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# Prevalence of skin diseases in a dermatology outpatient clinic in Turkey. A cross-sectional, retrospective study.

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## Abstract

**Background:** Dermatologic diseases vary widely as a result of geographic location, climate, socioeconomic status, and personal habits, and internal factors, such as age, gender, and heredity.

**Objective:** The aim of the study was to determine the main causes for outpatient visits in a dermatology outpatient clinic in Turkey. Materials and Methods: The outpatient clinic records of the Dermatology Department of Eskisehir Yunus Emre Government Hospital, dated between 1 January 2011 and 1 January 2012, were retrospectively assessed. Patients were grouped according to age, gender and clinical diagnosis.

**Results:** A total of 11,040 new patients with 12,174 skin problems were included in the study. The study group was 55.7% female and 44.3% male. The age range was between 1 and 99 years. The most commonly encountered diseases were: acne (13.1% of patients), fungal infections (8.5%), contact dermatitis (8.5%), urticaria (8.3%), psoriasis (5.5%), viral warts (4.1%), lichen simplex chronicus (3.0%), callus, atopic dermatitis, and seborrheic dermatitis (2.2% each).

**Conclusions:** It appears that certain skin diseases acne, fungal infections, contact dermatitis and urticarial cause serious health problems. Public health policies should be implemented in order to manage these problems rationally. (*J Dermatol Case Rep*. 2013; 7(4): 108-112)

## Background

Skin diseases, which are commonly encountered in the community, are an important disease group in healthcare units.[1] The development of skin disease is influenced by external factors, such as geographic region, climate, socioeconomic status, and personal habits, and internal factors, such as age, gender, and heredity. The prevalence of skin diseases differs between regions as a result of these factors.

The definition of skin disease prevalence is important in planning therapeutic and preventive healthcare services. The ideal method for prevalence studies is the use of population-based field studies. However, many studies have been performed by examining the hospital application records of patients.

The present study was performed in the city province of Eskisehir, which is located in the western region of Turkey with a population of 780,000. The city is located at an altitude of 732 m. and was in the 7th line in the evaluation of national socioeconomic development. The mean air temperature values in the most recent 40 years measured between + 29˚C and – 3.7˚C.

Most of the skin diseases are not notifiable diseases in the world and in the Turkey. Therefore, information on the frequency of skin diseases is limited. This is the original study, because this study was performed on the new patients who attended to dermatology outpatient clinics in the certain period of time.

## Objective

To our knowledge, no study to date in the English-language literature has investigated the prevalence of skin disease in Turkey. This study aimed to determine the prevalence of skin diseases and their distribution according to age and gender.

## Materials and methods

In this study, the outpatient clinic records of the Dermatology Department of Eskisehir Yunus Emre Government Hospital, dated between 1 January 2011 and 1 January 2012, were retrospectively assessed. Patients who applied to the dermatology outpatient clinic were included in the study. The patients were diagnosed based on anamnesis and clinical signs. Laboratory (e.g., fungal direct examination) and histopathological examinations were performed in the appropriate patients. The diagnoses were classified according to the International Classification of Diseases (ICD-10). Statistical analyses were performed using SPSS version 20.0 (SPSS Inc., Chicago, IL). The Kolmogorov-Smirnov test was used to analyze the distribution of the diseases according to gender ($p<0.05$ = statistically significant).

## Results

A total of 42,878 applications were recorded at the dermatology outpatient clinic of the hospital between 1 January 2011 and 1 January 2012, and 11,040 new patients were included in the study. Of the 11,040 patients, 6146 (55.7%) were female, and 4894 (44.3%) were male (male/female= 0.80). The patients' ages ranged between 1 and 99 years. The mean age was 31.55±16.86 years for the male patients and 33.94±18.53 year for the female patients. The greatest number of patients (n=2674; 24.2%) was present in the 20-29 years of age group, while 2566 patients (23.2%) were 10-19 years of age, and 1686 patients (15.3%) were 40-49 years of age. These three age groups constituted 62.7% of the total number of patients. The distributions of cases according to age and gender are given in Table 1.

The most commonly encountered disease groups were dermatitis and eczema (21.8%), skin disorders of the appendages (19.4%), and mycoses (11.1%). These three disease groups constituted 52.3% of the observed cases. The frequencies and rates of the disease groups are shown in Table 2.

The three most commonly encountered diseases were acne (13.1%), dermatophytosis (8.5%) and contact dermatitis (8.5%). Urticaria (8.3%), psoriasis (5.5%), viral warts (4.1%), lichen simplex chronicus (3.0%), callus (2.2%), atopic dermatitis (2.2%) and seborrhoeic dermatitis (2.2%) followed. The most commonly encountered diseases were similarly distributed according to gender ($p>0.05$). The distributions of 10 common diseases in this study are shown in Table 3 according to gender.

Dermatitis, eczema and urticaria were major problems between age 20 and 50 years. Age distribution of some common skin disease are shown in Table 4.

## Discussion

Eskisehir Yunus Emre Government Hospital once served as a regional referral hospital. The hospital contains 650 patient beds with 160 specialists working in different branches. The majority of patients applying to the clinic were from the city center, and fewer numbers of patients applied from rural areas and neighboring cities (Kutahya, Bilecik, and Afyon). The dermatology department of the hospital was the unit with the most applications as a result of skin diseases among the dermatology units in and around the city of Eskisehir.

The most commonly encountered disease group among the 12,174 skin diseases diagnosed in the study was dermatitis and eczema (21.8%). Dermatitis and eczema were the most commonly encountered skin diseases in previous studies conducted in Iraq, Saudi Arabia, Yemen, Mali, South Africa, Japan, Egypt, Nigeria, Peru, and Greece.[2-11] The most commonly encountered disease in this disease group was contact dermatitis.

Skin disorders of the appendages were the second most commonly encountered disease group (19.4%). This rate was close to the rate defined in a study conducted in Iran.[12] Acne, which was the most commonly encountered disease (13.1%) among skin disorders of the appendages, was also

**Table 1.** The distribution of cases according to age and gender.

| Age groups (years) | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| 0-9 | 288 | 2.6 | 311 | 2.8 | 599 | 5.4 |
| 10-19 | 1097 | 9.9 | 1469 | 13.3 | 2566 | 23.2 |
| 20-29 | 1025 | 9.3 | 1649 | 14.9 | 2674 | 24.2 |
| 30-39 | 744 | 6.7 | 789 | 7.2 | 1533 | 13.9 |
| 40-49 | 608 | 5.5 | 1078 | 9.8 | 1686 | 15.3 |
| 50-59 | 561 | 5.1 | 367 | 3.3 | 928 | 8.4 |
| 60-69 | 448 | 4.1 | 343 | 3.1 | 791 | 7.2 |
| ≥ 70 | 123 | 1.1 | 140 | 1.3 | 263 | 2.4 |
| Total | 4894 | 44.3 | 6146 | 55.7 | 11040 | 100 |

**Table 2.** The frequencies and rates of the disease groups.

| Diseases | Patients | % |
|---|---|---|
| **Infectious and parasitic diseases** | **2448** | **(20.1)** |
| Mycoses | 1346 | (11.1) |
| Dermatophytosis | 1038 | (8.5) |
| Pityriasis versicolor | 189 | (1.6) |
| Candidiasis | 119 | (1.0) |
| Viral infections | 869 | (7.1) |
| Viral warts | 495 | (4.1) |
| Herpes zoster | 175 | (1.4) |
| Herpes Simplex infections | 101 | (0.8) |
| Molluscum contagiosum | 98 | (0.8) |
| Parasitic diseases | 224 | (1.8) |
| Scabies | 188 | (1.5) |
| Pediculosis | 36 | (0.3) |
| Protozoan diseases | 9 | (0.1) |
| Cutaneous leishmaniasis | 9 | (0.1) |
| **Neoplasms** | **384** | **(3.2)** |
| Malign neoplasms | 71 | (0.6) |
| Benign neoplasms | 313 | (2.6) |
| Melanocytic naevi | 140 | (1.2) |
| Other benign neoplasms of skin | 173 | (1.4) |
| **Diseases of the oral cavity, salivary glands and jaws** | **118** | **(1.0)** |
| Recurrent oral aphthae | 84 | (0.7) |
| Cheilitis | 34 | (0.3) |
| **Diseases of the skin and subcutaneous tissue** | **9183** | **(75.4)** |
| Infections of the skin and subcutaneous tissue | 737 | (6.0) |
| Cutaneous abscesses, furuncles and carbuncles | 212 | (1.7) |
| Impetigo | 191 | (1.6) |
| Cellulitis | 188 | (1.5) |
| Pyoderma | 118 | (1.0) |
| Erythrasma | 28 | (0.2) |
| Bullous disorders | 77 | (0.6) |
| Pemphigus | 39 | (0.3) |
| Dermatitis herpetiformis | 24 | (0.2) |
| Bullous pemphigoid | 14 | (0.1) |
| Dermatitis and eczema | 2649 | (21.8) |
| Contact dermatitis | 1032 | (8.5) |
| Lichen simplex chronicus | 364 | (3.0) |
| Atopic dermatitis | 272 | (2.2) |
| Seborrhoeic dermatitis | 269 | (2.2) |
| Nummular eczema | 263 | (2.2) |
| Nodular prurigo | 252 | (2.1) |
| Pruritus | 197 | (1.6) |
| Papulosquamous disorders | 1119 | (9.2) |
| Psoriasis | 664 | (5.5) |
| Lichen planus | 248 | (2.0) |
| Pityriasis rosea | 118 | (1.0) |
| Parapsoriasis | 39 | (0.3) |
| Other papulosquamous disorders | 50 | (0.4) |
| Urticaria and erythema | 1100 | (9.0) |
| Urticaria | 1009 | (8.3) |
| Erythema nodosum | 41 | (0.3) |
| Erythema multiforme | 37 | (0.3) |
| Other erythematous conditions | 13 | (0.1) |
| Radiation-related disorders of the skin and subcutaneous tissue | 248 | (2.0) |
| Polymorphous light eruption | 113 | (0.9) |
| Actinic keratosis | 99 | (0.8) |
| Sunburn | 36 | (0.3) |
| Skin disorders of the appendages | 2356 | (19.4) |
| Acne | 1590 | (13.1) |
| Alopecia areata | 267 | (2.2) |
| Rosacea | 206 | (1.7) |
| Androgenic alopecia | 199 | (1.6) |
| Hirsutism | 46 | (0.4) |
| Miliaria rubra | 48 | (0.4) |
| Other disorders of the skin and subcutaneous tissue | 897 | (7.4) |
| Callus | 273 | (2.2) |
| Other disorders of pigmentation | 189 | (1.6) |
| Vitiligo | 151 | (1.2) |
| Seborrhoeic keratosis | 140 | (1.2) |
| Lupus erythematosus | 30 | (0.3) |
| Other disorders of skin and subcutaneous tissues, not elsewhere classified | 114 | (0.9) |
| **Congenital malformations, deformations and chromosomal abnormalities** | **41** | **(0.3)** |
| Neurofibromatosis | 27 | (0.2) |
| Ichthyosis vulgaris | 14 | (0.1) |

**Table 3.** The distribution of the 10 most common diseases according to gender.

| Disease | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Acne | 691 | 43.5 | 899 | 56.5 | 1590 | 13.1 |
| Dermatophytosis | 502 | 48.4 | 536 | 51.6 | 1038 | 8.5 |
| Contact dermatitis | 441 | 42.7 | 591 | 57.3 | 1032 | 8.5 |
| Urticaria | 462 | 45.8 | 547 | 54.2 | 1009 | 8.3 |
| Psoriasis | 311 | 46.8 | 353 | 53.2 | 664 | 5.5 |
| Viral warts | 231 | 46.7 | 264 | 53.3 | 495 | 4.1 |
| Lichen simplex chronicus | 163 | 44.8 | 201 | 55.2 | 364 | 3.0 |
| Callus | 115 | 42.1 | 158 | 57.9 | 273 | 2.2 |
| Atopic dermatitis | 118 | 43.4 | 154 | 56.6 | 272 | 2.2 |
| Seborrhoeic dermatitis | 149 | 55.4 | 120 | 44.6 | 269 | 2.2 |

**Table 4.** Age distribution of most common skin disease.

| Disease | Age groups (years) | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | 0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | ≥70 | |
| Acne | 9 | 831 | 541 | 171 | 27 | 8 | 2 | 1 | 1590 |
| Dermatophytosis | 23 | 119 | 256 | 183 | 209 | 135 | 99 | 14 | 1038 |
| Contact dermatitis | 21 | 134 | 168 | 231 | 220 | 96 | 110 | 52 | 1032 |
| Urticaria | 27 | 101 | 241 | 244 | 197 | 107 | 82 | 10 | 1009 |
| Psoriasis | 8 | 72 | 88 | 129 | 152 | 109 | 57 | 49 | 664 |
| Viral warts | 63 | 161 | 103 | 92 | 45 | 17 | 9 | 5 | 495 |
| Lichen simplex chronicus | 0 | 7 | 31 | 40 | 61 | 117 | 89 | 19 | 364 |
| Callus | 3 | 17 | 52 | 46 | 53 | 73 | 17 | 12 | 273 |
| Atopic dermatitis | 69 | 47 | 53 | 40 | 28 | 21 | 6 | 8 | 272 |
| Seborrhoeic dermatitis | 26 | 39 | 58 | 56 | 42 | 18 | 19 | 11 | 269 |

the leading disease among all skin disorders. It is expected that a high frequency of acne, which is a disease of adolescence, will be encountered when participant distributions have been considered according to age.

The rate of mycoses was 11.1% in our study. While the reported fungal disease rates were lower in Saudi Arabia,[3] Yemen,[4] South Africa,[6] Mexico,[13] and England,[14] the rates were higher in Mali,[5] Egypt,[8] Iran,[12] and Nepal.[15] The three most common fungal diseases were dermatophytosis, pityriasis versicolor, and candidiasis. Pityriasis versicolor was the leading fungal disease in studies performed in Yemen[4] and Iran.[12] This difference might be interpreted due to climate differences between the regions in which the studies were performed, i.e., Yemen, Iran, and the city of Eskisehir. Tinea pedis (49.9%) and tinea unguium (33.3%) were the two most common types of dermatophytosis. Tinea capitis was detected at a lower rate (1.35%). The rates of tinea capitis among all types of dermatophytosis were 32.7% in Yemen,[4] 30.4% in Mali,[5] 7.1% in Egypt,[8] 3.6% in Nepal,[15] and 25.3% in Ethiopia.[16] Community life standards and poor hygiene are factors that significantly increase the rate of tinea capitis.

Papulosquamous disorders are the fourth most commonly encountered disease group (9.2%). While the most commonly encountered disease in this group was psoriasis, lichen planus, pityriasis rosea and parapsoriasis followed. Psoriasis was in the fifth most common (5.5%) of all detected skin diseases. While this rate was higher than those reported in South Africa[6] and England,[14] it was lower than those in the neighboring countries of Turkey, Iraq,[2] Greece,[11] and Iran.[12] The high rate of psoriasis in this study might be due to the high rate of patient applications requiring this type

of treatment. Additionally, the study was performed in one of the most important centers with a phototherapy unit in the region.

Infections of the skin and subcutaneous tissue were detected at a rate of 6.0%. Cutaneous abscesses, furuncles and carbuncles were the leading diseases in this group. Infections of the skin and subcutaneous tissue were detected at rates higher than 10% in studies conducted in Saudi Arabia,[3] Egypt,[8] and Ghana,[14] whereas rates lower than 5% were reported in studies conducted in Japan[7] and England.[14] Differences in bacterial infection rates according to countries might be due to differences in socioeconomic status, personal habits, and variations in compliance with hygienic conditions.

Parasitic diseases were identified at a rate of 1.8% in this study. Among this group, scabies was the leading disease, and pediculosis was the second most common. The lowest and highest rates of scabies, which is increased by factors related to community life conditions and noncompliance with hygiene rules, were reported in Japan (0.15%)[7] and in Mali (16.6%).[5]

## Conclusion

Skin diseases were the leading group of diseases detected, and they are encountered very commonly in the community. Therefore, the definition of skin disease prevalence has an important role in planning both preventive and therapeutic healthcare services. The opinion that many regional factors, such as socioeconomic status, personal habits, cultural differences, climate and heredity, influence the prevalence of skin diseases is supported by studies demonstrating that disease distributions can differ according to the region examined. Population-based studies should be performed to reliably define the prevalence of skin diseases. However, studies evaluating applications to hospital outpatient clinics also provide valuable information about the prevalence of skin diseases. Public health policies should be implemented in order to manage this problem rationally.

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