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Knowledge, attitudes and practices of malaria control among communities from the health district of Forécariah in the Republic of Guinea, West Africa

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ABSTRACT

Background & objectives: Malaria is the leading cause of death in children under 5-yr of age in the Republic of Guinea. This study aimed at investigating the knowledge, attitudes and practices of malaria control in urban and rural communities in Guinea in order to better target future health interventions.

Methods: A cross-sectional survey of 200 randomly selected households was conducted in an urban site and in three rural villages within the health district of Forécariah using two semi-structured questionnaires.

Results: Only 18.5% of the respondents were aware of the role of mosquitoes in the transmission of malaria in both urban and rural households. Mosquito nets were identified as a malaria prevention method by 11.5% of the participants and only 8.5% of the respondents mentioned stagnant water as a potential mosquito breeding site. Households' heads were more aware of mosquito control methods, with 56 and 42% of the respondents recognizing that bednets or insecticidal coils can protect from mosquitoes, respectively. Despite the limited knowledge of malaria transmission and prevention, 55% of the households owned at least one long-lasting insecticide-treated net (LLIN) and 79% of the net-owning households slept under a net/LLIN the night before the survey.

Interpretation & conclusion: In order to maximize the benefits of malaria control strategies, health education should be implemented, building on the higher awareness of mosquito control methods and stressing the role of vectors in transmitting the disease.

Key words Cross-sectional survey; Guinea; KAP; LLINs; malaria

INTRODUCTION

Malaria is estimated to have caused 660,000 deaths worldwide in 2010, of which 91% occurring in sub-Saharan Africa and 86% in children under 5-yr of age[1]. Despite recent progress in malaria control and elimination efforts, 32 out of 43 African countries, including Guinea, still lack sufficient data to assess malaria trends[1].

The West African country of Guinea has the eighth highest malaria mortality rate out of 43 African countries, and the first lowest percentage of children under 5-yr using insecticide-treated mosquito nets (ITNs)[1]. Malaria represents the leading cause of morbidity and under-five child mortality (144/100,000 population) in Guinea[2], with >800,000 cases reported in 2009[3]. The impact of malaria on the national economy was estimated to be >54 million US$ in 2002[4]. Since 2003, the Global fund to fight AIDS, tuberculosis and malaria (GFATM) has provided funding for the "Ministère de la Santé et de l'Hygiène Publique" to control malaria using long-lasting insecticidal nets (LLINs), intermittent preventive treatment in pregnant women (IPTp) and artemisinin-based combination therapy (ACT) as the first-line treatment of malaria cases[5]. However, the GFATM-funded programmes have experienced significant delays in implementation as a result of weak financial management, technical capacity, and accountability as well as instability caused by the political crisis in 2008 and 2009[6]. Unsatisfactory progress in malaria control was confirmed by national DHS surveys carried out in collaboration with UNICEF and the World Food Programme. Indeed in 2007, it was found that only 19% of the households possessed at least one mosquito net, with an average of 1.6 nets per household. Moreover, only 8.3% possessed an ITN. Utilization of nets was found to be even lower for children under 5-yr of age: 10% slept under a net the previous night, but only 4.5% slept under an ITN[7]. At the end of 2011, >6 million ITNs/LLINs, 400,000 doses of IPTp, five million rapid diagnostic tests (RDTs) and one million doses of ACTs were still needed to achieve the Roll Back Malaria 2012 targets[8].

In order to develop successful and sustainable strategies for malaria control, interventions should take into consideration local beliefs and knowledge related to dis-

ease transmission, prevention and treatment. In the Republic of Guinea malaria research has been scarce, with a limited number of topics covered, such as the home-care of malaria[9], the immune-response to the disease in mothers, newborns[10] and infants[11] and malaria treatment practices among pregnant women[12–13]. The national malaria indicators have given important insights on the progress being made at country-level, but local surveys have the advantage of providing small-scale and disaggregated information. No local data on malaria knowledge, attitudes and practices (KAP) in the Republic of Guinea has ever been published. The purpose of this study was to collect malaria KAP information in urban and rural communities in Forécariah health district, in order to target future malaria control activities in this area.

MATERIAL & METHODS

Study area

The study was conducted in four locations in the health district of Forécariah, within the administrative region of Kindia, in the western part of the Republic of Guinea. The district of Forécariah is meso-endemic for malaria, with the predominant vector species *Anopheles melas*[3]. The area is inhabited by the Soussou ethnic group, which represents 20% of the country and is found in the western part along the coast, in the areas around Conakry, Forécariah and Kindia. Soussou members live in extended families, practice polygamy and like the majority of Guineans, follow Islamic religion. The economy is mostly agricultural, with rice, bananas and pineapples being the main produce.

Within the health district of Forécariah, the commune urbaine (town) of Forécariah (population 14,206[14]), located at about 100 km southwest of the capital city of Conakry, was chosen as the urban site and three villages, within the adjacent sous-Préfecture of Kaliah (total population 12,164 and 1847 households[14]), were chosen as corresponding rural sites (1120 estimated total number of households). The survey was conducted in the month of July 2011, during the peak of the rainy season.

Study design and data collection

A cross-sectional household survey was carried out among households in the urban town of Forécariah and in three rural villages of Kaliah, Berika and Bokariah (Fig. 1). These villages were chosen because of their proximity to Forécariah and their heterogeneity of sizes and health facilities, with the aim of including a sample representative of rural populations in the vicinity of the town, with which the comparisons were made.

A sample of 200 households was included in the survey, specifically 100 in Forécariah, 20, 25 and 55 in the villages of Kaliah, Berika and Bokariah, respectively. The choice of the total sample size was constrained by the

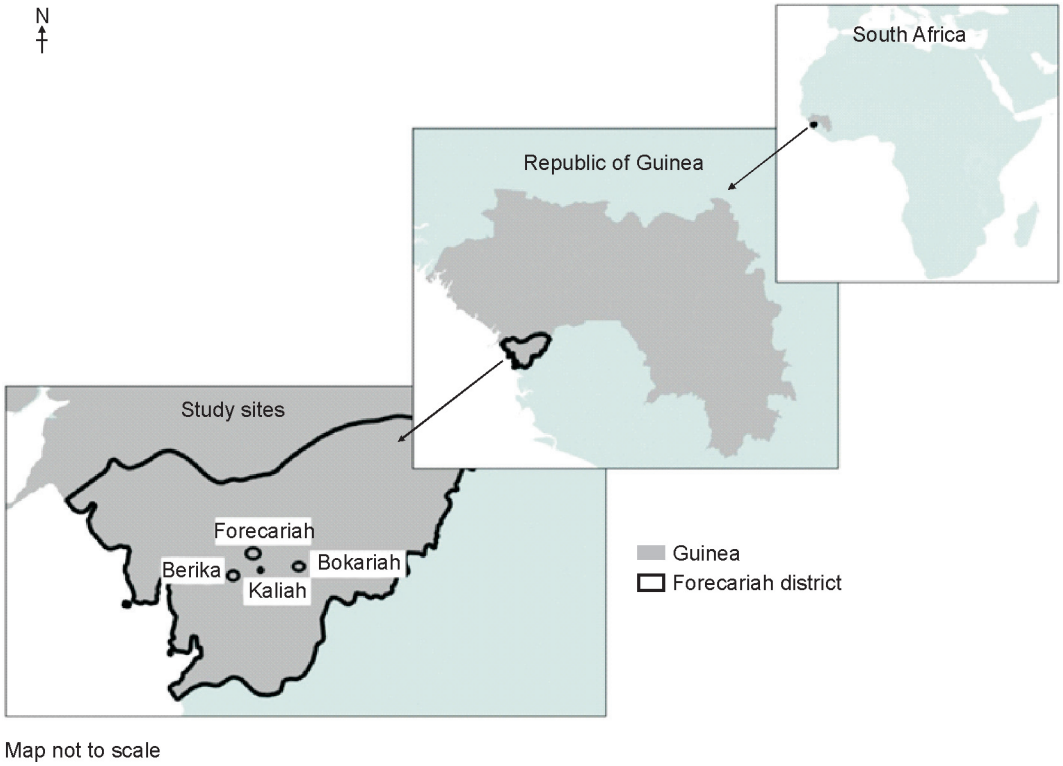

Fig. 1: Map of Guinea and of the study sites within the Forecariah district.

available resources, and the number of households interviewed in each location was proportional to the estimated population (100/2,101 for Forecariah and 20/60, 25/50 and 55/1,000 for Kaliah, Berika and Bokariah, respectively). Within each location, households were randomly selected using the expanded programme on immunization (EPI) coverage survey method designed for rural areas where household lists are not available[15], as no pre-existing sample frame was present.

Two different questionnaires were used during the course of the survey, adapted from the malaria indicator survey household and women's questionnaires. The household questionnaire was administered to the head of the household, or to any other adult living in that house and present on the day of interview. The women's questionnaire was administered to all the women in the household aged 15–49 yr, who were present at the time of interview. A total of 200 household respondents and 257 women were interviewed. Both the questionnaires were created in French and orally translated into Soussou by a local medical doctor; the questionnaires were validated before the start of the survey.

Ethical approval

Ethical approval was obtained by the London School of Hygiene and Tropical Medicine and by the "Comite d'Etique National pour la Recherche en Sante" of the Republic of Guinea, before the start of the survey. In addition, permission to carry out the survey was obtained by the Director of the National Institute of Public Health in Conakry, as well as by the health authorities in Forécariah. Each questionnaire included a consent form that was read in the local language to each study participant, and signed by them.

Data analysis

Data from the questionnaires were double-entered and coded using Microsoft Excel and then recoded and analysed using R version 2.6.2. Using principal component analysis, a proxy of socioeconomic status was calculated for each household, based on the reported assets (electricity, radio, television, fridge and water source)[16]. Household scores were then divided into wealth tertiles from "poorest" to "least poor". The association between two variables was initially tested using Chi-square (χ^2) test or Fisher's exact test of Fisher's *t*-test. Variables found to be associated with the Chi-square test were recorded as binary and their crude and adjusted odds ratio (OR) were calculated. Adjusted OR were obtained fitting a logistic regression model that included location and socioeconomic status. Maps were drawn using Quantum GIS.

RESULTS

General characteristics of the study population

Out of 200 households randomly selected, all but one accepted to take part in the survey. Strong evidence was present for a difference between study sites for source of drinking water, with pumped-wells being almost twice as common in the town than in the city (socioeconomic status-adjusted OR= 1.77, 95% CI: 1.13–2.46, $p \leq 0.001$, Table 1).

A total of 257 women, between the age of 15 and 49 yr were interviewed during the survey, majority of them 54.4% (95% CI: 48.3–60.5%) were between 15 and 25-yr old (Table 2). Most of the women 68.9% (95% CI: 63.2–74.6%) had not been to school, and strong evidence was present for an association between education and households location, with women belonging to rural households being four times more likely to have no education in comparison to women living in Forécariah (OR=4.47, 95% CI: 2.38–8.57, $p < 0.001$).

Perception of health problems affecting community

The heads of the households were asked to list three main health problems, they felt, affected their commu-

Table 1. Households' demographic characteristics at study site

Characteristics	Urban No. (%)	Rural No. (%)	Total No. (%)
Toilet facility			
Latrines	100 (100)	100 (100)	200 (100)
Electricity	77 (77)	0 (0)	77 (38.5)
Household's assets			
Radio	64 (64)	56 (56)	120 (60)
Television	45 (45)	0 (0)	45 (22.5)
Telephone	81 (81)	56 (56)	137 (68.5)
Fridge	20 (20)	0 (0)	20 (10)
Water supply			
River	0 (0)	17 (17)	17 (8.5)
Well	46 (46)	67 (67)	113 (56.5)
Pumped well*	53 (53)	16 (16)	69 (34.5)
Bottled water	1 (1)	0 (0)	1 (0.5)
Socioeconomic status			
Poorest	0 (0)	69 (69)	69 (34.5)
Middle	35 (35)	31 (31)	66 (33)
Least poor	65 (65)	0 (0)	65 (32.5)
Total	100	100	200

*Statistically significant difference in SES-adjusted OR between urban and rural households ($p \leq 0.001$).

Table 2. Women's characteristics at study site

Characteristics	Urban No. (%)	Rural No. (%)	Total No. (%)
Age (yr)			
15–25	78 (57.8)	62 (50.1)	140 (54.4)
26–35	35 (25.9)	34 (27.8)	69 (26.8)
36–49	22 (16.2)	26 (21.3)	58 (22.6)
*Education**			
Uneducated	74 (54.8)	103 (84.4)	177 (68.9)
Primary	22 (16.3)	9 (7.3)	31 (12.1)
Secondary or higher	39 (28.9)	10 (8.2)	49 (19.1)
Children			
No	31 (22.9)	12 (9.8)	43 (16.7)
Yes	104 (77)	110 (90.2)	214 (83.3)
Average number of children per woman (95% CI)	2.5 (2–2.9)	3.4 (2.9–3.9)	2.9 (2.6–3.2)
Total	135	122	257

*Statistically significant difference in SES-adjusted OR ($p \leq 0.001$).

nity. Malaria was reported among the top three health problems by 77.5% (95% CI: 71.7–83.2%) of the households. Other health conditions frequently mentioned were body ache, headache, stomach ache and diarrhoea/dysentery. Urban households reported headache slightly more frequently than rural ones 28 *vs* 13%, respectively (SES-adj OR: 0.9, 95% CI: 0.25–1.72%, $p = 0.01$).

Children were perceived to be the group most often sick with malaria by 43.5% (95% CI: 36.8–50.4%) of the household respondents, however, another 41% (95% CI: 34.2–47.8%) of the respondents believed that all the age groups were similarly affected by the disease. No association was found between these perceptions and household location or socioeconomic status.

Knowledge of malaria transmission

In order to collect information on the people's knowledge of malaria transmission, participants were asked to provide up to three ways in which malaria was transmitted in their community. On an average, 18.5% (95% CI: 13.7–24.5%) of the participants were aware that malaria is transmitted by mosquito bites. Of these, 95% (35/37) identified mosquitoes as the only vector of disease transmission. No association was found between knowledge of malaria transmission and household's location or proxy of socioeconomic status.

Household heads were questioned about their knowledge of malaria mosquitoes breeding habitats. Six potential mosquito breeding sites were mentioned, however, "stagnant water" was identified by only 8.5% (95% CI: 5.4–13.2%) of the households. Some evidence was present for a difference in the identification of "bushes" as mosquito breeding sites, and location, with rural respondents reporting the answer 1.5 times as frequently as urban participants (SES-adjusted OR=1.5, 95% CI: 0.92–2.12%, $p < 0.001$).

Knowledge of control methods

When the participants were asked for two ways of preventing malaria, more than three-quarters were unable to answer the question (Fig. 2). Mosquito bednets were mentioned as a measure to prevent malaria by only

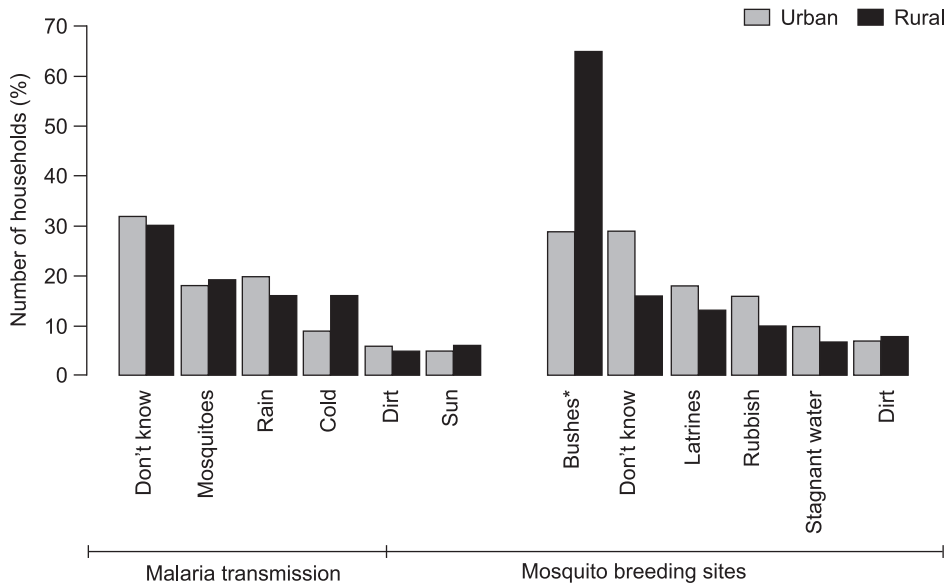

Fig. 2: Knowledge of malaria transmission (multiple responses); *Statistically significant difference in SES-adjusted OR ($p < 0.001$).

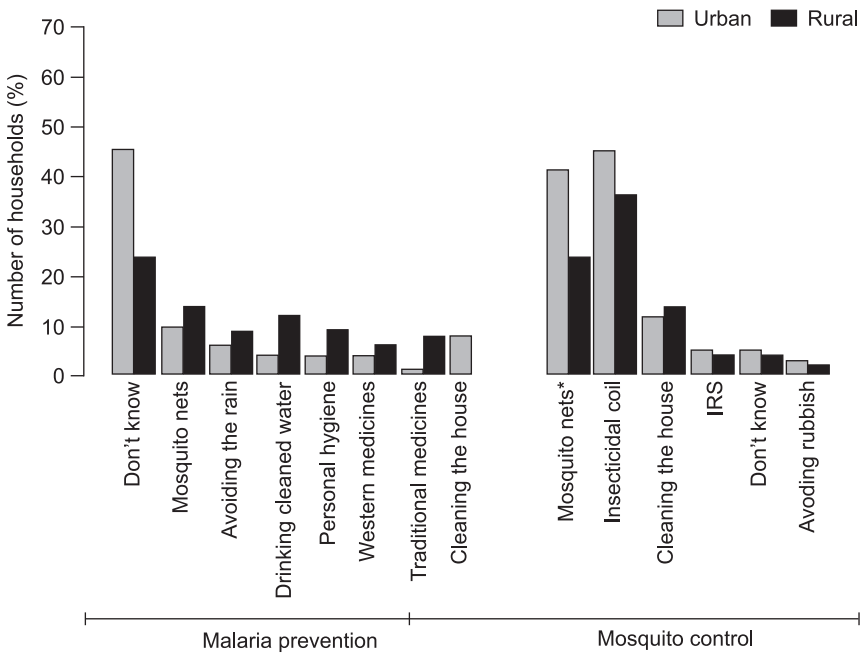

Fig. 3: Knowledge of malaria control methods (multiple responses); *Statistically significant difference in SES-adjusted OR between urban and rural households ($p = 0.02$).

11.5% (95% CI: 7.8–16.7%) of the respondents. The rest cited a total of 18 different ways they believed protected them from getting the disease.

When mosquito control methods were investigated, mosquito nets were mentioned by 49% (95% CI: 32.8–51.8%) of the urban participants and by 56% (95% CI: 49.1–62.8%) of the rural respondents, with some evidence of a difference between the two locations, independently from SES (crude OR: 1.99, 95% CI: 1.09–3.63%, $p = 0.02$). Only 4% (95% CI: 2–7.7%) of the households reported indoor residual spraying (IRS) as one way to control mosquitoes (Fig. 3).

Practices of malaria prevention

After testing the population's knowledge of malaria prevention and transmission, questions were asked in order to collect information on the household's actual practice of disease prevention. Among all the households, 62.5% (95% CI: 55.6–68.9%) possessed any type of net, with an average of 2.3 bednets per household (Table 3); 55% (95% CI: 48.1–61.9%) of the households reported to have at least one LLIN. Among net-owning households, 79.2% (95% CI: 72.1–86.3%) reported to have been slept under a net/LLIN the previous night.

Indoor residual spraying (IRS) was overall less common than mosquito net ownership, with only 8% (95% CI: 4.9–12.6%) of the households having used it. Most of the respondents had last performed IRS one year or less before the interview and had employed private companies to do it.

Table 3. Ownership and utilization of nets

Characteristics	Urban No. (%)	Rural No. (%)	Total No. (%)
% HHs owning any net	56 (56)	69 (69)	125 (62.5)
Household owning at least one LLIN	49 (49)	61 (61)	110 (55)
Mean number of nets owned per household (95% CI)	2 (1.6–2.3)	2.5 (2.1–2.9)	2.3 (2–2.6)
Total	100	100	200
% net-owning HHs where any HH member slept under a net/ LLIN the night before the survey*	40 (71.4)	59 (85.5)	99 (79.2)
Total	56	69	125

*Statistically significant difference in SES-adjusted OR between urban and rural households ($p \leq 0.01$).

Treatment seeking behaviour for presumptive malaria cases

Treatment seeking behaviours for fever experienced

Table 4. Treatment seeking behaviour for presumptive malaria

Characteristics	Urban No. (%)	Rural No. (%)	Total No. (%)
Age of presumptive malaria cases (yr)			
0–4	32 (32.9)	27 (31.1)	59 (32.1)
5–14	20 (20.6)	15 (17.2)	35 (19)
15–25	18 (18.6)	23 (26.4)	41 (22.3)
26–49	12 (12.4)	15 (17.2)	27 (14.7)
≥ 49	15 (15.4)	7 (8)	22 (12)
Gender of presumptive malaria cases			
Male	27 (27.8)	36 (41.4)	63 (34.2)
Female	70 (72.2)	51 (58.6)	121 (65.8)
Time between onset of fever and seeking treatment (days)			
Same day	49 (50.5)	48 (55.2)	97 (52.7)
2 days	17 (17.5)	11 (12.6)	28 (15.2)
3 or more days	29 (29.8)	25 (28.7)	54 (29.3)
Don't know	2 (2.1)	3 (3.5)	5 (2.7)
Treatment first sought			
Forécariah hospital	87 (89.7)	19 (21.8)	106 (57.6)
Local health clinic	0 (0)	45 (51.7)	45 (24.5)
Shop/private pharmacy	4 (4.1)	7 (8.1)	11 (6)
Traditional medicine	0 (0)	9 (10.4)	9 (4.9)
Other	6 (6.1)	4 (4.5)	10 (5.4)
Did not seek advice	0 (0)	3 (3.4)	3 (1.6)
Number of presumptive malaria cases	97	87	184

by the household's members in the week prior to the survey were also investigated (Table 4). Since, parasitological confirmation was not performed, the malaria cases reported by the respondents during the survey represented presumptive cases. A total of 184 presumptive malaria cases were reported. The age distribution of the cases was similar between different study sites, with 32.1% (95% CI: 25.3–38.8%) being <5-yr old, and 66% (95% CI: 58.6–72.2%) being female (Table 4). Of the 184 people affected by presumptive malaria, 88% (95% CI: 82.6–91.9%) received treatment, 52.7% (95% CI: 45.5–59.8%) within 24 h from the onset of fever. The majority 82.1% (95% CI: 76.5–87.6%) reported to the closest formal health facilities. Seeking treatment in a formal health facility was dependent on the household socioeconomic status, but after controlling for location this association was weak (location-adj OR = 2.23, 95% CI: 0.9–5.7%, $p = 0.09$).

Of the vast majority of the patients in all locations, 88% (95% CI: 83.4–92.7%) received some type of medicine, of which 31% was paracetamol and 22% quinine. The drugs were mainly purchased from formal health facilities (hospital/clinic), with some evidences that rural presumptive malaria cases were more likely to obtain their medicine from health facilities than urban cases (SES-adj OR = 2.58, 95% CI: 1.09–6.11%, $p = 0.028$) (Table 5).

Table 5. Treatment practices for presumptive malaria cases

Characteristics	Urban No. (%)	Rural No. (%)	Total No. (%)
*Source of medicine**			
Hospital	56 (63.6)	26 (35.1)	82 (50.6)
Health clinic	0 (0)	29 (39.2)	29 (17.9)
Shop/Private pharmacy	32 (36.4)	14 (18.9)	46 (28.4)
Other	0 (0)	3 (4.1)	3 (1.9)
Don't know	0 (0)	2 (2.7)	2 (1.2)
Number of presumptive malaria cases treated	88	74	162

*One missing value.

DISCUSSION

In order to develop successful and sustainable strategies for malaria control interventions, programmes should take into consideration the local beliefs and knowledge related to disease transmission, prevention and treatment, as these can define people's behaviour[17]. In the Republic of Guinea, data on malaria knowledge are very scarce and difficult to find[14]. Moreover, no literature is available on malaria knowledge, attitudes and practices (KAP) of local Guinean communities, which can provide important information for the improvement of disease control activities in the specific communities under study. This descriptive household survey carried out within the Soussou ethnic group of Forécariah health district, represents the first attempt to fill this gap.

Only 18.5% of the respondents from the Forecariah communities could correctly identify how malaria is translated. This is much lower than other countries in West Africa, where published data show proportions of 46 and 68% for Guinea-Bissau[18] and 90% in the Gambia[19]. Few recent examples showed such a low level of knowledge[20–21]. Generally, only research dating back >15-yr, reports levels of malaria transmission knowledge as low as one detected in this study. For example, in 1990s, 25% of the respondents in the Gambia[22] were able to identify the role of mosquitoes in disease transmission.

Knowledge of disease prevention methods, such as nets and removing stagnant water, reported by the respondents in Forécariah was low in comparison to other published studies. For example, surveys from the West African countries of Ivory Coast reported 46%[23] of the interviewees identifying stagnant water. These observations highlight the need to implement educational cam-

paigns in the communities of Forécariah health district to improve both personal protection and environmental vector control. Higher awareness of the disease transmission and mosquitoes/larval habitats could influence several factors involved in the vector control, such as the selection of residential areas or the time in which people retire for sleep, the use of preventive measures, the reduction of larval sources and the level of peri-domestic sanitation[24].

Health education activities in this community could build on the generally higher knowledge of nets and coils as mosquito control methods. Indeed, mosquito nets were present in most (62% for any net and 55% for LLINs) households and coils were often displayed in the markets and street vendors of the town and villages. It would be interesting to assess whether the particularly high popularity of insecticidal coils, in comparison to other West African countries[25], was related to their specific marketing campaign or whether this was merely personal preference. If so, the use of similar communication methods to educate about disease transmission could represent a successful approach. Moreover, understanding people's behaviour concerning mosquito control methods, would be important, particularly in the light of the unproven effect of insecticidal coils on malaria incidence[26].

The increase in bednet ownership detected in this study, in comparison to the 2007 national demographic and health survey (DHS—8.3% owned an ITN) suggests either that the communities of Forécariah generally have higher bednet possession in comparison to the national average or, possibly, that distribution campaigns carried out in recent years have reached these communities. Indeed, according to the local health authorities, free distribution of LLINs to pregnant women and children under 5-yr of age had been carried out by the UNICEF in the years preceding the survey. The proportion of respondents sleeping under LLINs the night before the survey also appeared higher (43%), however, utilization among children under five should be assessed before drawing any conclusion.

A major finding of this study is the contrast between the very scarce knowledge of malaria transmission and prevention (11.5% identified bednets) and the relatively widespread ownership (62% for any net, 55% for LLIN) and usage (79% for any net) of bednets. This pattern appeared unusual in comparison to recent findings in neighbouring countries. For example 80% of the women in Liberia knew that mosquitoes transmit malaria and 49% of the households owned at least one bednet[19]. The difference between practice and knowledge reported in the communities of Forécariah is probably explained by the fact that the widespread use of bednets reflected more their accessibility rather than the individual's knowledge on disease prevention, as noticed in a study on malaria treatment practices among nearby communities in Guinea[13]. Therefore, the peculiar profile detected in this study could be due to the relatively recent implementation of vector control activities in a population that has not yet been exposed to disease education campaigns.

Another major finding of this work was related to the malaria health-seeking behaviour. Indeed, the majority (52.7%) of the respondents reported that health advice was sought within 24 h from onset of fever, often (82.1%) using the formal health facilities, and mostly (88%) obtaining medicines from the same source. On the contrary, other studies carried out in West Africa found a delay in seeking health advice and/or wide use of self-treatment or the informal health sector[27]. Prompt presentation to the health facilities has been noted elsewhere in Guinea[13], where western treatment was found to be widely accepted. However, a more recent study conducted in a rural community, within the Kindia region, found a much higher proportion of respondents using traditional treatment rather than the health center[9]. It is possible that the use of traditional medicine to treat malaria has been underestimated in this study. Indeed, some of the respondents reported the use of traditional medicine as a preventive rather than therapeutic method for malaria (when someone started to feel unwell, in order to avoid getting sick). For this reason, interviewees might not have mentioned traditional medicine when asked about malaria health seeking behaviour and treatment. More research would be needed to properly assess local treatment seeking practices to better understand upon which symptoms further advice is sought. Less surprising was the observation that the majority of the respondents of this survey used the closest health facility, in agreement with the theory that choice of treatment option is proportional to the distance need to travel[28].

When comparing knowledge and practice of malaria between the urban and rural respondents, only minor differences were detected. Headache was a health problem more frequently reported in urban households, whereas bushes were mentioned as mosquito breeding habitats more frequently in the villages. Rural respondents were also more able to identify mosquito bednets among the mosquito control methods and more often used formal health facilities (hospital or clinic) as sources of medicines. Some of these observations might be explained by

the different geographical and cultural environments found in villages compared to the town, for example the rich vegetation present in the rural communities or the more abundant presence of informal sources of medicine in the town. However, qualitative analysis would be needed to confirm these hypotheses and to understand the reasons of these differences.

This study was subjected to a number of limitations. The major constraint was the small sample size, which limited the power of the analysis. In addition, the selection of urban and rural centers was purposive and, therefore, neither fully representative of the entire health district and nor the rest of the country. Moreover, since a complete listing of households did not exist, an alternative sampling method (EPI coverage survey for rural areas where household lists are not available) had to be used, which could have introduced some sampling bias. However, this is an accepted and commonly used method for randomly selected households within defined clusters. Another potential limitation was the need for translation of the questions and responses to and from the local language. None the less, during validation of the questionnaires few issues found were corrected. Finally, the quantitative nature of this analysis limits the understanding and interpretation of local malaria knowledge and practices thus it sets the basis for much needed explorative qualitative research on these issues in the communities of Forécariah.

CONCLUSIONS

Malaria is the leading cause of death in children under 5-yr in the Republic of Guinea, however, the knowledge, attitudes and practices of local communities have rarely been investigated. This study highlighted the discrepancy between limited knowledge of malaria transmission, prevention and mosquito breeding habitats, and better knowledge and practices of disease control, among the widest reported in West Africa. Further exploratory, qualitative research should be undertaken to better understand why this is the case and use the findings to reinforce the positive behaviours found in these communities.

In addition, ownership and use of LLINs should be promoted further, including health education messages. Improved malaria education has been shown to have a positive impact on disease knowledge[29] and practices[30] and thus, it should be an essential element of disease control programmes in order to optimize their effectiveness. This should be a priority, particularly in countries, like Guinea, where malaria incidence is high and disease control and research is lacking. In this regard, Guinea clearly appears to be behind its African neighbours in the fight against malaria and, therefore, deserve special attention by the international community.

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