

Knowledge, attitudes and practices regarding head lice infestations in rural Nigeria

Jorg Heukelbach^{1,2} and Uade S. Ugbomoiko³

¹Department of Community Health, School of Medicine, Federal University of Ceará, Fortaleza, Brazil

²Anton Breinl Centre for Public Health and Tropical Medicine, School of Public Health, Tropical Medicine and Rehabilitation Sciences, James Cook University, Townsville, Australia

³Department of Zoology, University of Ilorin, Ilorin, Nigeria

Abstract

Introduction: Head lice infestations are common in sub-Saharan Africa, but knowledge, attitudes and practices have never been studied in this region.

Methodology: This population-based study was conducted in a small rural community (population = 590) in Kwara State, Central Nigeria. Inhabitants of the community were interviewed regarding head lice infestations, using a pre-tested structured questionnaire, and examined regarding the presence of active pediculosis.

Results: Of the 496 participants included, 367 (74.0%) had experienced head lice infestations, but only 26 (11.1%) of the individuals older than 15 years knew the correct mode of transmission. Of 142 individuals with active pediculosis, only 1 (0.7%) felt ashamed. Treatment was most commonly done by grooming (46.3%), followed by combing (27.2%). Only 4.6% used pediculicides, and 21.8% did not apply any treatment. Opinions about difficulties in controlling head lice were asked in three groups: biological, technical and social. In the first group, the most common difficulty noted was detecting head lice (52.1%), followed by possible resistance that would lengthen the time of infestation (38.9%). Technical constraints included concerns on the safety and effectiveness of products (48.7%) and difficulties in obtaining treatment (46.2%). Social constraints included difficulty in treating children (24.4%), lack of knowledge (23.5%), and the social behavior of children (22.2%).

Conclusions: Head lice were not perceived as an important disease in a rural Nigerian community, and feelings about the infestation were mostly indifferent. Despite its common occurrence, knowledge on head lice was limited.

Key words: KAP study; pediculosis; Nigeria

J Infect Dev Ctries 2011; 5(9):652-657.

(Received 19 November 2010 – Accepted 17 February 2011)

Copyright © 2011 Heukelbach and Ugbomoiko. This is an open-access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

Parasitic skin diseases occur all over the world but despite high prevalences are considered as neglected diseases [1]. In resource-poor settings, head lice infestations, one of the major parasitic skin diseases, are of considerable public health importance and have been described to be associated with poverty [2,3]. Head lice infestations are common in several regions of sub-Saharan Africa [4-7], but knowledge, attitudes and practices (KAP) of affected populations in this region have never been studied systematically. In fact, pediculosis is not considered an important disease by health professionals in this region, which has been attributed to the fact that other more serious and life-threatening parasitic diseases are present, such as malaria, filariasis and schistosomiasis [8]. Thus KAP studies in African

settings usually focus on these more pressing health needs.

Some studies on pediculosis, mainly from middle- and high-income countries have shown that in general the knowledge of patients and also of health professionals regarding transmission and control of head lice infestation is limited [9-15]. In high-income settings, stigma and disgust are very common, whereas in low- and middle-income settings, head lice infestations are rather seen as a nuisance, or form part of normal life [12,16].

Here we present data from a KAP study in a rural Nigerian population where pediculosis occurs commonly.

Methodology

We conducted this study in Skanko village, a small rural community (population = 590) in Kwara State, Central Nigeria. The community is located about 140 km from Ilorin, the state's capital. There is no school in the community, and the vast majority of the population is illiterate and consists of subsistence farmers. Socio-economic and sanitary conditions are poor. In the area, prevalence of head lice infestations is about 30% [8].

A door-to-door survey was conducted from February to April 2007. The KAP survey included all household members in Skanko except for those who declined participation or for reasons of ill health were not able to respond. Individuals present were interviewed by one investigator in the local language, using a pre-tested structured questionnaire containing questions on knowledge, treatment practices, and perception regarding the infestation. Questions on knowledge about transmission of head lice and difficulties of treatment were only asked to individuals older than 15 years of age. These are the age groups who are usually responsible for treatment and control. Information on feelings about the infestation were collected from individuals with current infestation, independent from age. In this case, children of seven years and above provided information directly, while in the cases of children younger than 7 years, information was obtained from the parents or caregivers. Difficulties regarding treatment were asked in three categories (biological, technical and social constraints) as described by Parison *et al.* [13]. In each category, possible options were given, with only one answer possible. In addition, we performed wet combing with conditioner to diagnose an active infestation, defined as the presence of viable adult lice or nymphs. [17,18].

To avoid observation bias, wet combing was performed prior to the interview, and with the exception of the open question on knowledge of transmission, questions and possible answers were read out loud in a standardized manner. To reduce non-participation bias, the household was revisited twice in the following days at different hours of the day, if family members were absent.

The sample size was defined by a concomitantly performed prevalence study, and detailed data on the prevalence and epidemiology of pediculosis in the community will be published elsewhere.

Data were entered into a Microsoft (Redmond, USA) Excel spreadsheet, checked for entry-related

errors and transferred to Epi Info version 6.04d (Centers for Disease Control and Prevention, Atlanta, USA).

The study was approved by the Ethical Review Board of University of Ilorin, Kwara State, and by the traditional community leaders of Skanko. Study participants gave informed written consent. Illiterate individuals gave verbal consent and a thumbprint.

Results

In total, 496/590 individuals were included (83.1% of the target population). About half of the study population was living with less than 15 USD per month (Table 1). Socio-demographic characteristics of the study population are depicted in Table 1.

Three hundred and sixty-seven participants (74.0%; 95% confidence interval: 69.9-77.8) confirmed that they had experienced head lice infestations in their lifetime, but knowledge on transmission was poor: of the 234 individuals older than 15 years of age, only 11% knew the correct mode of transmission, and the majority believed that infestation occurred via contact of the head with the ground (Table 2).

Almost all individuals (138/142 = 97.2%) with a current head lice infestation had indifferent feelings regarding the infestation, 3 (2.1%) were surprised, and only one person (0.7%) felt ashamed.

Treatment practices are detailed in Table 3, stratified by infestation status. Of those individuals who stated that they had experienced pediculosis at least once in their lifetime, the majority performed grooming or combing. Only 5% used pediculicides, and 22% did not apply any treatment. The situation was different in individuals with active infestation and those who woke up at night due to itching: more than 50% did not apply any treatment (Table 3).

When asked about difficulties in treating head lice, the most common response was detecting head lice (52%), followed by possible resistance that would lengthen time of infestation (39%, Table 4). Most common technical constraints were product concerns (adverse events such as distaste and burning sensation, low safety and low effectiveness) (49%) and difficulties in obtaining treatment (46%). Regarding social constraints, the most common responses were difficulty treating children (24%), lack of knowledge (24%), and the social behavior of children (22%) (Table 4).

Table 1. Socio-demographic characteristics of the study population

	n (%)
Sex:	
Male	182 (36.7%)
Female	314 (63.3%)
Age (years):	
Median (interquartile range)	13 (6-32)
Range	1-80
Monthly family income (USD):	
Median (interquartile range)	14.65 (11.20-18.10)
Number of persons per household:	
Median (interquartile range)	8 (6-9)

(n = 496)

Table 2. Knowledge about transmission of head lice

	n (%)
Contact of head with ground/sand (e.g. while sleeping)	100 (42.7%)
Others (carrying gari [local grains] on the head; doing farm work/bush clearing; head sweating)	41 (17.5%)
From another infested person-	26 (11.1%)-
Does not know	67 (28.6%)

(individuals \geq 15 years; n = 234)**Table 3.** Treatment practices regarding head lice infestation, by infestation status.

	Individuals who had experienced pediculosis at least once in lifetime (n = 367) n (%)	Individuals with active pediculosis (n = 142) n (%)	Individuals waking up at night due to scratching caused by pediculosis (n = 90) n (%)
Grooming/nit-picking	170 (46.3%)	56 (39.4%)	33 (36.7%)
Combing	100 (27.2%)	13 (9.2%)	6 (6.7%)
Use of creams or pediculicides	17 (4.6%)	1 (0.7%)	1 (1.1%)
No treatment	80 (21.8%)	72 (50.7%)	50 (55.6%)

Discussion

Investigations on knowledge, attitudes, and practices regarding head lice infestations are limited. The present KAP study appears to be the first investigation on these aspects from sub-Saharan Africa. Our data show that head lice were not perceived as an important disease in a rural Nigerian community, which may partly be attributed to the presence of more serious parasitic diseases in the study areas, such as malaria and schistosomiasis. In fact, anecdotal observations in resource-poor communities in the West Africa sub-region indicate that pediculosis is perceived as a rather trivial health

problem, even by public health professionals and the scientific community (Ugbomoiko, unpublished observation). Detection and treatment lies primarily on family members with limited knowledge of head lice infestation and its symptoms. With apparent lack of anti-head lice products, and an insufficient number of primary care centres and pharmacies, grooming often becomes the only option for treatment. The result is that the infestation rate and transmission pressure are often high, particularly in children and neglected adults living in the same area. In the study area, which is similar to other resource-poor settings in Nigeria and other African countries, there is no

Table 4. Perceived difficulties in treating head lice infestations, stratified in three groups (biological, technical and social constraints; one answer per group)

	n (%)
Biological group:	
Difficulty to detect head lice	122 (52.1%)
Resistance lengthens time of infestation	91 (38.9%)
Resistance to products	21 (9.0%)
Technical group:	
Product concerns (adverse events, low safety and low effectiveness of product)	114 (48.7%)
Difficult to obtain treatment	108 (46.2%)
Difficult treatment technique	12 (5.1%)
Social group:	
Difficulty to perform combing and to apply pediculicides in children	57 (24.4%)
Lack of knowledge	55 (23.5%)
Social behaviour of children	52 (22.2%)
Low family commitment	36 (15.4%)
Re-infestation	29 (12.4%)
Big family size	5 (2.1%)

(individuals \geq 15 years, n = 234)

basic infrastructure available such as a health centre, school, access to potable water, nor electricity. In this and similar Nigerian communities, the sale of fake and adulterated drugs and pharmaceutical products is common.

Pediculosis was common in the study area, but knowledge on head lice was limited. In general, knowledge on diseases and their transmission routes is poor in Nigeria. For example, we have recently shown that pet holders in urban centres were not aware of issues regarding zoonotic diseases, despite a high prevalence in dogs and the consequent potential risk for human health [19]. During the current study, local treatment methods such as grooming and combing were advocated, as pediculicidal products were neither available nor affordable. The use of toxic compounds such as kerosene and gasoline was discouraged, and transmission of head lice was explained in the community. The information was well-received, and future studies should examine systematically the impact of these cost-effective intervention measures.

General knowledge on head lice and their control is also limited in high-income settings [9,12,20]. Surveys involving pharmacists, community nurses, and physicians have shown that knowledge on transmission and control is also insufficient in health professionals [10,11,14]. A study from the United Kingdom suggested that a considerable number of health professionals had insufficient knowledge on the prevention and treatment of pediculosis [11]. Similarly, a recent study from Israel has shown that

physicians' knowledge on transmission and prevention was generally low, which is a major drawback in control of the disease [10].

Interestingly, populations commonly affected by head lice usually diagnose themselves with high accuracy. A previous analysis has shown that the population of Skanko village diagnosed pediculosis with 74% sensitivity and 99% specificity [8]. In cases of severe infestation, sensitivity increased to 92%. Figures from resource-poor communities in Brazil, where head lice are highly endemic, were similar [21,22].

Our data show that head lice infestations are perceived as a nuisance in the study population and that pediculosis seems to form a part of normal life. There are other parasitic diseases endemic such as malaria and schistosomiasis that may cause a much higher degree of morbidity. This is also reflected by the fact that about half of the individuals with active infestation did not apply any treatment. On the other hand, the prevalence of pediculosis in those who had experienced pediculosis, but were not actively infested, was much lower. The majority of these had applied any treatment, which shows the effectiveness of individual therapeutic measures (mainly grooming and combing) in this resource-poor setting. In a Brazilian slum, people did not present to a primary health care centre serving an urban slum due to pediculosis, which points to a similar perception of the disease in the affected population [16]. Head lice have even been described to have positive social functions in different societies, due to the social

bonding during grooming [12,23].

The situation is different in developed market economies and high-income settings where distress and persistent stigma about being infested are the predominant feelings [12,13]. People feel disgust, horror, dirty, frustrated and anxious, and head lice control is a major issue disturbing the quality of life in many families. In contrast to the Nigerian study population, treatment in these settings is promptly administered. Clearly, stigma due to head lice and perception of the disease depend on the setting and the socio-cultural context. In societies that commonly use grooming as a control method, such as in the present study, stigma is not an important issue, in contrast to developed market economies where head lice infestations are perceived as an extremely stressful situation, and treatment has to be performed the most rapid and easy way, usually with topical pediculicides [14].

In our study, there are some limitations to be considered when interpreting the results. Although the data were drawn from a population-based study, there may have been non-participation bias due to samples not being a representative for all socio-economic strata and ages. Community traditions impeded investigators from examining the heads of some members in the community, such as in some elderly persons. Given that adult males and the elderly are underrepresented in the study makes these reports to be conservative. Our questionnaire-based survey was done in a single village in a rural community; therefore, generalising the results to other communities in West Africa should be taken with care. However, the village under study shared typical characteristics for the region, and it can be assumed that the situation regarding head lice is comparable to other communities with similar characteristics.

In conclusion, our data show that head lice were not perceived as a disease of importance in a typical rural Nigerian community. Feelings about the infestation were mostly indifferent and many people did not apply any treatment. The results of our KAP study influence the planning of control measures and their success.

Acknowledgments

We thank the community leaders for supporting the study. JH is a research fellow from the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), Brazil.

References

1. Feldmeier H, Heukelbach J (2009) Epidermal parasitic skin diseases: a neglected category of poverty-associated plagues. *Bull World Health Organ* 87: 152-159.
2. Amr ZS, Nusier MN (2000) Pediculosis capitis in northern Jordan. *Int J Dermatol* 39: 919-921.
3. Pilger D, Heukelbach J, Khakban A, Oliveira FA, Fengler G, Feldmeier H (2010) Household-wide treatment for head lice in an impoverished community: randomized observer-blinded controlled trial. *Bull World Health Organ* 88: 90-96.
4. Awahmukalah DS, Dinga JS, Nchako NJ (1988) Pediculosis among urban and rural school children in Kumba, Meme division, south-west Cameroon. *Parassitologia* 30: 249-256.
5. Ebomoyi E (1988) Pediculosis capitis among primary schoolchildren in urban and rural areas of Kwara State, Nigeria. *J Sch Health* 58: 101-103.
6. Govere JM, Speare R, Durrheim DN (2003) The prevalence of pediculosis in rural South African schoolchildren. *S Afr J Sci* 99: 21-23.
7. Henderson CA (1996) Skin disease in rural Tanzania. In *J Dermatol* 35: 640-642.
8. Ugbomoiko US, Speare R, Heukelbach J (2008) Self-diagnosis of head lice infestation in rural Nigeria as a reliable rapid assessment tool for pediculosis. *Open Dermatol J* 2: 95-97.
9. Counahan ML, Andrews RM, Weld H, Helen W, Speare R (2007) What parents in Australia know and do about head lice. *Rural Remote Health* 7: 687.
10. Mumcuoglu K, Mumcuoglu M, Danilevich M, Gilead L (2010) Knowledge and practices of health professionals regarding head lice. In Heukelbach J, editor. *Management and control of head lice infestations*. Bremen: UNI-MED Verlag AG. 111-114.
11. Olowokure B, Jenkinson H, Beaumont M, Duggal HV (2003) The knowledge of healthcare professionals with regard to the treatment and prevention of head lice. *Int J Environ Health Res* 13: 11-15.
12. Parison JC, Canyon D (2010) Head lice and the impact of knowledge, attitudes and practices - a social science overview. In Heukelbach J, editor. *Management and control of head lice infestations*. Bremen: UNI-MED Verlag AG. 103-109.
13. Parison JC, Speare R, Canyon D (2008) Uncovering family experiences with head lice: the difficulties of eradication. *Open Dermatol J* 2: 9-17.
14. Philips Z, Whynes D, Parnham S, Slack R, Earwicker S (2001) The role of community pharmacists in prescribing medication for the treatment of head lice. *J Public Health Med* 23: 114-120.
15. Silva L, Alencar RA, Madeira NG (2008) Survey assessment of parental perceptions regarding head lice. *Int J Dermatol* 47: 249-255.
16. Heukelbach J, van Haeff E, Rump B, Wilcke T, Moura RCS, Feldmeier H (2003) Parasitic skin diseases: health care-seeking in a slum in north-east Brazil. *Trop Med Int Health* 8: 368-373.
17. De Maeseneer J, Blokland I, Willems S, Stichele RV, Meersschaet F (2000). Wet combing versus traditional scalp inspection to detect head lice in schoolchildren: observational study. *Br Med J* 321: 1187-1188.
18. Jahnke C, Bauer E, Hengge UR, Feldmeier H (2009) Accuracy of diagnosis of pediculosis capitis: visual inspection vs wet combing. *Arch Dermatol* 145: 309-313.

19. Ugbomoiko US, Ariza L, Heukelbach J (2008) Parasites of importance for human health in Nigerian dogs: high prevalence and limited knowledge of pet owners. *BMC Vet Res* 4: 49.
20. Sidoti E, Bonura F, Paolini G, Tringali G (2009) A survey on knowledge and perceptions regarding head lice on a sample of teachers and students in primary schools of north and south of Italy. *J Prev Med Hyg* 50: 141-151.
21. Heukelbach J, Kuenzer M, Counahan M, Feldmeier H, Speare R (2006) Correct diagnosis of current head lice infestation made by affected individuals from a hyperendemic area. *Int J Dermatol* 45: 1437-1438.
22. Pilger D, Khakban A, Heukelbach J, Feldmeier H (2008) Self-diagnosis of active head lice infestation by individuals from an impoverished community: high sensitivity and specificity. *Rev Inst Med Trop Sao Paulo* 50: 121-122.
23. Trigger DS (1981) Blackfellows, whitefellows and head lice. Newsletter of the Australian Institute of Aboriginal Studies 15: 63-72.

Corresponding author

Jorg Heukelbach
Departamento de Saúde Comunitária, Faculdade de Medicina
Universidade Federal do Ceará
Rua Prof. Costa Mendes 1608, 5. andar
Fortaleza CE 60430-140, Brazil
Telephone: ++55-85-33668045; Fax: ++55-85-33668060
Email: heukelbach@web.de

Conflict of interests: No conflict of interests is declared.