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PREVALENCE OF HEADLICE AMONG PRIMARY SCHOOL CHILDREN IN NEKEDE IN OWERRI WEST, IMO STATE

[1]*Duru N. C., [1]Chimereze N. C., [1]Anyanwu G.O., [2]Onyeulor P. N., [1]Nwafor I. A., [1]Ononogbo C. N., [1]Opara U., [1]Etoamaihe U.

[1]Department of Biology/Microbiology, Federal Polytechnic Nekede, Owerri.

[2]Department of Environmental Biology, Federal Polytechnic Nekede, Owerri.

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***Corresponding Author**

Duru N. C.

Department of Biology/Microbiology, Federal Polytechnic Nekede, Owerri.

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ABSTRACT

Prevalence of head lice among primary school children in Nekede, located in Owerri West of Imo State, Nigeria and its associated factors was evaluated. In all the selected schools, a total of 504 pupils aged 6 to 12 years, made up of 292 girls and 212 boys in primary 1 to 6 in public and private schools were recruited. One hundred and thirty one boys (61.5%) and two hundred and fifty two girls (86.3%) had their hair and scalp properly examined by visual inspection for head lice. A questionnaire was used to assess the children's knowledge about the ectopatasite – *Pediculus humanus capitis* treatment. One hundred and forty six (146) pupils (18 males and 128 females) had head lice (adults and nits) indicating prevalence rate of 38.1%. *Pediculus humanus capitis* percentage of infestation was more in girls with 50.8% and less in boys with 13.8%. Self reported contact with another infested person was the main risk factor for becoming infected. Out of the 504 pupils recruited, while 6.7% of pupils had no knowledge of how to treat Pediculosis, others mentioned variety of methods which include washing of hair (8.7%), shaving off hair (15.5%), use of hot comb to straighten hair (17.9%), use of insecticide on hair (17.1%), manually removed by picking of lice from hair (13.5%) and use of mixture of camphor and kerosene (20.6%). School sector should be looked into so as to ensure that good sitting arrangement is observed in order to reduce head-to-head contact.

KEYWORDS: Prevalence, Head Lice, Children, Nekede, Imo State.

INTRODUCTION

Head lice (*Pediculus humanus capitis*) have been companions of the human species since antiquity. They are tiny, wingless parasitic insects of the order Psocodea which resides on the scalp where the temperature is warm, consistent and very hospitable. They are one of the human-specific ectoparasites and blood-sucking insects which are known to cause trench fever, epidemic typhus and relapsing fever. It affects all strata of the society, infesting the hair and skin of humans (Cummings *et al.*, 2018). The louse is white to gray in colour and has a long, dorsoventrally flattened segmented abdomen. Like other members of the Anoplura, the mouth parts of the head louse are highly adapted for piercing the skin and sucking blood. It's average life span is 30 days on a person's hair; since it survives and thrives solely on human blood, once they are separated from their human host, they starve and perish within several hours (CDC 2019). Nits (head lice eggs) on the other hand, generally die within a week away from their human host (CDC 2014).

Human pediculosis (which is a term used for an infection with head lice) is a worldwide public health concern, which generally affects primary school children in both the developed and the developing countries (Motovali *et al.*, 2008), with higher prevalence rate of over 50% in developing countries. They are transmitted mainly through physical contact as reported by Pollack *et al.* (2000). Symptoms associated with the infestation are constant itching and scalp irritation which may be felt on the scalp as well as trouble sleeping. This ecto-parasite feeds by sucking blood and cause pruritus, and subsequent skin excoriation may lead to a secondary infection. In addition, chronic irritation and secondary infection may disrupt behavior, school performance and cause psychological distress (Barley and Prociv, 2000). Many factors related to the host that can be associated with head lice as reported by Nazari *et al.* (2006) as well as Hansen and O' Haver (2004) include race, age group, sex, hair characteristics, overcrowded living and socio-economic conditions.

Despite the considerable burden caused by this infection, this category of parasitic diseases has been widely neglected by the scientific community and healthcare providers. This is illustrated by the fact that in the recent edition of the communicable disease control hand book, a reference manual for public health interventions, only one skin infection (Scabies) is mentioned (Hawker *et al.*, 2018). The prevalence and occurrence of head lice among school children has become a tiring issue which has a psychological effect towards them especially,

academically. There is therefore need to investigate the prevalence and occurrence of head lice among school children. Hence, the aim of this study is to evaluate the prevalence of head lice among school children in Nekede in Owerri West Local Government Area of Imo State.

MATERIALS AND METHODS

STUDY AREA

The survey was carried out in Nekede area of Owerri West Local Government of Imo State. Nekede is a sub-urban settlement in Owerri. The inhabitants are traders, bus drivers, farmers and few civil servants. Households included many average in-come earners with an average of 6 persons with one to three children in the primary school. Most households make use of boreholes as major source of water. There is also a river which serves as a source of water. The study area was divided into three school districts. They were also stratified according to school proprietorship into private and public. The six schools were selected randomly; two from Naze, two from old road Nekede, and two from Federal Polytechnic environs, including Federal Poly Staff School. In all the selected schools, a total of 504 pupils (292 females and 212 males), aged six to twelve years were recruited. Forty eight (48) to one hundred and fourteen (114) pupils were selected randomly from each class using the class register as shown in table 1.

CONSENT

Authority and consent were obtained from the headmasters, headmistress, teachers and the children after the objectives of the study had been explained to them.

DATA COLLECTION/SAMPLING TECHNIQUE EMPLOYED

The method described by Frankowski (2004) for diagnosing an active head lice infestation by the identification of a live nymph or adult louse was employed. This method recommends an examination of wet hair lubricated with such product as standard hair conditioner. The hair was carefully combed with a fine-toothed comb from the scalp to the end of the hair. A stratified multi-staged sampling technique was used to recruit pupils between 6-12 years of age, from six primary schools.

PHYSICAL EXAMINATION

The children's hair scalps and hairs were examined for lice. The hair and scalp were examined by separation of the hair every 1 to 2cm with a comb and the lice identified with a magnifying lens. The presence of either live or dead eggs, nymphs or adult lice was

considered infestation with *Pediculus capitis* (that is the presence of adults or viable eggs at the time of examination) (Nazari *et al.*, 2006). Visual examination of a child's head for lice was further classified into "not infested" or "infested". The average visual inspection time for each pupil was 10 minutes. After each examination, an individual form with the child's name, age, sex, hair length and result were filled. Pupils with lice were also subjected to combing with a fine-toothed comb over a piece of white paper. The recovered lice were collected, counted and killed by transferring to 3% formalin. Positive cases were further examined for symptoms of pruritus (itching). Infested children were then issued with permethrin shampoo for home treatment.

QUESTIONNAIRE SURVEY

Data was collected from the children using pre-tested questionnaires containing multiple choice questions to ascertain pupil's knowledge of Pediculosis treatments.

RESULT/DISCUSSION

Five hundred and four (504) school children, aged 6-12, made up of two hundred and ninety two (292) girls and two hundred and twelve (212) boys, in primary 1-6, in public and private schools situated in rural/sub-urban area (Nekede in Owerri West LGA of Imo State) were recruited as shown in Table 1. The results of the study showed infestation of some of the primary school pupils sampled with head lice. One hundred and forty six (146) pupils (18 males and 128 females) had head lice (adults and nits) as shown in Table 2, indicating that prevalence rate was 38.1%. *Pediculus humanus capitis* percentage of infestation in this study was more in girls with 50.8% and less in boys with 13.8%. The level of infestation corroborates the results of 26.4% reported by Etim *et al.* (2012), and also consistent with the works of Govere *et al.* (2003), Williems *et al.* (2005) as well as Okwa and Omoniyi (2010), although quite higher. The cause of the gender-specific prevalence observed in this study is still unclear although, it may be attributed to gender related behaviours. Girls like closer and more prolonged social contact; in addition, had the tendency to keep long hairs which are often braided and kept up to two weeks or more without combing or washing, where as boys tend to keep short hair or shaved hair, although most pupils on short hair had lice infestation which was traced down to getting infected through family members that were infected.

School children from 8 to 12 years of age had active infection (with the adult louse present), while of the positive cases, children of 6-7 years showed inactive infection (only the egg residue was found). Infested pupils were issued hair shampoo which contains permethrin for

the treatment and clearing of the adult lice, as recommended by Bialek *et al.* (2011), Etim *et al.* (2012) and Gunning *et al.* (2019).

Table 1: Age, class and sex distribution of the study subjects.

Age (year)	Class	Number in class	Female	Male
6	1	90	60	30
7	2	48	30	18
8	3	114	80	34
9	4	102	62	40
10	5	102	40	62
11-12	6	48	20	28
Total		504	292	212

Table 2: Distribution of head lice infestation according to age and gender.

Age(yr)	Class	No. of male examined	No. of female examined	No. of male infestation	No. of female infestation	%prevalence in male	%prevalence in female
6	1	30 (22.9%)	40 (15.9%)	4 (3.1%)	20 (7.94%)	22.2	15.6
7	2	10 (7.6%)	20 (7.9%)	2 (1.5%)	10 (3.97%)	11.1	7.8
8	3	20 (15.3%)	80 (31.8%)	6 (4.6%)	50 (19.84%)	33.3	39.1
9	4	32 (24.4%)	52 (20.6%)	5 (3.8%)	22 (8.73%)	27.8	17.2
10	5	24 (18.3%)	40 (15.9%)	-	18 (7.14%)	0	14.1
11-12	6	15 (11.5%)	20 (7.9%)	1 (0.8%)	8 (3.17%)	5.6	6.2
		Total = 131	Total = 252	Total = 18	Total = 128		
		% of male examined = 61.8%	% of female examined = 86.3%	% of infestation = 13.8%	% of infestation = 50.8%		

It was noticed that age is another key variable that requires further investigation. For instance, 8-12 years old children were more infested, a finding that echoed a study in primary school children in Calabar by Etim *et al.* (2012). It was also noticed that Pediculosis was more prevalent in crowded schools with children sitting 4-6 per desk. The school with only one infected child (Federal Polytechnic Nekede Staff School) was noted to observe a good spacing arrangement without school children clustering in one seat. Transmission of head lice most commonly occurs through close physical contact especially head-to-head contact. The present findings are in agreement with the work of Moradi *et al.*, (2009) and CDC (2021) that also observed that transmission of head lice most commonly occurs through close physical contact, especially head-to-head contact.

The result as displayed in Table 3 showed that 6.7% of pupils had no knowledge of how to treat Pediculosis. However, others mentioned variety of methods used for treatment which

includes washing of hair (8.7%), shaving off hair (15.5%), use of hot comb to straighten hair (17.9%), use of insecticide on hair (17.1%), manually removed by picking of lice from hair (13.5%), and use of mixture of camphor and kerosene (20.6%). The present findings are consistent with the report of Etim *et al.*, (2012) and Gunning *et al.* (2019) in their own studies.

Table 3: Response of school children for knowledge of treatment.

Treatment	Male	Female	Total	Percentage%
Don't know	18	16	34	6.7
Washing hair	16	28	44	8.7
Shaving off hair	28	50	78	15.5
Use hot comb to straighten hair	36	54	90	17.9
use of insecticide on hair	52	34	86	17.1
Manual removal	33	35	68	13.5
Use of camphor and kerosene	29	75	104	20.6

As a public health problem in both developed and developing countries (Sidoti *et al.*, 2009), the prevalence of head lice (or pediculosis in a more scientific terms) is increasing. In the area surveyed, the present study has shown that the overall prevalence is higher than that previously reported in some other areas in the country, for example Calabar, where the prevalence rate was 26.4% (Etim *et al.*, 2012). A number of factors could have contributed to the high prevalence rate. Firstly, this may be due to the relatively poor socio-economic status of the families living around Owerri West. The observable low socio-economic status of the families living in this area has caused deficiencies in their living sanitation standards, a state of affairs that contributed to head lice infestation which was evident in their unkept hair. At the school level, the over-crowding of pupils in classrooms, the lack of health education programs and the absence of screening programs could also be considered extra contributing factors. The current study demonstrated that the presence of lice was more common in rural/sub-urban areas than in urban areas. This finding is consistent with the results reported in other studies (Davarpanah *et al.*, 2009; Albashtawy and Hasna 2012). This might be justified because the educational level and the living standards of urban people are relatively higher than those of rural people.

CONCLUSION

This present study has shown the prevalence of head lice among the primary school children in Nekede, Owerri West, Imo State. It also showed that infestation rate among children of higher income group were lower as seen in school pupils at Federal Polytechnic Nekede Staff

School. Female gender, low socio-economic status, a history of contact, inadequate hygiene practices and sharing articles were major risk factors. Even though pediculosis is a public health problem in some parts of the world, it still has not been given the attentions it deserves in this community.

RECOMMENDATION

i. Government should set up a functional health service unit in all schools to monitor the health status of the children.
ii. There is need for school nurses to implement health education and promotion programs for the community as well as promoting routine programs about sanitation, hygiene and head lice screening for school children
iii. Dispelling myths and stigmas regarding lice infestation among individuals, families and communities is another pivotal role of school health nurses.
iv. School sectors should be looked into so as to ensure that good sitting arrangement is observed so as to reduce head-to-head contact.

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