

## Pattern of Skin Disorders Among Female Secondary School in Fallujah City

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### Abstract

**Introduction:** Adolescence is the transitional stage of physical and mental human development that occurs between childhood and adulthood. The pattern of skin disease in general varies in frequency and severity in different age groups and it differ with geographical locations due to environmental, race factors, sex and age.

**Objective:** To determine the pattern and severity of skin disease among adolescent female students in Fallujah city in order to understand the effect and the impact of skin diseases at this stage of life.

**Patients and Methods:** This is a cross sectional study of 400 adolescent female students with skin diseases in Fallujah secondary schools. The study was performed during the period from November 2009 - May 2010. The students were examined for the type of skin disorder and its severity.

**Results:** The majority of the patients had one skin disorder 62%; the remainder had 2 or more disorders. The most common skin diseases and conditions were the disease of skin appendages (with the acne being the most common one) followed by dermatitis and related conditions and then skin infections.

Acne was noticed in (30%) of students, affecting the face (95.5%) and trunk (4.5%). The next common disorder was hirsutism (25%), atopic dermatitis, (15%), diffuse hair loss (10%), dandruff (7.5%), warts (7.5%) and (scabies 7%).

A large number of acne patients had also hirsutism and to lesser extent dandruff and Androgenetic alopecia and these patients were found to have high free testosterone level and ultrasound appearance of polycystic ovary (PCO) which pointed to the diagnosis of Polycystic ovary syndrome (PCOS).

**Conclusion:** Skin diseases are common among adolescent female students in Fallujah city. The most common skin disorders at this age were acne and hirsutism which is of cosmetic importance, so early and proper management of these disorders is important to prevent the late disfiguring sequel and psychological problems.

**Key words:** skin, female, students

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### Introduction

Adolescence is the transitional stage of physical and mental human development that occurs between childhood and adulthood. This transition involves biological (i.e., pubertal), social and psychological changes, with the biological or physiological ones being the easiest to measure objectively. <sup>(1,2)</sup>

It usually begins between 11 and 13 years of age with the appearance of secondary sexual characteristics and spans the teenage years, terminating at 18 to 20 years of age with the completion of the development of the adult form. <sup>(3)</sup>

Skin diseases are common public health problems throughout the world. The pattern of skin disease in general varies in frequency and severity in different age groups and it differ with geographical locations, due to the environmental, race factors, sex and the age. <sup>(4)</sup>

The Adolescence period is associated with gross somatic and psychological changes in the body. The gonadotrophic releasing hormone (GRH) from hypothalamus stimulates pituitary gland to secrete FSH and LH; similarly ACTH from pituitary gland stimulates adrenal cortex to secrete glucocorticoid, mineralocorticoid and androgen. <sup>(5, 6, 7)</sup> Ovarian development in females occurs under the action of FSH and LH. The ovary in turn secrete estrogens that results in increase pigmentation of the skin. The net sum of these hormonal changes around the time of puberty is growth and development of sebaceous gland increase sebum production, development of apocrine glands, growth of pubic and axillary hair, appearance of hair in male pattern, seborrhea, dandruff and thinning of scalp hair. Increase distribution of terminal hair in androgen sensitive area and acne <sup>(6)</sup> these disorders occur with increased frequency and severity at this stage of life, combined with other dermatosis resulting from constitutional and exogenous factors such as eczema, folliculitis, bacterial and viral infection make these patients more vulnerable to psychological upset. Increase consciousness of youth of their body and beauty further aggravates their anxiety. <sup>(5, 6)</sup>

### Aim of Study

The aim of the present study is to investigate the pattern and severity of skin disease among adolescent female students in Falluja city in order to understand the effect and the impact of skin disease at this stage of life.

### Patients and Methods

This is a cross sectional study of 400 adolescent female students in Fallujah's secondary schools with skin diseases, their ages range from 12 – 19 years. The study was performed during the period from November 2009 - May 2010. All patients were subjected to full history about any skin disorder, its onset, and duration, followed by clinical examination in privacy. The finding of these patients was recorded on forms prepared previously.

Investigations were done for patients where they were required and included complete blood picture, hormonal assay and ultra sound examination. Cases with doubtful diagnosis were excluded from the study.

The study parameters of some predominate skin disease were as follow: Ferryman and Gallwey score was used to evaluate the presence and the degree of hirsutism <sup>(8)</sup>. Acne was classified on the basis of report of a consensus conference on acne classification in Washington <sup>(9)</sup>. Atopic dermatitis was diagnosed using the United Kingdom Working Party diagnostic criteria for atopic dermatitis <sup>(10)</sup>. The most widely accepted criteria to diagnose obesity are world health organization (WHO) criteria based on body mass index also known as the Quetelet index <sup>(11)</sup>. Androgenetic alopecia was measured by Ludwig scale <sup>(12)</sup>. Melasma area and severity index was used to diagnose the case of melasma <sup>(12)</sup>. The remaining disorders were easily recognizable and self-definable.

All patients were advised to have the treatment for their skin disorders.

## Results

A total of 400 female adolescent students who had skin diseases were collected from secondary schools in fallujah city. Their ages ranged from 12-19 years.

The majority of the patients had one disorder 62%, the remainder had 2 or more disorders. The most common skin diseases and conditions were the disease of skin appendages (with the acne being the most common one) followed by dermatitis and related conditions and then skin infections.

The most common skin disease in our study was acne which is noticed in 120 patients (30%), the face was the most frequent site affected (95.5%) followed by trunk 4.5%, most of acne patients have mild and moderate type, severe acne was noticed in 4 patients only.

A large number of acne patients had also hirsutism and to a lesser extent dandruff and Androgenetic alopecia and these patients found to have high free testosterone level and ultrasound appearance of PCO which pointed to the diagnosis of PCOS.

The next most common complaint is hirsutism (excessive growth of hair in male pattern) which is seen in 100 patients (25%) mostly affected upper lip and chin followed by breast, lower midline and inner thigh.

Androgenetic alopecia was found in 10 patients 2.5% most of them had type 2, while diffuse hair loss found in 40 patients. Some of these patients associated with dandruff.

Alopecia areata was noted in 8 patients (2%), two of them have insulin depended diabetes and positive family history.

The next common disease is atopic dermatitis which is found in 60 patients (15%) presented with severe itching mainly in flexure aspect of the forearm, associated with dryness of skin, some patients have bronchial asthma and positive family history.

Contact dermatitis was found in 10 patients 2%. Most of them have allergic type due to deodorant or hand watch strap, while hand eczema found 2.5%. Dandruff was found in 30 patients (7.5%) which was either mild or moderate.

Our study revealed high percentage of skin infection mainly wart (7.5%), scabies (7%), folliculitis and herpes simplex infection.

Common wart was the most common type found mainly on extensor extremities followed by plane wart mainly on the face, and few cases had planter warts.

Scabies was found in 28 cases (7%) presented with severe night itching and positive family history. Infected lesions were seen in 2 cases.

Most cases of folliculitis are carbuncle with the main site axilla.

Tinea versicolor was mainly hypopigmented, some cases are erythematous, and the most common location is upper back, neck, upper chest and shoulders.

The most common pigmentary disorder was post inflammatory hypo and hyper pigmentation. The patients have history of previous dermatosis.

Idiopathic pruritus was found in 10 (2.5%) patients and those present with generalized itching with no cutaneous lesion or history of systemic disorder.

Obese adolescent was 16 (4%) cases most of them have acanthosis nigricans, fissured legs or striae but few of them are associated with hirsutism and or acne with criteria of PCOS.

Table 1. Pattern of skin diseases among female students in falluja city

Diseases	N=400	No. of cases	%
1. disorder of skin appendages			
• Acne		120	30
• Hirsutism		100	25
• Diffuse hair loss		40	10
• Androgenetic alopecia		10	2.5
• Alopecia areata		8	2
2. dermatitis and related conditions			
• Atopic dermatitis		60	15
• Dandruff		30	7.5
• Hand eczema		10	2.5
• Contact dermatitis		10	2.5
• Xerosis		10	2.5
3. pigmentary disorder			
• Post inflammatory hpo and hyper pigmentation			3.5
• Freckles		14	3
• Melasma		12	1
• Vitiligo		4	1
4. skin infection			
• Wart		30	7.5
• scabies		28	7
• Folliculitis		12	3
• Herpes simplex		12	3
• Tinea versicolor		10	2.5
• Tinea corporis		6	1.5
• Herpes zoster		4	1
5. obesity and related condition			
• Obese		16	4
• Acanthosis nigricans		6	1.5
• Fissured leg		6	1.5
• Striae		4	1
6. papillosequamous disease			
• Psoriasis		4	1
• Lichen planus		2	0.5
7. idiopathic pruritus		10	2.5
8. misselenous			
• insect bite		4	1
• keloid		2	0.5

## Discussion

Skin diseases are usually the second most important reason for consultation especially in young females because they are more conscious of their body, complexion and physical well being and outlook.<sup>(13)</sup> there are many studies recorded the prevalence and pattern of skin diseases in Iraq,<sup>(14,15,16)</sup> but this is the first study in al Anbar governorate-falluja city which recorded in details the pattern of skin diseases among adolescence female students.

Acne was the most common skin disease in our study seen in 120 patients (30%) while it is reported as high as 59% in other studies<sup>(17,18)</sup>. A large number of cases of acne is also found to have hirsutism and to a lesser extent dandruff and androgenic alopecia. This is most properly attributed to the hormonal changes of adolescent females and with the association of menstrual irregularity and hormonal assay which reveals a high free testosterone level confirm the diagnosis of PCOS in these patients as other Iraqi studies show.<sup>(19)</sup> most of PCOS patients are normal or over weight but small number are obese, in contrast to other studies which show obesity in 50 % of cases.<sup>(20)</sup> this study reflects the increase percentage of PCOS among females and have an early onset of representation as many studies show.<sup>(21)</sup>

Most of obese patients have either acanthosis nigricans, striae or fissured legs, which either due to obesity itself or its association with PCOS.

The second dominant disorder was hirsutism which is seen in 100 patients (25%), its reported prevalence in different studies varies from 5-40 %<sup>(22, 23)</sup>, mainly noticed in mustache, chin, periareolar area. Again a large number of these patients are associated with other features of clinical hyperandrogenemia like acne, dandruff and androgenetic alopecia and with other criteria supported the diagnosis of PCOS.

Diffuse hair loss was noticed in 40 patients (10%), few cases assumed to have telogen effluvium, some cases were associated with dandruff but most cases no apparent systemic or local causes. Deficiency of iron, vitamins and protein may be the cause.<sup>(24)</sup>

Atopic dermatitis was the next most common disease; it is noticed in 60 patients (15%). The prevalence of atopic dermatitis varies in different races and regions and ranges from 1 to more than 20%.<sup>(25)</sup> Our patients have severe pruritus with positive family history of skin allergy and some associated with bronchial asthma. In our study, atopic dermatitis aggravated by cold weather and xerosis of the skin because this study was carried in winter months in addition to the lesser tendency of the females to moisturize their body after bath. Some patients have associated folliculitis, others have warts, and this is attributed to decrease immunity in these patients.

Hand eczema is noticed in 10 cases (2.5%) attributed to excessive home working using detergent and soap while most cases of contact dermatitis appear to be allergic type from using deodorants or hand watch strap.

Dandruff cases was noticed in 40 patients (10%), its prevalence is high in general populations<sup>(26)</sup>, it is either mild or moderate type, few cases have severe type, again some cases are associated with androgenic alopecia and acne with elevated level of serum free testosterone in these patients. Increase severity of seborrhea in winter was reported by many patients.

The current study revealed skin infections in 25 % of cases which is high prevalence in comparison with other studies<sup>(26, 27, 28)</sup>. The most common disorder was warts, present in 30 patients 7.5%.



Most of the cases were verruca vulgaris involve extensor extremities, some cases were plane wart involving mainly the face with sign of koebnerization, few cases have planter wart. Scabies was found in 28 patients (7%) associated with severe night itching and positive family history. others are folliculitis, herpes simplex virus infection, tinea versicolor and tena corporis and finally herpes zoster. All these types of skin infection attributed to difference in weather, nutritional status, personal hygiene, overcrowding, hormonal status and socioeconomic status.

Pigmentary disorder constitutes about 8% with the post inflammatory hypo and hyper pigmentation being the most common type attributed to previous itchy dermatosis.

The lesser frequency of freckers and melasma was unlike the other studies which have high prevalence <sup>(26)</sup>; this is because most patients still unmarried and they are not exposed to the progesterone hormone of pregnancy.

Skin disorders in adolescent females which cause cosmetic problems are major problems and if they are left without treatment they may result in grave cosmetic and psychological consequences at later life. We recommend the introduction of preventive health education program on skin disease for adolescent populations.

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