



Prevalence of Pediculosis among adolescents in Uli rural community, Ihiala LGA, Anambra State, Nigeria.

Ekésiobi Anthony Obinna and Idigo Mediatrrix Amara

Department of biological sciences,
Chukwuemeka Odumegwu Ojukwu University,
Anambra State Nigeria.

Corresponding E-mail anthonyekesiobi2@gmail.com ao.ekesiobi@coou.edu.ng

Abstract

Despite improvements in medical treatment and prevention of human diseases during the 20th century, head louse infestation remains stubbornly prevalent still a public health problem. To provide baseline information for the control of pediculosis, a study was carried out to determine the prevalence of Pediculosis (head lice infestation) from June to August 2022 in Uli rural community, Ihiala LGA, Anambra State. A total of 200 adolescents aged 14-19 years were examined for *Pediculus capitis* using standard entomological methods. Of the 200 Adolescents including 22 males and 178 females randomly selected and examined, 35 (17.50%) were infested. Females 33 (18.54%) were infected more than the males, 2 (9.09%). There was significant difference ($P < 0.05$) in the rate of infection between sexes. The head lice recorded were *pediculus capitis*. Age group 16-17 years had the highest infestation. Head lice infestation was significantly related to age ($P < 0.05$). Adolescents whose parents are farmers and artisans recorded high prevalence, 29.11% and 12.05% respectively. Those who wash their hairs monthly recorded the highest prevalence, 22.05%. Prevalence of Pediculosis was significantly dependent on the interval of hair wash. Unlike other hair styles, braided and wig/weave-on recorded high prevalences, 13.40% and 25.61% respectively. Similarly high hair density, 20.12%, was significantly associated with prevalence of pediculosis ($P < 0.05$). Prevalence of pediculosis was related to sharing of hair materials and personal belongings ($P < 0.05$) as adolescents who share hair brush, 25.81%, and hair wig, 30.38% recorded high prevalences. Knowledge and good personal hygiene are highly recommended so as to control pediculosis.

Keywords: *Pediculosis, capitis, hygiene, prevalence, headlice*

Introduction

Pediculosis is an infestation caused by lice, which are blood-feeding ectoparasitic insects of the order Phthiraptera. These parasites can infest almost any warm-blooded animal, including humans. *Pediculus capitis* (head lice) are human-specific ectoparasites known to cause trench fever, epidemic typhus, and relapsing fever (Rapini *et al.*, 2007). *Pediculus* spp. Affect all strata of the society infesting the hair and skin of humans including *Pediculus capitis* (head lice), *Pediculus humanus* and *Phthirus pubis*. These parasites constituting a major public health problem globally. It is, most common in resource-limited countries (Smith and Goldman, 2012). Pediculosis can cause sleep loss, irritation, pruritus, discomfort, secondary bacterial infections (such as impetigo and acute glomerulonephritis), lymphadenopathy and can occasionally cause mental disorders (Takano *et al.*, 2004). Early diagnosis makes treatment easier and reduces the spread among humans. In times and areas when louse infestations are common, weekly examinations of children, especially those 4-15 years old, carried out by their parents, will aid control. There are a number of treatments methods effective for head lice including combing, shaving, use of medical creams, and hot air. Head lice infestation are not justification to keep children home from school as the risk of spread is low (Burkhart, 2005).

Despite improvements in medical treatment and prevention of human diseases during the 20th century, head louse infestation remains stubbornly prevalent. Factors associated with the onset of pediculosis included overcrowding, long hair, family size, age, personal hygiene. The main way of spreading lice is through direct head-to-head contact. Factors such as temperature, humidity and odor may influence transmission (Burkhart and Burkhart, 2007; Catalá *et al.*, 2005; Greive and Barnes, 2012, Ogunrinade and Oyejide, (1984)). Head lice of infections are generally uncomfortable, but typically do not constitute a serious condition. The most common symptom is itching of the head, which normally worsens 3 to 4 weeks after the initial infestation. Swelling of the local lymph nodes and fever are rare. Itching may cause skin



breakdown and uncommonly result in a bacterial infection. Previous studies have recorded prevalences of *Pediculus humanus capitis* in various states in Nigeria including Ibadan (Ogunrinade and Oyejide (1984); Illoin (Ebomoyi 1994). Pediculosis appears to be a neglected tropical disease and there is dirt of on the prevalence of pediculosis in Anambra state, hence the need for this research. This research work will provide a baseline entomological data for the control of pediculosis in Anambra State. This research work was aimed at ascertaining the prevalence of pediculosis among adolescents in Uli community, Ihiala Local Government Area Anambra state. The objectives of the study were to determine the prevalence of pediculosis with respect to age, sex and associated risk factors.

Materials And Methods

Study Area

Uli town in Ihiala Local Government Area of Anambra State Nigeria lies between latitude 5.58°-5.60 °North and longitude 6.47°-6.57 °East. The town lies in the moist wood land savanna. The humidity and temperature of this area is relatively high and the climate is tropical with marked dry and rainy season from November to March and April to October respectively with relative humidity of between 1700-1800mm. The area is transverse with a number of the streams and rivers which serve as main source of water supply for inhabitants of the town. The majority of the residents lack clean water and depends on borehole for water. Sanitary conditions are poor and most drainages are open and blocked with piles of rubbish. Uli has few hospitals and medical Diagnostic laboratories. Uli is made up of nine villages which are Umuaku, Umubazu, Amamputu, Ndihemefula, Ubahudara, Ezia ma, Egwungwu, Nduatughobi. They are grouped into four wards. Farming and trading are major economic activities. The education status of the indigeno us people are below average.

Sample population

A total of 200 adolescents were enrolled in this study ranging from 14-20 years

Data and sample collection

Structural questionnaire were administered to 200 participants. The questionnaires were used to obtain data on age, sex, hair density hair length, hair style, shared personal belongings, hair combing intervals, hair wash intervals. Each of the student's hair was viewed with magnifying hand lens and samples were collected from infected hair using forceps and sample containers. The sample collected were preserved with 10% formalin.

Species Identification

The sample collected were isolated and identified microscopically using x100 objective lens and slide

Ethical consideration

Informed consent was obtained from the hair dressers and their adolescent customers as well as the parents/guardians of minors enrolled in this study.

Method of Data Analysis

Results were presented in tables and charts. Prevalences were calculated and Chi-Square (X^2) Test was used to compare the differences in the rate of infestation between sexes, ages.

Results

Out of a total of 200 adolescents examined 35 (17.50%) were infested with *Pediculus capitis*. Table 1: showed the prevalence of pediculosis in relation to age. The age group 16-17 years recorded the highest prevalence, 26(21.49%) followed by age group 18-19years, 7(14.58%) whereas the age group 14-15 years, recorded the least



prevalence of 2(6.45%). The difference in the rate of infestation with respect to age was statistically significant ($p < 0.05$).

Table 1: Prevalence pediculosis in relation to age

Age group in years	No. examined	No. infested	Percentage infested (%)
14-15	21	2	6.45
16 – 17	121	26	21.49
18-19	48	7	14.58
Total	200	35	17.50

Table 2: Prevalence of pediculosis in relation to sex

Sex	No. examined	No. infested	Percentage infested (%)
Male	22	2	9.09
Female	178	33	18.54
Total	200	35	17.50

Prevalence of pediculosis with respect to sex is shown in table 2. Females 33(18.54%) were infested more than the males 2(9.09%). The difference in the rate of infestation was statistically significant ($p < 0.05$).

Table 3: prevalence of pediculosis with respect to parents' occupation

Parents occupation	No. examined	No. infested	Percentage infested (%)
Farmers	79	23	29.11
Artisans	38	2	5.26
Civil servants	83	10	12.05
Total	200	35	17.50

Table 3 showed prevalence of pediculosis with respect to parents occupation. Adolescents whose parents are farmers recorded the highest prevalence, 79(29.11%) followed by adolescents whose parents are artisans, 10(12.05%) whereas adolescents whose parents are civil servants recorded the least prevalence, 2(5.26%). The difference in the rate of infestation was statistically significant ($P < 0.05$).

Table 5: prevalence of pediculosis with respect to hair wash intervals

Hair wash intervals	No. examined	No. infested	Percentage Infested (%)
Daily	3	0	0.00
2-3 times a week	7	0	0.00
Weekly	11	1	9.09
2-3 weeks	52	6	11.54
Monthly	127	28	22.05
Total	200	35	17.50

In Table 5: 127 adolescents who washed their hair monthly had highest prevalence rate of 28(22.05%), followed by 52 adolescents who washed their hair 2-3 weeks in which 6(11.54%) were infested, whereas 11 adolescents who washed their hair weekly had the least prevalence rate of 3(9.09%). Adolescents who wash their hairs daily and 2-3 times a week recorded no prevalence of the infestation. The difference in the rate of infection was statistically significant ($P < 0.05$).

Table 6: Prevalence of pediculosis with respect to hair style

Hair styles	No. examined	No. infested	Percentage Infested (%)
Low cut	7	0	0.00
Braided	97	13	13.40
Wavy	1	0	0.00
Dyed/curly	13	1	7.69
Wig/weave on	82	21	25.61
Total	200	35	17.50

Table 6: showed the prevalence of pediculosis with respect to hair tyle. Adolescents with wig on /weave on had highest prevalence rate of 21(25.61%), followed by those with braided , 13(13.40%) ; dyed/curly 1(7.69%) whereas others recorded no prevalence. The difference in rate of infection was statistically significant ($P < 0.05$).

Table 7: prevalence of pediculosis with respect to hair density

Hair density	No. examined	No. infested	Percentage Infested (%)
Low density	31	1	3.23
High density	169	34	20.12
Total	200	35	17.50

The prevalence of pediculosis with respect to hair density is shown in table 7. Adolescents with high hair density showed higher prevalence infestation of 34(20.12%) while those with low hair density recorded prevalence of 1(3.23%). The difference in rate of infection was statistically significant ($P < 0.05$).

Table 8: prevalence of pediculosis with respect to shared personal belongings

Shared personal belongings	No. examined	No. infested	Percentage Infested (%)
Cap	6	0	0.00
Clothing	12	0	0.00
Hair clipper	11	0	0.00
Hair wig	79	24	30.38
Hair towel	21	1	4.76
Hair comb	40	2	5.00
Hair brush	31	8	25.81
Total	200	35	17.50

Prevalence of pediculosis infestation rate with respect to shared personal belongings is shown in table 8. Adolescents who shared their hair wig had highest prevalence infestation of 24(30.38%) followed by those who shared their hair brush with prevalence of 8(25.81%) those who shared their hair towel had the lowest prevalence of 1(4.76%). Others recorded no prevalence. The differences in the rate of infection was statistically significant ($P < 0.05$).

Discussion

The results of the present study revealed that of the 200 adolescents examined in Uli, Ihiala Local Government area, Anambra State 17.50% were infested with *Pediculus capitis*. This showed a low prevalence when compared with the studies in Ilorin, Kwara state carried by Ebomoyi, (1994) and Imo state by Okechukwu *et al.*, (2011) who reported a prevalence rate of 3.7% (Ilorin state) and 10% (Imo state) respectively. The low prevalence may be exhibition of good personal hygiene practice as majority were university students. Age group 16-17 years had highest prevalence rate of 26 (21.49%) in contrast to the work of Okoh (2013), where he reported that age group 6-9 years had highest prevalence rate of 7(0.8%) whereas age group 10-12 years had least prevalence of 3(0.6%). The difference in the prevalence of pediculosis between age group was found significant ($P < 0.05$). This could also be attributed to the level of personal hygiene. Considering the prevalence of pediculosis in relation to sex, females had higher prevalence of 33(18.54%) than the males 2(9.09%). This agrees with the findings of Falagas *et al.*, (2008), Okoh (2013) and Ebomoyi(1994) who reported that the infestation in females is higher than the males and it is contrary to the findings of Hussain *et al.*, (2006) who reported that in



males the prevalence was slightly higher (51%), than the females (49%). The high prevalence associated with females maybe as a result of poor personal hygiene as the difference in the prevalence of pediculosis with respect to sex was significant ($p < 0.05$). Adolescents whose parents are farmers 23(29.11% and artisans 10(12.05%) recorded higher prevalence than those whose parents are civil servants. The difference in the prevalence of pediculosis with respect to parents' occupation was statistically significant ($P < 0.05$). This may be due to knowledge and awareness of the importance of good hygiene practice learnt from the literate parents. Prevalence with respect to hair wash interval adolescents with the highest infestation rate of 28(22.05%) were those who washed hair monthly followed by those who washed hair within 2-3 weeks 6(11.54%), and those who washed hair weekly had least prevalence of 1(9.09%) whereas those who washed hair daily and weekly showed no prevalence of infestation. The present study showed that hygiene practice has very strong relation with pediculosis; pediculosis was very common among adolescents having poor hygiene practice as compared to those that have good hygiene practice. The difference in the prevalence rate of pediculosis relating to hair wash intervals was found to be statistically significant ($p < 0.05$). The prevalence of pediculosis with respect to hair style showed a significant difference in the rate of infestation ($P < 0.05$). Those wearing wig on / weave on had highest rate of infection (25.61%) followed by those with braided hair (13.40%), while those with dyed / curly hair had least prevalence of (7.69%). The high prevalence related to the wearing of wig and weave-on may be associated with the long-term wear and improper treatment of the weave-on and wig. Considering prevalence of pediculosis with respect to hair density, those with high hair density showed more prevalence of 34(20.12)% than those with low hair density 3.23%. The high prevalence associated with high hair density may be as a result of the hair scalp being colonized by the lice where their eggs are usually laid as well as no form of light enters the hairs because they are repelled by light. The difference in the rate of infection was statistically significant ($P < 0.05$). In comparing the prevalence with shared personal belongings adolescents who shared hair wig recorded highest prevalence with 30.38% followed by those who shared hair brush 25.81%. This may be due to the fact that shared hair combs, hats, brushes, towels, clothings, beds are more likely routes of transmission and these could serve as reservoir of *P. capitis*. Similar results were recorded by Rassami and Soonwera (2012). There are a number of treatments methods effective for head lice including combing, shaving, use of medical creams, and hot air. There little or no record of study on the prevalence

Conclusion

This study revealed that pediculosis was prevalent among adolescents in Uli rural community, Ihiala local government area and it is still a public health problem. The prevalence varies with sex, age, parent occupation, hair style, hair density, shared personal belongings. Results showed that head louse infestation was associated with poor personal hygiene practice.

Recommendation

- i. Pediculosis is a public health problem in Uli as revealed in this study therefore, the following are strongly recommended:
- ii. Improvement in personal hygiene is highly inevitable
- iii. Sleeping in overcrowded area should be avoided.
- iv. Sharing personal belongings like comb, wig, hair brush, clothes, beddings are highly discouraged. etc
- v. Creating awareness and educating people about head louse infestation.
- vi. Early diagnosis and treatment should be encouraged.

REFERENCES

- Burkhart, C.N. and Burkhart, C.G. (2005). Head lice: scientific assessment of the nits heath with clinical ramifications and therapeutic options *J. Am. Acad. Dermatol.*, 53: 129-133.
- Burkhart, C.N. and Burkhart, C.G. (2007). Fomite transmission in head lice. *Academic Journal on Dermatol.* 56(6): 1044-1047.
- Ebomoyi, E.W. (1988). *Pediculus capitis* among primary school children in urban and rural areas of Kwara State, Nigeria. Department of Epidemiology and community Health, University of Ilorin, Kwara State, Nigeria. *Journal of School Health*, 58(3):101-3.
- Ebomoyi, E.W. (1994). Pediculosis capitis among urban school children in Ilorin, *Nigeria Journal of National Medical Association*, 86(11):861-4.
- Falagas, M.E., Matthaiou, D.K. and Rafailidis, M. (2008). Worldwide prevalence of head lice. *Emergency Infectious Diseases*. 14(9) 1493-1494.



- Greive, K.A. and Barnes T.M. (2012). In vitro comparison of four treatments which discourage infestation by head lice *Parasitol. Res.* **110**: 1695-1699.
- Hussain, M.A., Khan, M.N., Iqbal, Z., Sajid, M.S. and Arshad, M. (2006). Bovine pediculosis: prevalence and chemotherapeutic control in Pakistan. *Livestock Research for Rural Development*, **18**:145.
- Ogunrinade, A. F. and Oyejide, C. O. (1984). Pediculosis capitis among rural and urban schoolchildren in Nigeria. *Trans R Soc Trop Med Hyg*, **78**(5):590-2.
- Okechukwu, R.I., Mgbemena, I.C., Chukwulebe, A.E. and Anunobi R.N. (2011). Prevalence of pediculosis in selected rural areas of Imo State, Nigeria. *International Journal of Natural and Applied Sciences*, **2**:111-156.
- Okoh, B.A.N. and Alikor, E.A.D. (2013). Prevalence of head lice infestation in school children in Port Harcourt, Nigeria. Department of Pediatrics, University of Port Harcourt, Rivers State. *East African Medical Journal*. **90**(8):269-274.
- Rapini, R.P., Nolognia, J.L. and Jorizzo, J. L. (2007). *Dermatology*. Vol. 2. Mosby, St. Louis.
- Rassami, W. and Soonwera, M. (2012). Epidemiology of pediculosis capitis among schoolchildren in the eastern area of Bangkok, Thailand. *Asian Pac Tropical Journal in Biomed*, **2**(11): 901-904.
- Catalá, S., Junco, L. and Vaporaky, R. (2005). *Pediculus capitis* infestation according to sex and social factors in Argentina. *Rev. Saúde Pública*, **39**: 438-443
- Smith, C.H and Goldman, R.D. (2012). An incurable itch: head lice. *Canadian Family Physician*, **58** (8): 839-41.
- Takano-Lee, M., Edman, J.D., Mullens, B.A. and Clark, J.M. (2004). Home remedies to control head lice: assessment of home remedies to control the human head louse, *Pediculus humanus capitis* (Anoplura: Pediculidae). *Journal of Pediatric Nursing*, **19** (6): 393-8.