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### Pattern of skin diseases at Riyadh Military Hospital

Abdulrahman Y. Al-Zoman<sup>1</sup> MD, Facharizt, Abdulrahman K. Al-Asmari<sup>2</sup> MSC, PhD

Dermatology Department<sup>1</sup> and Research Center<sup>2</sup>, Riyadh Military Hospital, Riyadh, Saudi Arabia

**correspondence:**

Abdulrahman Al-Asmari , Research Center, Riyadh Military Hospital, Riyadh, Saudi Arabia

E. mail address: [akasmari@medu.net.sa](mailto:akasmari@medu.net.sa)

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### Abstract

**Objective:** Skin problems are one of the common health problems seen in the developing countries. A retrospective study was undertaken to determine the pattern of skin diseases during the period 2001-2005 at the Dermatology Clinics of a major tertiary hospital in the central region of Saudi Arabia.

**Methods:** Retrospective data were collected from medical records of patients for determining the pattern of common dermatological disorders seen in patients reporting at the Riyadh Military Hospital (RMH) during the period 2001-2005. RMH is a major tertiary hospital in the Central region of Saudi Arabia.

**Results:** During the five year period (2001-2005), a total of 58450 cases were seen at the dermatological clinics of RMH. The incidence of dermatological diseases was more in female patients 34123 (58.38%) than male patients 24327 (41.62%). Most of the cases were clinically diagnosed. The highest number of patients was in the age group of 41-50 years. Dermatitis/ Eczemas was the most common skin disorder (21.29%) followed by diseases of the hair (11.9%) and acne (11.88%). Cutaneous infections due to viruses, bacteria and fungi were seen in 9.70%, 2.97% and 4.5% of the patients respectively. The erythematous diseases of the skin were recorded in only 4.61% of the patients; psoriasis (2.47%) was predominantly seen in this group of patient. On the other hand out of 10.20% patients who had pigmentary disorders 3.2% were affected by inflammatory hyper pigmentation, 2.69% patients had vitiligo and 2.47% showed melasma.

**Conclusions:** Most of the patients with skin disorders reporting to dermatology clinics of the Riyadh Military Hospital were of Arab origin and the number of women was more than

men. Dermatitis/ Eczemas, acne and diseases of the hair were the most common disorders in our series of patients, while the incidence of vitiligo, psoriasis and skin tumors was comparatively less. A comparison with other regions of the Kingdom also showed dermatitis to be the most common and predominant skin disorder seen in the different regions of the Kingdom. However the occurrence of acne, bacterial and viral infections, and vitiligo showed regional variations.

## Introduction

The incidence of skin diseases differs widely in various geographical locations, presumably influenced by racial and environmental factors. There are few published reports on the pattern of skin diseases in general[1,2,3,4]. Riyadh is one of the major cities in Central Region of Saudi Arabia. The military hospital is one of the largest government hospitals in Riyadh region catering for military personnel and their families, as well as non-military personnel. The hospital offers secondary and tertiary care, and is equipped with modern and sophisticated facilities. The epidemiological survey of medical problems is important in the practice of general medicine because of continual changes in life style, population size, age distribution and in the quality of health care services. Skin disorders can cause considerable morbidity in elderly people[5]. An early diagnosis and identification of these conditions that are mostly curable by treatment is important as this not only helps in treating the patients but also helps in preventing the spread of communicable diseases[6]. It is necessary for any dermatologist to know the epidemiological background of common skin diseases[3].

The aim of this study is to review the pattern of skin diseases seen at the dermatology clinics at Riyadh Military Hospital during the period 2001-2005.

## Methods

Riyadh Military Hospital is one of the main specialized centers of dermatology run by the Medical Services Department of the Ministry of Defense and Aviation, in the central region of Saudi Arabia. All the cases in the outpatient clinics as well as indoor consultations from various departments are seen by qualified dermatologists. A retrospective study was carried out at the hospital for the period between January 2001 and December 2005. This study was approved by the hospital ethics committee. The medical records of all patients visiting the skin clinics during the study period were reviewed. No inclusion or exclusion criteria were applied. A total of 58450 files were examined. The information on age, sex, nationality and incidence of various skin disorders were collected from the medical records by using a designed questionnaire. Data analysis was carried out using Microsoft Excel and Graph pad prism.

## Results

During the study period i.e. 2001 - 2005, 58450 patients with different dermatological diseases presented to outpatient clinics of the dermatology department at the Riyadh Military Hospital. 24327 (41.62%) of the patients were males and 34123 (58.38%) were females with a male/female ratio of 1:1.4.

Non infective disorders including eczema, acne, pigmentary disorders, and erythemasquamous skin disorders were seen in around 60% of the patients, while skin diseases due to infection were seen in around 18% of the patients. Other miscellaneous diseases were recorded in around 17% of the patients.

The different skin diseases diagnosed are shown in **Table 1**. The diseases included different types of eczema (21.29%), infectious diseases (17.48%), pigmentary disorders (10.20%), erythematous and erythematous diseases of skin (4.61%), disorders of skin appendages (13.07%), hair diseases (11.90%), vascular disorders (0.18%), urticaria (1.55%), tumors 2.17%, bullous disorders (0.14%), connective tissue diseases (0.88%) and other miscellaneous diseases (16.55%).

In the eczema dermatitis group, atopic dermatitis (40.10%) was the most common followed by seborrheic dermatitis (29.76%) and contact dermatitis (20.20%).

Among the infectious skin diseases viral infection (9.7%) was the most common followed by fungal (4.5%) and bacterial (2.97%) infections. Viral warts accounted for around 88% of the viral infections followed by Molluscum contagiosum (4.07%), Herpes zoster (3.33%), and Herpes simplex (1.81%).

Pityrosporon folliculitis (30.90%) was the major dermatomycoses among the fungal diseases followed by Candidal intertrigo (16.42%), Onychomycosis (11.85%) and Tinea pedis (11.52%).

Psoriasis was the most common erythematous disorder accounting for 53.4% of the cases in that group followed by dermatoses due to Lichen planus (24.7%), Pityriasis rosea (6.15%) and Acanthosis nigricans (6.11%).

Among the pigmentary disorders post inflammatory hyperpigmentation was the major disorder accounting for 38.41% of the patients in that group followed by Vitiligo (26.37%) and Melasma (24.19%).

The details regarding different races of the patients who reported to the dermatology clinic are shown in **Table 2**. Arabs, including Saudi citizens constituted the majority of patients at 57286 (98.01%) with non-Arabs numbering only 1164 (1.99%). Women outnumbered men irrespective of nationality (**Table 2**). The sex distribution was done according to the age range. Dermatological diseases were seen more in the female than male.

Skin disorders were recorded in a large number of patients between 41 and 50 years of age (32.77%) followed by 21 and 30 years (18.32%), 31- 40 years (16.01%) and 11- 20 (15.53%) age groups respectively. On the other hand the frequency of skin diseases was less in patients of the age groups between 51- 60 years (4.16%) and 61-70 (2.2%) (**Table 3**).

A comparative incidence of few common dermatoses in different regions of Saudi Arabia and cities of different countries are shown in **Table 4** and **Table 5**.

Skin Disorders	Diagnosis	Total	Male	Female	%
<b>Dermatitis / Eczemas and related</b>	Atopic dermatitis	4991	2563	2428	8.54
	Contact dermatitis	2514	1060	1454	4.3
	Seborrheic dermatitis	3704	1519	2185	6.3
	Lichen simplex chronicus	629	323	306	1.08
	Actinic keratosis	8	4	4	0.01
	Keratosis pilaris	115	39	76	0.2
	Dariers Disease	4	3	1	0.01
	Subcorneal pustular dermatosis	5	2	3	0.01
	Pityriasis alba	310	172	138	0.53
	Seborrheic keratosis	164	78	86	0.28
	<b>Total</b>	<b>12444</b>	<b>5763</b>	<b>6681</b>	<b>21.29</b>
<b>Infectious diseases</b>					
<b>Bacterial</b>	Folliculitis	1621	644	977	2.78
	Pyoderma	23	10	13	0.04
	Erythrasma	38	17	21	0.07
	Leprosy	3	1	2	0.01
	Lupus vulgaris	9	3	6	0.02
	Erysipelas	38	18	20	0.04
	Carbuncle	1	0	1	0
	Staphylococcal Scaled Skin Syndrome (SSSS)	1	0	1	0
	Bullous impetigo	3	1	2	0.01
	<b>Total</b>	<b>1737</b>	<b>694</b>	<b>1043</b>	<b>2.97</b>
	<b>Viral</b>	Warts	5046	2806	2240
Hand, foot and mouth disease		3	1	2	0.01
Chickenpox		71	39	32	0.12
Herpes simplex		103	51	52	0.18
Eczema Herpeticum		12	6	6	0.02
Herpes Zoster		189	103	86	0.32
Molluscum contagiosum		231	123	108	0.4
ORF		16	10	6	0.03
<b>Total</b>		<b>5671</b>	<b>3139</b>	<b>2532</b>	<b>9.7</b>

**Table 1 (to be continued) : Some Common Skin diseases seen at Riyadh Military Hospital, Riyadh**

Skin Disorders	Diagnosis	Total	Male	Female	%	
<b>Fungal (Dermatomycosea)</b>	Candidiasis	83	35	48	0.14	
	Onychomycosis	304	131	173	0.52	
	Tinea capitis	303	159	144	0.52	
	Tinea corporis	243	128	115	0.42	
	Tinea pedis	416	189	227	0.71	
	Tinea Faciei	3	0	3	0.01	
	Tinea Manuum	26	5	21	0.05	
	Intertrigo	432	191	241	0.74	
	Pityrosporon Folliculitis	813	260	553	1.39	
	Actinomycosis	1	1	0	0	
	Mycetoma	7	3	4	0.01	
	Total	2631	1102	1529	4.5	
	<b>Parasitic</b>	Total	177	95	82	0.3
	<b>Erythematous &amp; Erythematouquamous Disease of skin</b>	Erythema Elevatum diutinum	2	0	2	0
		Pityriasis lichenoides acuta	8	8		0.01
Pityriasis lichenoides chronica		39	19	20	0.07	
Pityriasis rubra pilaris		12	8	4	0.02	
Acanthosis nigricans		165	54	111	0.28	
Lichen planus		663	340	323	1.14	
Keratoderma		37	13	24	0.06	
Psoriasis (Vulgaris, Pustular)		1441	752	689	2.47	
Pityriasis rosea		166	84	82	0.28	
Dermatosis Papulosa Nigra		51	12	39	0.09	
Erythema Induratum (Bazin)		2	0	2	0	
Ichthyosis		112	66	46	0.19	
Total		2698	1356	1342	4.61	

**Table 1 (continued) : Some Common Skin diseases seen at Riyadh Military Hospital, Riyadh**

Skin Disorders	Diagnosis	Total	Male	Female	%
<b>Pigmentary Disorders</b>	Freckles/Café-au-lait	359	90	269	0.61
	Melanocytic nevi	89	32	57	0.15
	Melasma	1443	376	1067	2.47
	Pigmentation	13	5	8	0.02
	Post inflammatory hyperpigmentation	2291	752	1539	3.92
	Post inflammatory hypopigmentation	196	98	98	0.34
	Vitiligo	1573	806	767	2.69
	<b>Total</b>	<b>5964</b>	<b>2159</b>	<b>3805</b>	<b>10.2</b>
<b>Disorder of Skin appendages</b>					
<b>Diseases of the sebaceous Follicles</b>	Acne	6943	2584	4359	11.88
	Rosacea	523	141	382	0.9
	Perioral Dermatitis	169	62	107	0.29
	<b>Total</b>	<b>7635</b>	<b>2787</b>	<b>4848</b>	<b>13.07</b>
<b>Diseases of the Hair</b>	<b>Total</b>	<b>6953</b>	<b>1971</b>	<b>4982</b>	<b>11.9</b>
<b>Vascular disorders</b>	<b>Total</b>	<b>105</b>	<b>48</b>	<b>57</b>	<b>0.18</b>
<b>Urticaria</b>	<b>Total</b>	<b>903</b>	<b>380</b>	<b>523</b>	<b>1.55</b>
<b>Tumours</b>	<b>Total</b>	<b>1266</b>	<b>621</b>	<b>645</b>	<b>2.17</b>
<b>Bullous disorder</b>	<b>Total</b>	<b>80</b>	<b>46</b>	<b>34</b>	<b>0.14</b>
<b>Connective tissue Disease</b>	<b>Total</b>	<b>515</b>	<b>238</b>	<b>277</b>	<b>0.88</b>
<b>Other diseases</b>	<b>Total</b>	<b>9671</b>	<b>3928</b>	<b>5743</b>	<b>16.55</b>
<b>Total</b>	<b>Total</b>	<b>58450</b>	<b>24327</b>	<b>34123</b>	<b>100</b>

**Table 1 (continued) : Some Common Skin diseases seen at Riyadh Military Hospital, Riyadh**

Race	Total	Male	Female	%
<b>Africans</b>	78	31	47	0.133
<b>Americans</b>	25	9	16	0.04
<b>Arabs</b>	57286	24058	33228	98.01
<b>Asians</b>	801	159	642	1.37
<b>Australians</b>	24	4	20	0.04
<b>Europeans</b>	208	53	155	0.36
<b>Others</b>	28	13	15	0.05
<b>Total</b>	<b>58450</b>	<b>24327</b>	<b>34123</b>	<b>100</b>

**Table 2 : Distribution of patients according to race**

Age group	Total	%	Male	Female
1-10	5763	9.86	3122	2641
11-20	9079	15.53	3723	5356
21-30	10706	18.32	3933	6773
31-40	9359	16.01	3711	5648
41-50	19156	32.77	7924	11232
51-60	2429	4.16	927	1502
61-70	1280	2.2	596	684
71-80	486	0.83	275	211
81-90	154	0.26	90	64
91-100	30	0.05	22	8
101-110	8	0.01	4	4
<b>Total</b>	<b>58450</b>	<b>100</b>	<b>24327</b>	<b>34123</b>

**Table 3 : Age group distribution according to sex**

Skin disorders	Riy	Ab <sup>a</sup>	Jou <sup>b</sup>	Ha <sup>b</sup>	Jed <sup>b</sup>	Naj <sup>b</sup>	E. PR <sup>b</sup>	Mak <sup>a</sup>	Asr <sup>b</sup>
<b>Dermatitis</b>	21.29	25.68	34.14	16.3	18.64	37	19.6	23.8	25.7
<b>Acne</b>	11.88	5.45	9.57	12.4	9.48	12.8	13.8	4.8	5.4
<b>Viral warts</b>	8.64	2.49	2.85	8.4	6.78	6	11.9	2.5	2.5
<b>Bacterial infections</b>	2.97	13.19	10.87	2.8	7.65	5	4.8	11.2	13.2
<b>Vitiligo</b>	2.69	3.03	3.35	3.9	3.12	7	5	0.7	3
<b>Psoriasis</b>	2.47	2.1	5.33	3.6	3.01	1.5	3.4	1.8	2.1
<b>Lichen planus</b>	1.14	1.32	1.21	1.2	0.64	1.1	1.7	0.7	1.3

<sup>a</sup>: reference No [10], <sup>b</sup>: reference No [11] **Riy**: Riyadh, **Ab**: Abha, **Jou**: Al-Jouf, **Ha**: Hail, **Jed**: Jeddah, **Naj**: Najran, **E.PR**: Eastern Province, **Mak**: Makkah and **Asr**: Asir.

**Table 4: Comparison of incidence (%) of some common skin diseases in Riyadh and other regions of Saudi Arabia**

Skin Disorder	Riyadh %	Abu Dhabi <sup>[1]</sup> %	Doha <sup>[1]</sup> %	Calcutta <sup>[1]</sup> %	Bamako <sup>[1]</sup> %	Canada <sup>[11]</sup> %	Kenya <sup>[10]</sup> %
<b>Dermatitis</b>	21.29	20.98	24.64	15.2	20.4	39.2	28.1
<b>Acne</b>	11.88	9.07	8.4	3.5	4.2	7.3	3.9
<b>Viral warts</b>	8.64	5.47	9.9	2	0.9	6.8	2
<b>Bacterial infection</b>	2.97	2.55	2.6	30-40	5.9	5.7	6.4
<b>Vitiligo</b>	2.69	3.18	1.9	4	0.9	-	2.9
<b>Psoriasis</b>	2.47	4.49	1.9	0.5-1.5	0.5	4.7	3.2
<b>Lichen planus</b>	1.14	0.95	0.5	0.5-1.5	0.8	-	1.6

[1],[11],[10]: references

**Table 5 :** Comparison of incidence (%) of some common dermatoses in different studies

## Discussion.

The current study is the first to describe the pattern of skin diseases in RMH as a referral center for primary clinics in the central region of the Kingdom of Saudi Arabia. Although this study was limited to a single hospital, we believe that the results represent a rough estimate of the incidence of skin diseases in central region and that the distribution of dermatoses according to age and sex reflect the true incidence. The results indicate that skin diseases in Riyadh Military Hospital (RMH) are more predominant in women which are in agreement with earlier report[7]. This could be partly due to the greater awareness of Saudi women of health issues in general. The pattern of skin diseases differs from one locality to another due to many factors and variables[1]. We compared our results with data of studies from other regions of KSA and data from Arabian Gulf, Asian, and African countries. These countries include United Arab Emirates (Abu-Dhabi), Qatar (Doha), India (Calcutta), and Mali (Bamako) as shown in **Table 4** and **5**. The results of the present study were comparable with similar published studies from other regions of Saudi Arabia. **Table 4** shows a comparison of the incidence of some common dermatoses in different regions of Saudi Arabia. One of the most common skin disease observed was different types of eczemas seen in our study (we found that atopic dermatitis counts were highest (40.11%) followed by seborrheic dermatitis (29.76%) then contact dermatitis, (both are allergic and of cumulative types). Contact dermatitis is also one of the commonest skin disorders worldwide, as shown by studies from industrialized countries[8,9]. However viral, bacterial, parasitic and fungal skin infections are more prevalent in some developing countries[6]. In the present study we found that the bacterial infections and vitiligo was lower in the central region than other regions, but the incidence of viral warts was higher than other regions except eastern province (**Table 4**). The incidence of dermatitis/eczema was similar to that observed in Abu Dhabi, Calcutta and Bamako[1] but higher percentage was reported from

Doha, Canada and Kenya[1,10,11]. The cases of bacterial infections accounted for 2-3% of the total number in our study, similar to that reported from Doha and Abu Dhabi[8] but were more in Western and Asian countries (**Table 5**). The incidence of skin tumors in RMH (Riyadh Military Hospital) is less compared to Southern region,[1]. The southern region has a different weather and it is comparatively less hot during summer, while Riyadh is very hot reaching up to 50 ° C . This might be related to the type of variation between the sun rays in high altitudes. The incidence of all forms of skin tumors among the white population is increasing worldwide as a result of increased exposure to sun[12,13,14]. The fewer incidences of skin tumors in the Islamic world may be due to the way of dressing, which discourages body exposure, especially in women[5]. Acne has a high morbidity among young population especially women and cosmetic and psychological effects might be the main cause[15]. The cases of acne made up 11.88% of all skin diseases in this study, which is similar to that reported from Abu Dhabi[1] (9.07%) but this number was higher than that of other Saudi Arabian region[16]. Stress, seasonal variation and pre-menstrual period may affect the severity of acne vulgaris. Females had higher prevalence than males[16]. This could be because of a higher consciousness of self image among the youth in those countries and the easy availability of free medical services, as well as perhaps the racial influence[2]. Many acne patients believed that their acne was exacerbated by certain aspects of diet including chocolate, fatty food, fried food, eggs, cakes and biscuits, spices, coffee and tea [15]. Psoriasis and vitiligo (2.47% and 2.69%) are considered the two dermatological disorders mostly affecting the quality of life of patients with these problems. These diseases which make them depressed hiding their self from the social activities and wearing special clothes not allowing any lesion to be exposed as this may affect the future life and difficult to find a partner. The incidence of psoriasis (2.44%) is comparable to that of other studies[17], while vitiligo (2.69 %) was less recorded in our study compared with other investigations[1,10,18]. The incidence of viral warts in our study was higher than in other studies. This may be due to changes in place and environment. In conclusion, the incidence of skin diseases and conditions among females is very high and differed significantly among different age groups. Dermatitis and acne were the most common disorders in our study while the incidence of vitiligo; psoriasis and skin tumors were comparatively less. Our results showed no major differences in the incidence of skin diseases in the published reports from different regions in Saudi Arabia. Skin diseases cause considerable morbidity in elderly people; health promotion and education can do much to reduce the risks of these disorders in the elderly people.

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