

MANAGEMENT AND ATTITUDES OF VILLAGERS TOWARDS BOREHOLES IN GUINEAWORM ERADICATION IN AKINYELE LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

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Abstract

Studies on the management and attitudes of villagers to boreholes as a source of water in guineaworm eradication was carried out in 4 villages, Alagba, Deinlokun, Iware and Idi-omo in Akinyele Local Government Area of Oyo State, Nigeria. The findings showed that the borehole reduced or eradicated the guineaworm disease in villages studied but its reliability and efficiency was threatened by insufficient borehole water (especially in villages with a population exceeding 500) and lack of a maintenance schedule by the local government area. It was concluded that it is necessary to carefully consider the reliability of the borehole and the size and the distribution of the population they will serve before they are constructed, in order that the full benefit of water supply intervention can be achieved.

Keywords: Borehole, Guineaworm eradication, attitudes.

Introduction

Guineaworm disease predominates among the rural communities of many developing countries whose population depends for its domestic water supply on surface water, specially stagnant ponds and water holes, shallow unprotected wells and slow flowing brooks and streams (Kale, 1977). One of the key intervention strategies for eradicating guineaworm disease is therefore safe water supply to affected areas. Apart from protected unitary wells, hand-pump equipped boreholes have become a standard method of water supply in rural areas in much of the world. Studies have shown that the provision of boreholes has reduced the prevalence of guineaworm in communities from more than

50% to zero or near zero in three years (Edungbola *et al*, 1986). Despite this and the phenomenal cost of sinking boreholes, there is now sufficient reason to doubt their reliability and efficiency. It has been estimated that the number of boreholes which remain functional 6 months after sinking, ranges between 20-90% (NIGEP, 1989).

The Oyo State Unicef-Assisted Water and Sanitation Project, Office of the military administrator drilled 38 boreholes in Akinyele Local Government Area in 1993. This study looks into the management of boreholes and attitudes of villagers towards boreholes in Akinyele Local Government Area where a survey by Sobande (1992) established an acute shortage of potable water supply and guineaworm infestation level of about 3 people in every 1000.

Materials and Methods

Study Area

This study was carried out in 4 villages out of the 38 villages where boreholes were drilled in Akinyele Local Government Area (Fig I). The 4 villages are Alagba with 60 houses and an estimated population of 297 people, Deinlokun with 25 houses and about 125 people, Iware with 100 houses and about 500 people and Idi-omo with 9 houses and about 50 people. There were health posts and schools in all the villages except Idi-omo where they make do with facilities in neighbouring villages. All the villages had ponds. These ponds were outside the village and sometimes very far from the village. Alagba had a hand-dug well and another non-functional hand pump equipped hand-dug well. Deinlokun had 2 hand-dug wells, Iware had 3 hand-dug wells and Idi-omo had 1 hand-dug well. Some of these wells were with no cover, abandoned and villagers complained they dry up in the dry season

Boreholes were sited inside these villages on the basis of their guinea-worm infestation history which villagers confirmed. Alagba village still had guineaworm cases at the time of this study. In these villages, instructions on how to operate the borehole were given to the villagers by UNICEF/Local Government Area Task Force. Villagers were told that the borehole is expensive so should be handled carefully. Villagers were asked to choose from among them representatives that will attend meetings on borehole usage and maintenance in Local Government Health Office. These representatives will pass information from Local Government Area meetings to villagers. Villagers were also advised to contribute money for borehole repairs and to fetch all drinking water from borehole. Villagers were given filters by LGA Task Force.

Methods

Questionnaires on the management and attitudes of villagers to boreholes as source of water was administered in the 4 villages. The questionnaire covered basic demographic details as well as knowledge about guineaworm disease. It requested details as to borehole operation, maintenance and sufficiency. Questionnaires were administered by the researcher to mothers by going from house to house covering all households in each village. In households with more than one mother, a representative mother was interviewed. The questions were translated into the Yoruba language.

Results

Demographic Information and Knowledge about Guineaworm Disease

210 women were interviewed, 72 women from Alagba, 31 from Deinlokun, 94 from Iware and 13 from Idi-Omo. 75% of the women fell between ages 31-60 years and 75.2% were farmers. The study shows that 96.2% knew what guineaworm disease is (Table I) and 79.5% knew that the disease is transmitted in drinking water.

The Borehole

The result shows that 60.5% of the respondents know that the borehole was drilled so as to control or eradicate the guineaworm disease. Others believed that borehole was drilled so that they could have access to clean water. About 95.2% of the respondents fetched their drinking water from the ponds before borehole was drilled but they all claimed to fetch drinking water solely from the borehole after it was sited in their villages. This claim was probed further.

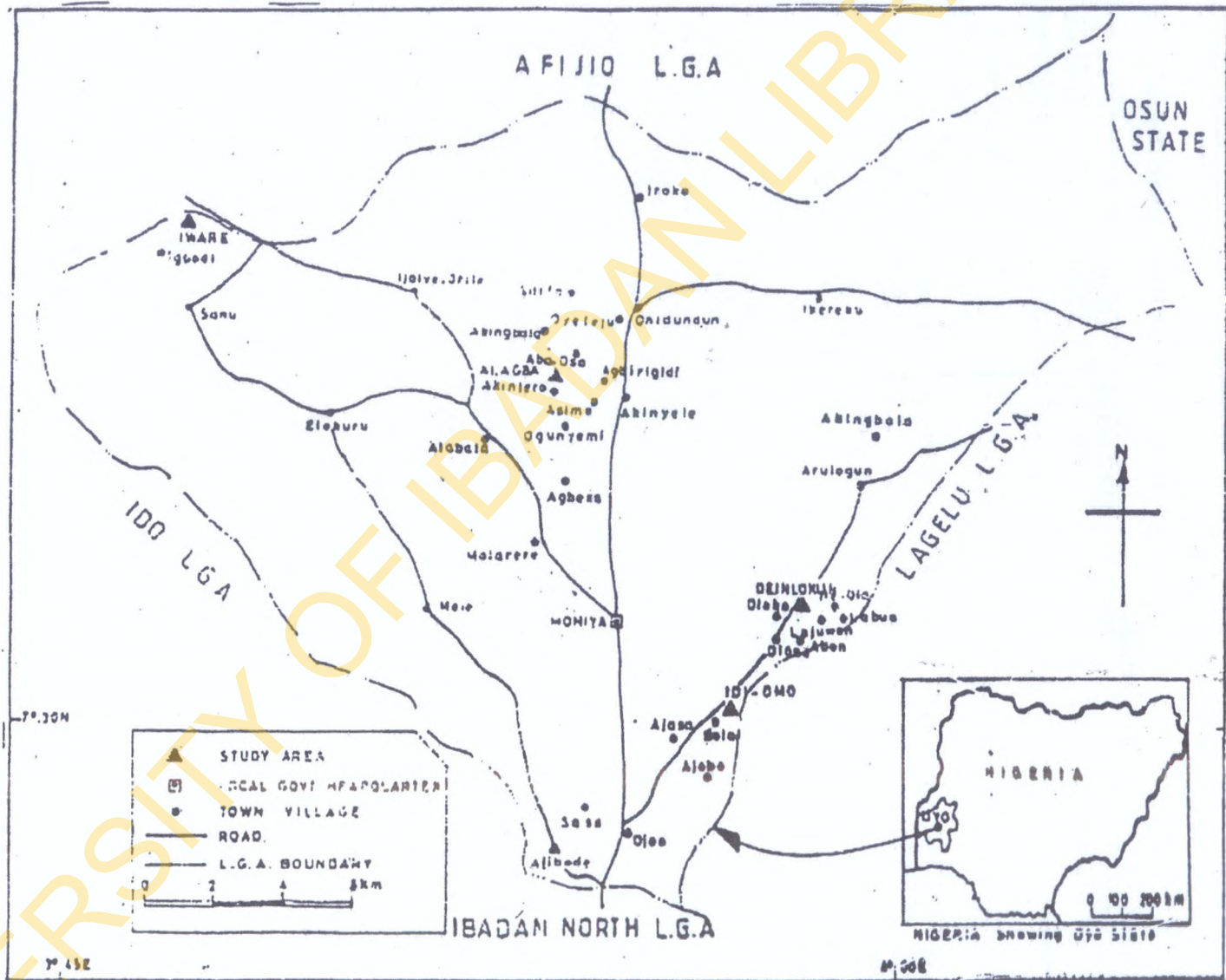


Fig. 1 Map of Akinyele Local Govt. Area Showing Study Areas

Table I: Some Selected Survey Questions

	ALAGBA	DEINLOKUN	IWARE	IDI-OMO	TOTAL
Number of Respondents	72 (100%)	31 (100%)	94 (100%)	13(100%)	210(100%)
“Do you know what guineaworm disease is?”	Yes	31 (100%)	89 (94.7%)	11(84.6%)	202 (96.2%)
	No	1 (1.4%)	5 (5.3%)	2 (15.4%)	8 (3.8%)
Source of drinking water before borehole					
Pond	24(33.3%)	30 (96.8%)	33(35.1%)	13(100%)	100(47.6%)
Pond/Well	42(58.3%)		58(61.7%)		100(47.6%)
Well	6 (8.3%)	1(3.2%)	3(3.2%)		10(4.8%)
Treat?					
Yes	64(88.9%)	19(61.3%)	51(54.3%)	13 (100%)	147(70%)
No	8 (11.1%)	12(38.7%)	43(45.7%)		63(30%)
Treatment					
Boil/Filter	29(45.3%)				29(19.7%)
Boil/Filter/Alum	15(23.4%)				15(10.2%)
Filter	9(14.1%)		18(35.3%)	2 (15.4%)	29(19.7%)
Filter/Alum	7(10.9%)	1 (5.3%)		3(23.1%)	11(7.5%)
Alum	2(3.1%)	15(78.9%)	42(82.4%)	8(61.5%)	67(45.6%)
Boil	1(1.6%)		2(3.9%)		3 (2.0%)
Boil/Alum	1(1.6%)	3(15.8%)			4 (2.7%)
“Do you treat drinking water from borehole?”					
Yes	67(93.1%)	2 (6.5%)			69(32.9%)
No	5 (6.9%)	29(93.5%)	94(100%)	13(100%)	141(67.1%)
“Is borehole water sufficient for villagers in all seasons?”					
Yes	3 (4.2%)	30 (96.8%)		13(100%)	46(21.9%)
No	69(95.8%)	1 (3.2%)	94(100%)		164(78.1%)

TABLE I (CONTD)

"Do other villages come to fetch from the borehole in your village?"	Yes	72 (100%)	31 (100%)	94(100%)	13(100%)	210(100%)
	No	-	-	-	-	-
Which villages?	Aba Oso Akinjero Agbeka Akingbala Adifa Oyeteju Lalegun Asimo Agbirigididi Ogunyemi	Lajuwon olose Akingbola Abon, Oloko Labua Ile ola	Igbodi	Bola Deloa Ajobo Alasa Arilele		
"What are the other sources of water resorted to when borehole water is insufficient?"	Pond	11 (15.3%)		31(33.0%)		
	Hand-dug well			8(8.5%)		
Pond/Hand dug well			55(58.5%)			
Manage borehole water available	61(84.7%)					
Treat?	Yes	11 (100%)		86 (91.5%)		
	No			8(8.5%)		
Treatment of water From sources resorted to						
Filter/Alum	4 (36.4%)					
Boil/Filter	3 (27.3%)					
Boil / Filter/Alum	2 (18.2%)					
Alum	1(9.1%)			62(72.1%)		
Filter	1 (9.1%)			48(55.8%)		
Boil				14(16.3%)		

Table II : Source of Water for Other Activities

Activities	Village	Borehole	Pond	Both
Cooking	Alagba	69 (95.8%)	2(2.8%)	1(1.4%)
	Deinlokun	31(100%)	-	-
	Iware	87(92.6%)	-	7(7.4%)
	Idi - omo	13(100%)	-	-
Bathing	Alagba	66(91.7%)	6(8.3%)	-
	Deinlokun	31(100%)	-	-
	Iware	46(48.9%)	22(23.4%)	26(27.7%)
	Idi-omo	13(100%)	-	-
Washing clothes and utensils	Alagba	36 (50%)	36(50%)	-
	Deinlokun	31(100%)	-	-
	Iware	35(37.2%)	33(35.1%)	26(27.7%)
	Idi-omo	13(100%)	-	-
Oil Palm Processing	Alagba	1(4.5%)	21(95.5%)	-
	Deinlokun	13(41.9%)	-	-
	Iware	-	52(100%)	-
	Idi-omo	8(100%)	-	-
* Pap making	Alagba	9(100%)	-	-
	Idi-omo	7 (100%)	-	-

* Not all women process oil palm and make pap

While 32.9% of the women said they still treat the water from the borehole (Table I) 6.5% treat the borehole water in Deinlokun, 50% of these filter, the other 50% add alum. In Alagba, out of those that treat borehole water, 92.5% filter, 6% boil and filter while 1.5% boil, filter and add alum. Filters were seen hung in some houses in the villages.

Villagers fetch from the borehole at all times of the day due to accessibility and favourable location of the borehole but 78.1% said that borehole water was not sufficient for the villagers. This was particularly so in large villages (Alagba and Iware). Villagers in these villages said apart from the fact that their village is big and very little water was got from the borehole in the dry season, other surrounding villages too come to fetch (Table I). Villagers

said queues for the borehole water were always too long in the dry season and this results to a lot of fighting and struggling. Households were divided into groups in the dry season and fetching was rotated between the groups. Villages around Alagba came to grind their grains or farm products in Alagba. These ones also use a lot of borehole water for rinsing and grinding the grains.

When respondents were asked what other sources they resort to for drinking whenever borehole water is insufficient, 84.7% from Alagba said they use the little water they fetch from the borehole for drinking and use water from other sources for other activities. Only 15.3% said they resort to drinking pond water. In Iware, 33% resort to pond water, 8.5% resort to hand-dug wells. All those that resort to the

ponds in Alagba claim to practise water treatment while only 91.5% of those that resort to other sources of drinking water in Iware practise water treatment. In Alagba where the village pond also dries up in the dry season, the villagers go long distances in search of water either in wells, dug holes or in other ponds.

Table II shows source of water for other activities. This table shows that villagers from larger villages had to supplement borehole water with water from the pond for these activities. Villagers said they try as much as possible to use borehole water for cooking since they know diseases can come from food eaten. Women that process oil palm claimed to carry drinking water from the borehole in kegs to the processing site (site is very near the pond). 65.2% from all the villages said they make sure the water they drink when they go visiting is treated or from a safe source while 29.5% said they just drink water offered them. 5.2% of the respondents were too old to go visiting.

All the respondents preferred the borehole water to that from the hand-dug well. They all said guineaworm infection has been greatly reduced or eradicated in the villages. They could see the connection between good drinking water and good health with the advent of the borehole.

Discussion

The survey shows that the respondents are dropping their long term held beliefs about the guineaworm disease to believing it is really from water because of the effect of the borehole water on infection in the villages. Most of the respondents said it is from water because guineaworm infection has been eradicated or drastically reduced in their villages since boreholes were sunk there. However some still persisted that they have seen guineaworm drop with the rains.

This study shows that the borehole water is inadequate in large villages. The hand pump

can serve up to 500 people, although a lower number is preferable (UNICEF, personal communication). This may explain why the borehole water is inadequate in Alagba and Iware villages. These villages are fairly big with close to 300 people or more in each. If the number of people in each village were added to the number of people that come to fetch the borehole water from other neighbouring villages, we would have well over 500 people using each borehole in each village. The rationing system found in this present study was also found in the study by Edungbola *et al* (1988). So also in villages where too many people used the same borehole, the struggle for water may indirectly deter some people from using it (Edungbola *et al*, 1988). It can be deduced from the study that for all respondents that claimed not to drink from the pond, this claim could only be really true in the rainy season when there is enough water from the borehole.

Villagers tend to look for drinking water elsewhere in the dry season when the borehole water is inadequate and difficult to fetch. The hardship of getting water is aggravated in this season because it is this time the pond in some villages dry up. Villagers have to go several kilometers to get water. At such times they will be too pleased to find that another village pond did not dry up. The dry season being the season for guineaworm transmission exposes the villagers to the risk of getting infected especially if guineaworm disease is present in the area they get pond water. This brings to nought the aim of constructing borehole, in the villages. Resorting to the ponds could bring about a resurgence of the guineaworm disease or slow down its eradication as in the work of Edungbola *et al* (1988) where the smallest percentage decline in guineaworm prevalence, 38% occurred where a borehole serving >500 people was non-functional at some time. It was also in the two bigger villages in this present study that the boreholes had been non-functional for some time.

Boreholes are also threatened by lack of a maintenance schedule by the Local Government Area (villagers contribute money for repairs and maintenance amongst themselves).

There is also problem of movements by women. Apart from looking for water, women travel frequently in the course of trading, visiting and attending social functions. These movements and the role of women as water contaminators explains why the disease has the potential to become established in new communities or imported into their own community on returning from visits.

Conclusion

The health status of the villagers in areas where borehole was constructed was greatly improved. The role of the boreholes in eradicating or reducing the guineaworm disease was greatly appreciated by respondents. In spite of the advantages of the borehole, the study shows that its reliability and efficiency are threatened by insufficiency of the water in big villages and lack of a maintenance schedule by the Local Government Area. Therefore to effectively eradicate the guineaworm disease and debare importation of the disease, safe water must be present in the village at all times, in all seasons and villagers must drink from this source at all times, and in all seasons. The borehole must be properly constructed if it is to yield water all - year round . It must

therefore be deep enough to yield water even during the dry season when water level drops. The present study shows that the villagers were ready to drink solely from the borehole if they could get water from it all the time.

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