
	female	58 %	66
	Total	100 %	113
Age group	children (<12yrs)	11 %	13
	adults (≥ 12yrs)	80 %	90
	elderlies (> 60yrs)	9 %	10
	Total	100 %	113

Frequency of Age Onset in patients with Vitiligo.

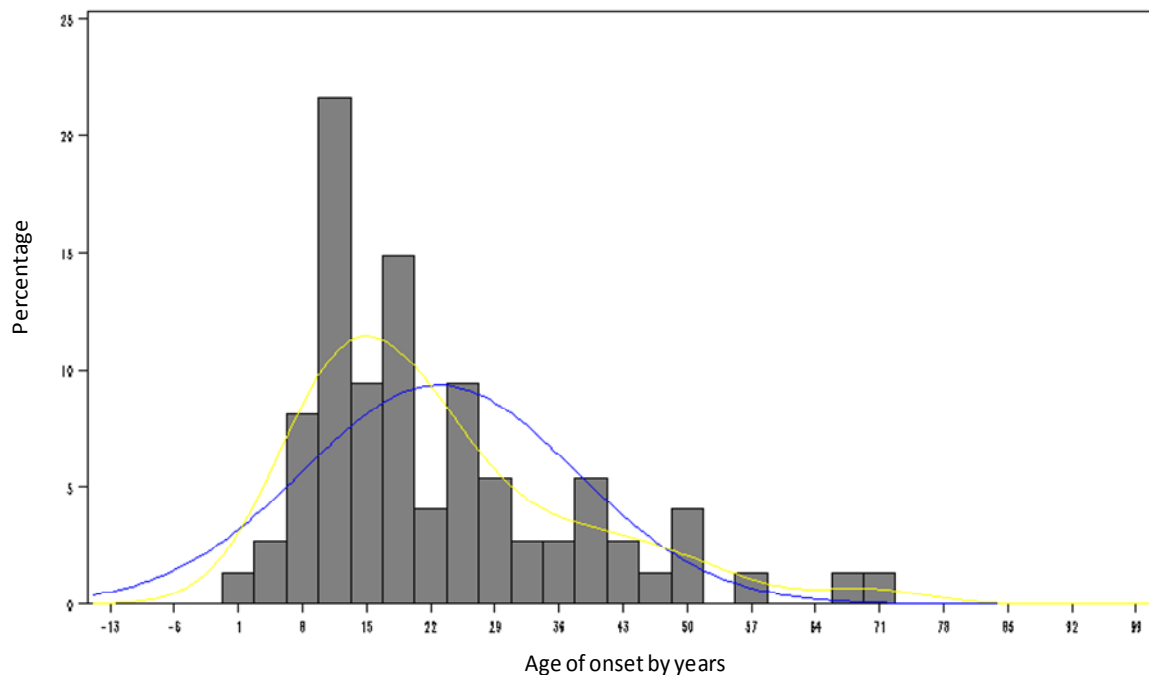


Figure (1)

The most commonly affected tribe was Alгаа’liyeen tribe (27 %), followed by Alshaygiah, Almahas and Alkawahlah tribes (6 % each), and the less affected tribes were Taragmah, Tenger and Abdallab ( 0.88 % each) [Fig.(2)].

No precipitating factor for vitiligo was found in 73 (65 %) patients, while the disease

was precipitated by emotional disturbances in 31 (27 %) and by trauma in 9 (8 %)

Commonest symptom of the disease were depigmented patch/es (64.8 %), hypo pigmented patch/es (19 %), mucus membranes involvement (13.5 %) and finally white hair (2.7 %) involvement .

Severe (≥10 %) involvement of skin surface area was found in 59 % of patients.

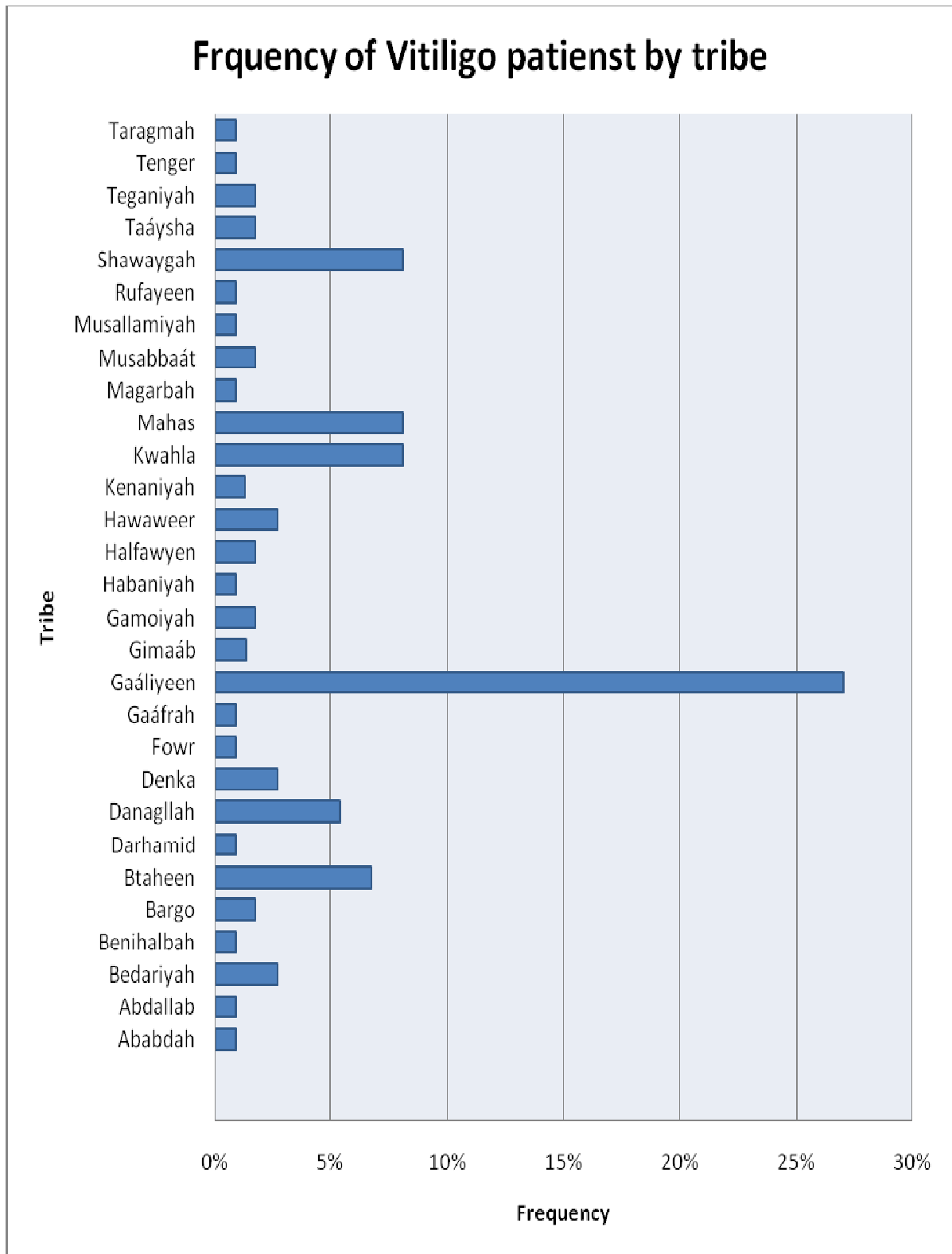


Figure (2)

Koebner sign was present in 42 % of patients. The disease was active (i.e. onset of new lesion/s and /or increase in size in pre-existing lesions in last 6 months) in 47.3 % .

**Table (2):** Numbers and frequency of Vitiligo patients by pattern of lesions' distribution

Level	Frequency	N
Solitary	1.4 %	2
Unilateral	0.0 %	0
Bilaterally asymmetrical	13.6 %	15
Bilaterally symmetrical	85 %	96
<b>Total</b>	<b>100 %</b>	<b>113</b>

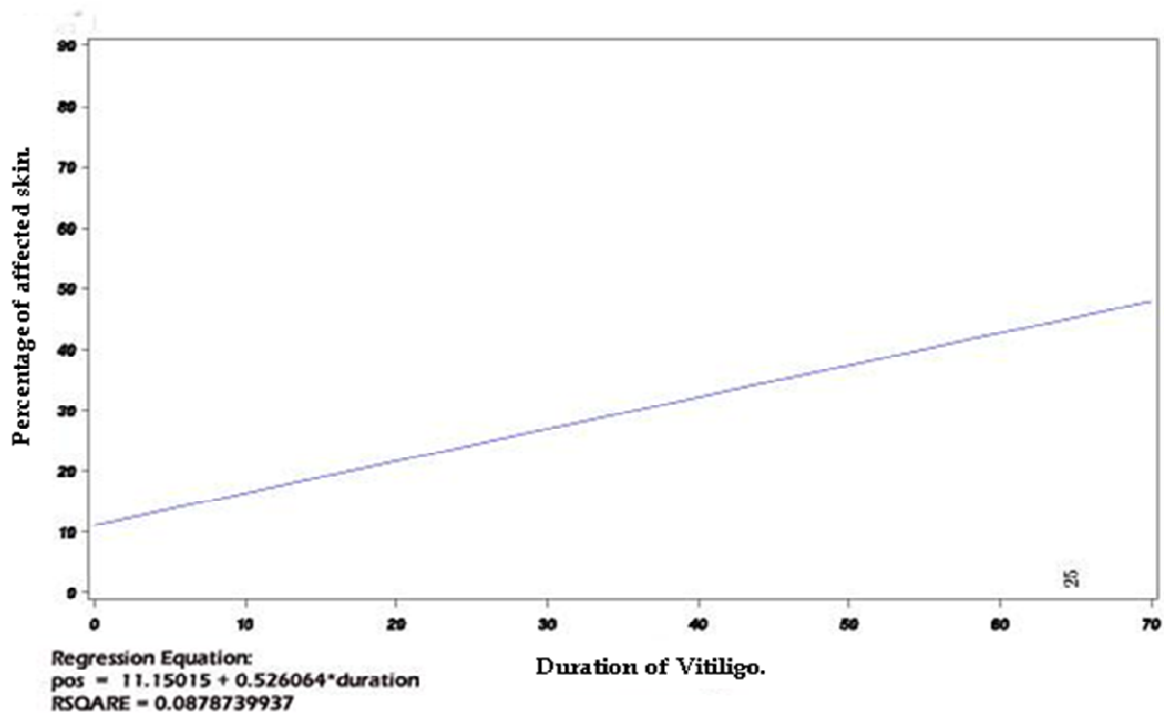
Lesions of the disease had a bilaterally symmetrical pattern of distribution in 85 % [Table(2)].

The commonest clinical type of vitiligo was found to be the generalized type (82.3 %), followed by the universal type (7 %), followed by acrofacial type (5.3 %) and finally the focal and segmental types (2.7 % each)

35 % of patients with vitiligo had positive family history. Patients with positive family history in a 1<sup>st</sup> degree relative were 6.7 %, those with 2<sup>nd</sup> degree relative were 9.5 %, while those with 3<sup>rd</sup> degree relative were 18.8 % .

When the duration of the disease was correlated with the size of the affected areas a positive correlation was obtained and it has been suggested that the disease is progressive in nature [Fig. (3)].

Fig. (3): Relationship between Percentage of affected skin & Duration of Vitiligo.



## Discussion:

Females were found to be slightly more affected than males (58 % and 42 % respectively). Same result was found in Kuwait<sup>12</sup>. The disease generally has no predilection for any sex as was noted in USA<sup>13</sup>. We feel that the observed female preponderance in our cases is presumably for two reasons; first, the higher cosmetic concern among female patients and the relatively more time they have for long-term therapy allowing them to seek active treatment more often; and second, males being bread earners in contemporary societies, must work all day long throughout the year and this makes them relatively unconcerned or so busy to consult for the treatment of vitiligo.

The commonest age of onset of vitiligo in this study (11.5 yrs) is similar to a report from India and elsewhere<sup>14, 15</sup>. Onset of vitiligo at birth was not detected in this study.

Although vitiligo affects all races and ethnic groups equally<sup>12</sup>, it has been found in this study that the disease is more common in some tribes (e.g. Al gaa'liyeen, Alshaygiah, Almahas and Alkawahlah tribes) than other ones like, Denka, Fowr and Bargo tribes. This may be because of demographic distribution and the feasibility to reach the KDH.

Emotional disturbances and trauma – found in 27% and 8% of patients respectively – were highlighted in this study as possible precipitating factors of vitiligo. Trauma was also detected as a precipitating factor by Ki HG in South Korea in 3.8 % of his patients<sup>16</sup>. The role of emotional disturbances and trauma – plus other factors - was well emphasized in literature<sup>14, 17</sup>. However, vitiligo does occur without obvious cause or precipitating factor in the majority of patients.

Vitiligo in the study was found to be progressive in severity. Seung-Kyung reported similar finding in 88.8% of his patients<sup>18</sup>.

Vitiligo is one of the skin conditions associated with isomorphic Koebner phenomenon, whereby local trauma to the skin (e.g. rubbing) can induce depigmented

patches. Koebner phenomenon can indicate progression of vitiligo<sup>18</sup>. Koebner sign was found to be present in 42 % of patients in this study. This figure is higher than reports from other parts of the world<sup>12, 19</sup>. The high percentage of Koebner sign in this study may be because the majority (80%) of patients were adults, who are more vulnerable to exercise and trauma.

Lesions of the disease, in this study, have a bilaterally symmetrical pattern of distribution in 85 % of patients, especially those with severe (>10%) skin involvement. This is consistent with other reports<sup>10, 20</sup>.

The disease was active in 47.3% of our patients. N. Al-Mutairi in Kuwait reported activity of the disease in 87% of his patients<sup>12</sup>. Although, it is well known that vitiligo has a highly unpredictable natural course, in this study the skin involved by the disease was found to increase progressively with the duration of the disease [Fig.(3)]. However, this positive correlation is statistically insignificant (R square <1).

The widely used Nordlund classification of vitiligo was used in this study. Generalized vitiligo (vitiligo vulgaris) was the most commonly seen clinical type in our patients. This goes with reports from some parts of the world<sup>12, 21</sup> but is different from Dogra findings<sup>18</sup>. However, with the present state of our knowledge it is difficult to comprehend the mechanisms and determinants underlying varying clinical patterns of vitiligo seen in different patients.

Patients with positive family history were found to be 35%. This is higher than reports in literature<sup>12, 16, 17, 20, 22</sup>. We believe that the relatively high percentage of family history in this study is due to high incidence of consanguineous marriage in this country.

## Conclusion:

The clinical profile of vitiligo in Sudan was found to be not so different from that worldwide.

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