



**DISTRIBUTIONS OF TINEA CAPITIS AMONG PRIMARY SCHOOL PUPILS IN A
LOCAL GOVERNMENT AREA OF PLATEAU STATE, NIGERIA**

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ABSTRACT

Background: Tinea capitis is a common superficial fungal infection of the scalp and hair. It is more prevalent in poor resource settings. Children are mostly affected due to predisposing factors such as overcrowding and low socioeconomic factors. **Aim:** The present study was set out to determine the occurrences of Tinea capitis among pupils in two selected primary schools in Jos South Local Government Area of Plateau State. **Material and Methods:** One hundred and eighty five pupils were recruited for the study. The participants included 97 males and 88 females respondents within the age groups of 5-12 years. The study was approved, informed consents were obtained from parent/guardians of pupils, questionnaires were administered and specimens were analyzed by direct KOH microscopic examination of scrapings and culture were performed by inoculating the specimen onto Sabouraud dextrose agar slants. **Results:** Out of the 185 specimens analyzed 121 were positive for Tinea capitis giving an overall prevalence of 65.4%. Infection was more 71.6% in female respondents than the males 59.7% respondents. Regarding the causative agents *Trichophyton spp*s constituted 49.7% while *Microsporum spp*s was 15.7% of Tinea capitis infection. Data were analyzed using SPSS version 21. **Conclusion:** The present study has established Tinea capitis as a common infection among Nigerian school children particularly in poor resource settings. Health promotion interventions are recommended to promote good hygiene and better living conditions as this will be helpful in curbing the spread of this infection.

KEYWORDS: Tinea capitis, microscopic examination, poor resource settings.

INTRODUCTION

Dermatophytes are group of fungi that infect keratinous tissues of humans and lower animals they are unique due to their ability to invade the superficial layers of the epidermis of the skin and other high keratin containing appendages including the hair and nails (Fernandes *et al.*, 2001; Adefemi *et al.*, 2011).

Tinea capitis is one of the dermatophytic infections that is more prevalent in hot humid tropical climate than in cold dry regions and it is caused by *Microsporum spp*s and *Trichophyton spp*s and *Epidermophyton spp*s (Liu *et al.*, 2000; Adefemi *et al.*, 2011; Oguzkaya *et al.*, 2013).

The epidemiology of Tinea capitis infection clearly indicates that children are particularly more susceptible than other individuals in the population. Tinea infections has remained a significant public health problem with poor hygiene, sharing of fomites, overcrowding and low socioeconomic being among some of the factors that predisposes populations to infections (Al-Rubiay and Al-Rubiay, 2006).

However, distribution, frequency, and etiological agents of dermatophytes infections vary according to the geographical region, the climatic variations, the socioeconomic condition of the population, the time of study, the presence of domestic animals and age of the individual (Enweani *et al.*, 1996; Ayaya *et al.*, 2000).

There have been very few reports on the occurrence of Tinea capitis in the study area, more so this predisposing condition that impel dermatophytic infection abound in our environment. Hence the present was set out to investigate the prevalence of Tinea capitis in pupils in Jos South L.G.A in Plateau State, North Central Nigeria.

MATERIALS AND METHODS

Study area

The study was carried out in two schools which include RCMS (Roman Catholic Mission School) Giring and LEA Nyango, both public primary school in Jos South Local Government Area, Plateau State, Plateau State, has a population of 3,178,712 people (2006 Census result). It has an area of 30913Km square with 17 Local Government council area.it is bounded by Bauchi State

to the North, Nassarawa State to the South, Kaduna state to the North West and Taraba state to the South East. It is situated along Latitude 80° 32 and 100°32E of the equator. Its average temperature is 19°C-22°C and an annual rainfall of about 164cm (57in).

Study Population

The study population includes pupils aged 5-12 years in two selected schools namely: Roman Catholic Mission School Giring and LEA Nyango, both public primary schools in Jos South Local Government in Jos South Local Government Plateau State.

Inclusion and Exclusion criteria

All assenting primary school pupils aged 5-16 years in the two selected schools whose parents have given a written consent for their inclusion in the study were included. Also included were pupils who met the diagnostic criteria for *Tinea capitis*: annular lesion with activity at the edges, and central clearing on the skin, scaling patches on the scalp with or without hair loss and erythema. While pupils without any lesion who met the diagnostic criteria for *Tinea capitis* infection but are on any antifungal treatment 2 weeks to the period of study were excluded.

Ethical clearance

This study was approved by the Ethical Committee of the Plateau specialist Hospital, Jos.

Informed consents were also obtained from the parents/guardian of the pupils before the commencement of specimens collection.

Data collection

Structured questionnaires were administered to clinically suspected dermatophyte infected pupils, their age and gender were captured.

Specimens collection

The diseased areas of the skin were cleaned with 70% alcohol. Sterile blades were used to scrape the affected area and the scrapings were placed on a blotted paper, labelled appropriately and then transported to the Department of Medical Laboratory Science University of Jos for processing.

Direct microscopic examination

A drop of 10% KOH was placed on a clean glass slide. Then a portion of the scrapings were placed on the drop of 10% KOH and was teased apart using two dissecting needle. A cover slip was then place over it. The preparation was passed quickly through a Bunsen flame to accelerate clearing and expel air bubbles. It was then examined microscopically for fugal hyphae using x 10 and x 40 objectives

Culture

The remaining portions of the scraped specimens were inoculated on slants of Sabouraud dextrose agar

supplemented with chloramphenicol (0.05mg/ml). The culture tubes were incubated at room temperature (22-25°C) for minimum of 3weeks and were observed regularly for growth. Growths on culture tubes were examined microscopically base on the cultural characteristics and pigment production. However, further identification were performed microscopically by transferring portions of the cultures onto a slide with drop of Lactophenol cotton blue stain. A coverslip were placed over the preparation and were examined using x10 and x40 objectives. Identification of dermatophyte species was performed by microscopic examination of the macro and micro conidia as previously described in another study.

Data analysis

All data were analyzed by SPSS 21. The results were then presented in frequency tables and bar charts. Chi-square test was used for comparing prevalence of the infection by sex and age. P < 0.05 was considered significant.

RESULTS

A total of 185 primary school pupils (97 males and 88 females) participated in the survey. These pupils drawn from two primary schools in Jos South Local Government Area of Plateau State. *Tinea capitis* infection was recorded in 121 out of 185 pupils sampled resulting in an overall prevalence of 65.4%.

Table 1 depicts the following, the occurrence of infection according to gender which indicates that female 63/88 (71.6%) had the highest prevalence compared to male 58/97 (59.7%). Based on age group of pupils the trend of infection was as follows; 5-6years 19/39 (48.7%) > 11-12years 11/17 (64.7%) > 9-10years 37/56 (66.1%) > 7-8years 52/73 (71.2%).

The frequency distribution of causative agents of *Tinea capitis* was presented figure 1, the occurrence of *Trichophyton spp*s was 92/185 (49.7%) while *Microsporum spp*s was 29/185 (15.7%).

Table1: Demographic variables and frequency of *Tinea capitis* among primary school pupils.

Variables	No. sampled	No. positive (%)	P-value
(n=185)			
Gender			
Male	97	58(59.7)	0.162
Female	88	63(71.6)	
Age group			
5-6	39	19(48.7)	0.664
7-8	73	52(71.2)	
9-10	56	37(66.1)	
11-12	17	11(64.7)	

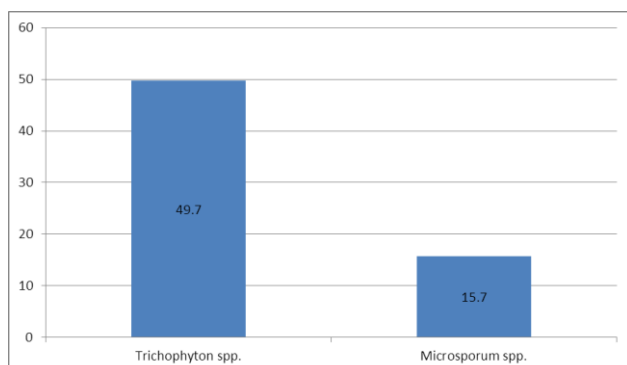


Figure1: Frequency distribution of causative agents of *Tinea capitis* among primary school pupils.

DISCUSSION

Dermatophytic infections particularly *Tinea capitis* has impacted negatively on primary school pupils. The present survey on *Tinea capitis* among school pupils has recorded a prevalence of 65.4%. However, this result is higher compared to report by Adefemi *et al.*, (2011) from Oke-oye in Kwara Nigeria who reported 94(52.2%), Ayanbimpe *et al.*, (2008) reported 44.6%, Fernandes *et al.*, (2001) reported 56.9% from Brazil.

Our study report reveals that *Tinea capitis* was more prevalent in males than females, this is contrary to previous study results elsewhere; Ngwogu and Otokunefor, (2007) recorded (29%) males and females (14.4%) from Abia, South Eastern Nigeria; Kainthola *et al.*, (2014), reported Males (64.86%) and females (35.14%) from India; Kechia *et al.*, (2014) from Cameroon observed that *Tinea capitis* was more prevalent in males (82.4%) than in females (17.6%). Nevertheless, in consonant with our findings Anosike *et al.* (2005), from Eastern Nigeria observed more *Tinea capitis* in Female than male, Dogo *et al.*, (2016) from Kaduna Nigeria recorded higher prevalence (51.4%) in girls than the boys (41.5%). However, there was no statistically significant difference in the occurrence of *T. capitis* infection based on gender ($P=0.162$). Regarding age group of pupils sampled the significant relation in the age distribution of *T. capitis* ($P=0.664$).

CONCLUSION

Tinea capitis is a common infection among Nigerian school children particularly in low resource settings. . Therefore, advocate health promotion and health education as possible interventions to promote good hygiene, better living conditions also early identification and treatment can also go a long way in reducing the prevalence.

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