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## DERMATOLOGICAL CHALLENGES: ADOLESCENTS STRUGGLING WITH SKIN PROBLEMS.

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### ABSTRACT

**BACKGROUND:** Adolescence is the period of development from childhood to adult life, which starts with puberty. As a transitional phase with bio-psycho-social development, this period is very challenging for both parents and children. **OBJECTIVE:** To fathom out the pattern and frequency of skin diseases in adolescent patients presenting in tertiary care hospital. **METHODS:** A descriptive cross-sectional study was conducted at Fazaia Ruth Pfau Medical College from Jan to Dec 2023. Adolescents (10–19 years) with puberty-related skin conditions were enrolled via non-probability convenience sampling. Hormonal dermatoses were included; congenital and unrelated conditions were excluded. Diagnoses were clinical, supported by investigations where needed. Data were recorded using a structured proforma, and dermatoses were grouped into ten categories for analysis. **RESULTS:** A total of 331 adolescents (mean age  $15.75 \pm 0.29$  years; 56.2% females) were enrolled. Most (67.4%) were aged 15–19 years. Infections (27.8%) and infestations (24.8%) were the most common dermatoses, followed by acne (20.2%) and eczema (15.7%). Fungal infections were noted in 12.7%, with pityriasis versicolor and tinea being most frequent. Viral infections (7%) included warts, chickenpox, and molluscum. Five females with hirsutism were diagnosed with PCOS. Dermatoses were grouped into ten categories for descriptive analysis. **CONCLUSION:** Adolescents frequently present with infections, infestations, acne, and eczema, which significantly affect quality of life. Though less common, papulosquamous, hair, and nail disorders also carry considerable psychosocial impact.

**KEYWORDS:** Adolescents Struggling, Skin Disorders, Dermatoses, Acne vulgaris

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### INTRODUCTION

Adolescence is the period of development from childhood to adult life, which starts with puberty. As a transitional phase with bio-psycho-social development, this period

is very challenging for both parents and children<sup>1</sup>. Adolescence ranges between age 10 and 19 years according to who<sup>2</sup>,

whereas, other literature expands it up to 24 years<sup>3</sup>.

Many studies suggest that skin problems are more or less same in children and adolescents. However, there is marked difference in patterns and frequency of skin problems in both groups, as variety of skin problems are hormone influenced in adolescents<sup>4</sup>. Hormonal changes result in different skin problems like, oily skin, acne vulgaris, hyperhidrosis and bad odor<sup>5</sup>. Chronic skin diseases with persistent pruritus and inflammation affect patient's quality of life inversely<sup>6</sup>. These problems, although manageable, but their psychological impacts produce embarrassment, low self-esteem even suicidal attempts<sup>7</sup>. Therefore, such cases should be taken good care of, physically as well as psychologically.

Certain skin manifestations are alarming signs of systemic diseases in otherwise asymptomatic teenagers, like type 1 diabetes mellitus, such adolescents should be thoroughly investigated<sup>8</sup>, others might be cause of bullying by peers and influence negatively on one's psychology in adult life<sup>9</sup>.

Burden of skin diseases is the product of its prevalence and morbidity<sup>10</sup>. In adolescents this burden is less reported due to different barriers, especially in Pakistan. The obstacles to take dermatological advice in this age group are financial, lack of knowledge, shyness, confidentiality and bombardment of misinformation regarding beautifying creams on electronic media, which makes the scenario worse<sup>11</sup>.

The 2011 Quality standards for Dermatology stats that:

“Integrated care pathway should be established and due consideration should be given to planning transitional care, and all healthcare professionals who are dealing with children and young people/youth with skin conditions should be appropriately trained<sup>12</sup>.

Royal College of Physicians identified a training gap in dealing with adolescent

patients as majority trainees have less exposure to TYA skin clinics<sup>13</sup>.

To deal with, United Kingdom (UK) established few teenage and young adult (TYA) skin clinics<sup>14</sup>.

In Pakistan, there is strong need of TYA skin clinics with appropriately trained specialists for psycho-social support. According to Pakistan Demographic and Health Survey 2017-18, 23% of total population is adolescents, ages between 10 and 19<sup>15</sup>. For such number of population literature is very scanty regarding their skin problems, though, many international studies are available. Therefore, this topic was chosen for research purpose.

## METHODOLOGY

This descriptive type of cross-sectional study was conducted at departments of Dermatology Fazaia Ruth Pfau Medical College Air University during a period of one year (January 2023 to December 2023).

Informed consent was taken before enrollment of patients by non-probability convenience sampling.

Patients between ages 10 and 19 years (WHO defined age for adolescents) were enrolled with no gender discrimination while enrolling the patients. Patients with any skin problem started around puberty, those having dermatoses since childhood and exacerbated during this period were part of this research. Skin manifestations due to hormone related syndromes like, Polycystic Ovary Syndrome (PCOS), Hyperandrogenism, Insulin Resistance, Acanthosis Nigricans (HAIR-AN) Syndrome, were also included. Other causes which were not related to adolescence, like juvenile rheumatoid arthritis, juvenile diabetes mellitus, congenital diseases like Ehler Danlos Syndrome, Pseudoxanthoma elasticum and Congenital ichthyoses were excluded.

A detail history and clinical examination were carried out and final diagnosis was established by consultant dermatologist.

Relevant investigations were done where required. Special investigations were advised in special cases like PCOS to spare additional financial burden, as this study was not funded by any organization or group.

A preformed proforma was filled in and pictures were taken after permission from patients and/ or parents.

All dermatoses are divided in ten major groups for convenience and not for comparison.

## RESULTS

Total 331 patients of ages between 10 and 19 years, mean age being fifteen years and nine months ( $15.75 \pm 0.29$ ) presented with skin problems during a period of one year.

Out of total patients, 186 (56.19%) were females and 145 (43.80%) were males. 108 (32.62%) patients fell in age range between 10 to 14 years, while 223 (67.37%) in 15 to 19 years, presented in Table # 1.

Table # 2 shows the different groups of dermatoses with their frequencies.

Infections of different types were found to be more common in 92 (27.79%) patients followed by infestations in 82 (24.77%).

Acne was the most common among inflammatory conditions. Other inflammatory dermatoses were less common. Eczema of all types was the fourth largest dermatosis, 52 (15.70%) patients, of this study.

Naevi of different types were less frequent and found as, naevus spilus in one patient,

naevus of Ota in two, Baker's naevus in three, verrucous epidermal naevus in one and haemangioma in two patients only.

67 (20.24%) patients presented with acne vulgaris, out of which 9 (2.71%) had comedonal, 19 (5.74%) had mild papular, 19 (5.74%) and 9 (2.71%) with moderate and pustular monomorphic forms respectively. Out of eleven with severe form five had one to two cysts.

In bacterial infections ten (3.02%) had furunculosis, 11 (3.32%) had folliculitis, five (1.51%) had impetigo and only two patients presented with cellulitis.

42 (12.68%) patients presented with fungal infections, of which pityriasis versicolor was more frequent, 16 (4.83%) patients. Tinea of different types was reported by 20 (6.04%) patients and candida by six patients (1.81%) only.

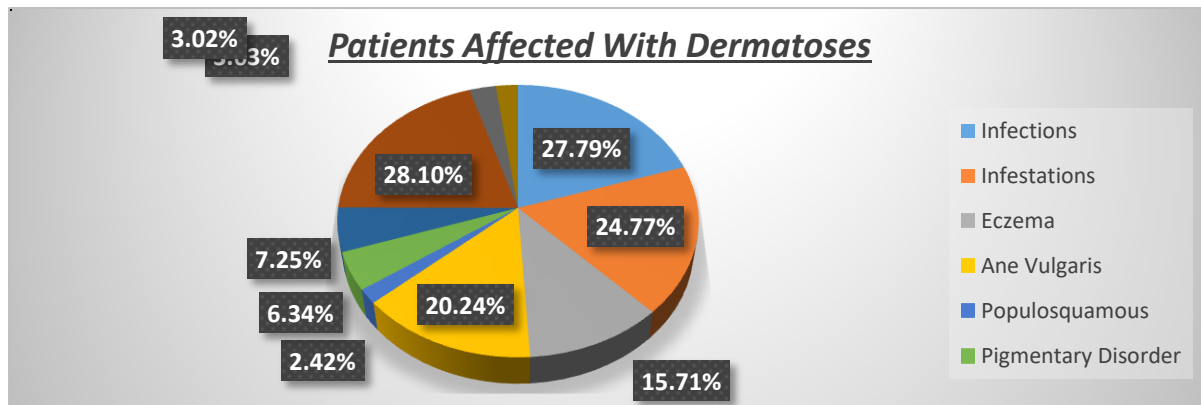
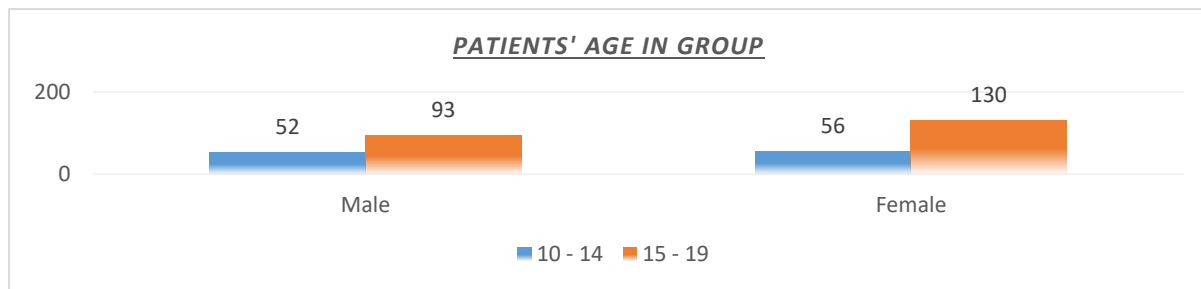
Amongst viral infections warts were most common, in 7 (2.11%) patients. Chicken pox and molluscum contagiosum were reported by 5 (1.51%) and 4 (1.20%) patients respectively. Three (0.96%) adolescents presented with viral exanthem and two (0.60%) with herpes simplex labialis. Only one (0.30%) patient had shingle of thoracic region.

All five (1.51%) females with hirsutism were diagnosed as PCOS after investigations.

Ten groups of dermatoses are displayed with their frequency of presentation in descending order. Pie chart # 1.

**Table:1**

Gender	# of Patients	Average Age	Age in words	SD Against Age
Male	145	$15.69 \pm 0.44$	15 Years & 08 Months	2.68
Female	186	$15.80 \pm 0.38$	15 Years & 10 Months	2.65
<b>Total (Combined)</b>	<b>331</b>	<b><math>15.75 \pm 0.29</math></b>	<b>15 Years &amp; 09 Months</b>	<b>2.66</b>



<b>Table 2 : Pattern of different disease groups (n=331)</b>		
<b>Disease group</b>	<b>n</b>	<b>Percentage (%)</b>
<b>Infections</b>		
• Viral	22	6.65%
• Bacterial	28	8.46%
• Fungal	42	12.69%
	<b>92</b>	<b>27.79%</b>
<b>Infestations</b>		
• Pediculosis Capitis	41	12.39%
• Scabies	38	11.48%
• Cutaneous leishmaniasis	3	0.91%
	<b>82</b>	<b>24.77%</b>
<b>Acne Vulgaris</b>		
• Non Inflammatory	9	2.72%
• Mild	19	5.74%
• Moderate	28	8.46%
• Severe	11	3.32%
	<b>67</b>	<b>20.24%</b>
<b>Eczema</b>		
• Contact Dermatitis	16	4.83%
• Hand Dermatitis	15	4.53%
• Atopic Dermatitis	11	3.32%
• Pityriasis alba	14	4.23%
• Pompholyx	14	4.23%
• Seborrheic Dermatitis	7	2.11%
	<b>77</b>	<b>23.26%</b>
<b>Urticaria</b>		
• Acute	8	2.42%
• Chronic	11	3.32%
• Papular	5	1.51%
	<b>24</b>	<b>7.25%</b>
<b>Pigmentary Disorders</b>		
• Naevi	10	3.02%
• Melasma	5	1.51%
• Vitiligo	4	1.21%
• Others	2	0.60%
	<b>21</b>	<b>6.34%</b>
<b>Hair Disorders</b>		
• Premature Greying	5	1.51%
• TE	1	0.30%
• AGA	1	0.30%
• Hirsutism	5	1.51%
	<b>12</b>	<b>3.63%</b>
<b>Nail Disorders</b>		
• Pitting	3	0.91%
• Dystrophy	2	0.60%
• Onychomycosis	4	1.21%
• Ingrown Toenail	1	0.30%
	<b>10</b>	<b>3.02%</b>
<b>Papulosquamous</b>		
• Psoriasis	1	0.30%
• L - P	2	0.60%
• Pityriasis Rosea	5	1.51%
	<b>8</b>	<b>2.42%</b>
<b>Miscellaneous</b>		
• Scars	10	3.02%
• Oily Skin	61	18.43%
• Oral Aphthae	2	0.60%
• Miliaria	10	3.02%
• Cheilitis	4	1.21%
• Pruritus Vulvae	5	1.51%
• L.S.C	1	0.30%
	<b>93</b>	<b>28.10%</b>

## DISCUSSION

Human being passes through different phases of age from birth till death. Adolescent phase is the most critical and full of crises for most people. Certain Issues like physical changes and appearance usually dominates the thoughts in this age group and affects teenager's quality of life. To resolve these issues adolescents- doctor relationship needs to be revisited to treat adolescent's disorders especially skin problems. To facilitate this relationship, one has to engage the patient by talking about his / her lifestyle and find out the issues surrounding and causing skin problems. In 2013 skin and subcutaneous diseases were found to be responsible for 18<sup>th</sup> leading cause of global Disability Adjusted Life Years (DALY) and 4<sup>th</sup> leading cause of disability world wide if mortality is excluded. Between 1990 and 2017 skin and subcutaneous diseases grew 46.8%<sup>16</sup>. Basic epidemiological information regarding skin diseases of any age group is vital for policy making, redistribution of resources and developing preventive measures<sup>17</sup>.

We found 331 adolescents having different types of dermatoses during a period of one year and evaluated their frequency and patterns. Palanivel et al<sup>18</sup> found 337 adolescents with dermatoses of different types in study conducted at Tamil Nadu.

The results of current study were found to be comparable with regional and international studies. Infections and infestations were the common problems and found in 27% and 24% respectively. Amongst the later group pediculosis capitis was most frequently seen, in 50% patients. The results were matched with another study conducted at Tamil Nadu by Palanivel et al<sup>18</sup> where 53.2% had pediculosis capitis. Gurram et al<sup>19</sup> found some 50% subjects of this group having pediculosis capitis.

Study conducted at Imphal India<sup>20</sup> shows 25% adolescents with skin infections and 17% with infestations. Infections were

found in 37.7% patients in a Nigerian study<sup>4</sup>.

Vathsala et al<sup>21</sup> found different forms of acne in 22.5% adolescents, comparing with current study that is 20%. Being the largest inflammatory dermatosis of our study, frequency of acne vulgaris is similar to an Indian study, 69 out of 337 adolescents, makes 20.47%<sup>18</sup>

Study conducted by Bajaj et al<sup>22</sup> at Hyderabad Sindh, found acne vulgaris to be most common problem, 59.5% patients. There is difference in demographic variables (age and gender), as their study group was females of schools and colleges only. In Turkish study<sup>23</sup> acne vulgaris was found in 50% patients.

Eczema of different types was found in 19% patients in current study, however, it is reported in 17% and 27% in two Indian studies<sup>20, 24</sup> respectively. Polat et al<sup>23</sup> found 17.22% adolescents with different types of eczema.

Three variants of Urticaria were reported by 7.2% patients in current study. Three Indian studies show 4.15%<sup>18</sup>, 4.5%<sup>20</sup> and 5%<sup>21</sup> adolescents with urticaria.

As for as the miscellaneous group is concerned there is vast difference in results. We found 28% patients in this group, whereas, other studies show 1.4%<sup>4</sup>, 5.42%<sup>17</sup>, 1.41%<sup>20</sup>, 4.7%<sup>21</sup>. This difference in results might be due to categorization of diseases, we divided diseases in ten major groups, while other researchers divided in more than ten.

Pigmentary disorders were found in 6.3% adolescents in our study. Similar results were found by Polat et al<sup>20</sup> in 4.49% and Sherma et al<sup>21</sup> in 6.9%.

Hair and nail disorders were less frequently reported by our study group 3.63%, 3.02% respectively. Polat et al<sup>20</sup> reported hair and nail problems in 2.33% and 0.45% adolescents respectively.

Papulosquamous disorders were found in 6.34%, similar to four studies including the current one.

The results of our research are more or less similar to regional and international studies, the differences were found where demographic variable differ.

## CONCLUSION

Adolescent age group suffers from skin disorders of various types which impacts patient's quality of life badly. This research concludes that infections and infestations are very common disorders. Acne vulgaris and eczema were also common conditions. Some like papulosquamous, hair and nail disorders, although less frequently seen, but their impact on patient's quality of life was very devastating.

## RECOMMENDATIONS:

This research is a small contribution in literature. Literature in Pakistan is very scanty as far as skin problems in adolescents are concerned. Therefore, further research is recommended to deal with 23% 15 of our population.

Apart from research work, TYA skin clinics, with trained staff, need to be established to develop trust and confidence in adolescents so they can share and report their skin problems to a dermatologist without hesitation.

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**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin.

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## AUTHORS' CONTRIBUTIONS:

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

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