

Pediculosis humanus capitis: An Emerging Ectoparasitic Infection among Children in Maiduguri Internally Displaced Camps (IDPs), Borno State, Nigeria

¹ Mohammed Ali Gajiram ² Rabi Yakubu Bello *³ A.A.G. Benisheikh ⁴ Fatima Lawan Bukar ⁵ Ali Ibn Muhammad ⁶ Fatima Maina Muhammad ⁷ Kashim Ibrahim Muhammad

1 Dept. of science laboratory technology, Ramat polytechnic Maiduguri, Borno state

2 Dept. of Microbiology, Yobe State University, Yobe State / University of Wolverhampton, United Kingdom

3 Biotechnology centre, University of Maiduguri, Borno State / University of Wolverhampton, United Kingdom

4 Dept. of community Medicine, University of Maiduguri teaching Hospital, Borno State, Nigeria

5 National biotechnology development Agency, Abuja/ Biotechnology centre, University of Maiduguri

6 Sir Kashim Ibrahim college of Education Maiduguri, Borno state, Nigeria

7 Maiduguri Eye Hospital Damboa Road, Maiduguri / Biotechnology centre, University of Maiduguri

*Email address: alibenisheikh@yahoo.com

Abstract

The aim of the study was to determine the prevalence of *Pediculosis humanus capitis* (Head lice infestation) among children in internally displaced camps in Maiduguri, Borno State. A cross sectional study was conducted in January 2019 to April 2020 among 2-6 years old children in the internally displaced camps. The children were critically examined for the present of live head lice (*Pediculosis humanus capitis*), eggs or nits in the hair. Out of 198 subjects examined 100 (50.5%) were male, 98(49.5%) were female from four different internally displaced camps involved in the study. Among the children examined 54(27.3%) were found to be infested with *Pediculosis humanus capitis* while 144 (72.7%) were not infested. Male have slightly greater infestation with 50.5% in comparism to the female

with 49.5% infestation. Whereas head lice infestation based age among study population revealed that, highest infestation rate was recorded among children with 7 years old with 16(45.7%) followed by 6 years old children 11(32.4%), 5 years old children with 9(24.5%), 4 years old with 8(20.5%), 3 years old children with 6(20.0) and 2 years old children with 4(18.2%). Likewise the population distribution of children enrolled in the four different internally displaced camps revealed as Bakasi IDPs camp 68(34.3%), Muna Da'alti IDPs camp 48(24.2%), Dalori IDPs camp 42(21.2%) and Ajiganaram IDPs camp 40(20.0%) respectively. The findings of this research work revealed that Pediculosis humanus capitis is a common public health concern among children in internally displaced camps in the study. Thus, immediate public and primary health care attention is needed to strategically plan for prevention and control measures to curtail the disease.

Introduction

Pediculus humanus capitis are obligate parasites of human host commonly found in developing countries like Nigeria (Light J.E et al, 2008). The head louse is a public health concern with global prevalence ranging from 0-59% in various region particularly infrastructural constraints, low income social status communities (Falagas et al; 2008, Okoh, B.A.N and Alikor, E,A.D. 2013). Similarly, according to Slonka et al, 197, Ewasechke 1981, Head louse is one of the public health problems globally among school age children. Increasing violence in northern Nigeria particularly Borno state has resulted in formation of internally displaced persons (IDPs). The internally displaced camps (IDPs) in Maiduguri experienced many challenges affecting their health due to overcrowding, poor water, poor shelter in extreme summer and winter temperature which predisposed them to high risk of ectoparasite like pediculosis (Fatima et al.,

2019). Many literatures have revealed that head lice infestation is spread by direct contact with an infested person (CDC, 2010). Thus, many of the children were predisposed to the ectoparasite due to the new settlements and contact with infested children they found themselves in the internally displaced camps. The internally displaced camps lack prompt medical attention, poor sanitation and poor shelter which attributed for prevalence of the parasite infestation. . Therefore, the objective of this research work was to assess the prevalence of ectoparasitic infestation among 2-7 years old children in Maiduguri IDPs camps. Thus, the data generated will tremendously help to formulate strategies control measures against prevailing ecto-parasite infestation due to pediculosis humanus capitis in the study area.

Material and methods

Study Area

A cross sectional study was conducted between January 2019 to April 2020 among 2-6 years old children in the internally displaced camps were eligible to participate in the study, one hundred and ninety eight children were enrolled subject to the parent's consent and agreement. Each child were examined for the present of living lice, eggs or nits by cutting the infested child hair and preserved in 70% ethyl alcohol for further investigation.

Table 1: Distribution of Pediculosis based on sex and age in the study population

Age (years)	Male	Female	Total	No. Examined
-------------	------	--------	-------	--------------

	No. (%)	No. (%)	
2	12 (54.5)	10(45.5)	22
3	14(46.7)	16(53.3)	30
4	19(48.7)	20(51.3)	39
5	17(45.4)	21(55.3)	38
6	18(53.4)	16(47.1)	34
7	20(57.1)	15(43.5)	35
Total	100(50.5)	98(49.5)	198

Table 2: Distribution of Pediculosis and head lice infestation burden based on age of Children in the study area

Age	Head lice infestation	No head lice infestation	Total No. examined
2	4(18.2)	18(82.1)	22
3	6(20)	24(80.0)	30
4	8((20.5)	31(79.5)	39
5	9(24.5)	29(76.3)	38
6	11(32.4)	23(68.5)	34
7	16(45.7)	19(54.3)	35
Total	54(27.3)	144(72.7)	198

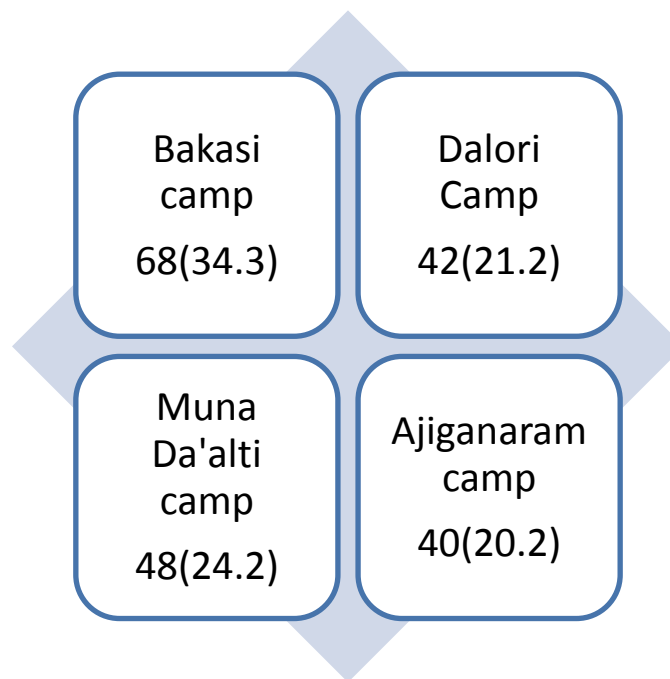


Fig:Population distribution of children enrolled in the four IDP camps

Results and Discussion

A study to identify and determine the prevalence of pediculosis humanus capitis infesting children in four different internally displaced camps was carried out in January 2019 –April 2020 in Maiduguri, Borno state, Nigeria. A total of 198 children examined, 100 (50.5%) were male, 98(49.5%) were female from four different internally displaced camps involved in the study. Among the children examined 54(27.3%) were found to be infested with Pediculosis humanus capitis while 144 (72.7%) were not infested. Male have slightly greater infestation with 50.5% in comparism to the female with 49.5% infestation (Table 1). Whereas headlice infestation based age among study population revealed that, highest infestation rate was recorded among children with 7 years old with 16(45.7%) followed by 6 years old children 11(32.4%), 5 years old children with 9(24.5%), 4 years old with 8(20.5%), 3 years old children with 6(20.0) and 2 years old children with 4(18.2%) as shown in Table 2. Likewise the population distribution of children enrolled in the four different internally displaced camps revealed as Bakasi IDPs camp 68(34.3%), Muna Da’alti IDPs camp 48(24.2%), Dalori IDPs camp 42(21.2%) and Ajiganaram IDPs camp 40(20.0%) respectively(Fig 1). Pediculosis humanus capitis has been a most common challenges affecting health of internally displaced persons in the camps for over a decade in Maiduguri, Borno state, Nigeria. This is attributed to overcrowding, poor shelter, poor sanitation quality and inaccessibility to health care services (Fatima et al., 2019). Similarly, in the neighbouring country like Chad and Libya ectoparasitic infestation were most common public health problems in displaced patients (Ismael and ElGilany 2015). The current study reports that male children were more predispose to pediculosis humanus capitis due

indiscriminate roaming about searching for livelihood (Sayyadi, et al., 2013). Likewise the prevalence rate of head lice infestation in male children are slightly higher than the female children which contrary to result reported by Moradi et al. 2009 where difference in behavioural pattern among gender plays a vital role in mode of transmission and susceptibility.

Conclusion

The findings of this research work revealed that Pediculosis humanus capitis is a common public health concern among children in internally displaced camps in the study. Thus, immediate public and primary health care attention is needed to strategically plan for prevention and control measures to curtail the disease.

Recommendation

The introduction of informal health education with frequent monitoring of the program at all the internally displaced camps in Maiduguri may tremendously reduce the predisposal of children to the menace of ectoparasites infestation particularly Pediculos humanus capitis.

Conflict of interest

The authors declare that they have no conflict of interest

Reference

Ismael A, and ElGilany A. Pattern of skin diseases among Central African refugees in Chad. TAF Preventive Medicine Bulletin, 2015;14(4):324.

Moradi AR, Zahirnia AH, Alipour AM, Eskandari Z (2009) The Prevalence of Pediculosis capitis in Primary School Students in Bahar, Hamadan Province Iran. J Res Health Sci. 9(1): 45–49.

Falagas ME, Mathaiou DK, Rafailidis PI, Panos G, pappas G. worldwide prevalence of head lice. Emerg infect Dis 2008; 1493-4

Okoh B.A. and Alikor E.A.D prevalence of Head lice infestation in primary school children in portharcourt East African medical journal vol.90 No.8 August 2013

Fatima lawan Bukar, Hadiza Lawan Bukar, Ali Abba Gana Benisheikh et al., Trends in the prevalence of childhood malnutrition and malaria infection among pre-school children in IDPs camps in Maiduguri, Borno state. Inter. Jour. Of bio. Science, Volume 2, issue 9, 2019

Center for Disease control (2010)

Slonka, GF., McKinley, T.W., all, 1975. Controlling head lice, United states department health education dep and welfare, public heakth service, center for disease control, Atlanta, Georgia, pp 1-6

Light J.E., Toups M.A., Reed D.L. Whats in a name: the taxonomic status human head and body lice. Molecular and evolution, 2008; 47(3):1203-1216

Ewasechko CA (1981) Prevalence of head lice (*Pediculus humanus capitis*) among children in a Rural, Central Alberta School. Can J Public Health. 72: 249–252.

Sayyadi, M., Ahmad V. and Sirvan S. 2013. An Epidemiological Survey of Head Louse Infestation Among Primary School children in Rural Areas of Ravansar County, West of Iran, *Life Science Journal*, 10(12s).