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Management of Tinea Infection in a Tertiary Care Hospital

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ABBREVIATIONS

BMI – BODY MASS INDEX

KOH – POTASSIUM HYDROXIDE

SPSS – STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

OP – OUT PATIENT

IP – IN PATIENT

OD – ONCE IN A DAY

BID – TWO TIMES A DAY

UV - ULTRAVIOLET LIGHT

DM - DIABETIS MELLITU

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mg - MILLIGRAM

I. INTRODUCTION

DEFINITION

Dermatophytosis is one of the most common diseases around the world.Dermatophytes are fungi that require keratin for growth. These fungi can causes superficial infection of the skin, hair, and nails.[1]

The dryness of the skin's outer layer discourage colonization by microorganism.[1]

Dermatophytes are reffered to as "TINEA" infection.[1]

Some dermatophytes are spread directly from one person to another (anthropophilic organism),other lives in and are transmitted to human from soil/dead organisms (geophilic organism), while other dermatophytes spread to humans from animal hosts (zoophilic organism)[2]

Tinea infection are superficial infection caused by three genera of dermatophyte.[3]

* Tricophyton
* Microsporum
* Epidermophyton

The infection due to these pathogen is generally cutaneous and restricted to the non-living cornified layer of the skin.[3]

In chronic conditions the fungi may invade into deeper tissues, particularly in concurrent infection with other organism .[3]

Tinea lesions is also called as Ringworm lesion because it mostly takes a ring shape with inflammatory edges and clear center for normal skin. [3]

CLASSIFICATION

Tinea infection is classified according to its' anatomical location. Types of tinea infection:[4]

Tinea capitis - infection of scalp

Tinea barbae - infection in beard area. Tinea corporis - infection all over the body. Tinea cruris - infection in groin.

Tinea mannum - infection in hands.

Tinea pedis - infection of foot.

Tinea unguium - infection of nails.

EPIDEMIOLOGY

Prevalence of superficial fungal infectionworldwide is 20-25%, of which dermatophytos is are the most commonly caused fungal infection. [5]

Epidemiology of dermatophyte infection in developing countries like India [both tropical and subtropical], the environmental temperature and relative humidity is high, which shows rising trend in the prevalence of cutaneous dermatophytosis.[5]

Dermatophyte infection are morecommon in males than the females with a sex ratio.[6]

Dermatophyte infection was more common in the age group of 10-14 years (56%) that is commonly seen among children.[6]

Infection was also commonly found in the patients from a rural background (72%). With regard to housing, a joint family setup (55%) was recorded with more cases compared to hostel setup (17%) which was the least encountered.[6]

With regard to the clinical features tinea corporis to be the most common type of dermatophytosis and secondarily tinea cruris.[6]

Table 1: Epidemiology of dermatophytosis in India.[7]

Author (year)	Area	Sample size	Clinical subtype	Predominant dermatophyte isolate	Common age group affected
Bhatia et al(2014)	North India	202	Tinea corporis (39.1%)	T.mentagyrophyte (63.5%) T.rubrum (31%)	21-50 years
Kucheriaetal (2015)	North India	100	Tinea coporis (31%)	T.mentagyrophyte (30.35%) T.rubrum (46.4%)	21-30 years
Naglot et al (2016)	North east	632	Tinea corporis	T.mentagyrophyte	21-40 years

International Journal of Pharmaceutical Research and Applications
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	India		(34.82%)	(30.35%) T.rubrum (50.15%)	
Putta et al (2016)	West India	80	Tinea corporis (41.25%)	T.mentagyrophyte (37.74%) T.tonsurans (28.3%)	21-40 years
Ramraj et al (2014)	South India	210	Tinea corporis (63.2%)	T.mentagyrophyte (44.75%) T.rubrum (48.95%)	21-40 years
Guptaet al (2014)	Cental India	100	Tinea unguium (52%)	T.rubrum (41%)	>60years

ETIOLOGY

The dermatophytes are assigned to three genera namely Tricophyton, Microsporum, Epidermophyton. All these three fungi belongs to division Deuteromycetes , class Hyphomycetes, order Moniliales and family Moniliaceae.[8]

The three genera are differentiated by their conidial morphology .[8]

1. **Genus Trichophyton**: This genus includes 24 species, some of them are saprophytes. They produce microconidia abundantly that may be globuse or pyriform and are borne singly along the sides ofthe hyphae or in grape like cluster. They infect skin , hair, and nails. The example of human pathogenic species of this genus are T.rubrum, T.mentagrophytes, T.violaccum, T.tonsurans, T.schoenleinii, T.verrucosum, T.concentricum, T.equinum, T.simii, T.soudanense etc.[8]
2. **Genus Microsporum** : This genus include 17 species, some of which are saprophytes. Macroconidia are abundant that are spindle or fusiform shaped with rough walls with 3-10 septa. They infect skin, hair. Nails are not usually affected. Human pathogenic species are M.audouinii, M.gypseum, M.canis, M.nanum, M.ferrugineum, M.equinum, M.gallinae etc[8]
3. **Genus Epidermophyton** : This genus include only two species, out of which only one is pathogenic . Microconidia is absent. Macroconidia are abundant, borne in clusters with smooth, thick walls and two to seven septa. They infect skin, hair but not nails. Human pathogenic species is E.floccosum. [8]
4. **According to the habitat**

1 **Geophilic dermatophytosis**: The natural habitat of these species is the soil. Exposure to soil is the main source of infection for humans and animals[8] Example T.ajeloi, T.terrestre, M.gypseum, M.nanum, M.coolie, M.fulvum.

2. **Zoophilic dermatophytes** : They inhabit domestic and wild animals such as birds, dogs,cats, horses, cattle etc. Human infection is usually acquired by direct contact with infected animals. Certain zoophilic species may be isolated more often from soil and from fur of apparently healthy animals. E.g. T.mentagrophytes, T.verrucosum, T.equinum, T,simii, M.canis, M.equinum, M.gallinae.[8]
3. **Anthropophilic dermatophytes** : the fungal species exclusively affecting humans are known as anthropophilic. The migration of labor, troop movement, emigration and international travel played important roles in spreading of these fungi. E.g. T.rubrum, T.mentagrophytes, T.biolaceum, T,schoenleinii, T.tonsurans, T.concentricum, T.soudanense, M.audouinii, M.ferrugineum, E.floccosum.[8]

In general, dermatophytosis are found to be common among people of low socioeconomic status and in rural areas. This may be due to poor hygienic conditions. Common practice of sharing clothes and bathing towels of other ringworm patients without washing them properly and also due to poor nutritional values. [8]

The disease occurrence was observed to be common in summer and minimum in winter, indicating that sweating in summer may be predisposing factor for dermatophytosis.[8]

Tinea infection associate with the co-morbidity such as hypertention, diabetes melitus, atopy, hypothyroidism , psoriasis , retroviral

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diseases.[8]

Immunosuppressants and over the counter topical steroid creams found to be associated with the chronic dermatophytosis.[8]

It has also been noted that irrational use of antibiotic, corticosteroids,antineoplastic also known to be contributed to the dermatophytosis.[8]

Clinical Manifestation

Infections caused by dermatophytes are clinically classified, on the basis of location of lesions on the body. All though different body sites may be affected, each focus of infection is generally a result of local inoculation.[9] The invading dermatophyte grows in a centrifugal manner, forming irregular rings with inflammatory borders with some clearing in central area of lesion .[9] The term tinea describes the annular lesions that resembles a worm burrowing at the margin. The clinical manifestation are classified as follows:

1. **Tinea capitis** : ringworm of scalp involves infection of hair and scalp and presents as following clinical types[9]

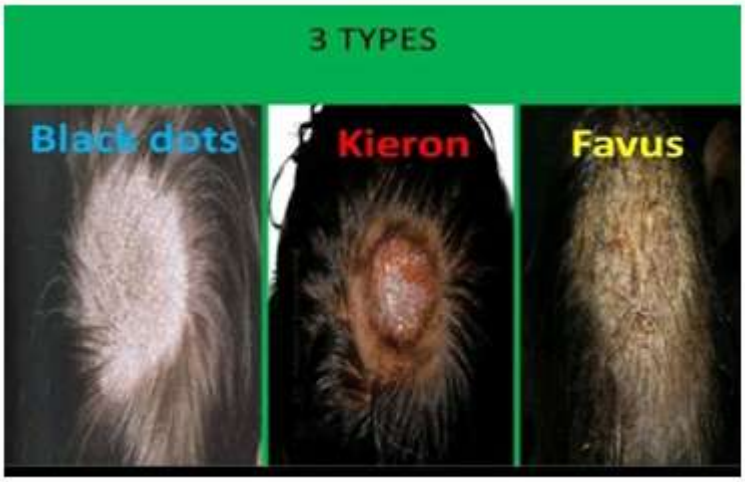

Figure 1 : Tinea capitis

Inflammatory: kieron, favus.

Favus is an acute inflammatory reaction of the hair follicle, which leads to inflammation of dense crusts around the hair follicles leading to alopecia and scarring. Some zoophilic dermatophytesinduce a severe inflammatory and hypersensitivity reaction know as keroin. [9]

Tinea capitis is a predominantly observed among children and young adults. This may be due to abstinence from application of oil to hair containing fatty acid which has initiating effect on fungi.In addition, it may also be due to the presence of thymus or its remnants and lack of fungicidal and fungistatic secretion by adrenal glands during childhood. [9]

2. **Tinea corporis**: Ringworm of glabrous skin. The lesions are well marginated with raised erythematous borders.[9] The annular, scaly patches may coalesce to form large area of chronic infection.[9] Commonest species causing this type of infection are T.rubrum, T.mentagrophytes, T.tonsuransTinea.corporis is observed to be predominant among people with previous family history of disease.[9] The disease may be transmitted by direct contact with other infected individuals. [9] Tinea capitis is the second most important clinical type seen among people with previous family history of disease. It is because these diseases may be transmitted through fomites such as comb, hairbrushes bedding, pillows, clothes, towel or furniture etc. In addition, tinea corporis can be attributed to poor personal hygiene and heavy manual work.[9]

International Journal of Pharmaceutical Research and Applications
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Figure 2 : Tinea corporis

Tinea cruris (Jock itch, Dhobie's itch): Ringworm of inguinal area involving the groin, perianal areas often involving the upper thigh (Fig 3).[9] Common species involved are T. rubrum, T. mentagrophytes, E. floccosum.[9]

Tinea cruris is mainly seen among students as they mostly wear synthetic tight under-garments in which sweat does not get absorbed and long standing moisture predisposes to fungal infection.[9]

Figure 3 : **Tinea cruris**

3. **Tinea pedis (Athlete's foot):** Ringworm infection of feet involving interdigital webs and sole.[9]The most common clinical manifestation is intertriginous form associated with maceration, scaling, fissuring and erythema which presents with itching and burning . [9]Commonest infecting species are E. floccosum, T. rubrum, T. mentagrophytes. [9]Tinea pedis is common among athletes and office workers.[9] It is due to constant wearing of shoes with synthetic nylon socks which does not absorb sweat.[9]

International Journal of Pharmaceutical Research and Applications
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Figure 4 : **Tinea pedis (Athlete's foot)**

4. **Tinea mnuuma**: Ringworm infection of palms and interdigital areas of hands and lesions present as diffuse hyperkeratotic areas (Fig 5).[9] Commonest etiologic agent is T.rubrum.[9]

Figure 5 : Tinea manuum

5. **Tinea barbae (Barber's itch)**: Ringworm infection of coarse hair of beard and moustache (Fig 6).[1]The lesions are inflammatory and pustular. [9] Commonest etiologic Tinea barbae is exclusively seen only in males, and the disease may be acquired from barber shops through contaminated instruments.[9]

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Figure 6 : Tinea barbae (Barber's itch)

6. **Tinea faciei**: Ringworm infection of glabrous skin of face, excluding beard area (Fig 7). Commonest species associated with this disease are T.rubrum, T.mentagrophytes, T.tonsurans.[9]

Figure 7 : **Tinea faciei 8.Tinea unguium:** Ringworm infection of nail plate.[9]

Distal subungual infection is the commonest pattern and involves nail bed and underside of nail in distal portion.[9]
The nail plate is brittle, friable, thickened and may crack because of piling up of subungual debris.[9] The colour of nail is often brown or black (Fig 8). Commonest species causing tinea unguium are T. rubrum, T. mentagrophytes, E. floccosum.[9]

Tinea unguium is common among housewives and servant maids due to practice of cleaning the cowshed bare handed, washing the house hold utensils with ash and frequent dipping of hands in soap water;all of which enhance the chances of fungal infection.[9]

Figure 8 : Tinea unguium

International Journal of Pharmaceutical Research and Applications
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Laboratory Diagnosis

Several standardized methods are available for the clinical diagnosis and laboratory diagnosis of dermatophytosis.[1] The following specimens are collected by a sterile scalpel blade depending on clinical type.[1] Infected hair is selected by exposure to Wood's lamp (UV light)[1]where the infected hair will fluoresce under Wood's lamp. Therefore, Wood's lamp is used for the diagnosis of tinea capitis.[1] It is a UV lamp emitting radiation at 365 nm.[1]

- Skin scrapings from edges of ringworm lesions
- Nail clippings
- Hair stubs

Diagnostic Methods for Dermatophyte Infections

Potassium hydroxide (KOH) microscopy Value:

Aids in visualizing hyphae and confirming the diagnosis of dermatophyte infection **Procedure**: Obtain scale from the active border of a lesion, pull out several loose hairs from the affected area or, in the case of nails, obtain subungual debris.[1] A moist cotton swab rubbed vigorously over the active border of a lesion works as well as a scalpel blade and is safer.[1] Transfer the scale, hair, or debris to a glass slide, and add a few drops of 10% to 20% KOH. For nail material or hair, gently warm the slide.[1] The wet-mount preparation is then examined under a microscope (400) with back-and-forth rotation of the focus knobs.[1]This technique aids the visualization of hyphae (branching, rod-shaped filaments of uniform width with lines of separation [septa]). In tinea capitis, the hair shaft may be uniformly coated with minute dermatophyte spores.[1]

Wood's lamp examination (UV) Value:

Generally of limited usefulness, because most dermatophytes currently seen in the United States do not fluoresce; may have value in the following situations: For diagnosing a brown, scaly rash in the scrotum or axilla: erythrasma, caused by the bacterium Corynebacterium minutissimum, fluoresces a brilliant coral red, whereas tinea cruris or cutaneous candidal infections do not fluoresce.[1]For diagnosing tinea (pityriasis) versicolor, which fluoresces pale yellow to white For diagnosing tinea capitis caused by two zoophilic Microsporum species that fluoresce blue-green (a minor percentage of tinea capitis cases in North America)

Fungal culture Value:

Slow and expensive, but useful to confirm the diagnosis of onychomycosis[nail fungus] when long-term oral therapy is being considered.

Procedure: Skin, nail, or hair scrapings are sent in a sterile container for inoculation on Sabouraud's dextrose agar by a hospital or reference laboratory.[1]The culture usually takes 7 to 14 days to be declared positive and must be held 21 days to be declared negative.[1]

Skin or nail biopsy Value: May guide treatment decisions when the diagnosis is difficult to establish, a dermatophyte infection has not responded to previous treatment, or KOH microscopy is negative in a patient with dystrophic nails.[1]

TREATMENT

The clinical appearance of lesions with a history of prior treatment, along with the knowledge of pharmacological properties of antifungal agents will help guide the choice of therapy.[7]

Experts have identified that the skin area involved (dry/sebum-rich) and the age of the patients, as additional factors influencing the choice of treatment.[7]

Tinea infection is treated with antifungal drugs a number of topical as well as systemic antifungal drugs are currently available in the market.[4]

Topical antifungal drugs : .[4]

- Terbinafine
- Ketoconazole

Systemic antifungal drugs .[4]

- Fluconazole
- Terbinafine
- Griseogulvin
- Itraconazole

Treatment of dermatophytosis can perform by two pharmaceutical forms of drugs: Topical and systemic drugs and some time by both. Most of ring worm lesions on glabrous skin that have limited size can be treated by topical creams or solution as shampoo, such as clotrimazole and miconazole, etc. [18], while nail infected nail and hair required systemic treatment, such as griseofulvin, Itraconazole, etc. [18],

PREVENTION AND CONTROL

Prevention andcontrol of dermatophyte infections must take into consideration the area

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

invaded, the etiologic agent and the source of infection. [8] The infection could be prevented by avoiding tight fitting clothes, synthetic or wollen undergarments and socks, and closed foot wear. [8]
Further, it is recommended to

i. Maintain good personal hygiene.
ii. Use loose clothing and absorbent undergarments and socks.
iii. Use open foot wear.
iv. Use clothing and towels which are well-laundered in hot-water, dried and ironed.
v. Dry thoroughly the intertriginous areas[where two parts of the body touch] and apply a simple talcum powder or antifungal powder after a bath.
vi. Encourage simultaneous treatment of contacts and family members.

II. REVIEW OF LITERATURE

1. Venkatesh V N , Swapna kotian, et al study on "**Dermatophytosis and clinic mycological profile from a tertiary care hospital** ". in these study out of 1590 samples were collected and among those 911 [57.30%] case was Tinea corporis predominant clinical condition observed followed by tinea pedis 203[12.77%] and tinea cruris 171 [10.75%] and in males the the most prevalent infection seen was Tinea corporis 557 [55.92%] followed by Tinea cruris 153 [15.36%] and in female the most prevalent was tinea corporis 354 [59.40%] followed by Tinea pedis 94[15.82%].
2. A study conducted by Rashidian et al, on " **a study on etiologic agents and clinical manifestations of dermatophytosis in Yazad, Iran**" concluded that out of 139 cases the most common was T. corporis(69.2%) followed by T. cruris(15.4%), T. manuum (11.5%), T. pedis (3.8%) Trichophytonmentagrophytes was the main etiologic agent (38.5%) then Trichophytonrubrum(23%) then Trichophytonviolacem(15.5%).
3. Vishal P Giri, Om P Giri , study on "**Dermatophytosis at the medical outpatient clinic of a tertiary healthcare in Karnataka**" . states that topical monotherapy was prescribed in total 83 (52.83%) patients out of them 36 (22.97%) were priscribed with terbinafine hydrochloride 1% while remaining 32(20.25%) received sertoconazole 2.5% and 15(9.49%) had ketoconazole 2%.
4. A study conducted by Acsah J George et al, on "**Assesment of Etiology pattern and treatment of Tinea infections in tertiary care hospital**" has concluded that Out of 37 patients, the most frequently reported widespread infection was Tineacorporis [13.51%] and Tineacuris [10.81%].
5. Sneha Gandhi et al, study on " **Clinicoepidemiological study of Dermatophyte infections in Pediatric age group at tertiary care hospital, Karnataka.**" States that Out of 521 children, prevalence rate of pediatric Dermatophyte infections was found to be 19%, 51% had applied steroids, 17% patients who has been prescribed antifungals, only 8% receive accurate dose and duration related treatment.
6. A study conductd by Muridharrajgopalan et al, on " **expert consensus on the management of dermatophytosis in India**"concluded that KOH mount microscopy was recommended as point of care testing,combination of systemic and topical antifungal was rcommended and the duration of treatment should be 2-4 weeks.
7. A clinical based study conducted by Dr. AmriaPandey, Dr. Manish Pandey, on "**Isolation and characterization of Dermatophytes with Tinea infections at Gwalior,India**" Concluded that Out of 83 patients suspected with Tinea infections, dermatophytes were most relavent and isolated from 71 cases i,e 85.5%.the total number of Tinea infection considered of 25 cases[35.2%] of Tinea corporis,18 cases [25.3%] of Tineacapitis, 12 cases [17%] of Tineapedis, 6 cases[8.4%] of Tineacruris, 5 cases [7%] of Tineaunguium, 3 cases [4.2%] of Tineamanum, 2 cases [2.8%] of Tineabarbae.
8. A hospital based study conducted by Mary Vineetha et al, on "**profile of dermatophytosis in tertiary care center**" States that Out of 120 cases studies, chronic dermatophytosis was seen in 68%.Tinea corporis was the most common presentation.
9. In a study conducted by Vikesh Kumar Bhatia, Prakash Chand Sharma, on "**Epidemiological studies on Dermatophytosis in human patients in Himachal Pradesh,India**" Concluded that Out of 202 samples analysed in cultural examination, 74 were positive for Dermatophyte species, Tinea conditions, Tinea corporis-29/74 [39.1%], Tineacuris – 20/74 [27%], Tineagladitorium- 1/74 [1.35%].
10. In a clinical based study conducted by Tonita M Noroucha et al, on "**Clinico microbiological study of Dermatophytosis in tertiary care hospital in North Karnataka**"

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

concluded that Out of 150 patients, Tineacorporis was most common type with 37 cases [29.7%], followed by Tineacapitis 35 cases [23.3%] and Tineaunguium with 16 cases [10.7%].

11. A study conducted by dr. Vinay Gera et al, on " **Evaluation of clinical profile of Dermatophytosis**" concluded that out of 245 cases Tineacorporis was seen in 145cases followed by Tineacruris in 62 cases then Tineafaciei in24 cases , Tineacapitis in 10 cases and Tineaunguium in 4 cases.
12. A study condutedbyPrachalagovindrathod et al, on " **Prevalance of dermatophytosis in tertiary care centre of Solapur,Maharastra**" concluded that ou of 150 cases, T.corporis was common in 78(52%) cases followed by T.cruris in 34(22.67%) and 12(8%) cases of multiple infection.
13. A study conducted by AlemAlemayehu et al, on "**prevalence of etiological agents of dermatophytosis among primary school children in harari regional state,Ethiopia**" concluded that out of 428 children 115(26.8%) were clinically suspected to have derma to phyteinfection, among those clinically diagonised patients, the laboratory culture confirmed cases were 100(23%).
14. A study conducted by Dr Asha S Khade et al,on **" a study of clinical profile of dermatophytosis with changing clinical pattern in tertiary care centre"** concluded that out of 335 patients, 318 patients were diagnosed with dermatophytosis among them it was found that common type of dermatophytosis were T. corporis(81.76%), T. cruris(80.81%).
15. A study conducted by Andrew Weinstein et al, on " **topical treatment of common superficial Tinea infections"** concluded that topical therapy is successful until infection covers the extensive area is resistanttointial therapy, the treatment should be continue atleast one week after clinical clearing of infection.
16. A study conducted by Ali Abdul Hussain et al, on **"Dermatophytosis: causes, clinica features, signs and treatment"** concluded that inflammation as ring shaped with centre lesion, symptoms are linked with itching,signs and symptoms are various based on nature of the infection and location in the body,treatment is either topical and systemic anti dermatophyte drugs.
17. A study conducted by Araya.Setal, on **" Epidemeiology of dermatophyte and non dermatophyte fungi infection"** concluded that out of 318 patients 148(46.5%) were culture positive, among this 72(46.8%) were dermatophytes.
18. A study conducted by Bhabani.Setal, on " **clinicomycological study of dermatophytes in tertiary care hospital in eastern India"** concluded that out of 311 patients,T.cruris(39.5%) were most followed by T.corporis(27%). T. barbae,T.unguium, T.mannum were seen in one patient each.
19. A study conducted by D Paudeletal, on **" dermatophytic infection among the patients attending Di skin hospital and research center at MaharajganjKhatmandu"** concluded that out of 110 patients 43.63% were culture positive, most common were T.corporis(29.1%) followed by T.cruris (18.2%)
20. A study conducted by B Janardhan et al, on **" clinicomycological study of dermatophytosis"** concluded that out of 200 cases, 159 (79.5%) were culture positive,most common was T.corporis(35.55%) followed by T. capitis(33.33%)
21. A study conducted by Soniyamahajanst al on " **clinicomycological study of dermatophytic infections and their sensitivity to anti fungal drugs in tertiary care center"** concluded that out of 256 patients mixed type of infection were common 146 (46.5%) followed by T.corporis55 (20.8%), T.cruris 50 (18.9%).
22. A Study conducted by Sanjive grover and P Roy et al on "**Clinico- mycological Profile of Superficial Mycosis in a Hospital in North-East India** "The commonest dermatophytosis was Tinea pedis (29.2%), followed by T cruris (26.2%). The commonest dermatophyte isolated was Trichophyton tonsurans (20.5%), followed by T rubrum (8.7%). Cultures grew a high proportion of non dermatophyte moulds (34%), of which Cladosporium spp (37.1%) was the commonest mould isolated. Total KOH positivity rate was 53.3% and total culture positivity rate was 79.1%. Our study revealed a variant local dermatophyte flora, a clinical pattern typical to our work environment in the Defence Services and a high isolation of yeasts and NDM.

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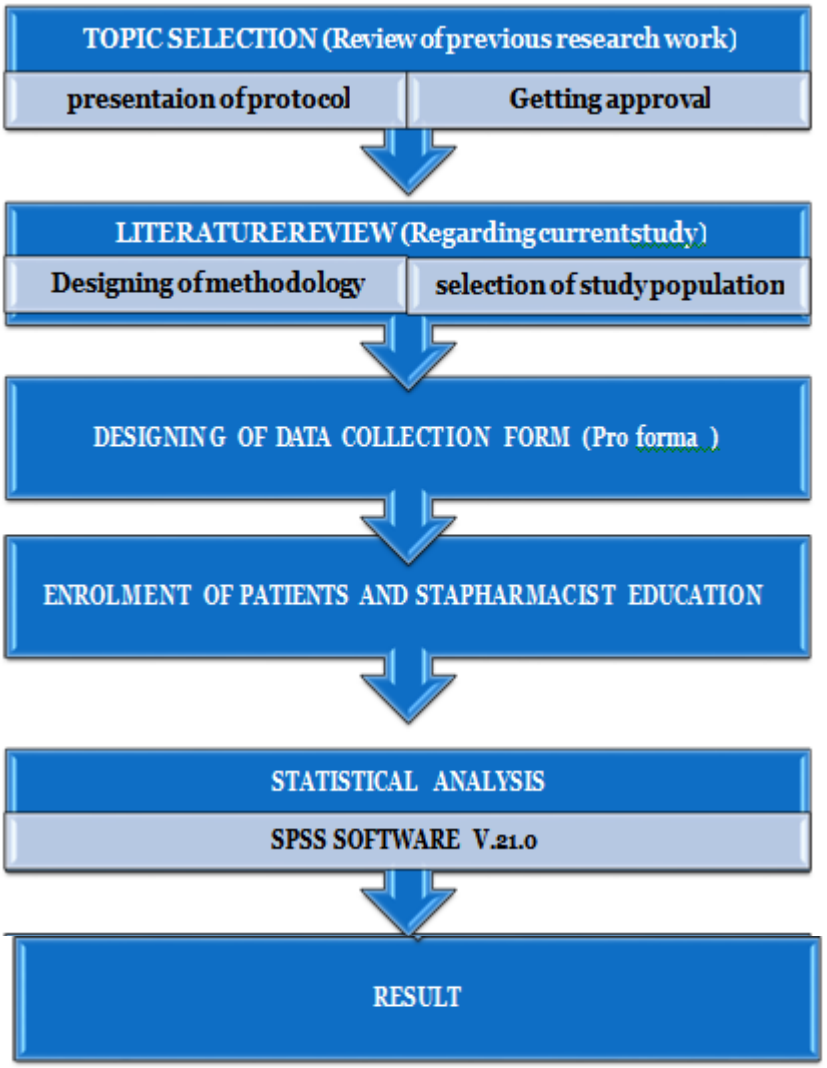
III. AIMS AND OBJECTIVES OF THE STUDY

1. To identify common type of ringworm infection.
2. To identify most commonly used antifungal agents in the treatment of ringworm infections.
3. To counsel the patients regarding the use of medications and management of the diseased condition.

IV. PLAN OFWORK



International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

V. METHODOLOGY

- **Study design**: Prospective, observational study
- **Study population**: Patients diagnosed with Tinea infections [Ringworm infections] that is who are visiting/ admitted either as inpatient or outpatient of dermatology ward of about 50 - 100 patients as target.
- **Study site**: BGS GIMS hospital, Kengeri, Bangalore.560062
- Study period: Six months from September 2019 to February 2020.
- **Inclusion criteria:**
  - Age group up to first five decades [0-50yrs] old of all sexes.
  - Patient suffering from TINEA infections on the basis of clinical history and finding.
- **Exclusion criteria:**
  - Immune compromising illness or use of
  - immunosuppressant medication.
  - Infection with nondermatophyte.
  - Geriatric patients.
  - Pregnant women.
- **Study instrument and validation procedure:**
  - Informed consent (Annexure I)
  - Consent of assent (Annexure II)
  - Data collection form. (Annexure III)
  - Pamphlets. (Annexure IV)
- **Sample size:** Sample size is calculated using the equation n=4pq/d2 where p= prevalence = 47.6% (1)85.5%

q=100 p=52.4
d=absoluteprecision=10% n=4959/73.1025
= 67.83
= 100 (approximately).

- **SAMPLING METHOD**: Purposive sampling.

METHOD OF DATA COLLECTION:

Operational definition: Data will be collected from the patients who are diagnosed with Tinea infections that is who are visiting/ admitted either as inpatient or outpatient of dermatology ward of about 67 - 100 patients as target using self designed questionnaire. Patient counseling regarding management and prevention of Tinea infections will be given to the patient

VI. RESULTS

During our study period we have collected 70 cases as per inclusion criteria, among 70 total collected cases 32 patients were males while 38 patients were females.

Table 2: Age-distribution of study population

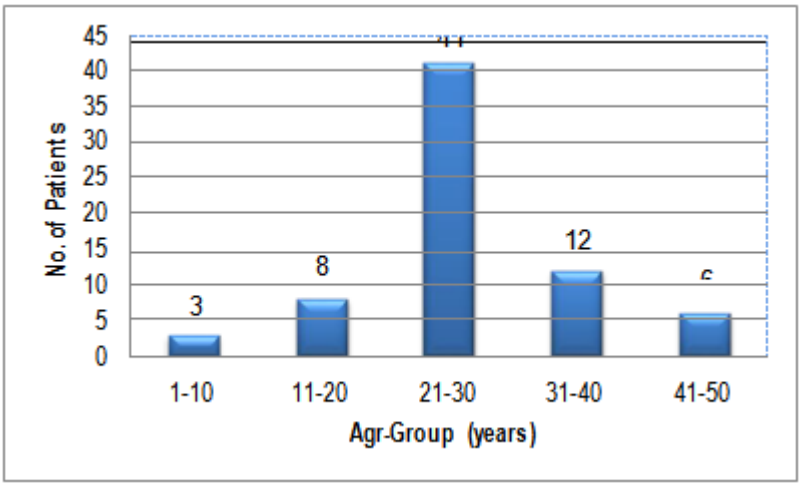
Age Group	No. of Patients	Percent
1-10	3	4.3
11-20	8	11.4
21-30	41	58.6
31-40	12	17.1
41-50	6	8.6
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Descriptive Statistics

Min	Max	Mean	Median	SD
4	49	27.8	28.0	8.9

Fig 9: Age-distribution of study population



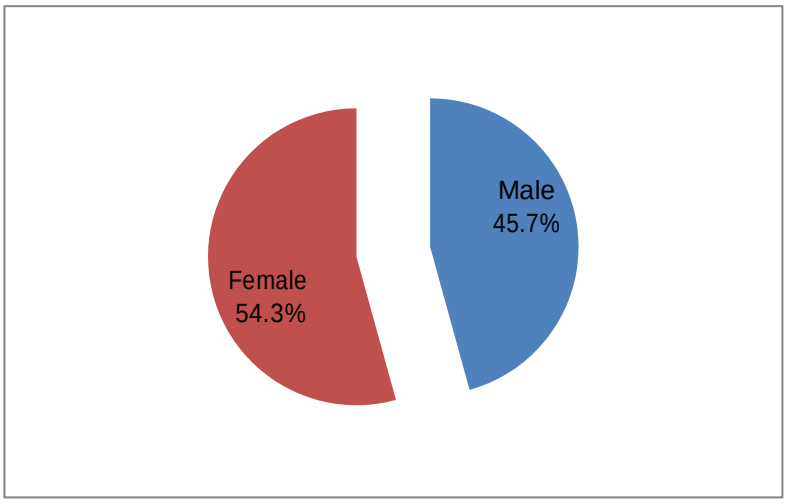
In this study maximum number of patient were in the age group of 21-30 years (58.6%) followed by the age group 31-40 (17.1%) years , 11-20(11.4%)years and 41-50 (8.6%) . The least commonly affected group was 1-10 (4.3%).

Table 3: Gender -distribution of study population

Gender	**No. of Patients**	**Percent**
Male	32	45.7
Female	38	54.3
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 10: Gender -distribution of study population



In this study the female out numbered males, constituting 54.3% of the patient and male were 45.7% of the patient.

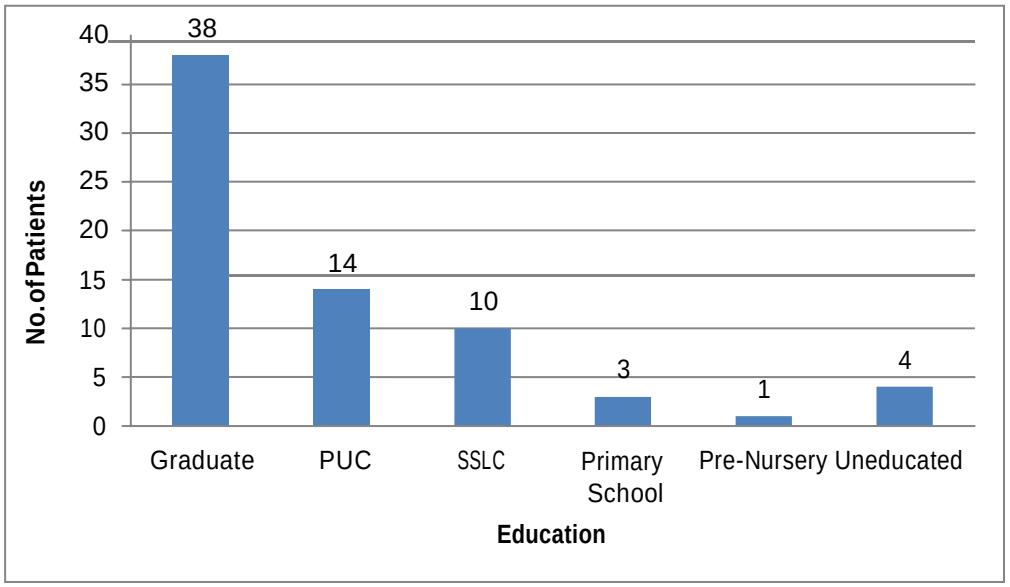
Table 4: Education Status of study population

Education	**No. of Patients**	**Percent**
Graduate	38	54.3
PUC	14	20.0
SSLC	10	14.3
Primary School	3	4.3
Pre-Nursery	1	1.4
Uneducated	4	5.7
Total	70	100.0

5.7 % illiterate 94.3% Literate

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 11: Education Status of study population



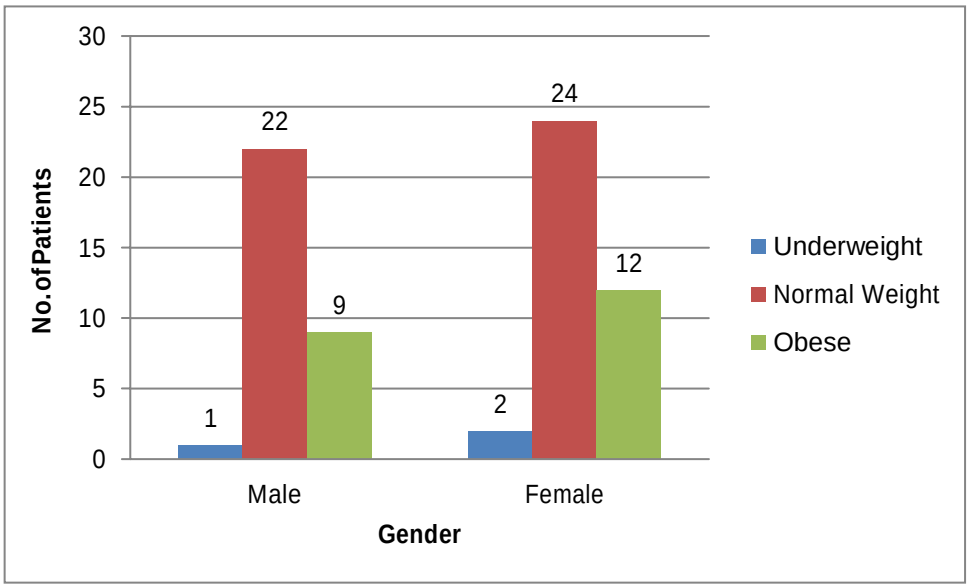
In this study maximum patients were literates constituting 94.3% followed by illiterate around 5.7 % of patients

Table 5: Distribution of patients based on BMI

	BMI							
Gender	**Underweight**		**Normal Weight**		**Obese**		**Total**	
	N	%	**N**	%	**N**	%	**N**	%
Male	1	3.1	22	68.8	9	28.1	32	45.7
Female	2	5.3	24	63.2	12	31.6	38	54.3
Total	3	4.3	46	65.7	21	30.0	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 12 : Distribution of patients based on BMI



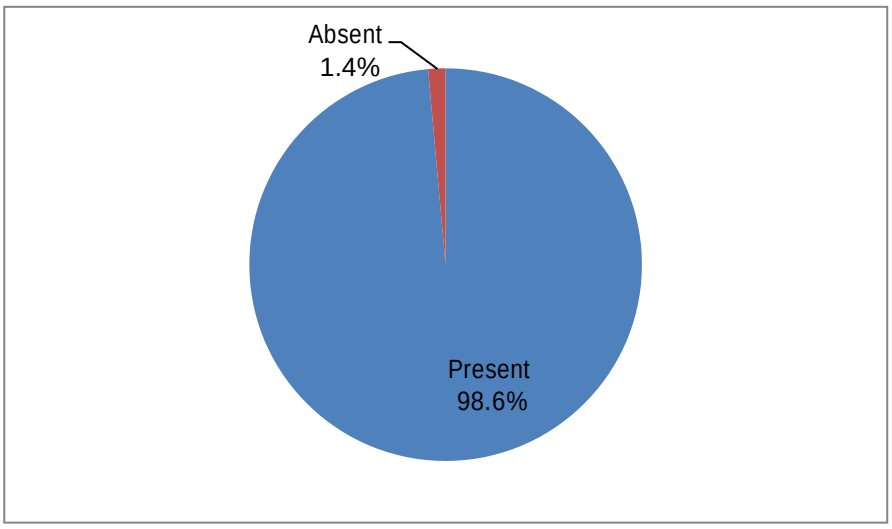
From the study the patient who are obese and diagnosed with tinea are 21 (30%) patients including 9 (28.1 %)male patients and 12 (31.6%)female patients showing female obese patients are more likely to be diagnosed with Tinea.

Table-6: Distribution of patients based on major complaints itching

Itching / Area affected	**No. of Patients**	**Percent**
Present	69	98.6
Absent	1	1.4
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 13 : Distribution of patients based on major complaints itching

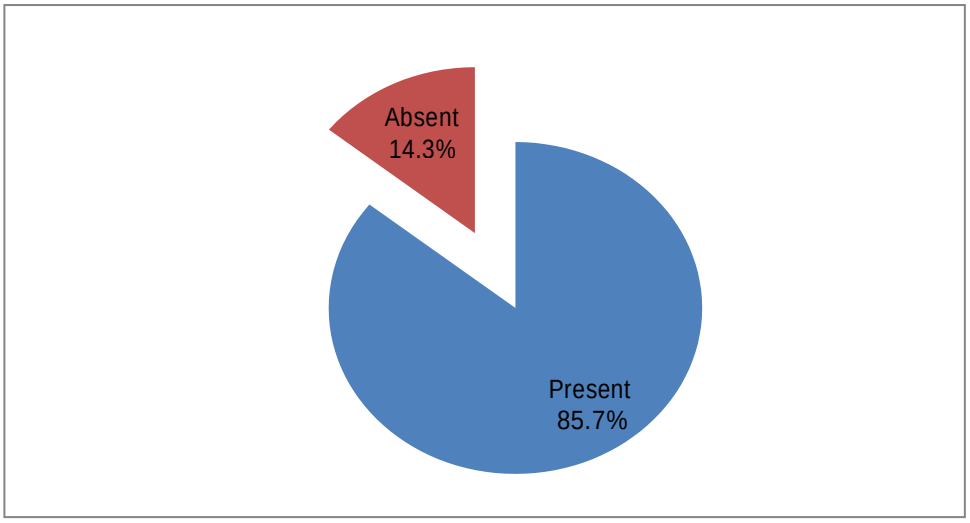


According to this study almost all the patients has complained of itching except for one patient that is 69 (98.6%) patients have complained of itching out of 70 patients.

Table-7: Distribution of patients based Red scaly patches

Red scaly patches	No. of Patients	Percent
Present	60	85.7
Absent	10	14.3
Total	70	100.0

Figure -14: Distribution of patients based Red scaly patches



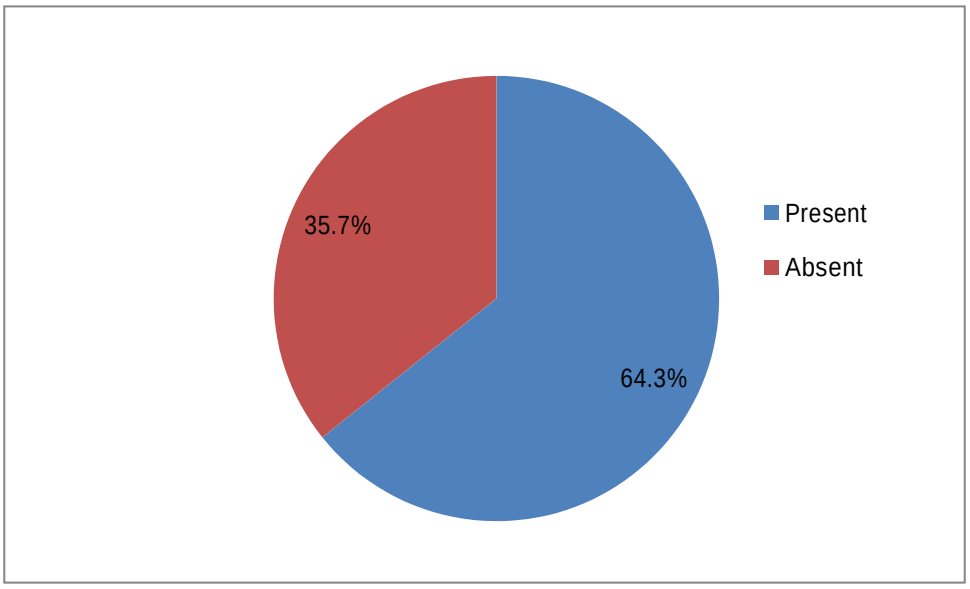
International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Scaly patch was the most common type of lesion found on examination. In this study 60 (85.7%) of our patients had red scalypatchesonexaminationand10 (14.3%) had no red scaly patches.

Table-8: Distribution of patients based rash

Rashes	No. of Patients	Percent
Present	45	64.3
Absent	25	35.7
Total	70	100.0

Fig 15: Distribution of patients based rash



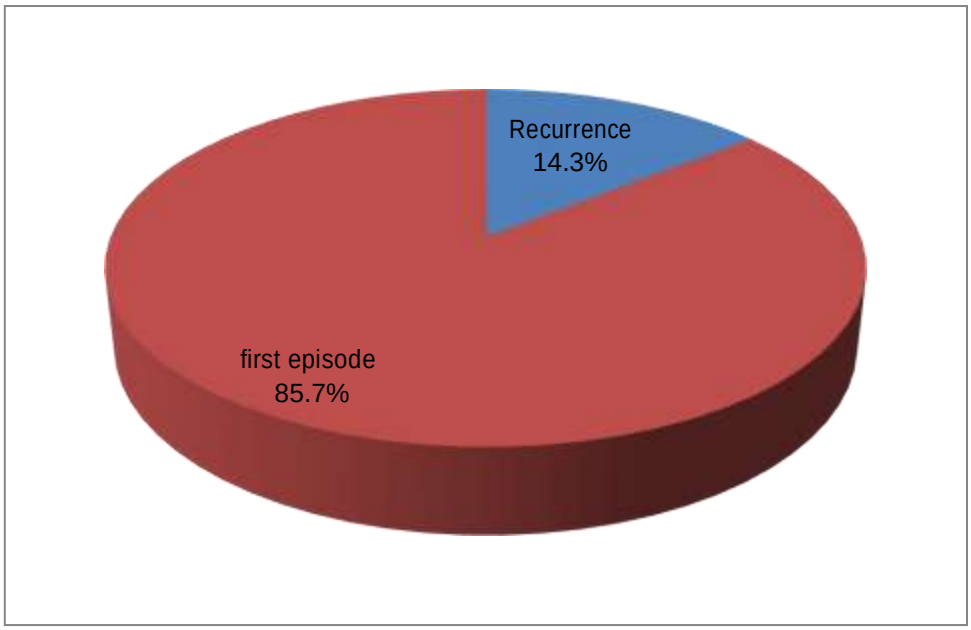
In the present study, out of 70 patients 45 (64.3%) patients presented with rashes on examination and 25 (35.7%) patients had no complaints of rash.

Table-9: Distribution of patients based on past history of tinea infection

Past History	No. of Patients	Percent
Recurrence	10	14.3
First episode	60	85.7
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig-16: Distribution of patients based on past history of tinea infection

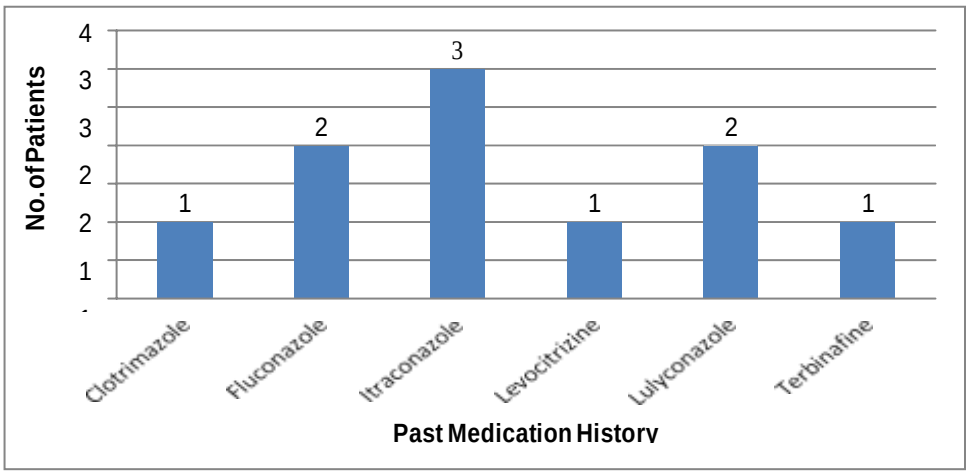


In this present study 10(14.3%) patients visited the hospital with recurrence of tinea infections while the remaining 60 (85.7%) patients has first episode of infection .

Table10:DistributionofpatientsbasedonPastMedicationHistoryof recurrence patients

Past Medication History	No. of Patients	Percent
Clotrimazole	1	12.5
Fluconazole	2	25.0
Itraconazole	3	37.5
Levocitrizine	1	12.5
Lulyconazole	2	25.0
Terbinafine	1	12.5
Total	10	125.0

Fig17 : Distribution of patients based on Past Medication History of reccurence patients



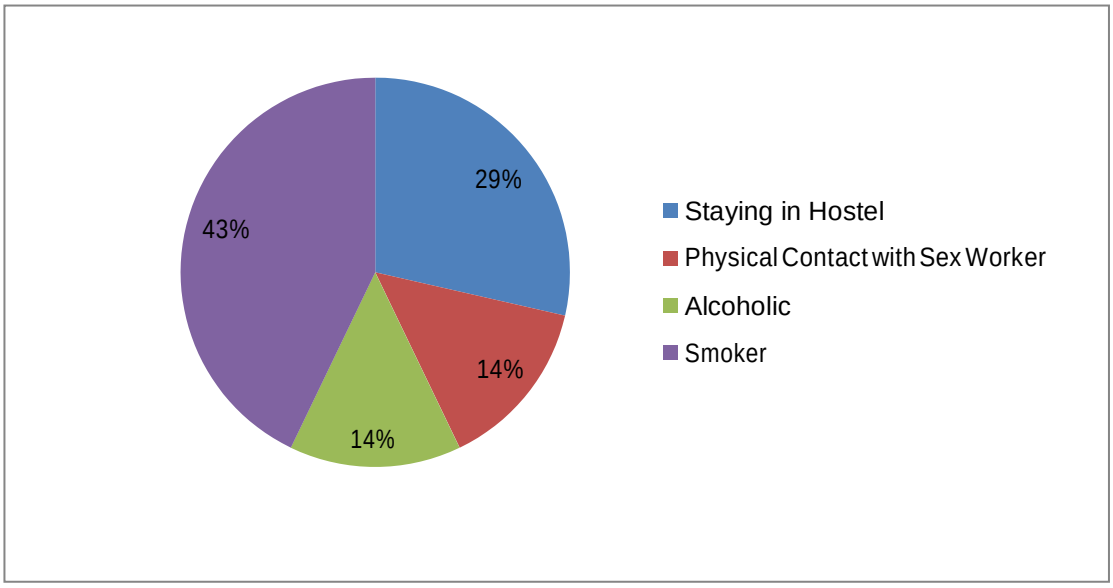
International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

the table- shows that the 10 patient with recurrence of tinea were on medication with antifungal agents including clotrimazole, fluconazole, itraconazole, lulyconazole, terbinafine and levocitrizine accounting for 1 patient with clotrimazole, 2 patients with fluconazole, 3 with itraconazole, 1 patient with levocitrezine, 2 patients with lulyconazole and 1 patient with terbinafine .

Table 11: Distribution of patients based on Social History

Social History	No. of Patients	Percent
Staying in Hostel	2	3.0
Physical Contact with Sex Worker	1	1.5
Alcoholic	1	1.5
Smoker	3	4.5
Total	7	

Table 18: Distribution of patients based on Social History



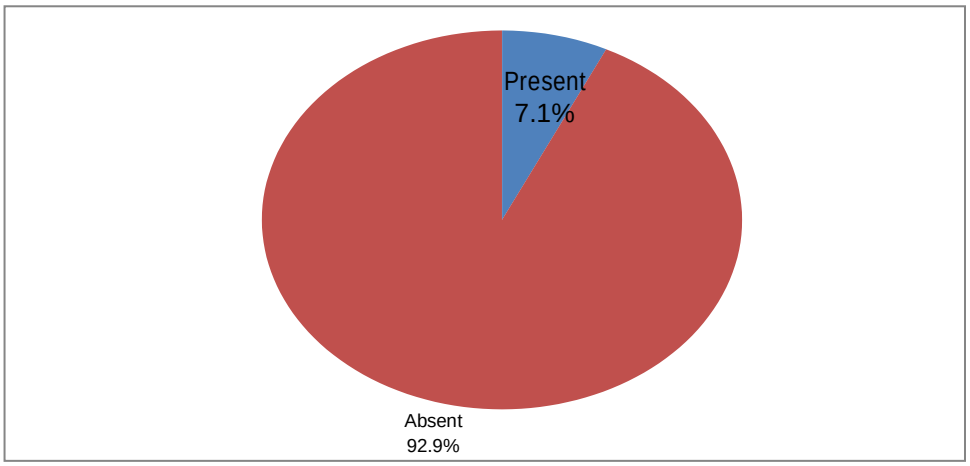
In the current study 2 (3%) patients were staying at hostel , 1(1.5%) patient was in physical contact with sex worker **,** 1(1.5%) patient was an alcoholic and 3 (4.5%) patients were smokers .

Table 12: Distribution of patients based on Family History of Tinea

Family History	No. of Patients	Percent
Present	5	7.1
Absent	65	92.9
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 19 : Distribution of patients based on Family History of Tenia

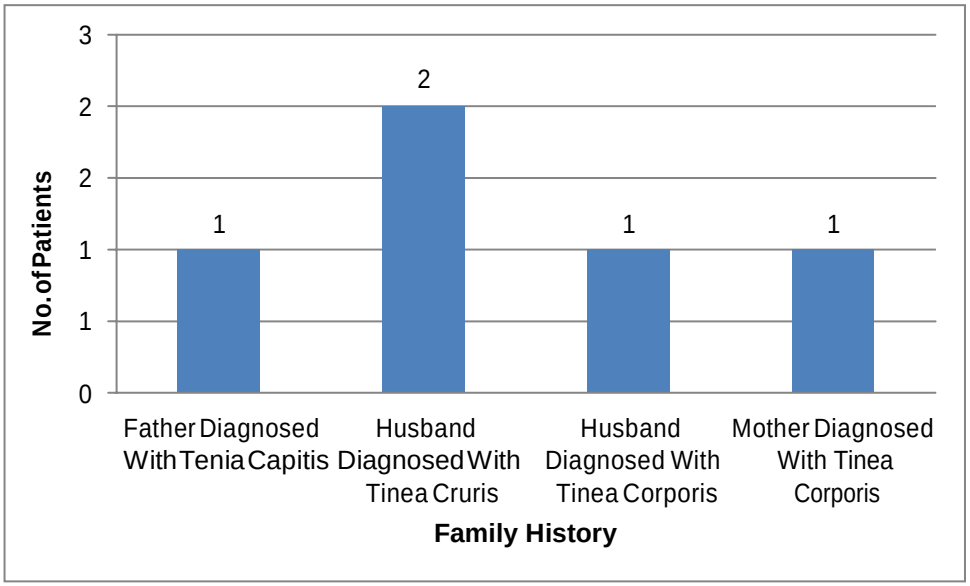


In this study out of 70 5 (7.1%) patients were suspected to be in contact with their family members and while 65(92.9%) patients has no history of contact with family members.

Table 13: Distribution of patients based on Family History details

Family History	No. of Patients	Percent
Father Diagnosed With Tenia Capitis	1	20.0
Husband Diagnosed With Tinea Cruris	2	40.0
Husband Diagnosed With Tinea Corporis	1	20.0
Mother Diagnosed With Tinea Corporis	1	20.0
Total	5	100.0

Table 20: Distribution of patients based on Family History details



International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

The above table shows that 5 (100%) patients who had infection through contact with family member among which one patient through contact with father diagnosed with tinea capitis(10%), two patients through husbands with tinea cruris (20%) and one patient through contact with husband with tinea corporis (10%) and the other patient got infection through contact with mother diagnosed with tinea corporis(10%)

Table 14: patients with Visiting Frequency

Visiting Frequency	No. of Patients	Percent
First	66	94.3
Second	4	5.7
Total	70	100.0

Fig 21 : patients with Visiting Frequency

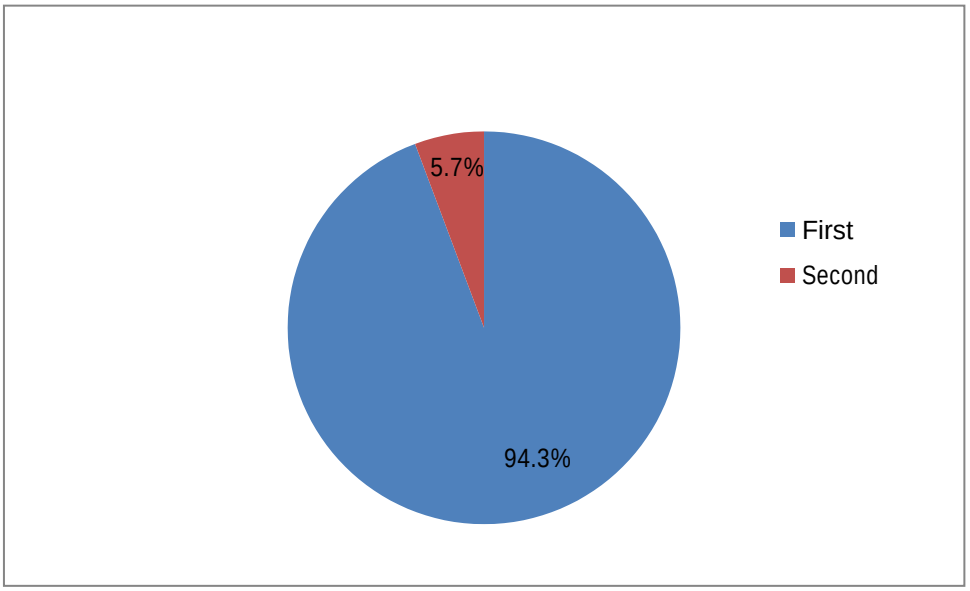


Table 14 describe that out of 70 patients 66 (94.3%) came to hospital for first visit and 4 (5.7%) patients came second time for follow up.

Table 15: tinea infection patients Affected body area with severity of itching

Severity of Itching	Mild		Moderate		Severe		Total	
Affected body area	N	%	N	%	N	%	N	%
Feet	2	66.7	1	33.3	0	0.0	3	100.0
Legs/Arms/Hand	15	55.6	9	33.3	3	11.1	27	100.0
Abdomen / Genital Area	5	18.5	7	25.9	16	59.3	28	100.0
Face / Eyes	6	100.0	0	0.0	0	0.0	6	100.0
Armpits/ Chest / Side of Body	1	7.1	8	57.1	6	42.9	15	100.0
Along the Back	0	0.0	3	100.0	1	33.3	4	100.0
Anal Area	0	0.0	3	75.0	2	50.0	5	100.0
Scalp	3	60.0	2	40.0	0	0.0	5	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

The above table shows that all the patient in study were symptomatic to itching, describing that the 32 patients had mild itching,33patients with moderate itching and 28 patients had a sever itching.

Fig 22: tinea infection patients Affected body area with severity of itching

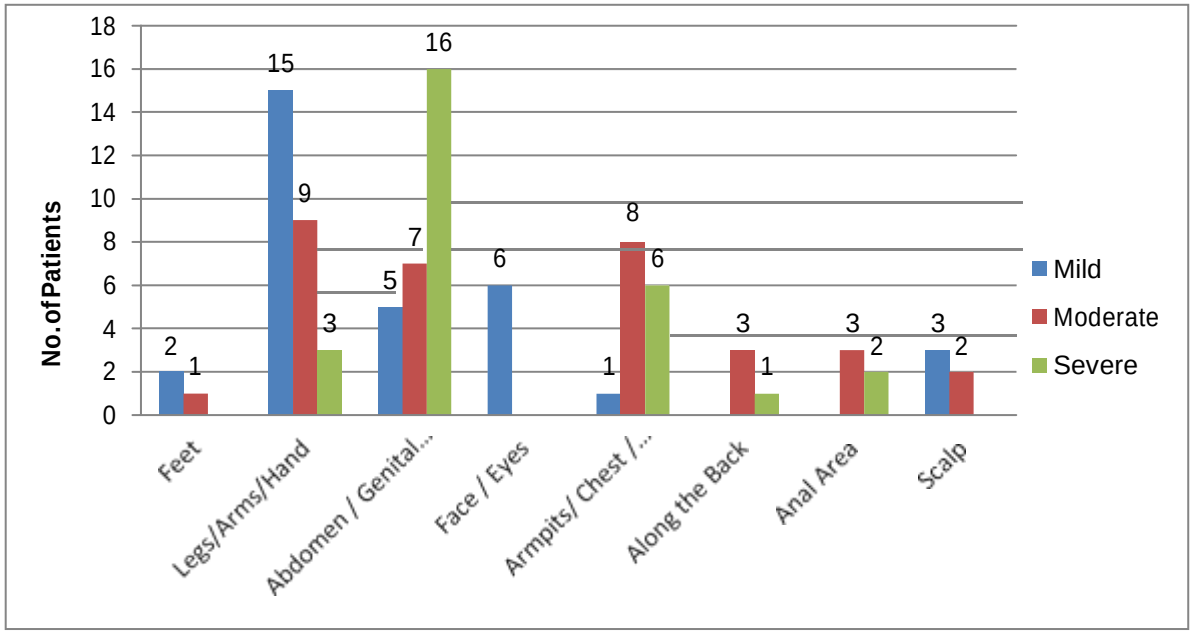
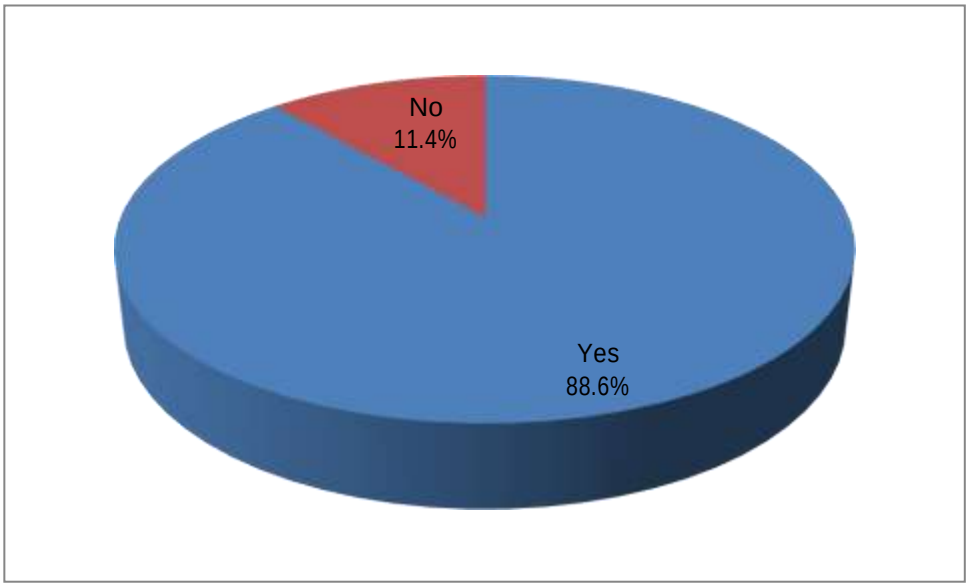


Table 16: Distribution patients based on Presence of Erythma

Presence of Erythma	No. of Patients	Percent
Yes	62	88.6
No	8	11.4
Total	70	100.0

Table 23: Distribution patients based on Presence of Erythma



International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

In the present study 62 (88.6%) patients presented with erythma on examination and only 8 (11.4%) patients had no history of erythma.

Table 17: Possible Mode of Infection

Possible Cause of Infection	**No. of Patients**	**Percent**
Close Contact	6	8.6
Dressing Pattern	8	11.4
Excessive Sweating	14	20.0
Obesity	3	4.3
Through Pets	3	4.3
Sharing Towels / Blankets	5	7.1
Unhygienic	12	17.1
Dressing Pattern + Excessive Sweating	5	7.1
Dressing Pattern + Obesity	1	1.4
Dressing Pattern + Sharing Towels	1	1.4
Excessive Sweating + Unhygienic	2	2.9
Obesity + Close Contact	1	1.4
Obesity + Excessive Sweating	5	7.1
Obesity + Excessive Sweating + Sharing Towels	2	2.9
Obesity + Excessive Sweating + Unhygienic	1	1.4
Obesity + Unhygienic	1	1.4
Total	70	100.0

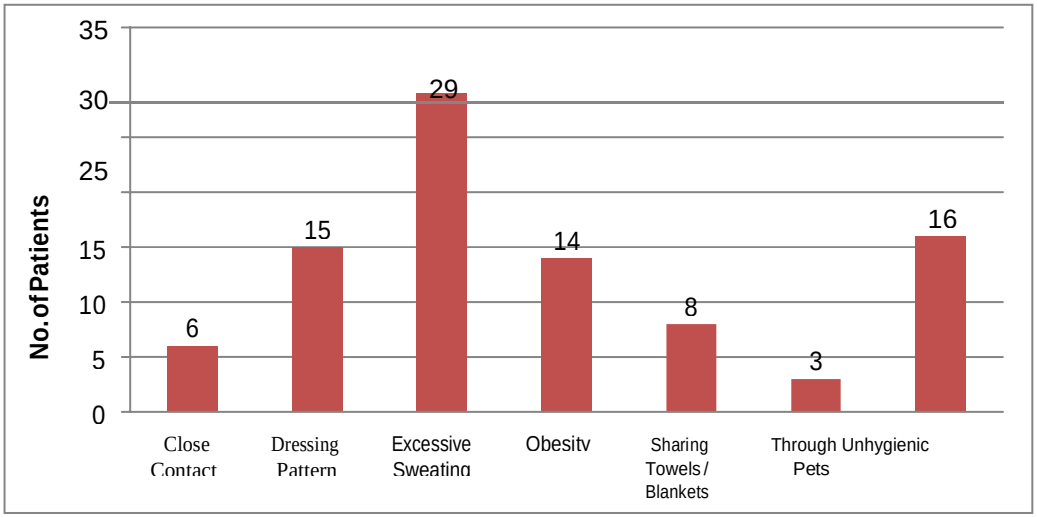
In the current study, the history of patients diagnosed with tinea infections accounts as follows : through close contact 8.6%with the people who had a tinea infection, Dressing Pattern 1.4%, obesity 4.3%, through pets 4.3%, Sharing Towels / Blankets7.1%, Unhygienic17.1%, Excessive Sweating 20.0% while most common cause of tinea infection in this study was sweating.

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Table 18: Frequency of Cause of Infection

Possible Causes	No. of Patients	Percent
Close Contact	6	8.6
Dressing Pattern	15	21.4
Excessive Sweating	29	41.4
Obesity	14	20.0
Sharing Towels / Blankets	8	11.4
Through Pets	3	4.3
Unhygienic	16	22.9

Fig 24: Frequency of Cause of Infection



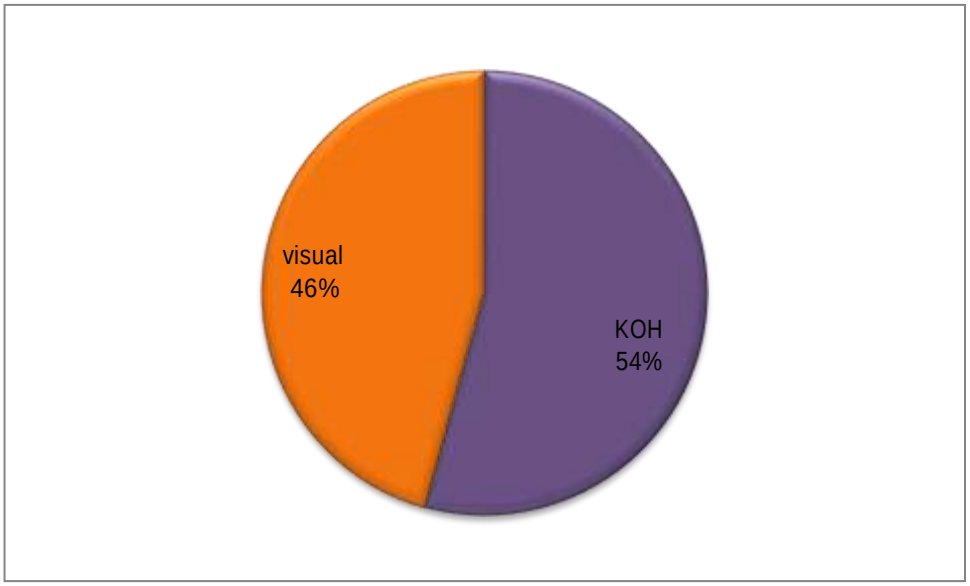
The above table shows that 41.4% patients had the infection through close contact with people who had the tinea infection . followed by 22.9% of the patient had the disease because of Unhygienic .and 21.4% patients had the disease by tight dressing patterns, 11.4% patients affected by Sharing Towels / Blankets, 4.3% patients affected through pets while 20.0% patients were obese .

Table 19: patients infection Confirmed through KOH test and visual observation

Test	No. of Patients	Percent
KOH Test Done	38	54.3
Visual observation	32	45.7
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Table 25: patients infection Confirmed through KOH test



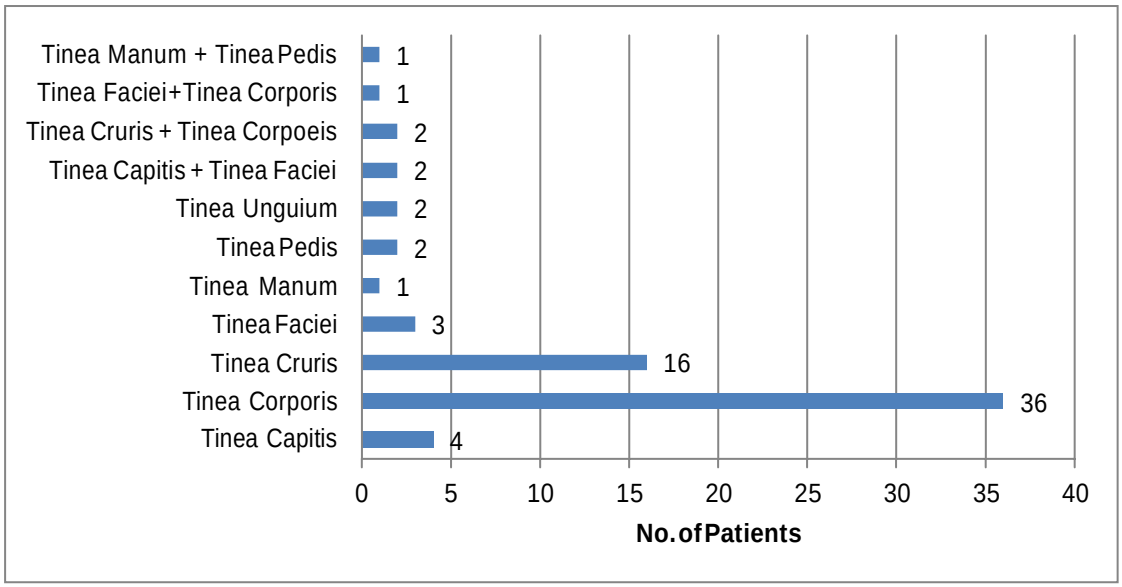
The above table shows that 38 (54.3%) patient's infection was confirmed through KOH test and 32(45.7%) patient's tinea infection was confirmed by visual observation.

Table 20: Distribution of patients based on clinical diagnosis

Provisional Diagnosis	No. of Patients	Percent
Tinea Capitis	4	5.7
Tinea Corporis	36	51.4
Tinea Cruris	16	22.9
Tinea Faciei	3	4.3
Tinea Manum	1	1.4
Tinea Pedis	2	2.9
Tinea Unguium	2	2.9
Tinea Capitis + Tinea Faciei	2	2.9
Tinea Cruris + Tinea Corporis	2	2.9
Tinea Faciei +Tinea Corporis	1	1.4
Tinea Manum + Tinea Pedis	1	1.4
Total	70	100.0

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Graph-26: Distribution of patients based on clinical diagnosis



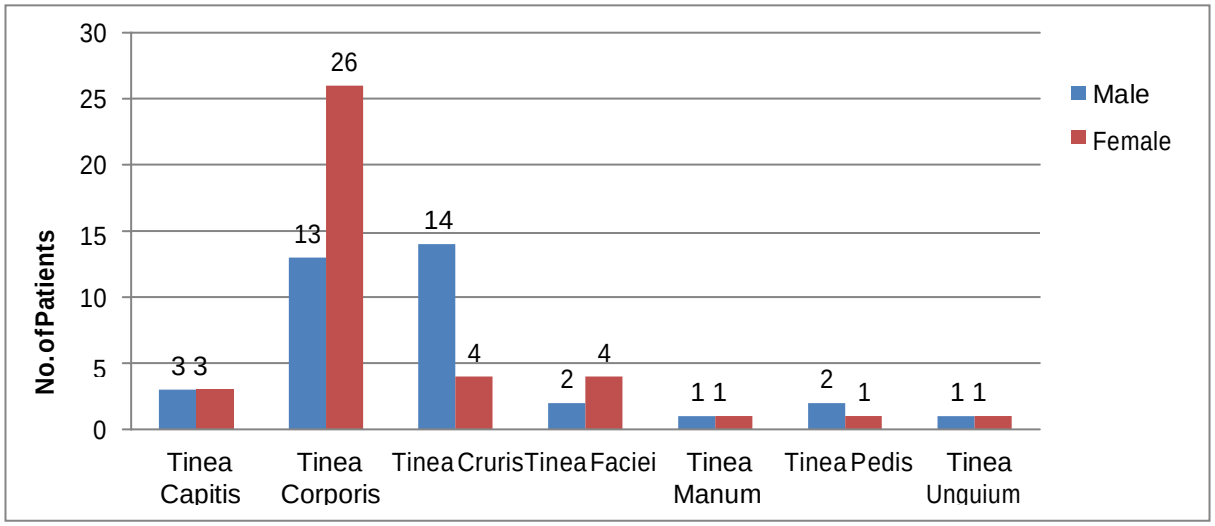
In the current study most of the patient had a tinea corporis 51.4%, followed by tinea cruris 22.9%, and tinea capitis 5.7% while Tinea Faciei accounts for 4.3%, Tinea Pedis for 2.9%, Tinea Unguium for 2.9% and while 2 (2.9%) patient had combination of Tinea Capitis + Tinea Faciei and 2 (2.9%) patient had combination Tinea Cruris + Tinea Corporis ,1(1.4%) patient had combination of Tinea Faciei +Tinea Corporis and 1(1.4%) patient had combination of Tinea Manum + Tinea Pedis.

Table 21: distribution of patients on Prevalence of Tinea

Provisional Diagnosis	Male		Female		Total	
	N (32)	%	N (38)	%	N (70)	%
Tinea Capitis	3	9.4	3	7.9	6	9
Tinea Corporis	13	40.6	26	68.4	39	56
Tinea Cruris	14	43.8	4	10.5	18	26
Tinea Faciei	2	6.3	4	10.5	6	9
Tinea Manum	1	3.1	1	2.6	2	3
Tinea Pedis	2	6.3	1	2.6	3	4
Tinea Unguium	1	3.1	1	2.6	2	3

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 27 : distribution of patients on Prevalence of Tinea



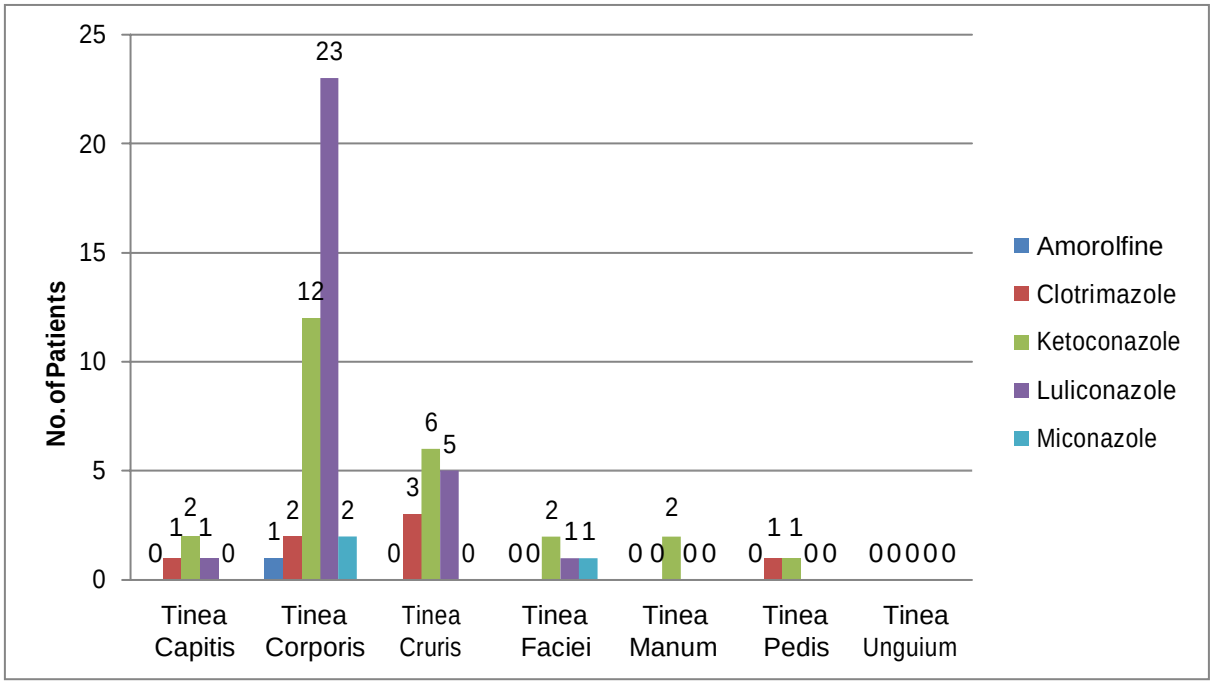
In this study 9 % of the patients were dignosed as tinea capitis among which 3 patients were male and 3 patients were female. 56 % of the patients diagnosed as tinea corporis among which female(26) were more common than the males(13). 26% patients diagnosed with tinea cruris accounting for 14 male patients and 4 female patients. 9% patients are have tinea Faciei while 2 patients were male and 4 patients were female. 3% paients were diagnosed as tinea mannum in that 1 patient was male and 1 patient was female, and 4% patients were diagnosed as tinea pedis and 3% patients were diagnosed with tinea Unguium. The table 21 show that tinea corporis was most common infection compared to other tinea infections while females are more prone to the tinea infections.

Table 22 : Topical treatment in tinea infection

Topical	Amorolfine	Clotrimazole	Ketoconazole	Luliconazole	Miconazole
Tinea Capitis	0 (0%)	1 (14.3%)	2 (8%)	1 (3.3%)	0 (0%)
Tinea Corporis	1 (100%)	2 (28.6%)	12 (48%)	23 (76.7%)	2 (66.7%)
Tinea Cruris	0 (0%)	3 (42.9%)	6 (24%)	5 (16.7%)	0 (0%)
Tinea Faciei	0 (0%)	0 (0%)	2 (8%)	1 (3.3%)	1 (33.3%)
Tinea Manum	0 (0%)	0 (0%)	2 (8%)	0 (0%)	0 (0%)
Tinea Pedis	0 (0%)	1 (14.3%)	1 (4%)	0 (0%)	0 (0%)
Tinea Unguium	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total	1 (1.4%)	7 (10%)	25 (35.7%)	30 (42.9%)	3 (4.3%)

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Fig 28 : Topical treatment in tinea infection



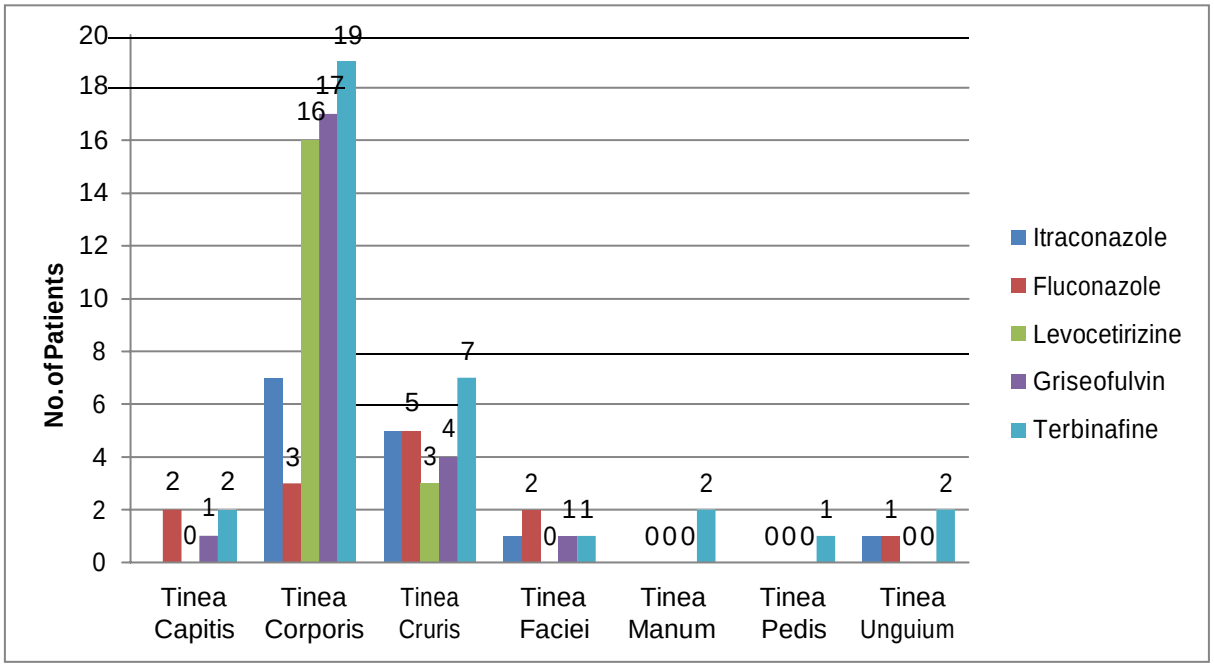
In the current study the patient with tinea infection treated with topical antifungal drugs in the dermatotology department includes **Amorolfine Ketoconazole**, **Luliconazole**, **Miconazole** and **clotrimazole** in that 1 (1.4%) patients prescribed with the **Amorolfine,** 25 (35.7%)patients prescribed with **Ketoconazole** and 30 (42.9%)patients prescribed with **Luliconazole.** 3 (4.3%)patients were prescribed with **Miconazole** and 7 (10%)patients prescribed with the **clotrimazole** cream . lulyconaole is the more frequently prescribed drug for both tinea corporis and tinea cruris followed by ketoconazole as second most commonly used drug in all types of tinea infection .

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 1 Jan-Feb 2021, pp: 636-670 www.ijprajournal.com ISSN: 2249-7781

Table 23: systemic treatment in tinea infection

Systemic	Itraconazole	Fluconazole	Levocetirizine	Griseofulvin	Terbinafine
Tinea Capitis	0 (0%)	2 (15.4%)	0 (0%)	1 (4.3%)	2 (5.9%)
Tinea Corporis	7 (50%)	3 (23.1%)	16 (84.2%)	17 (73.9%)	19 (55.9%)
Tinea Cruris	5 (35.7%)	5 (38.5%)	3 (15.8%)	4 (17.4%)	7 (20.6%)
Tinea Faciei	1 (7.1%)	2 (15.4%)	0 (0%)	1 (4.3%)	1 (2.9%)
Tinea Manum	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5.9%)
Tinea Pedis	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2.9%)
Tinea Unguium	1 (7.1%)	1 (7.7%)	0 (0%)	0 (0%)	2 (5.9%)
Total	14 (20%)	13 (18.6%)	19 (27.1%)	23 (32.9%)	34 (48.6%)

Fig 29 : systemic treatment in tinea infection



In the current study the patient with tinea infection also treated with systemic antifungal drugs in the dermatology department which includes Itraconazole, clotrimazole, fluconazole and levocitrizine, of which 14 (20%) patients prescribed with itraconazole and 13(18.6%) patients prescribed with systemic fluconazole, 34 (48.6%) patients were prescribed with the terbinafine tablet and 19 (27.1%)patients prescribed with the antihitamine drug levocitrizine tablet for sever itching. 23 (32.9%) patients prescribed with the Griseofulvin.

VII. DISCUSSION

- The current study attempts to characterize MANAGEMENT OF TINEA INFECTION IN TERTIARY CARE HOSPITAL in 70 patients presenting to BGS GIIMS hospital Kengeri, Bangalore between September 2019 to February 2020.
- Among 70 patients diagnosed with tinea infections, our study demonstratedfemales constituted 54.3% of the patients. Males were 45.7% of the patient.
- Dermatophytosis can affect every age group with no specific age group being immune to the infection. In our study, the age of affected patients ranged from 0-50 years. Although all age groups can be affected, majority of the patients in our study were in the 21-30 years of age accounting for 41(58.6%) of the patients. The age group was followed by 31-40 years

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accounting for 12(17.1%) of cases, then followed by 11-
20 years accounting for 8(11.4%), then 41-50 years accounting for 6(8.6%), then 1-10 years accounting for 3(4.3%). In a study conducted by Bhabani. S et al,[20] they observed that the most common affected group was 21-30 years of age. Other several studies[21-23] have also found 21-30 years age group as common group affected.

- In this study maximum patients were literates constituting 94.3% followed by illiterate around 5.7 % of patients.
- The most common cause for tinea infection in this study was sweating, 41.4% patients had the infection through close contact with people who had the tinea infection, followed by 22.9% of the patient ha the disease because of Unhygienic, and 21.4% patients had the disease by tight patterns of dress, 11.4% patients affected by Sharing Towels / Blankets, 4.3% patients affected by pets . 20.0% patients were obese, it is similar to the study conducted by D Paudel et al[21] where he concluded that for most of the cases the common possible cause was excessive sweating and unhygienic.
- In this study, among 70 patients, 38(54.3%) patients were diagnosed with KOH examination and 32(45.7%) patients were diagnosed with visual examination. In astudy conducted by B.Janardhan et al[22] found that 72% were KOH positive.
- In the current study most of the patient had a tinea corporis (51.4%,) followed by tinea cruris (22.9%), and tinea capitis (5.7%) then Tinea faciei(4.3%), Tinea Pedis (2.9%)Tinea unguium**(**2.9%) and 2 (2.9%) patient had combination of Tinea Capitis + Tinea faciei and 2 (2.9%) patient had combination Tinea Cruris + Tinea Corporis ,1(1.4%) patient had combination of Tinea faciei +Tinea Corporis and1(1.4%) patient had combination of Tinea manum + Tinea Pedis. It is similar to the study conducted by Prachala Govind Rathod et al[14] which concluded that most of the cases were Tinea corporis(52%) followed by Tinea cruris(22.8%). In a study conducted by B.Janardhan et al [22] reported 45% of Tinea corporis cases followed by Tinea cruris 28% and 2% mixed infection.
- In the current study the patient with tinea infection treated with topical antifungal drugs in the dermatology department which includes **Amorolfine, Ketoconazole**, **Luliconazole**, **Miconazole** and **clotrimazole** in that 1(1.4%) patients prescribed with the **Amorolfine,** 25 (35.7%)patients prescribed with **Ketoconazole** and 30 (42.9%)patients prescribed with systemic **Luliconazole** 3(4.3%) patients were prescribed with the **Miconazole** and 7(10%) patients prescribed with the **clotrimazole** cream . luliconazole are more frequently used drugs for both tinea corporis and tinea cruris followed by ketoconazole are more commonly used in all the types of tinea infection.
- In the current study the patient with tinea infection also treated with systemic antifungal drugs in the dermatology department which includes Itraconazole , clotrimazole , fluconazole and levocitrizine, in that 14 (20%) patients prescribed with itraconazole and 13(18.6%) patients prescribed with systemic fluconazole , 34(48.6%) patients were prescribed with the terbinafine tablet and 19 (27.1%) patients prescribed with the antihistamine drug levocitrizine tablet for sever itching . 23 (32.9%) patients prescribed with the Griseofulvin. In the study conducted by Ali Abdul Hassan et al[18] concluded that Dermatophytosis should be treated with systemic and topical anti fungal drugs.

VIII. LIMITATION OF THE STUDY

- The outcome of the study could be more effective if the duration of the study was extended.
- The follow up study was not possible .

IX. CONCLUSION

- This study comprises of 70 patients who presented to the OPD of Dermatology , Venereology & Leprosy of BGS GIMS hospital who were clinically diagnosed with dermatophytosis.
- Here in our study females outnumbered male.
- The commonest age group affected was 21-30 years of age.
- In this study maximum patients were literates constituting 94.3% followed by illiterate around 5.7 % of patients.
- In this study 21 (30 %) patients diagnosed with tinea infection are obese.
- All the patients had history of itching while 28 patients complained of sever tching
60 (85.7%) of our patients had red scaly patches on examination.
- In the present study out of 70 patients 45 (64.3%) patients present with rashes on

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examination .

- 65(92.9%) of the patients had a past history of similarComplaint.
- 5 (7.1%) patients may got these infection through the family members.
- 62 (88.6%)patients has presented with erythma onexamination.
- In this study, maximum number of patients had a diagnosis of tineacorporis with lesions occurring in more than 1 site in 44.35% of the patients.
- Lesions were present in the groin among 22.9% of thepatients.
- 56 % of the patients diagnosed with tinea corporis of which female(26) were more common than the male (13).
- lulyconaole is more frequently used drug for both tinea corporis and tinea cruris followed by ketoconazole as commonly used drug in all types of tinea infection.

REFERENCES

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REFERENCES

[1]. Barry L Hainer , Dermatophyte infection. American Family physician. 2003;67:1 pp101-107.

[2]. Venkatesh V N, Swapna Kotian et al, Dermatophytosis :A clinico- mycological profile from atertiary care hospital .Journal of international medicine and dentistry. 2016;3:2 pp 36-102.

[3]. Rashidian S, Falahati M, et al, A study an etiologic agent and clinical manifestations of dermatophytosis in yazd iran. Dermatophytosis in yazd. 2015;1:4pp20-25

[4]. Vishal P Giri, Om P Giri, Drug prescribing pattern in Dermatophytosis at the medical outpatient clinic of a tertiary healthcare in Karnataka, India. Mediscience . 2015;

[5]. Acsah J George, DeepaGodbole et al, Assesment of Etiology pattern and treatment of Tinea infections in tertiary care hospital. Advance in medical , dental and health sciences . 2018;1:4:pp 8-11.

[6]. Sneha Gandhi, Suma Patil, SomanthPatil, AmbreshBadad et al, study on Clinicoepidemiological study of Dermatophyte infections in Pediatric age group at tertiary care hospital, Karnataka. Indian journal paediatric dermatol.2019;20:1.

[7]. Murlidhaar Rajagopalan, Arun inamdhar et al, Expert consensus on the management of dermatophytosis in india (ECTODERM india).BMC Sermatology .2018; 18:6pp1-11.

[8]. Reddy K R, Fungal infection.Journal of Gandaki medical collge- Nepal . 2017;10:1

[9]. Dr. AmriaPandey, Dr. Manish Pandey et al. Isolation and characterization of Dermatophytes with Tinea infections at Gwalior,India. International journal of Pharmaceutical science invention.Feb,2019;2:2:pp 05-08.

[10]. Mary Vineetha, S Sheeja, MI Celine et al, Profile of dermatophytosis in tertiary care center. Indian journal deratol.2018;63:6:pp 490-495.

[11]. Vikesh Kumar Bhatia, Prakash Chand Sharma, Epidemiological studies on Dermatophytosis in human patients in Himachal Pradesh, India.Bhatia and Sharma springerplus .2014;2:pp134.

[12]. Tonita M Noroucha, Raghuvendra S Tophakhane,ShobhaNadiger et al, Clinico microbiological study of Dermatophytosis in tertiary care hospital in North Karnataka. Indian dermatology online journal. 2016;7:4:pp 264-271.

[13]. Col(Dr) Vinay Gera, col (Dr) Navtej singh,Evaluatiom of clinical profile of Dermatophytosis .HECS international journal of community health and medical research. 2019;5:3pp 47-49.

[14]. Prachala Govind Rathod, Nasira Khalid sheikh et al, Prevalence of Dermatophytes in a tertiary care center of solapur,Maharashra. Journal of Krishna institute of medical sciences university .2016; 5:3pp26-34.

[15]. Alem Alemayehu, Gebremedhin Minwaylet, Gizachew Andualem et al, Prevalence and etiologic agent of Dermatophytosis among primary school children in harari regional state , etiopia .jpurnal of mycology. july 2016;
[16]. Dr.Asha S. Khade , Dr Shreyas R. Burute et al , A study of clinical profile of Dermatophytosis with a changing clinical pattern at a tertiary care center
[17]. .JMSCR. 2018;6:5pp 662-670.
[18]. Andrew Weinstein, Topical Treatment of common superficial , Tinea infection. American Family physician .2002;65:10 pp 2095-2101.
[19]. Ali Abddul Hussein .S.AL.janabi . Dermatophytosis: cause , clinical features , signs and treatment.journal of symptoms and signs. 2014;3:3 pp 200-203.
[20]. Shamble Araya, Betelhem Tesaye, Desalegn Fente et al,Epidemioogy of dermatophyte and non dermatophyte fungi infection in Ethiopia. Clin cosmet investing dermatol.2020;13pp 291-297.
[21]. Bhabani S.T.P singh ,Tapaswini Tripathy etal, Clinicomycological study of dermatophytosis in a tertiary care hospital in eastern india : a cross sectional study . Indian Dermatol online journal. 2020;11:1:pp46-50.
[22]. D.Paudel, S Manadhar et al, Dermatophytic infection among the patient attending Di skin hospital and research center at Maharajgunj .kathmandu. sep-dec 2015; 13:31pp 226-232.
[23]. B.Janardhan,G.Vani, clinic mycological study of dermatophytosis. International journal of research in medical sciences. Jan 2017;5:1:pp 31-39. 23.Soniya Mahajan, Rajini Tilak, etal, Clinico-mycological study of dermatophytic infection and their sensitivity to antifungal drugs in tertiary care center. Indian jounal of dermatology, venereology and leprology.2017; 83:4 pp 436-440.
[24]. Rajesh Kumar, Shashi Kant Shukla et al, Dermatosis infection and prevention – A Review. International journal of pharmaceutical science and research.2016;7:8:pp 3218-3225.
[25]. Shyan Verna, R.Madhu, the Great Indian epidemic of superficial Dermatophytosis An Appraisal. Indian Journal Dermatol. 2017 62:3:pp 227-236.
[26]. H.Hanumanthappa , K Sarojini,P Shlpa shree et al, Clinico-mycological Study of 150 cases of Dermatophytosis in a tertiary care hospital in south india . Indian Journal Dermatology.2012;57:4:pp322-323.
[27]. Kanwar AJ, Mamta Chandra J, Superficial fungal infection in: Valia RG,, Valia AR , editors.IADVL Textbook and Atlas of Dermatology 2nd edi Mumbai: Bhalani Publishing House :2001;pp 218-58.
[28]. Suruchi Bhagra, Sunite A Ganju ,et al Mycological pattern of Dermatophytosis in and around Shimla Hill .2014;59:3:pp268-70.
[29]. Rani U, Saigal R K, Kanta S, Krishan R, Study of Dermatophytosis in Punjabi population . Indian journal pathol microbial.1983;26:4:pp 243-247.
[30]. Mehta JP, Deodhar KP. A study of dermatophytes in Bombay. Indian J Pathol Microbiol. 1977;20:pp23–31.
[31]. Belukar DD, Barmi RN, Karthikeyan S, Vadhavkar RS. A Mycological study dermatophytosis in Thane. Bombay Hosp J. 2004;46:2.
[32]. Gorbach SL, Bartlett JL, Blacklow NR. 3rd ed. Philadelphia: Lippincott Williams and Wilkins; 2004. Infectious disease; pp. 1162–80.
[33]. Peerapur BV, Inamdar AC, Pushpa PV, Srikant B. Clinico Mycological Study of Dermatophytosis in Bijapur. Indian J Dermatol Venerol Leprol. 2004;22:273–74.
[34]. Hernandez AD. An approach to the diagnosis and therapy of dermatophytosis. Indian J Dermatol Venereal Leprol 1987;53: 174-175.
[35]. Huda MM, Chakraborty N, Bordoloi JNS. Aclinico mycological study of superficial mycosis in upper Assam. Indian J Dermatol Venereal Leprol 1995; 61: 329-332.
[36]. V Sumana, MA Singaracharya. Dermatophytosis in Khammam. Indian j microbiol 2004;47:2:287-289.
[37]. KM Acharya, Amiya Kumar Mukhopadhyay, KK Jhaku., Itraconazole versus griseofulvine in the treatment of tinea corporis and tinea cruris. Indian J. Dermatol Venerol Leporl 1995;61(4):2009-211.
[38]. Rippon JW. "Medical Mycology", 3rd edition, W.B. Saunders Company Philadelphia, London, 1988; 169-275.
[39]. BK Gupta et al. "Mycological aspects of dermatomycosis in Ludhiana" Indian

J.pathol and microbial.l 1993;36:233-237.
[40]. SS Sen, ES Rasul. Dermatophytosis in Assam. Indian Journal of Medical Microbiology. 2006;24(1):77-78.
[41]. Seema Bhaduria, Neetu Jain et al. Dermatophytosis in Jaipur: study of incidence, clinical features and causal agents". Indian J. Microbiol. 2001;41:207-210.
[42]. Neetu Jain, Meenakshi. Sharma, V N Sexena. Clinico – mycological profi le of dermatophytosis in Jaipur, Rajasthan. Indian J Dermatol venereol Leprol. 2008;74 (3):274-275.
[43]. Singh S, Beena PM. Profile of dermatophyte infections in Baroda. Indian J Dermatol Venerol Leprol 2003;69:281-3.
[44]. Ranganathan S, Menon T, Selvi, GS, Kamalam A. Effect of socio-economic status on the prevalence of dermatophytosis in Madras. Indian J Dermatol Venereol Leprol. 1995; 61:16-8.
[45]. Siddappa K, Mahipal OA. Dermatophytosis in Davangere. Indian J Dermatol Venereol Leprol. 1982; 48(5):254-9.