

---

## PERCEPTION OF ONCHOCERCIASIS BY RURAL HAUSA WOMEN IN NORTHEAST NIGERIA AND THE IMPLICATIONS FOR ONCHOCERCIASIS CONTROL

---

<sup>1</sup>OKOYE, Ikem Chris, <sup>2</sup>DAKUL, Daniel A and <sup>3</sup>WAKAWA, Abdul I

<sup>1</sup>Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria.

<sup>2</sup>Department of Zoology, University of Jos, Jos, Plateau State, Nigeria.

<sup>3</sup>Primary Health Unit, Hawul Local Government, Borno State, Nigeria.

**Corresponding Author:** Okoye, I. C., Parasitology and Biomedical Research Unit, Department of Zoology, University of Nigeria, Nsukka, Enugu State, Nigeria. **Email:** [ikem.okoye@unn.edu.ng](mailto:ikem.okoye@unn.edu.ng)  
**Phone:** +234 8069284633

---

### ABSTRACT

*The survey was conducted to explore the hard-held beliefs of rural Hausa women that help to sustain onchocerciasis transmission in an onchocerciasis endemic focus in North eastern Nigeria. The beliefs explored pertained to the perceived symptoms and effects of onchocerciasis peculiar to women. The study area was the Hawul River Valley, North Eastern, Nigeria. An area known for serious ocular and socio-economic tolls of onchocerciasis. 158 women (age range 20 to 60) enlisted by purposive sampling were surveyed on their disease perception of onchocerciasis using standard guidelines. Focal group discussions, in-depth interviews and questionnaires were used as instruments. The disorders that the respondents associated with onchocerciasis included blindness (86.1 %), various menstrual problems (65.8 %), impaired (failing/blurred) Vision (61.4 %) and itching (58.2 %). Least responses were for 'others' (17.7 %) and scrotal enlargement (22.8%). The respondents significantly associated barrenness ( $\chi^2 = 3.41$ ;  $df = 4$ ;  $P < 0.05$ ) and foetal abortion/miscarriage ( $\chi^2 = 1.53$ ;  $df = 4$ ;  $P < 0.05$ ), with onchocerciasis but their association of scrotal elephantiasis was statistically insignificant ( $\chi^2 = 0.26$ ;  $df = 4$ ;  $P > 0.01$ ). Irregular menstruation (54.8 %); prolonged menstrual period (36.5%); painful menstruation (29.8 %) and others (22.1 %) were implicated for menstrual problems. Popular beliefs and deep-rooted convictions are valuable in formulating socio-culturally accepted health education programmes that directly address people's areas of concern while deep-rooted ignorance and incorrect beliefs about the causes and effects of a disease may lead to neglect of personal protection measures and allow the intensification of disease morbidity. The study throws more insight into local disease perception, which is known to have direct effect on health and illness behaviour.*

**Keywords:** Onchocerciasis perception, Hausa women, Menstruation, Barrenness, Scrotal elephantiasis, Control strategies

---

### INTRODUCTION

Onchocerciasis or River blindness is a disease caused by infection of a parasitic filarial nematode - *Onchocerca volvulus*. This parasite is transmitted to human through the bite of the blackfly of the genus - *Simulium* spp. which breed in fast flowing rivers and streams.

The clinical symptoms of the disease include non-specific skin effects such as pruritis, acute and chronic papular dermatitis (Enk, 2006). Other manifestations include onchocercomata, lymphadenopathy and various ocular lesions which culminate in irreversible (terminal) blindness.

Onchocerciasis is responsible for an estimated annual burden of 388,576 disability adjusted life years (DALYs), 60% of which is accounted for by onchocercal skin diseases (OSD) (WHO, 2004). Onchocerciasis is a disease of considerable socio-economic and public health importance. It has been implicated in cases of musculo-skeletal pain, epilepsy, inguinal hernias, secondary amenorrhea, spontaneous abortion, lactation difficulties, infertility and sterility (Okuliez *et al.*, 2007). About 99 % of onchocerciasis infected persons live in remote rural communities of Africa where about 75 million people are at risk of infection. The others live in Central and South America and Yemen in the Arabian Peninsula (Okuliez *et al.*, 2004). In Africa, Nigeria ranks second after the Democratic Republic of Congo in estimated population of people infected with *O. volvulus* (Hopkins *et al.*, 2002).

The high transmission in Nigeria has been attributed to several factors including misconceptions of the disease by several cultural groups which had led to the neglect of personal protection against the disease vector and non compliance of infected individuals to treatment regime. For instance, investigations on the traditional beliefs of Yoruba women in Southwest Nigeria (Brieger *et al.*, 1987) and Igbo women in Southeast Nigeria (Amazigo *et al.*, 1993) revealed that traditional societies living in endemic regions usually hold onchocerciasis responsible for many reproductive problems.

The vast spread of the disease constitutes a serious impediment to effective control. The disease control is most effective using chemotherapeutic approach, the present drug of choice being mectizan (ivermectin). This strategy is constrained by lack of community support resulting from the inability of control experts to understand local conceptions, priorities and preferences, especially their beliefs on the causes and effects of the disease and their attitude to health-care seeking behaviours (Okoye, 2007). Women and infants are known to have higher susceptibility and hence greater morbidity rate to tropical diseases than males. They are known to have higher episodes of illness and more hospital visits even

outside gynecological and obstetric purposes (Brabin, 1990).

In traditional African societies, women are very strategic in the health outcomes and well being of the family. Despite their low level of knowledge about healthcare and poor financial resources, women determine and offer the first-line (home-made or domestic) treatment to sick members of their households especially infants and children.

This paper presents our findings on the hard-held beliefs of rural Hausa women that probably sustain onchocerciasis transmission in an endemic focus in Northern Nigeria. It is hoped that knowledge of these beliefs will help evolve a sustainable control programme in this and many other onchocerciasis-endemic settings.

## MATERIALS AND METHODS

**The Study Area:** The study area is the Hawal River Valley and its adjoining communities lying within the southern border of Borno and northern part of Adamawa States, Nigeria. The area is well known for serious ocular and socio-economic tolls of onchocerciasis (Akogun and Onwuliri, 1991; Okoye and Onwuliri, 1997) that have caused depopulation of the rich agricultural land. The area lies approximately between latitudes 10° 21'N and 13° 4'N and longitudes 9° 8'E and 14° 4' E in the extreme North-Eastern part of Nigeria.

**Ethical Clearance:** In each of the communities surveyed, permission of the *hakimi* (Village Head) was first obtained after the entire study had been explained. Informed consent of heads of the various households and subjects surveyed were secured before enlistment for the study. The ethical standards set by the Primary Health Care (PHC) Department of Hawul Local Government were strictly adhered to in this study, with a staff member of the PHC Department as co-researcher. Only female research assistants were allowed into the homes labeled *ba shiga* (no entry).

**Subjects:** A total of 158 women (age range 20 to 60) were enlisted by purposive sampling. The respondents were classified as symptomatic and

asymptomatic. Symptomatic respondents were those who showed at least one of the onchocercal symptoms, while the asymptomatic respondents were those who manifested no symptom. Onchocerciasis perception peculiar to the sampled population was surveyed using standard guidelines (Khan *et al.*, 1990).

Focal group discussions (FGD) involving 158 women were conducted at the levels of 4 administrative districts in the study area. All the women were of the same socio-economic background typical of the particular district under investigation. Each session lasted for 90 minutes. Furthermore, in-depth interviews with the community health officers and elders were conducted to obtain detailed information on onchocerciasis perception and the indigenous onchocerciasis control strategies by rural Hausa women in northeast Nigeria.

Questionnaires containing both closed and open-ended questions, pre-tested after translation into the local dialects, were used to obtain information on matters such as the symptoms; the association of onchocerciasis with specific health problems such as foetal abortion, barrenness and scrotal elephantiasis. The sessions were tape recorded and later transcribed.

**Statistical Analysis:** The data were analyzed using EPI-INFO 6 statistical package and tests of association were established using the Chi-square test for statistical significance.

## RESULTS

The key informant interviews yielded some thematic responses. The women in this study attributed many reproductive disorders to onchocerciasis. Three principal morbidity indicators attributable to onchocerciasis were nodules, leopard skin and rashes. Men have special preference for women with palpable nodules of the lower extremities. It is believed that tingling the nodules improved libido and sexual excitement. A man with a head nodule (*mugu*) is believed to be wicked, quick tempered and undesirable as an in-law. "I will not give my daughter in marriage to a *mugu*, even if he has

plugged out (excised) the nodule" said a 50 years old female farmer.

Leopard skin was viewed as a familiar trait that occurred in some women at the onset of menopause. An unmarried lady who develops the condition is therefore viewed with suspicion. "You see that girl with leopard skin, suitors would think she can no longer bear children, when leopard skin appears clearly on the chin, it shows that the lady is gradually approaching cessation of her monthly blood flow (menopause)" responded a 37 years old carpenter.

Craw-craw (papular rashes) is viewed merely as cosmetic blemishes but the condition is also believed to be contagious. Potential suitors therefore resent spinsters with this condition. "Except a girl was cured of crawl-crawl, prospective suitors and family members are discouraged from seeking her hand in marriage" was the responds from a 55 years old school teacher. Furthermore, a 60 years old male farmer had the perception that "Crawl-crawl was contagious and no girl having crawl-crawl was given out in marriage to avoid embarrassment".

The symptoms that the respondents associated with onchocerciasis included blindness (86.1%), various menstrual problems (65.8%), impaired (failing/blurred) vision (61.4%) and itching (58.2%). Least responses were for scrotal enlargement (22.8%) and 'others' (17.7%). Table 1 presents the view of respondents on the relationship between onchocerciasis and some health problems in the community. Significantly high number ( $\chi^2 = 3.41$ ;  $df = 4$ ;  $P < 0.05$ ) of women believed that onchocerciasis caused barrenness (52.1%) and 55.7% associated it with foetal abortion/miscarriage ( $\chi^2 = 1.53$ ;  $df = 4$ ;  $P < 0.05$ ) but not scrotal elephantiasis. More than one in every five women were ignorant of the health implications of onchocerciasis and therefore took no mitigative action. Table 2 presents the perception of infected and uninfected members of different age groups on the specific menstrual problems caused by onchocerciasis. A total of 61.5% of the respondents were infected while the remaining 38.5% were uninfected. The problems mentioned included irregular menstruation (54.8%); prolonged menstrual period (36.5%); painful

**Table 1: Response of female interviewees in Hawal River valley regarding their association of some health problems with onchocerciasis**

Variables and Year Groups	Percentage Response for Association of Some Health Problems with Onchocerciasis			Levels of Significance (between Age Groups)		
	Yes (%)	No (%)	Not sure (%)	$\chi^2$ value	p-value	Result
<b>Association of Foetal Abortion with Onchocerciasis</b>						
1. 20-30	36(50.0)	16(22.2)	20(27.8)	1.53	P < 0.05	S
2. 31-40	33(58.9)	9(16.1)	14(25.0)			
3. 41-50	19(63.3)	4(13.3)	7(23.3)			
Total:	88(55.7)	29(18.4)	41(25.9)			
<b>Association of Barrenness with Onchocerciasis</b>						
1. 20-30	36(50.0)	12(16.7)	24(33.3)	3.41	P < 0.05	S
2. 31-40	30(53.6)	13(23.2)	13(23.2)			
3. 41-50	17(56.7)	5(16.7)	8(26.7)			
Total:	83(52.5)	30(19.0)	45(28.5)			
<b>Association of Scrotal Elephantiasis with Onchocerciasis</b>						
1. 20-30	13(18.1)	29(40.3)	30(41.7)	0.26	P > 0.01	NS
2. 31-40	12(19.5)	22(39.8)	22(39.8)			
3. 41-50	7(23.3)	12(40.0)	11(36.7)			
Total:	32(20.3)	58(36.7)	63(39.9)			

1: n = 72; 2: n=56; 3:n=30; total: n= 158; S = Significant; NS = Not significant

**Table 2: Menstrual problems which women in Hawal River valley associated with onchocerciasis**

Menstrual problems associated with onchocerciasis	Infected respondents				Uninfected respondents				Both Groups n = 104
	Age Groups Studied								
	20-30 n = 25	31-40 n= 25	41-50 n = 14	Total n = 64	20-30 n = 16	31-40 n = 16	41-50 n = 8	Total n = 40	
Painful Menstruation	7(28.0)	8(32.0)	5(35.7)	20(31.3)	3(18.8)	5(31.3)	3(37.5)	11(27.5)	31(29.8)
Irregular Menstruation	11(44.0)	24(48.0)	8(57.1)	43 (67.2)	5(31.3)	6(37.5)	3(37.5)	14(35.0)	57(54.8)
Amenorrhoea	5(20.0)	15(30.0)	4(28.6)	22(34.4)	1(6.3)	3(18.8)	2(25.0)	6(15.0)	28(26.9)
Prolonged period	7(28.0)	13(26.0)	5(35.7)	27 (42.2)	4(25.0)	5(31.3)	2(25.0)	11(27.5)	38(36.5)
Others	4(16.0)	10(10.0)	4(28.6)	18(28.1)	1(6.3)	3(18.8)	1(12.5)	5(12.5)	23(22.1)

Clotted blood, dark blood and vaginal itching, Multiple responses taken

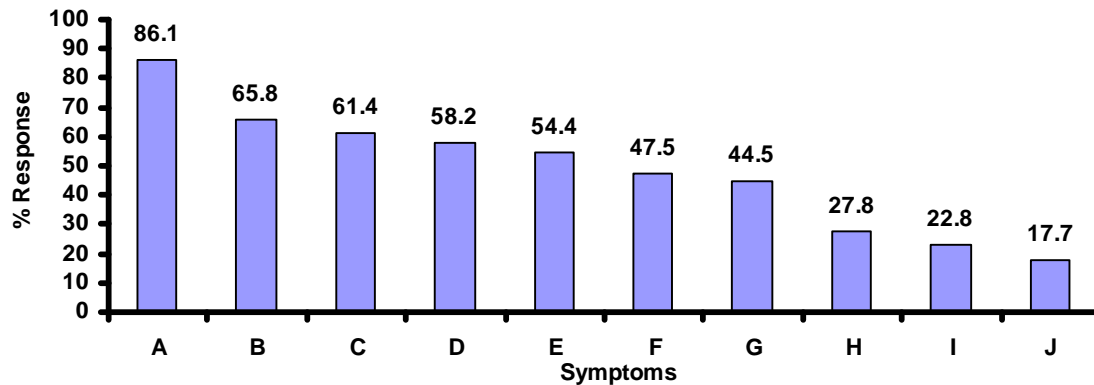


Figure 1: Symptoms which women in Hawal River Valley associated with onchocerciasis (n=158; multiple responses taken) key A = blindness, B = menstrual problem, C = impaired vision, D = itching/craw-craw, E = barrenness, F = nodules, G = foetal abortion, H = body pains, I = scrotal enlargement and J = others

menstruation (29.8%) and others (22.1%) (Fig. 1).

## DISCUSSION

The known onchocercal symptoms like blindness (86.1%), failing vision (visual impairments) – 61.4%; itching (58.2%) and palpable nodules (47.5%), etc, were rated by Hausa women as onchocercal symptoms, thus it was intriguing seeing onchocerciasis being talk about by these women confidently. This therefore lent credence to their mention of issues related to the female reproductive function like menstrual problems (65.8%), foetal abortion (53.9%) and barrenness (54.4%). Similar claims were reported in studies elsewhere (Brieger *et al.*, 1987; Amazigo *et al.*, 1993). Some of the above claims have not been clearly substantiated and documented by biomedical research. Anecdotal evidence alone may not justify disease aetiology but when such claims are repeatedly made, a community consensus and subsequently, a traditional belief evolves (Brieger *et al.*, 1987).

The women seemed to be more worried about those symptoms of onchocerciasis they negatively associated with their reproductive health. The association of onchocerciasis with scrotal elephantiasis by the women was not high ( $\chi^2 = 0.26$ ,  $P > 0.01$ ). Infact, the highest number of respondents (40.6%) expressed ignorance. The reason could be because scrotal elephantiasis is entirely a condition of the male reproductive function and many of the women had not been

too worried concerning its causes. This gives credence to the use of an entirely female group to probe into issues concerning onchocerciasis and women. It has been suggested that a predominantly male medical scientists may have over-looked issues that women in onchocerciasis endemic zones see as important (Brieger *et al.*, 1987).

Onchocerciasis was highly associated ( $\chi^2 = 3.41$ ;  $P < 0.05$ ) with barrenness. No respondent mentioned impotence probably because it is essentially a male concern. Foetal abortion (miscarriage) was well associated with onchocerciasis ( $\chi^2 = 1.53$ ;  $P < 0.05$ ). The increase in level of belief with age amongst the two groups could be due to the age factor already explained.

**Conclusion:** Popular beliefs, no matter how empirical, are not scientific basis for accepting as disease aetiology. They are however useful. First, they are valuable in formulating socio-culturally accepted health education programmes that directly address the people's areas of concern. Secondly, deep-rooted ignorance and incorrect beliefs about the causes and effects of a disease may lead to neglect of personal protection measures (Rao and Sharma, 1986), thus allowing intensification of the disease morbidity. Thirdly, they throw more insight into local disease perception, which are known to have direct effect on health and illness behaviour (Rosenstock, 1974). These deep-rooted convictions have great effects on the levels of compliance to and therefore success of any onchocerciasis control

regime. It is also the basis on which infected individuals seek particular kinds of remedies in preference to other forms when they suffer from onchocerciasis-induced symptoms. The issues raised by the women should be subjected to further biomedical investigations.

## REFERENCES

- AKOGUN, A. B. and ONWULIRI, C. O. E. (1991). Hyperendemic onchocerciasis in the Taraba River Valley, Gongola State (Old Adamawa Province), Nigeria. *Annale Parasitologie Humane Compare*, 66(1): 22 – 26.
- AMAZIGO, U. O., EZIGBO, J. C. and EZEASOR, P. O. (1993). Onchocerciasis in Nigeria: The prevalence among residents in forest and guinea savanna villages around the Anambra River Area. *Journal of Communicable Diseases*, 25(3): 89 – 95.
- BRABIN, L. (1990). Factors affecting the differential susceptibility of males and females to onchodermatitis. *Acta Leiden*, 59: 413 – 426.
- BRIEGER, W. R., RIMARKRISHNA, J., ADENIYI, J. D., PEARSON, C. A. and KALE, O. O. (1987). Onchocerciasis in pregnancy, traditional beliefs of Yoruba women in Nigeria. *Tropical Doctor*, 17: 171 – 174.
- ENK, C. D. (2006). Onchocerciasis - river blindness. *Clinical Dermatology*, 24(3): 176 – 80.
- HOPKINS, D. R., EIGEGER, A. and MIRI, E. S. (2002). Lymphatic filariasis elimination and schistosomiasis control in combination with onchocerciasis control in Nigeria. *Annals of Tropical Medicine and Hygiene*, 2002: 266 – 272.
- KHAN, M. E., ANKER, M. and PATEL, B. C. (1990). The use of focus group in social and behavioural research; some methodological issues. *World Health Statistics Quarterly*, 1990: 44: 145 – 149.
- OKOYE, I. C. (2007). Health-seeking behaviours and traditional management practices for symptoms of onchocerciasis by residents of the Hawal River Valley, Nigeria. *Animal Research International*, 4(3): 766 – 769.
- OKOYE, I. C. and ONWULIRI, C. O. E. (1997). Some aspects of the current status of onchocerciasis in Hawal River Valley after four cycles of mectizan therapy. *Journal of Applied Science and Management*, 1(1): 64 – 68.
- OKULICZ, J. F., ELSTON, D. M. and SCHWARTZ, R. A. (2007). Onchocerciasis (River Blindness). Available at <http://www.medicine.com> Date accessed: 15<sup>th</sup> September 2007.
- OKULICZ, J. F., STIBICH, A. S., SDIRK, A., ELSTON, M. and SCHWARTZ, R. A. (2004). Cutaneous onchocercoma. *International Journal of Dermatology*, 43: 170 – 172.
- RAO, C. K. and SHARMA, S. P. (1986). Control of Filariasis in India. *Journal of Communicable Diseases*, 18: 276 – 282.
- ROSENSTOCK, I. M. (1974). Historic origins of the health belief model. *Health Education Monograph*, 2: 28 – 35.
- WHO (2004). Changing history. World Health Organization, *World Health Report*, 2004: 1 – 96.