International Journal of Medicine and Pharmaceutical Research
E-ISSN: 2321-2624 | https://doi.org/10.30904/j.ijmpr.2026.4929

A Study on Assessment of Clinical and Treatment Profile for Various Fungal Infections and Its Therapeutic Management in a Tertiary Care Hospital

G. Gnana Prasuna*[1], G. Harshini Reddy[2], P.Tejaswini[2], K. Sandhiya[2], V. Ambika[2], V. Dilli Babu[2]

[1]Associate Professor, Department of Pharmacy Practice, Saastra College of Pharmaceutical Education and Research, Varigonda, T.P Gudur, Nellore –524311
[2]IV Year B.Pharm student, Saastra College of Pharmaceutical Education and Research, Varigonda, T.P Gudur, Nellore –524311
***Corresponding E-mail:** gnana.guru00@gmail.com*

Received: 20-01-2026 | Revised: 12-02-2026 | Accepted: 21-03-2026 | Published: 24-04-2026

Abstract:
Introduction: Fungal infections can include superficial, cutaneous, sub-cutaneous, mucosal and systemic infections with varying degree of severity. **Aim:** The study aimed to assess clinical and treatment profile for various fungal infections and its therapeutic management in a tertiary care hospital. **Methodology:** The prospective observational study was carried out for a period of 6 months. The study was conducted in Dermatology department in a tertiary care hospital. A written and informed consent was obtained from the recruited patients. A Total of 50 patients were enrolled in the study. **Results and Discussion:** In our study 35-45 years age patients were more 18 (36%), compared to other ages. In our study Oral route administered patients were more 20(40%), compared to other route of administration drugs. Clinical manifestations of fungal infections include Nasal congestion symptoms patients were more 14 (28%), compared to other symptoms. Drug prescribing pattern for fungal infections includes Itraconazole prescribed patients were more 11 (22%) compared to other prescribed drugs. Type of Fungal infection includes Candidiasis patients were more 14 (28%) compared to other fungal infections. **Conclusion:** The regular prescription audit services must have encouraged to promote rational use of drugs and helps to develop standard prescribing guidelines in health care. This study showed that prescribing pattern of antifungal drugs helps to avoid the unnecessary use of antifungal medication based side effects in hospitals.
Keywords: Fungal infections, Systemic infections, Prescription audit, Itraconazole, Rational use of drugs.

Introduction

Fungal infections are of serious public health concern. Fungal infections can include superficial, cutaneous, sub-cutaneous, mucosal and systemic infections with varying degree of severity. Organisms such as candida spp. are part of human microbiota that can cause opportunistic infections in individuals and life threatening infections in immuno-compromised patients such as HIV patients, cancer patients receiving chemotherapy, and patients receiving immuno-suppressive drugs. Besides, opportunistic and systemic infections, fungal pathogens such as Candida, Aspergillus, Fusarium, Mucorales and molds can cause healthcare-associated infections in patients with underlying diseases. In certain geographical areas, fungal pathogens cause prevalent life-threatening endemic mycoses such as Blastomycosis, Coccidiodomycosis, Histoplasmosis, Talaromycosis, Paracoccidiodomycosis and Sporotrichosis[1-3].

Epidemiology of Fungal infections

Current estimates of fungal disease incidence and mortality are imprecise. Population at risk denominators were used to estimate annual incidence for 2019-21. Extensive literature searches from 2010 to 2023 were combined with over 85 papers on individual country and global disease burden. Crude and attributable mortality were estimated using a combination of untreated mortality, the proportion of patients who are treated, and percentage survival in treated patients.

Fungal pathogens and routes of transmission

The sub-kingdom Dikarya of fungi comprising of the phyla Ascomycota and Basidiomycota is the major contributor of all fungal pathogens and infections in humans. Ascomycota organisms are known for causing oropharyngeal, otolaryngeal, dermatological, ophthalmic, neuronal, genitourinary, cardiac, pulmonary and systemic infections. The organisms of Basidiomycota such as cryptococcus and Malassezia are well-known for invasive meningitis.

Types of fungal infections

The more common fungal diseases include:

- Fungal nail infections, which affect about 14% of all people.
- Ringworm, including athlete's foot.
- Vaginal yeast infections from Candida.
- Yeast infections in the mouth, also from Candida, including thrush.

Causes fungal infections

Fungal infections occur when a fungus that can cause disease comes in direct contact with certain parts of body. Sometimes, you breathe in fungal spores from the fungus, like tiny seeds in the air you can't see. Fungus can also enter your skin through a cut, burn, or other injuries. In very rare cases, a fungal infection can occur during surgery if providers don't follow all safety practices.

Clinical symptoms

Fungal infection symptoms commonly include persistent itching, rash, redness, scaling, and skin irritation, often in warm, moist areas like the feet, groin, or skin folds[4-7].

Treatment Fungal Infections

- **Vaginal yeast infection treatments:** fluconazole, boric acid, nystatin, or flucytosine.
- **Oral yeast infection treatments**: clotrimazole, fluconazole, miconazole, or nystatin.
- **Ringworm of the skin treatments**: clotrimazole, ketoconazole, miconazole, and terbinafine.
- **Ringworm on the scalp treatments**: fluconazole, griseofulvin, itraconazole, and terbinafine.

Non-pharmacological approaches

Non-pharmacological approaches to managing fungal infections focus on altering the environment to inhibit fungal growth, enhancing personal hygiene, strengthening the immune system, and using natural antimicrobial substances. These methods are particularly useful for superficial infections (skin, nails, oral thrush) or as complementary measures to medical treatment.

Hygiene and Environmental Control

Keep Skin Dry: Fungi thrive in warm, moist environments. Dry the skin thoroughly after showering, especially in skin folds, between toes, and in the groin area.

Proper Clothing: Wear loose-fitting, breathable clothing, preferably cotton, to prevent sweating and allow airflow.

Change Clothes Frequently: Change out of damp clothes, such as gym wear or swimwear, immediately.

Footwear in Public Areas: Wear sandals or flip-flops in public showers, locker rooms, and pool areas to avoid contracting infections like athlete's foot.

Laundry Precautions: Wash towels, bedding, and clothing in hot water to kill fungal spores.

Disinfect Personal Items: Do not share items like hairbrushes, towels, or sports equipment.

Reduce Sugar Intake: Diets high in sugar can promote fungal growth (especially Candida). Reducing refined sugars and processed foods can help manage infections.

Probiotics: Consuming plain yogurt or probiotic supplements can help balance the body's natural bacteria, which keeps fungus in check.

Manage Underlying Conditions: Controlling blood sugar levels is critical for those with diabetes, as high glucose levels increase susceptibility.

Reduce Stress: High-stress levels can weaken the immune system, making the body more vulnerable to infections.

Coconut Oil: Contains healthy fatty acids that are naturally antifungal and soothing to the skin.

Garlic: Contains allicin, a compound with antifungal properties, and can be used to support the immune system or applied topically.

Turmeric: Contains curcumin, which has antimicrobial properties.

Aloe Vera: Rich in antioxidants and antibacterial properties, useful for soothing skin infections and inhibiting yeast[8-9].

Methodology

Study Design: It was Prospective observational study.

Study Period: The Present study was conducted for a period of six months.

Study site: The Present study was conducted in Dermatology department in a tertiary care hospital.

Sample size: It was 50 Patients.

Inclusion criteria

- Patients with age of more than 18 years.
- Recently diagnosed with fungal infections.
- Patients receiving treatment for fungal infections.
- Patients who are willing to give consent.

Exclusion criteria

- Patients below 18 years.
- Patients who were not willing to join in the study.
- Psychiatric abnormalities.

Institutional ethics committee (IEC) consideration:

The research protocol was submitted to ethical committee and ethical Committee was permitted to perform the research work in the selected department of a tertiary care hospital.

Patient data collection and management: The data collection form contains information regarding age, sex, diagnosis, past medical history, medication history, laboratory data, and diagnosis, dose and frequency of administration and duration of therapy was collected from the patients treatment chart.

Statistical analysis: The data was represented as percentages.

Results and Discussion

Table 1: Age wise distribution

Age	Total (N=50)	Percentage (%)
20-25	11	22
26-30	12	24
35-45	18	36
46-55	9	18
Total	**50**	

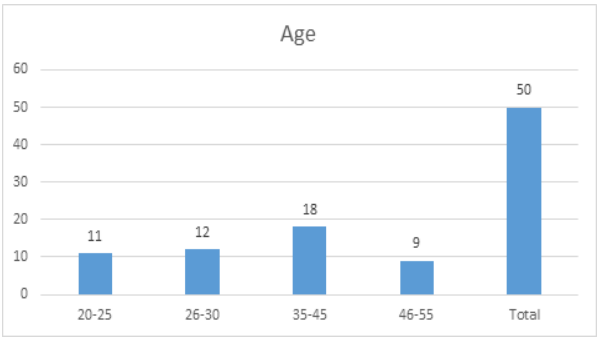

Fig 1: Age wise distribution

Table 2: Gender

Gender	Total (N=50)	Percentage (%)
Male	29	58
Female	21	42
Total	**50**	

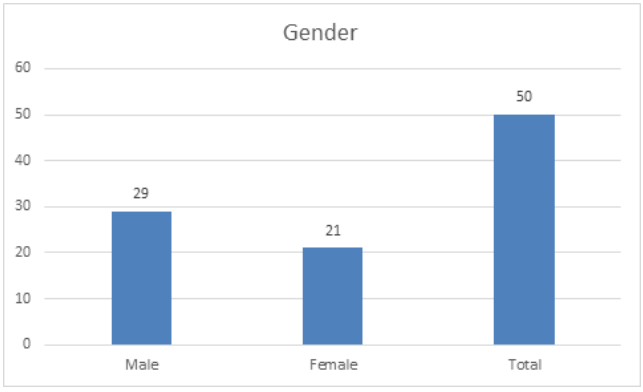

Figure 2: Gender

Table 3: Locality status

Locality status	Total (N=50)	Percentage (%)
Rural	32	64
Urban	18	36
Total	**50**	

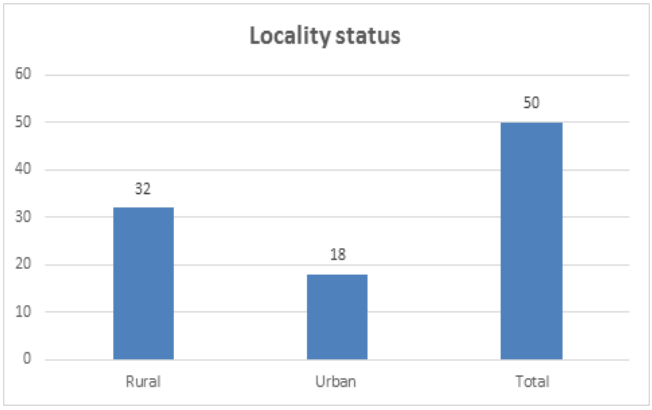

Figure 3: Locality status

Table 4: Type of Patients

Type of Patients	Total (N=50)	Percentage (%)
In Patients	38	76
Out Patients	12	24
Total	**50**	

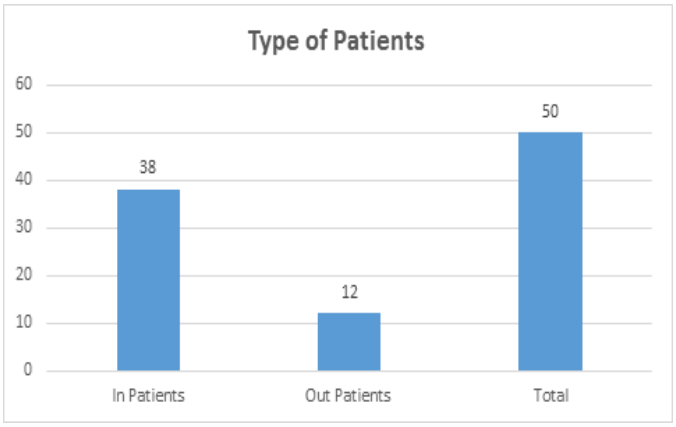

Figure 4: Type of Patients

Table 5: Duration of Treatment

Duration of Treatment	Total (N=50)	Percentage (%)
1-15 days	18	36
16-30 days	11	22
30-45 days	21	42
Total	**50**	

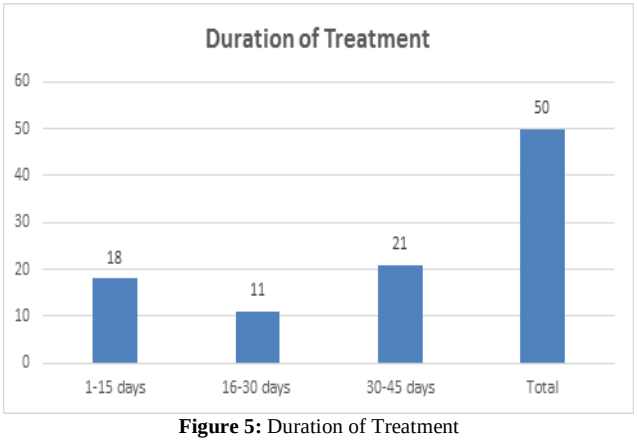

Figure 5: Duration of Treatment

Table 6: Route of administration of drugs

Route of administration	Total (N=50)	Percentage (%)
Oral	20	40
IV	16	32
Topical	14	28
Total	**50**	

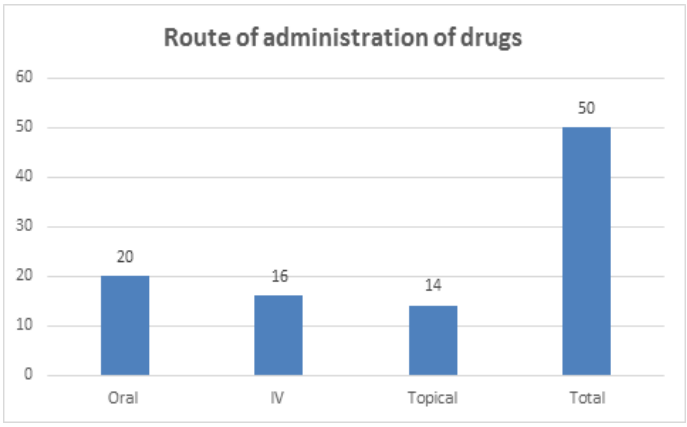

Figure 6: Route of administration of drugs

Table 7: Risk factors for fungal infections

Risk factors	Total (N=50)	Percentage (%)
HIV infections	9	18
Skin infections	17	34
Surgery	11	22
Renal failure	13	26
Total	**50**	

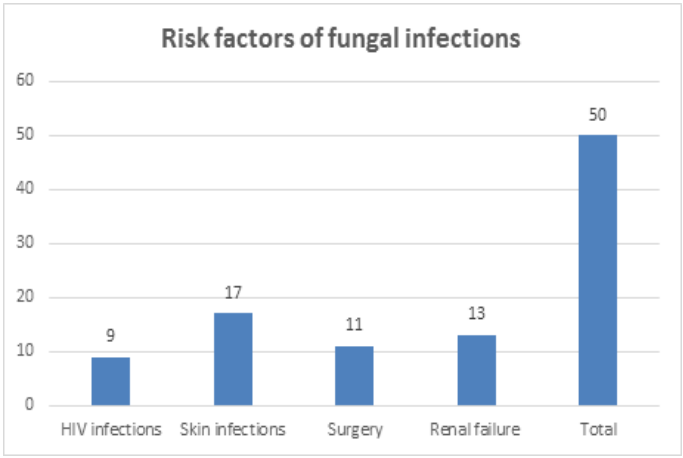

Figure 7: Risk factors of fungal infections

Discussion

- In our study 35-45 years age patients were more 18 (36%), compared to other ages.
- In our study male patients were more 29(58%), compared to female patients were 21(42 %).
- In our study Rural area patients were more 32(64 %), compared to urban area patients were 18 (36 %).
- In our study in Patients were more 38 (76%) compared to Out Patients were 12 (24%).
- In our study 30-45 days duration treatment received patients were more 21 (42%) compared to other treatment duration.
- In our study Oral route administered patients were more 20(40%), compared to other route of administration drugs.

- Risk factors of fungal infections includes skin infections patients were more 17 (34%), compared to other risk factors.
- Comorbidities includes Diabetes mellitus patients were more 19 (38%), compared to other comorbidities patients.
- Clinical manifestations of fungal infections include Nasal congestion symptoms patients were more 14 (28%), compared to other symptoms.
- Lab test for fungal infections includes skin biopsy patients were more 22 (44%) compared to other lab test patients.
- Drug prescribing pattern for fungal infections includes Itraconazole prescribed patients were more 11 (22%) compared to other prescribed drugs[10].
- WHO Drug prescribing indicators includes WHO Drug prescribing indicators includes Total number of patient's prescription analyzed were 50, Total number of drugs prescribed were 350, Average number of drugs per prescription were 7.0, Number of drugs prescribed by Generic name was 90, Number of drugs prescribed by Brand name was 260, Drugs included in National list of essential medicines was 125[11].
- Type of Fungal infection includes Candidiasis patients were more 14 (28%) compared to other fungal infections[12].
- Topical drug formulation for fungal infection treatment includes Lotion prescribed patients were more 15 (30%) compared to other prescribed drugs[13-14].

Conclusion

The regular prescription audit services must have encouraged to promote rational use of drugs and helps to develop standard prescribing guidelines in health care. This study showed that prescribing pattern of antifungal drugs helps to avoid the unnecessary use of antifungal medication based side effects in hospitals. The Prescribers need to create awareness for prescribing generic and essential drugs instead of branded drugs which assist to lower the health care cost[15]. Our study recommends for Preventing fungal infections requires multi-faceted approaches which targets on maintaining personal hygiene, keeping skin dry, wearing breathable clothing, using footwear in public areas, and ensuring proper skin hygiene would prevent the future recurring fungal infections among infected persons.

Acknowledgment

The authors thank the, Saastra College of Pharmaceutical Education and Research, Nellore, Andhra Pradesh, India, for technical assistance and support.

Funding

This study received no specific funding from public, commercial, or not for profit funding agencies.

AI Tool Declaration

The authors declare that no AI and related tools are used to write the scientific content of this manuscript.

Conflict of Interests

The authors declare no conflict of interest

Ethics Approval

Not applicable

Data Availability

Data will be available on request

References

[1] Vegada BN, Kareli BN, Singh AP. Drug utilization study of antifungal agents used in the department of skin and venereal disease of a tertiary care teaching hospital. Int J Pharm Sci Rev Res. 2015;34(1):118-21.

[2] Rao C, Rao R. A cross-sectional study of dermatological problems among differently-abled children. Indian J Dermatol. 2012; 57(1):35-7.

[3] Al-jabri MM, Shastry CS, Chand S. Assessment of drug utilization pattern in chronic kidney disease patients in a tertiary care hospital based on WHO core drug use indicators. J Glob Pharm Technol. 2019; 11(09): 1-9.

[4] Boddepalli D. Prescription pattern of commonly used drugs in dermatology OPD at tertiary care hospital. Indian J Res. 2019;8(9):85-87.

[5] Pathak AK, Kumar S, Kumar M, Mohan L, Dikshit H. Study of drug utilization pattern for skin diseases in dermatology OPD of an Indian tertiary care hospital–a prescription survey. J Clin Diagn Res. 2016; 10(2):1-5.

[6] Vegada BN, Karelia BN, Singh AP. Drug utilization study of antifungal agents used in the department of skin and v.d. of a tertiary care teaching hospital. Int J Pharm Sci Rev Res. 2015; 34(1):118-21.

[7] Koshley V, Halwai A, Koshley S, Kurrey P, Jaiswal S. Treatment pattern of dermatophytosis at the outpatient clinic of a tertiary healthcare hospital of Chhattisgarh, Central India. Indian J Clin Exp Dermatol. 2018; 4(4): 327-30.

[8] Al Balushi KA, Alzaabi MA, Alghafri F. Prescribing pattern of antifungal medications at a tertiary care hospital in Oman. J Clin Diagn Res. 2016;10(12):27-30.

[9] Oliver RJ, Dhaliwal HS, Theaker ED, et al. Patterns of antifungal prescribing in general dental practice. Br Dent J. 2004;196:701–703.

[10] Zaoutis TE, Argon J, Chu J, Berlin JA, Walsh TJ, Feudtner C. The epidemiology and attributable outcomes of candidemia in adults and children hospitalized in the United States: a propensity analysis. Clin Infect Dis. 2005; 41:1232–1239.

[11] Garey KW, Rege M, Pai MP, Mingo DE, Suda KJ, Turpin RS, Bearden DT. Time to initiation of fluconazole therapy impacts mortality in patients with candidemia: a multinstitutional study. Clin Infect Dis. 2006;43:25–31.

[12] Wald A, Leisenring W, van Burik J-A, Bowden RA. Epidemiology of Aspergillus infections in a large cohort of patients undergoing bone marrow transplantation. J Infect Dis. 1997;175:1459–1466.

[13] Vineeta D, Sharad P, Ganachari MS, Geetanjali S, Santosh S. Assessment of drug prescribing patten and cost analysis for skin diseases in dermatological, department of tertiary care hospital: an international study. J Pharmacovig. 2016;4(3):1-6.

[14] Gambre R, Khobragade A, Jalikar K, Patel S, Gaidhane S. Analysis of prescribing pattern of drugs among patients attending dermatology outpatient department of a tertiary care hospital. EJPMR. 2018;5(3):259-71.

[15] Joel JJ, Jose N, Shastry CS. Patterns of Skin Disease and Prescribing Trends in Rural India. Sch Acad J Pharm. 2013; 2(4):304-09.