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Original Article

Frequency and risk factors of dermatological infections in patients attending dermatology out patient department of tertiary care hospital

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Abstract

Objective Dermatological infections are highly prevalent globally thus Significantly impacting individual's quality of life and these infections has many associated risk factors. The objective of this research is to investigate the frequency of dermatological infections and the factors associated with them among individuals seeking care at a Dermatology Outpatient Department in Bahawalpur.

Methods A Cross Sectional study was conducted at the Outpatient Department of Dermatology, Bahawal Victoria Hospital Bahawalpur, spanning a period of six months from July 1,2023 to December 31, 2023.All patients seeking treatment for skin concerns during this period were enrolled. Each patient underwent a comprehensive medical history review and thorough skin examination.

Results This study conducted on 1200 patients attending dermatology outpatient department, Bahawal Victoria Hospital, Bahawalpur. This study revealed that 720/1200(60%) patients were suffering from dermatological infections and found that 288 (40%) patients had fungal infections, 230 (32%) were suffering from scabies, 116 (16%) had bacterial infections and 36 (5%) were infected with viruses.

Conclusion Among all dermatological infections, fungal infections emerged as most common dermatological infection, followed by scabies, bacterial, viral and parasitic infection. Health education has great role in controlling preventable risk factors of infections like BMI and hygiene.

Key words
Skin Diseases; Dermatological infection; Scabies; Fungal Infection; BMI.

Introduction

Skin issues are prevalent, with at least one out of every three general practice patients experiencing dermatological problems.[1] Dermatological infections may arise from bacteria, viruses, fungi, or parasites. The increased incidence of skin infections in a particular region can be attributed to geographical elements like season and climate.

Skin infections, such as scabies and streptococcal infections, impact approximately 160 million people globally, with a significant prevalence in areas characterized by lower socioeconomic status.[2] Dietary habits and nutritional factors play a pivotal role in influencing the occurrence of skin issues. General practitioners commonly encounter skin conditions within the broader population.[3,4] Pakistan is suffering from unpredictable climate change which is causing the many skin

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infections to become more prevalent. Skin the body's largest organ, the skin, plays pivotal roles in sensation, heat regulation, immunological surveillance. Various types of skin diseases, spanning infections, degenerative conditions, congenital anomalies, inflammatory disorders, and cancers, can impact individuals across all age groups, with a higher prevalence observed among the young and elderly.[2]

Skin infections impact individuals across all age groups, from neonates to the elderly. These conditions, with potential consequences such as disfigurement, disability, and severe itching, can lead to significant morbidity.[5] The pattern and prevalence of skin diseases exhibit variations between countries and within regions of the same country. Factors such as environment, race, religion, occupation, nutrition, and habits contribute to the diverse landscape of skin infections.

Methods

A Cross Sectional study was conducted at the Outpatient Department of Dermatology, Bahawal Victoria Hospital Bahawalpur, spanning six months from July 1,2023 to December 31, 2023, following approval from the Institutional Ethical Review Committee. All patients seeking treatment for skin concerns during this period were enrolled. Each patient underwent a comprehensive medical history review and thorough skin examination. Diagnostic investigations and skin biopsies were conducted as necessary to confirm diagnoses and identify any comorbidities. The prevalence of various skin infections was documented and compared with findings from local and international studies. Data were analyzed using SPSS version 21, incorporating variables such as age, gender, and specific skin infections. Descriptive statistics including mean and standard deviation were calculated for quantitative variables like age, while qualitative variables such as gender and skin disorder diagnoses were reported using frequencies and percentages. Statistical analysis was conducted, with a significance level set at $p < 0.05$.

Results

This study was conducted on 1200 patients attending Dermatology Out Patient Department of Bahawal Victoria Hospital, Bahawalpur and it revealed that dermatological infections were found in 720 (60%) of the patients, as indicated in **Table 1**.

Mean age of patients having dermatological infections was 41.8 years with 423(45%) belong to age group 25-50 years. This study concluded that 230(32%) of the patients had scabies, while fungal infection was the most common skin infection and was observed in 288(40%) of the patients. Bacterial infections were present in 116(16%) of the cases and viral infection (including warts, herpes simplex, herpes zoster) were observed in 36(5%) of patients visiting skin OPD of Bahawal Victoria Hospital, Bahawalpur. Out of 720 patients, 28(4%) had parasitic infections,7(1%) had pyoderma and 14(2%) had impetigo, as indicated in **Table 2**.

Table 1 Frequency of infectious and non infectious dermatological diseases (n=1200).

Dermatological disease type	*No. of patients*	*%age*
Dermatological Infections	720	60%
Non-infectious Dermatological Disease	480	40%
Total	1200	100%

Table 2 Frequency of type of dermatological Infections. (n=720)

Dermatological Infection	*No. of patient*	*%age*
Fungal Infection	288	40%
Scabies	230	32%
Bacterial Infections	116	16%
Viral Infections	36	5%
Parasitic Infections	28	4%
Impetigo	14	2%
Pyoderma	7	1%

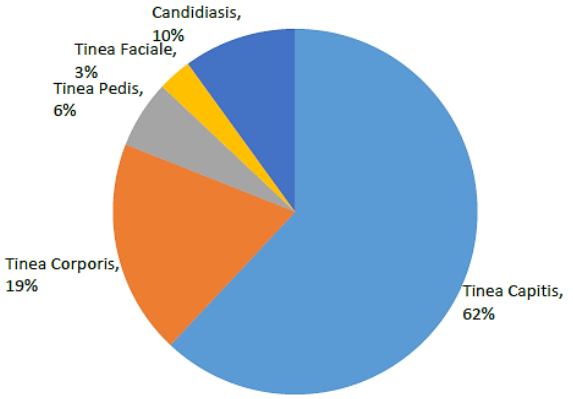

Figure 1 Frequency of type of fungal infections (n=288).

Out of 288(40%) patients having fungal infections, tinea capitis was most common and was found in 178(62%) patients. Tinea corporis was present in 55(19%), tinea pedis in 17(6%), tinea faciale in 8(3%) and candidiasis in 29(10%) patients reporting to our Dermatology OPD, Bahawal Victoria Hospital, as visually represented in **Figure 1.**

Regarding risk factors of dermatological infections, it was evident from this study that dermatological infections were more common in Male population and 382(53%) patients were male that seek dermatological advise. This study also concluded that 137(19%) patients had diabetes Mellitus, hypertension or coronary artery disease. Regarding BMI it was found that most patients 439(61%) with skin infections had BMI >30, as indicated in **Table 3.**

According to our study, out of 720 patients that were suffering from dermatological infections, 439(61%) belonged to low socio economic class, while 237(33%) belonged to middle socio economic class and 43(6%) belonged to high socio economic class, as indicated in **Table 4**.

Discussion

This study conducted on 1200 patients to find out frequency and risk factors of dermatological infections and it showed frequency of 720/1200 (60%) dermatological infections among them.

These results were similar to findings of another study conducted in Sialkot, where frequency of 42.53% dermatological infections was observed in patients attending dermatology Out Patient Department.[6]

Out of 720 patients, 45% (324/720) were between age 25-49 years and mean age was 41.8 years. These results were consistent to the study conducted in Karachi, where 43% of patients were less than 50 years of age and mean age in this study was 43.27±16.85.[2]

This study concluded that Scabies was second most common dermatological infection, with frequency of 230(32%) dermatological infections. This was may be due to poor hygiene and overcrowding, low socio economic class. These findings were similar with previous study conducted in Faisalabad where Scabies was observed in 30.32% of cases[3] but it was quite contrast to another study where scabies was found in 8.6% patients.[1] It was also proved in this study that fungal infections were most common dermatological infections and it was observed in 288 (40%) patients attending dermatology OPD. Likewise this study, another study had 30.58% fungal infections.[6] This result was different from another study in which frequency of fungal infections was 19.37%.[7]

Table 3 Distribution of patients with dermatological infections according to BMI (n=720).

BMI	*Frequency*	*%age*
≤30	281	30.02%
>30	439	60.9%

Table 4 Distribution of Patients with dermatological infections according to socio economic status (n=720).

Socio economic class	*Frequency*	*n (%)*
Low socio economic	439	(61%)
Middle socio economic	237	(33%)
High socio economic	43	(6%)

This difference was may be due to different weather conditions and personal hygiene practice.

Furthermore, this study also found that frequency of bacterial infections was 116 (16%), likewise the study conducted by Dr. SM Akhter ul am, in which frequency of bacterial infections was 20.06%.[5] In contrast to our study, frequency of bacterial infections in other two studies conducted by Zareen Saqib in Sialkot and Mohd. Nurul Alam in Bangladesh was 6.59%[6] and 3.6%[8] respectively. These differences were may be due to climate changes.

In our study, frequency of viral infections was 36 (5%) that was similar with study having 9.23% frequency of viral infections.[5] It was also revealed in our study that frequency of Parasitic infections was 28 (4%), that was contrary to previous study in which frequency of parasitic infection was 33.2%.Contrast between these two results might be due to seasonal variation at time of study.[5]

According to our study 61% patients were from lower socio economic class, that's why poverty, overcrowding, not up to the mark hygienic condition and poor sanitation system could be the cause of more skin infection.

This study also proved that 137 (19%) patients had co morbid conditions like diabetes mellitus, hypertension or coronary artery disease. Various factors influence the risk and prognosis of Acute Bacterial Skin and Skin Structure Infections (ABSSSI) in patients with diabetes mellitus. In addition to hyperglycemia, factors such as malnutrition, vascular damage, nephropathy, and decreased compliance all contribute to an increased risk of ABSSSI, treatment failure, and poor outcomes. Poor nutritional status, low serum albumin levels, and depletion of micronutrients, including vitamin D, may negatively impact the healing process and elevate the risk of adverse outcomes in these individuals.[9]

According to data of this study, it was also concluded that 439 (60.9%) patients with skin infections had BMI >30. People with high BMI are more prone to skin infections according to previous study.[10] Association of obesity and higher BMI with elevated susceptibility to skin infections underscores its role as a potential causal risk factor for these conditions. This connection is supported by evidence indicating that obesity can impair wound healing and promote intertrigo, a condition characterized by fungal infections exacerbated by warm, moist environments within skin folds. Additionally, obesity is known to disrupt lymphoid tissue, impair leukocyte function, and disturb the coordination of innate and adaptive immune responses, thereby compromising immunological surveillance.[10]

The distribution of skin diseases is influenced by a range of socioeconomic and environmental factors. These include hygiene practices, sanitation levels, socioeconomic status and the impacts of climate change. Seasonal variations play a significant role, as rainy seasons are associated with the spread of bacterial infections, and summers with fungal infections.[2]

Conclusion

In our study, skin infections were more common than non infectious dermatological diseases. Fungal infections emerged as the predominant cutaneous infection, followed by scabies, bacterial infection and viral infections. Emphasizing health education on manageable risk factors like BMI, hygiene practice, healthy lifestyle, and prompt treatment initiation is crucial in mitigating skin diseases associated with significant morbidity.

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