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Frequency of Tinea Corporis among the Patients of Uncontrolled Diabetes Mellitus Attending the Outpatient Department of Dermatology in the Government General Hospital, Samanabad, Faisalabad

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ABSTRACT

Background: Tinea Corporis is a contagious fungal infection commonly caused by *Trichophyton, Epidermophyton* and *Microsporum* species. It affects non-hairy parts of the body and presents as an erythematous lesion with raised borders with central clearing. It frequently affects patients with immunocompromised states like patients of uncontrolled Diabetes Mellitus. **Objective:** To assess the frequency of Tinea Corporis among the patients of uncontrolled Diabetes Mellitus attending the Outpatient Department of Dermatology in Government General Hospital, Samanabad, Faisalabad. **Study Design:** cross-sectional descriptive study. **Settings:** Dermatology outpatient department, Government General Hospital, Samanabad, Faisalabad Pakistan. **Duration:** Three months from 01-06-2025 to 31-08-2025. **Methods:** This cross-sectional descriptive study was conducted over three months in the Dermatology outpatient department of Government General Hospital, Samanabad, Faisalabad. A total of 150 diabetic patients aged 30–60 years with random blood glucose >200 mg/dl were enrolled using non-probability consecutive sampling. Diagnosis of Tinea corporis was made clinically. Data regarding age, gender, duration of diabetes, and blood glucose levels were recorded and analyzed using descriptive statistics. **Results:** Out of 150 participants, 89 (59.3%) had Tinea Corporis. Among these, 58 (65.2%) were females and 31(34.8%) were males. The infection was most common in 41-50 years age group (42.7%). Patients with poorer glycemic control had higher prevalence. **Conclusion:** Tinea corporis is common in patients with uncontrolled diabetes, particularly in middle-aged females. Good glycemic control and regular dermatological screening are recommended.

Keywords: *Frequency, Tinea corporis, Outpatient department, Dermatology, Diabetes mellitus.*

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INTRODUCTION

Tinea corporis (ringworm infection) is a contagious fungal infection primarily caused by Trichophyton, Epidermophyton, and Microsporum species.[1] Tinea is among the most common skin infections seen in the outpatient department of Dermatology and is prevalent in both men and women.[2] This disease affects the non-hairy parts of the body and typically presents as an erythematous lesion with raised borders and central clearing, sometimes with plaques.[3] Immunosuppressed states, such as diabetes, HIV, and chemotherapy, increase susceptibility.[4] Due to poor glycemic control, most diabetic patients in Pakistan develop serious and chronic dermatological infections, including furunculosis, tinea,[5] cellulitis, and infected gangrene. This study aims to determine the frequency of tinea corporis among patients with uncontrolled diabetes mellitus presenting to the outpatient department of Dermatology.

The objective of the study was to assess the frequency of Tinea Corporis among the patients of uncontrolled Diabetes Mellitus attending the Outpatient Department of Dermatology in Government General Hospital, Samanabad, Faisalabad.

METHODS

This cross-sectional descriptive study was conducted at Outpatient Department of Dermatology, Government General Hospital, Samanabad, Faisalabad Pakistan. Duration of the study was three months from 01-06-2025 to 31-08-2025. Non-probability consecutive sampling.

By using non-probability consecutive sampling technique WHO sample size formula, sample size was calculated using a

prevalence of 13.69% from a previous study (Balasubramanian et al., 2024),[6] with 95% confidence level and 6% margin of error, yielding a sample size of 150.

Patients aged 30-60 years, of both genders, and with poor glycemic control, i.e., having a random blood glucose level of >200 mg/dl at time of presentation, were included.

Patients with immunocompromised conditions other than diabetes, like HIV or those using steroids, and patients who had already taken or were currently taking anti-fungal before presentation were excluded.

Institutional approval was obtained from the office of the Medical Superintendent, Government General Hospital, Samanabad, Faisalabad, before data collection (Approval letter No. 486 dated 15-05-2025).

After Ethical approval was obtained from the office of Medical Superintendent, Government General Hospital, Samanabad, Faisalabad prior to data collection (Approval letter No. 486 dated 15-05-2025) clinical diagnosis of Tinea Corporis was made through history and visual examination. Data regarding age, gender, duration of diabetes, and Blood glucose levels at the time of presentation were recorded. Patients were stratified on the basis of age, gender, and random Blood glucose levels at the time of presentation. Frequencies and percentages were calculated.

RESULTS

Out of 150 patients, 89 patients had Tinea Corporis (59.3%), among them 31 were males (34.8%), and 58 were females (65.2%). Out of 89, 30 patients belonged to the age group 30-40 years (33.7%), 38 patients belonged to the age group 41-50 years (42.7%), and 21 belonged to the age group 51-60 years (23.6%). 16 out of 89 patients had random blood glucose levels ranging from 200-300 mg/dl at the time of presentation (17.9%), 51 had random blood glucose levels ranging from 301-400 mg/dl (57.3%), and 22 patients had blood glucose levels more than 400 mg/dl (24.7%).

Table 1-4 summarizes the frequency of Tinea Corporis according to gender, age group, and blood glucose levels.

Table 1: Frequency of tinea corporis in diabetic patients

Tinea Status	Frequency (n)	Percentage (%)
Tinea Present	89	59.3%
Tinea Absent	61	40.7%
Total	150	100%

Table 2: Gender-wise distribution of tinea corporis

Gender	Tinea Present (n)	Tinea Absent (n)	Total (n)
Male	31	24	55
Female	58	37	95
Total	89	61	150

Table 3: Age-wise distribution of tinea corporis

Age Group (Years)	Tinea Present (n)	Tinea Absent (n)	Total (n)
30-40	30 (Female = 21, Male = 09)	17 (Female = 11, Male = 06)	47
41-50	38 (Female= 28, Male = 10)	26 (Female = 15, Male = 11)	64
51-60	21 (Female= 09, Male = 12)	18 (Female = 11, Male = 07)	39
Total	89	61	150

Table 4: Tinea distribution by random blood glucose level

Blood Glucose Level (mg/dl)	Tinea Present (n)	Tinea Absent (n)	Total (n)
200-300	16 (Female = 08, Male = 08)	15 (Female = 8, Male = 07)	31
301-400	51 (Female = 35, Male = 16)	33 (Female = 21, Male = 12)	84
>400	22 (Female = 15, Male = 07)	13 (Female = 08, Male = 05)	35
Total	89	61	150

DISCUSSION

This study assessed the frequency of Tinea corporis in diabetic patients attending the outpatient Department of Dermatology. A total of 150 patients with diabetes mellitus were enrolled based on predefined inclusion and exclusion criteria. In our study, the prevalence of Tinea corporis was 59.3% (n=89), which is relatively high and consistent with a study reporting dermatophytosis prevalence of 78.8%, where Tinea corporis accounted for 50% of cases.[7]

However, variation in prevalence has been reported in different studies. One study documented a prevalence of approximately 35% with male predominance,[8] while another study reported a prevalence of 44.2%.[9] These differences may be attributed to geographical variation, climatic conditions, sample characteristics, diagnostic methods, and differences in glycemic control among studied populations. Hospital-based studies may also show higher prevalence due to inclusion of more symptomatic patients.

In our study, females were more commonly affected (65%), which is consistent with findings from Aga Khan University Hospital, Karachi, where Tinea corporis was also more frequent among female patients.[10] Similar female predominance has been reported in another study.[11] This may be explained by increased domestic exposure, prolonged contact with moist environments, and use of occlusive clothing, which may promote fungal growth.

Environmental factors also play an important role. Hot and humid climates facilitate fungal proliferation and transmission.[12,13] In addition, diabetes mellitus further increases susceptibility through multiple mechanisms. Chronic hyperglycemia leads to glycation of skin proteins, impaired skin barrier function, and increased skin surface glucose, creating a favorable environment for fungal growth. Vascular

insufficiency in diabetic patients further compromises local immune defense.

Moreover, diabetes is associated with impaired immune function, including defective neutrophil chemotaxis, reduced phagocytosis, and impaired T-cell mediated immunity, all of which contribute to increased susceptibility and persistence of fungal infections.[14]

We observed that Tinea corporis was most common in the 41–50 years age group, followed by 30–40 years. This indicates that middle-aged diabetic patients are at higher risk, possibly due to longer disease duration, progressive metabolic dysregulation, and cumulative exposure to hyperglycemia.

Furthermore, patients with poor glycemic control showed a higher frequency of infection, which is consistent with previous studies showing that elevated blood glucose levels enhance fungal proliferation and impair host immune response.[15] Importantly, cutaneous fungal infections in diabetic patients may serve as clinical indicators of uncontrolled diabetes.

From a clinical perspective, these findings highlight the importance of routine dermatological examination in diabetic patients, especially those with poor glycemic control. Early diagnosis and prompt treatment may reduce complications, recurrence, and disease burden.

In addition, Tinea corporis represents a significant but often under-recognized public health issue in diabetic populations. Although not life-threatening, it can significantly affect quality of life, cause discomfort, and lead to chronic or recurrent infections if not adequately managed.

Preventive strategies, including patient education regarding personal hygiene, keeping skin dry, avoiding sharing personal items, and maintaining optimal glycemic control, are essential in reducing the burden of dermatophytic infections in diabetic individuals.

Finally, there remains a need for further research focusing on antifungal resistance patterns, species identification, and long-term outcomes in diabetic patients with dermatophytosis, particularly in local populations.

CONCLUSION

Tinea Corporis was prevalent among the patients of uncontrolled diabetes, especially among middle-aged females. These findings suggest the importance of good glycemic control in the prevention of fungal infections. Also, these findings emphasize greater care of hygiene among the females and dermatological evaluation as an integral part of diabetes management.

LIMITATIONS

This was a single-center, hospital-based study with a relatively small sample size, which limits the generalizability of the findings to the broader population. Being a cross-sectional design, the study can only show associations and cannot establish causality. There was a possibility of selection bias, and community cases of dermatophytosis may not have been fully represented.

SUGGESTIONS / RECOMMENDATIONS

Future studies should be multi-center with larger sample sizes to improve generalizability and statistical strength. Community-based and longitudinal studies are recommended to better estimate true prevalence and evaluate risk factors and outcomes in detail.

CONFLICT OF INTEREST / DISCLOSURE

The authors declare that there is no conflict of interest.

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