

# Prevalence of skin diseases among hostellers attending the tertiary care hospital



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## ABSTRACT

**Background:** Skin diseases are more common but are mostly non-fatal and chronic. Dermatological conditions account for a significant proportion of the global burden of diseases. **Aims and Objectives:** The study aimed to determine the prevalence of skin diseases among hostellers, determine the causative factors, and describe the prevention. **Materials and Methods:** This cross-sectional study was conducted for 2 months in the outpatient Department of Dermatology, Government Medical College, Pudukottai, on 507 hostellers. The study subjects were examined and diagnosed by the dermatologist. Questions such as exposure to sunlight, usage of sunscreen, frequency of head baths, and junk food consumption were asked and recorded in a case study form by the principal investigator. **Results:** Pityriasis capitis was the most prevalent skin disease among 507 participants, followed by acne vulgaris (54.83%) and pediculosis capitis (25.64%). Pityriasis capitis is more common in men (56.17%), with higher chances in those with head baths (<3 times/week) and exposure to sunlight (28.08%). Acne vulgaris affects both males and females equally; face washing <3 times daily is associated with oil and sebum retention, while lack of sunscreen and junk food intake are linked. Periorbital melanosis is more prevalent in females (54.62%) and is linked to stress (66.39%). Sleep duration is also a factor, with 69.23% of girls having a history of cosmetic usage. **Conclusion:** Pityriasis capitis, acne vulgaris, pediculosis capitis, dermatophytosis, and periorbital melanosis are common skin diseases caused by sharing, sleep deprivation, stress, and poor hygiene. Proper hygiene, sleep patterns, and self-care can reduce skin disease incidence.

**Key words:** Acne vulgaris; Dermatophytosis; Hostellers; Pediculosis capitis; Pityriasis capitis; Skin diseases

## INTRODUCTION

The skin, the largest organ in the human body, contains sweat glands, pilosebaceous units, hair follicles, and sebaceous glands. Skin diseases are more common but are mostly non-fatal and chronic. Dermatological conditions account for a significant proportion of the global burden of diseases (GBD).<sup>1</sup> The GBD study in 2013 found skin disease to be the fourth (non-fatal) cause of disability worldwide.<sup>2</sup> Due to the low mortality rate of the majority of skin diseases in comparison with other diseases, negligence is given to studies on skin.<sup>3</sup> But skin diseases can place a heavy emotional and psychological burden on patients, far worse than their physical impacts.<sup>4</sup> Occasionally, skin diseases can be manifestations of systemic diseases.<sup>3</sup>

The psychological impacts of skin diseases on students cause social isolation, anxiety, stress, and absence from school and college. This affects their education significantly. There are chances of being bullied by co-students for the external appearance of skin diseases. Their age is also vulnerable to depression. Thus, it greatly impacts students' lives and may end their lives. The development of skin diseases is influenced by external factors such as geographic region, climate, overcrowding, personal habits, and internal factors such as age, gender, and heredity.<sup>5</sup> The prevalence of skin diseases is seen commonly among students at the hostel because of rampant crowding, poor sanitary conditions, improper food intake, a high-fat diet, malnutrition, increased stress levels, poor personal hygiene, and contact between the

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hostellers.<sup>6,7</sup> Thus, the hostels may provide a breeding ground for various skin diseases.

The frequency and severity of many dermatological complaints increased during the pandemic period.<sup>8</sup> The personal protective equipment itself may cause some skin diseases. An increased frequency of hand washing (>20 times/day) is associated with hand eczema. Prolonged use of masks causes maskne (mask-induced acne) and eczema. Nowadays, youngsters are more concerned about their external looks; thus, skin diseases impact their self-esteem. If the risk factors have been assessed, there are chances of reducing the occurrence of the skin disease. Thus, we researched the prevalence of skin diseases among the young age group. During our study, every participant had at least two skin diseases. This emphasizes the prevalence of skin disease.

Hostel students are prone to infectious and contagious skin diseases. While they go home, the disease will likely spread to family members. The prevalence of skin diseases further increases. This results in community-level disease spread. Due to the lockdown, school hostels were closed during the study period. Since only the medical and paramedical students were functioning during the study period, this study includes only them. The study aimed to determine the prevalence of skin diseases among hostellers, determine the causative factors, and describe the prevention.

### Aims and objectives

To determine the prevalence of skin diseases among hostellers. To find out the causative factors and description about the prevention.

## MATERIALS AND METHODS

This cross-sectional study was conducted for 2 months in the outpatient Department of Dermatology, Government Medical College, Pudukottai, on 507 hostellers.

### Inclusion criteria

The study subjects were male and female hostellers aged 10–20 years attending the outpatient Department of Dermatology.

### Exclusion criteria

Non-cooperative patients and unwilling patients were excluded.

An informed consent was received from the participants, and institutional ethical clearance was obtained before conducting the study.

The study subjects were examined and diagnosed by the dermatologist. Questions such as exposure to sunlight,

usage of sunscreen, frequency of head baths, and junk food consumption were asked and recorded in a case study form by the principal investigator. Clinical pictures of skin diseases were taken by those who consented to taking pictures. The probable causative factors for the prevalent diseases were found.

### Statistical analysis

The data were entered as a spreadsheet in Microsoft Excel and analyzed. The statistical analysis was done in a descriptive analysis, expressed as a prevalence percentage.

## RESULTS

Among 507 participants, 49.3% were female (250), while 50.69% were male (257). When considering age groups, 22.09% of participants were 18 years old (112), 30.17% were 19 years old (153), and 47.73% were 20 years old (242) (Table 1).

Among 507 participants, Pityriasis capitis (dandruff) was the most prevalent skin disease in 75.14% (n=381) of the study population. The second most prevalent skin disease was acne vulgaris, which was present in 54.83% (n=278) of the study population. The third most prevalent skin disease was pediculosis capitis, and its prevalence is 25.64% (n=130).

The other prevalent skin diseases seen are dermatophytosis 23.66% (n=120), periorbital melanosis 23.47% (n=119), allergic contact dermatitis 17.55% (n=89), seborrheic dermatitis 15.38% (n=78), androgenetic alopecia 14.59% (n=74), keratosis pilaris 10.05% (n=51), cutaneous striae 8.48% (n=43), photosensitive eczema 8.28% (n=42), skin tan 5.71% (n=29), and fissure feet 5.32% (n=27). Some rare skin diseases are intertrigo 0.98% (n=5), palmoplantar hyperhidrosis 0.78% (n=4), drug rash 0.59% (n=3), pediculosis pubis 0.59% (n=3), psoriasis 0.59% (n=3), ichthyosis 0.19% (n=1), and tinea nigra 0.19% (n=1) (Table 2 and Figure 2 and 3).

There is a slight male predisposition (56.17%) for dandruff. There are nearly 2 times (65.62%) more chances of having dandruff in those who have had a head bath <3 times in

**Table 1: Socio-demographic factors of the study population**

Characteristics	Frequency	Percentage
Gender		
Female	250	49.3
Male	257	50.69
Age group		
18	112	22.09
19	153	30.17
20	242	47.73

**Table 2: Skin diseases among the participants**

Skin disease	Frequency	Percentage
Pityriasis capitis	381	75.14
Acne vulgaris	278	54.83
Pediculosis capitis	130	25.64
Dermatophytosis	120	23.66
Periorbital melanosis	119	23.47
Allergic contact dermatitis	89	17.55
Seborrheic dermatitis	78	15.38
Androgenetic alopecia	74	14.59
Keratosis pilaris	51	10.05
Cutaneous striae	43	8.48
Photosensitive eczema	42	8.28
Skin tan	29	5.71
Fissure feet	27	5.32
Tinea versicolor	22	4.33
Dermatosis papulosa nigra	21	4.14
Telogen effluvium	20	3.94
Warts	17	3.35
Pityrosporum folliculitis	15	2.95
Blister beetle dermatitis	13	2.56
Urticaria	13	2.56
Scabies	11	2.16
Skin tag	7	1.38
Intertrigo	5	0.98
Palmoplantar hyperhidrosis	4	0.78
Drug rash	3	0.59
Pediculosis pubis	3	0.59
Psoriasis	3	0.59
Ichthyosis vulgaris	1	0.19
Tinea nigra	1	0.19
Corn foot	1	0.19

a week than in those who take head baths >3 times/week (34.38%). Exposure to sunlight was associated with 50.63% (n=193) of participants with dandruff. However, 28.08% (n=107) of participants who did not play under sunlight had dandruff.

The frequency of junk food intake is directly proportional to dandruff. 39.90% of participants with dandruff had a history of eating junk food a minimum of 8 days/month (2 times/week) (Table 3).

Both males and females are equally affected. Face wash <3 times/day (66.16%; n=184) is associated with acne vulgaris because of the retention of oil and sebum. 86.33% (n=240) of participants with acne didn't use sunscreen. The frequency of junk food intake is directly proportional to acne vulgaris (Table 4 and Figure 1).

It has a gender predisposition towards females (97.62%). Females have a decreased frequency of hair wash compared with males. Frequent hair washing was found to decrease pediculosis capitis. 76.92% (n=100) of participants with pediculosis capitis had confessed that their roommates also had pediculosis capitis (Table 5).

About 2/3<sup>rd</sup> (66.67%; n=80) of the infections had been seen among males. Washing dresses together with a

**Table 3: Factors associated with pityriasis capitis**

Characteristics	Frequency	Percentage
Gender		
Female	167	43.83
Male	214	56.17
Frequency of head bath per week		
>3	131	34.38
<3	250	65.62
Frequency of playing under the sun per week		
>3 days	193	50.63
<3 days	81	21.26
0 days	107	28.08
Frequency of junk food intake per month		
>8 days	152	39.9
2-8 days	135	35.43
<1 day	94	24.67

**Table 4: Factors associated with acne vulgaris**

Characteristics	Frequency	Percentage
Gender		
Male	133	47.84
Female	145	52.15
Frequency of face wash per day		
>3	94	33.81
<3	184	66.18
Sunscreen usage		
Yes	38	13.67
No	240	86.33
Frequency of junk food intake per month		
>8 days	107	38.49
2-8 days	102	36.67
<1	69	24.82

**Table 5: Factors associated with pediculosis capitis**

Characteristics	Frequency	Percentage
Gender		
Female	127	97.69
Male	3	2.31
Roommates having pediculosis capitis		
Yes	100	76.92
No	30	23.08

common dhobi has a great association (61.67%; n=74) with dermatophytosis. Participants residing in 3 or <3 members per room (70%; n=84) have increased dermatophytosis infection because the rooms are smaller. Sharing clothes (59.17%; n=71) increases the risk of dermatophytosis (Table 6).

Periorbital melanosis appears more prevalent in females (54.62%) than males (45.38%). Furthermore, it is associated with stress, with 66.39% of participants with periorbital melanosis reporting experiencing stress compared to 33.61% who do not. Additionally, those with a sleep duration of <6 h per night (60.5%) seem more prone to periorbital melanosis than those who sleep >6 h (39.5%). Among females, 69.23% (n=45) of girls with periorbital

**Table 6: Factors associated with dermatophytosis**

Characteristics	Frequency	Percentage
Gender		
Male	80	66.67
Female	40	33.33
Members per room		
Three and <3	84	70
More than 3	36	30
History of roommates with dermatophytosis		
Yes	53	44.17
No	67	55.83
Washing dress in hostel		
Together	74	61.67
Separate	46	38.33
Sharing clothes with roommates		
Yes	71	59.17
No	49	40.83

**Table 7: Factors associated with periorbital melanosis**

Characteristics	Frequency	Percentage
Gender		
Male	54	45.38
Female	65	54.62
Stress		
Yes	79	66.39
No	40	33.61
Sleep duration		
<6 h	72	60.5
>6 h	47	39.5
Usage of Eyeliner in Female		
Yes	45	69.23
No	20	30.77

melanosis have a history of cosmetic usage compared to those who do not (30.77%) (Table 7).

## DISCUSSION

In our study, skin diseases such as Pityriasis capitis, acne vulgaris, and pediculosis capitis were more prevalent. Pityriasis capitis (dandruff) was the most common skin disease among the participants, and *Malassezia* species cause dandruff. The predisposing factors for the growth of *Malassezia* species are poor personal hygiene, exposure to dust, stress, food intake, and overuse of oil on the scalp.<sup>9</sup> Dandruff is slightly male-predisposition, with a 56.17% male predisposition due to dust and dirt exposure. Head baths are inversely proportional to dandruff, with a higher risk for those <3 times/week. Sunlight exposure is associated with dandruff in 50.63% of participants, while 28.08% of those not exposed to sunlight have dandruff. Dandruff is linked to junk food intake, with 39.90% of participants having a minimum of 8 days/month. Increased hotel food intake during hostel mess closure increases Dandruff presentation due to fat and oil content.

Acne vulgaris is a common pilosebaceous disorder affecting the peripubertal area and is linked to decreased face wash, a lack of sunscreen, and junk food intake. Both males and females are affected. Masks, especially during the pandemic, can cause maskne acne due to prolonged use, causing sweating, humidity, decreased face wash frequency, and sebum retention.<sup>10</sup> Pediculosis capitis is caused by *Pediculus humanus capitis*, a head louse with a 97.62% female predisposition due to long hair. Frequent hair washing can reduce the condition.<sup>11</sup>

In our study, hostels often have shared combs and beds, a major risk factor for pediculosis capitis. 76.92% of

participants with capitis also had roommates, highlighting the stronger relationship between these factors.

Dermatophytosis is a contagious fungal infection caused by dermatophytes, most commonly *Tinea corporis* and *Tinea cruris*. About 2/3<sup>rd</sup> (66.67%; n=80) of the infections had been seen among boys. Male predisposition is also seen in previous studies.<sup>12</sup> This is because of poor personal hygiene by the boys rather than the girls.<sup>12</sup> Boys wearing jeans without washing are predisposed to dermatophytosis. Washing hands and feet with soap at least once a day improves quality and decreases the prevalence of dermatophytosis.<sup>13</sup>

In our study, washing dresses together by a common dhobi has a great association (61.67%; n=74) with dermatophytosis. The spread of fungal infection is faster in a moist environment. Participants residing in 3 or <3 members per room (70%; n=84) have increased dermatophytosis infection because the rooms are smaller, resulting in crowding. This helps ease the growth and spread of dermatophytosis. Sharing clothes, beds, and combs is common among hostellers and has increased the risk of dermatophyte infection.<sup>13</sup> Our study shows similar results. Sharing clothes (59.17%; n=71) increases the risk of dermatophytosis.

Periorbital melanosis is known as periorbital hyperpigmentation or dark circles. This has a greater association with stress. Either stress causes periorbital melanosis or periorbital melanosis causes stress, which is not known.<sup>14</sup> Because disfigurement of the face further causes stress. In hostels, more than 80% of the students use social media and mobile phones for longer duration and chit-chat among them, resulting in decreased sleep hours. In some residential schools and during examinations, students study longer and compromise sleep. This sleep deprivation is also associated with dark circles. 69.23% (n=45) of girls with periorbital melanosis have a history





**Figure 1:** Acne vulgaris



**Figure 2:** Dermatophytosis



**Figure 3:** Scabies

of cosmetic usage. Using cosmetics such as kajal/eyeliner causes frequent rubbing of the eyes, resulting in Allergic contact dermatitis, which leads to post-inflammatory periorbital melanosis.<sup>14,15</sup>

A study shows patients with periorbital melanosis had insulin resistance, hyperglycemia and increased L/A ratio.<sup>16</sup> Thus, it may be the early manifestation of some systemic diseases. Allergic contact dermatitis is more common. Surgical mask straps, N95 masks, laundry soaps, cosmetics, hand sanitisers, hand washes, and rubber gloves can cause allergic contact dermatitis. Increased use of hand sanitisers and hand washes during the pandemic can lead to hand eczema. Seborrheic dermatitis is an inflammatory condition with risk factors including male gender and increased sebaceous activity.<sup>17</sup>

Androgenetic alopecia is a patterned loss of hair. Dandruff and emotional stress predispose to hair fall. Deficiency in the recommended daily allowance of protein intake also causes hair fall.<sup>18</sup> Hostel students often skip breakfast, leading to deficiency and malnourishment. Keratosis pilaris, stretch marks, and photosensitive eczema are common health issues, while cutaneous striae and sun-induced inflammation are associated with weight change. Among the 42 participants, 35 (83.33%) members did not use sunscreen lotion. Skin tanning is the process of darkening skin color. It occurs due to exposure to sunlight. Fissure feet, called crack heels, present as cracks in the skin over the heel. It occurs due to excess dryness of the skin. Occasionally, it is painful. Tinea versicolor is also known as Pityrosporum versicolor. The fungus *Malassezia* species causes it. Excessive sweating is found to be a risk factor. Dermatitis papulosa nigra has a strong family history.<sup>19</sup>

Telogen effluvium is a condition with hair fall followed by acute stress. Hair loss due to telogen effluvium is seen in post-COVID patients.<sup>20</sup> Twenty students (female 15; male 5) with telogen effluvium had a previous history of coronavirus infection during the pandemic period. Warts, Pityrosporum folliculitis, and blister beetle dermatitis are common viral infections in hostels caused by sharing soaps, touching common door knobs, and using spoons. Blister beetle dermatitis is more prevalent during rainy seasons, while increased histamines and prolonged mask usage cause urticaria.<sup>21</sup> N95 masks, hotel food, drugs, dust, and sun exposure cause urticaria; sunscreen usage reduces the incidence.

Scabies is the infestation of burrowing mites, *Sarcoptes scabiei*. It causes profound itching. Sharing beds, clothes, and towels has increased the risk of scabies. The lower prevalence of scabies is because of hygienic practices followed by medical and paramedical students, early presentation to the dermatologist, and decreased further spread. Skin tags, or acrochordon or fibroepithelial polyps, are common benign skin outgrowths.<sup>22</sup> In our study, seven participants had skin tags, and five (71.42%) had a positive family history of skin tags. This result is also seen in other studies.<sup>23</sup>

Intertrigo, known as intertriginous dermatitis, falls under moisture-associated skin damage. It is seen mostly in the skin folds, perineum, and axilla regions. It occurs due to constant rubbing of skin folds (friction), profuse sweating, and low-ventilated parts. Obesity contributes to friction between skin folds. *Candida*, dermatophytes, *Malassezia*, and *Fusarium* species infections are commonly seen in Intertrigo.<sup>24</sup> Insufficient sunlight drying in hostels can cause fungal growth, as most hostellers dry clothes indoors.

Palmoplantar hyperhidrosis is a condition with excessive sweating from the hands and soles. It is a potentially embarrassing condition among students. This condition is mostly idiopathic.<sup>25</sup> Drug rash is an adverse drug reaction to a drug and presents as skin rashes. In our study, three drugs included rashes caused by ofloxacin, levofloxacin, and diclofenac. Tinea nigra is caused by a fungus, *Hortaea werneckii*. This pathogen thrives in high temperatures, low oxygen, and humid climates.<sup>26</sup> Tinea nigra is rare, but corn foot is a keratotic outgrowth caused by heels and ill-fitting shoes. The study includes medical and paramedical students, focusing on hygienic practices. Various factors, including poor hygiene, sharing, and stress, cause skin diseases in hostels. Hostel wardens, teachers, and parents should teach hygienic practices, provide adequate space, and promote healthy eating habits. Meditation, exercise, and fruit juices can help prevent infections. Social media usage should be reduced, and infectious diseases should be reported to doctors promptly. Additionally, drying clothes under sunlight can help improve the quality of life for hostel residents.

### Limitations of the study

The study on skin diseases in hostellers has several limitations. The cross-sectional design makes establishing causal relationships between risk factors and skin diseases difficult. The reliance on self-reported information can be inaccurate due to recall bias. The study was only conducted over 2 months, which may not be long enough to capture seasonal variations in skin disease prevalence.

### CONCLUSION

The most prevalent diseases are Pityriasis capitis, Acne vulgaris, Pediculosis capitis, Dermatophytosis, and Periorbital melanosis. The causative factors are sharing things, sleep deprivation, exposure to sunlight without sunscreen lotion, stress, prolonged wearing of masks, frequent hand washing, cosmetic usage, no adequate face washes, and irregular food habits. Proper hygiene, regular sleep patterns, and self-care help decrease skin disease incidence.

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