

**BEST JOURNAL 20(1): 11 - 20**

Date received: 16/12/2022

Date accepted: 19/04/2023



KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS MALARIA AMONGST ALMAJIRAI IN SELECTED TSANGAYU OF GWALE AND MUNICIPAL LOCAL GOVERNMENT AREAS OF KANO STATE

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ABSTRACT

Almajiri refers to young pupils who pursue Qur'anic education under the Almajiranci system. The study aims at assessing the knowledge, attitude and practices towards malaria in selected Almajirai in selected Tsangayu in Kano State, Nigeria. A cross-sectional study was carried out using stratified random sampling from Gwale and Municipal local governments in the State. An interviewer structured questionnaire is used. The results show that, a total of 356 (78.4%) respondents know malaria. Knowledge about malaria obtained is primarily through Tsangaya teacher having 376 (82.8%). Majority, 235(51.8%), of the respondent ascribed malaria to mosquito bite, however 129 (28.8%) mentioned that ingestion of contaminated food can cause the disease. Two hundred and seventy eight 278 (61.2%) respondents mentioned that malaria can be prevented using bed nets. Moreover, 47 (32.4%) of the respondents mentioned fever and (30.40%) mention vomiting /diarrhoea as symptoms of malaria. Three hundred and twenty two 322 (70.9%) respondents indicated that they are avoiding mosquito bite by using bed nets as blankets; 31 (6.8%) mentioned that they normally use smoke of dry peels of lemon to avoid mosquito bites. With respect to treatment seeking behaviour, a considerable number of the respondents (198, 43.6%) mentioned that they obtain treatment from chemist when they have an episode of fever, 136 (30.0%) mentioned that they self-medicate using drugs bought from vendors; 3 (11.7%) seek treatment from Tsangaya teacher 59 (13.0%) of the respondents do not seek any treatment. From the findings of this study, it can be concluded that, Almajirai have negative attitude towards malaria. Community mobilization and health education regarding the importance of using ITNs to prevent malaria and save lives shall be considered.

Key words: knowledge, Malaria, ITNs, Almajirai, Municipal, Gwale

INTRODUCTION

Almajiri refers to young pupils who pursue Qur'anic education under the Almajiranci system. It is important to recall the term Almajiranci is derived from the Arabic word "Almuhajirun" the migrants. It refers to a traditional system in Hausa land whereby people move from place to place for the sole purpose of studying the Holy Qur'an (Sunusi, 2005). The traditional system of education in Hausa land was introduced into Nigeria by Arab Muslim traders several centuries ago before the establishment of colonial government (Sunusi, 2005). When

the colonialist came to the country at the beginning of the 20th century they found this educational system particularly in the Muslim North solidly in place with its various levels catering for the needs of children, youth and adults (Fahdullah, 2013). However, due to colonial government's rejection of the Almajirai and Tsangaya education system, both stakeholders and students seek their livelihood via menial jobs like farming, begging, alms soliciting, embroidery and cap-making, nail cutting, errand seeking etc.



Almajirai are seen only as nuisance to the society, in comparison, Western modern schools are given adequate attention and support (Lethen and Tomunson, 1927). Students in *Qur'anic* schools live in poor condition and unhygienic environment with no governmental support whatsoever. The *Almajirai* encounter a lot of difficulties and hardships during their period of scholarship. They normally sleep in an open space or in crowded rooms, at times people temporarily allowed them to sleep in the passage of their houses, most of them lived in areas where disease transmitting mosquitoes are present, *Almajirai* cope with severe weather conditions, these make them prone to a lot of health hazards (Bashir, 2014). The poverty associated with *Tsangaya* settings and the attitude of *Almajirai* expose them to various kinds of mosquito breeding sites and easy contact with mosquitoes. These conditions would result in contracting malaria, because all it takes is a single bite from an infected female *anopheles* mosquito to get the disease (CDC, 2015).

Malaria is a life threatening blood disease caused by infection with a parasitic protozoan of the genus *plasmodium* that is transmitted to humans through the bite of an infected female *Anopheles* mosquito (Narayana *et al.*, 2014). About 20 different species of *anopheles* are found distributed around the world. All of the important vector species bite at night (WHO, 2014a). The four most important species responsible for human infection include *plasmodium falciparum*, *plasmodium malariae*, *plasmodium vivax* and *plasmodium ovale*. *P. falciparum* malaria is the most important cause of morbidity and mortality in sub-Saharan Africa. The presence of the parasite in the body indicates the presence of malaria infection which may or may not be causing disease (Narayana *et al.*, 2014). Usually people get malaria by being bitten by an infective female *anopheles* mosquito and

they must have been infected through a previous blood meal taken from an infected person.

Nigeria suffers the world largest malaria burden with an estimate of 51 million cases, and 207,000 deaths annually-more than any other country in the world and approximately 25% of the total malarial burden in Africa (WHO, 2013a). In Northern Nigeria particularly Kano State, malaria is known to be a serious disease affecting children and adults but its consequences are worst among children and pregnant women because of their low immunity to the disease (Onwujekweet *et al.*, 2000).

Many previous researches have documented a high prevalence of malaria throughout Nigeria, but remains a few research on peoples knowledge, attitude and practice (KAP) towards malaria in the majority of the federation particularly in Northern Nigeria including Kano State. A similar study has not been conducted in the study area, this information is therefore essential in order to identify and implement effective control measures, and plan for the participation of the targeted communities in the control. This study was designed to assess the knowledge, attitude and practices towards malaria amongst some *Almajirai* in *Tsangayu* of Municipal and Gwale Local Government Areas.

MATERIALS AND METHODS

Study area

The study was conducted in Municipal and Gwale Local Government Areas of Kano State, Nigeria. The estimated population of Gwale and Municipal Local Governments were 588, 500 and 4, 219, 000 respectively as of 2022. The community is located in Sahelian geographic region with an estimated land mass of 137km². The principal inhabitants of the community are Hausa people as in most parts of Northern Nigeria.



The houses were predominantly made up of mud and the areas were characterized by overcrowding, inconsistent Municipal water supply, stagnant water bodies of Gwale and poor sanitation. Observation based findings showed major streets, several open spaces and even water ways are used as refuse dumping sites. Majority of this are left unattended for long period of time, the wastes are blown around by wind or rainstorm making the environment dirty, sometimes the waste block drainage channels and results in flooding. The heaps of the solid waste serve as good hideouts for dangerous reptiles, rodents and insects.

Study design and sampling

A cross-sectional study was carried out between July and October 2006 among 454 *Almajirai* selected by stratified random sampling from two local government areas of Kano State, Nigeria. Health care personnel and *Tsangaya* leaders were involved in the study, discussions were held at *Tsangaya* premises to explain the rationale and importance of the study. Five different *Tsangayu* were randomly selected within the two Local Government Areas of the study, for the *Almajirai*, they were grouped in strata according to their age group, this was done to ensure different aged *Almajirai* were involved without bias included in the sample since is a homogeneous population, followed by random selection of individuals from each strata. The minimum sample size was calculated to be 226.7 using the formula as follows;

$$N = \frac{Z^2 pq}{D^2}$$

Where

N: Sample size

Z: Standard normal deviate at 95 % confidence level 1.96

P: Prevalence of 9 – 35 years found to have malaria parasite in previous study as 17.7 % = 0.177

q: $1 - p = 1.0 - 0.177 = 0.82$

D: Degree of precision or acceptable error margin 5 % = 0.05

$$N = \frac{(1.96)^2 \times 0.177 \times 0.82}{(0.05)^2} = 226.7$$

Study population

The study population were *Almajirai* of aged 9 - 25 years selected from some *Tsangayu* of Municipal and Gwale L.G.As of Kano metropolis. This population have homogenous nature with respect to sociocultural and daily economic activities.

Ethical considerations

The Ethical approval was obtained from Kano State Hospital Management Board, *Qur'anic* and *Islamiyya* Schools Management Board, Kano State as well as verbal consent was granted from each individual participating in the research processes.

Data collection methods

The data was collected using structured questionnaire which was pre-tested. Informed verbal consent form was sought from the respondents. The questionnaires were interviewer administered by trained research assistants throughout the period of the research processes. The questionnaire explored major variables which include socio-demographic, knowledge, attitude and practices towards malaria among the study respondents. Completed questionnaires were retrieved on daily basis by the researchers and subsequently validated for consistency and completeness.

Statistical analysis

Data entry and analysis were performed using spread sheets of SPSS, v.20 (IBM Corporation, NY, USA). The demographic and socioeconomic characteristics of the respondent as well as the KAP variables were treated as categorical variables and presented as frequencies and percentages. Chi-square test was used to test for significant of association and a P-value less than 0.05 was considered significant.



In order to assess the respondents' knowledge on malaria, the responses to questions on the awareness of malaria were rated as; 1 (good) if respondent knew the cause, transmission and preventing measures. Respondent were rated as 2 (average) if they knew of the cause and prevention and 3 (poor) if respondent could not mention any criterion above, following the procedure outlined by Akinleye *et.al.* (2009).

RESULTS

A total 454 individual participants in the study; 226 (49.8 %) were in the age group 9 - 15 years, 125 (27.5 %) were in the age group 16 - 20 years and 103 (22.7 %) were in the age group 21 - 25 years. The knowledge of the causes, transmission, symptoms, prevention of malaria well as treatment seeking behaviour is presented in the Table 1. Generally, the respondents were informed about malaria; 356 (78.4 %) knew malaria. Knowledge about malaria was obtained primarily through *Tsangaya* teacher 376 (82.8 %). Approximately one-quarter of the respondent 98 (21.6 %) were not aware of malaria. Majority (51.8 %) of the respondent ascribed malaria to mosquito bite, however 129 (28.8 %) mentioned that ingestion of contaminated food can cause the disease. 278 (61.2 %) of the respondents mentioned that malaria can be prevented using bed nets. In contrast 117 (25.8 %) of the *Almajirai* did not know how to prevent malaria. Moreover 147 (32.4 %) of the respondents mention fever and slightly less than half (30.40 %) mentioned vomiting /diarrhoea as symptoms of malaria.

With regards to attitude, most subjects, 322 (70.9 %) indicated that they avoided mosquito bite by using bed nets as blankets, 31 (6.8 %) mentioned that they normally used smoke of dry peels of lemon, while 21 (4.6 %) replied that they did not know how to prevent mosquito bite. With respect to treatment seeking behaviour, a considerable

number of the respondents (198, 43.6 %) mentioned that they obtained treatment from chemist, when they have an episode of fever, 136 (30.0 %) mentioned that they self-medicated using drugs bought from vendors; while 53 (11.7 %) seek treatment from *Tsangaya* teacher and 59 (13.0 %) of the respondents did not seek any treatment.

When a comparison was made between educational status, knowledge of malaria awareness and some selected socio-demographic profile of the respondents, statistically no significant differences was observed, between knowledge of malaria awareness and educational status ($\chi^2= 11.479$, P-value = 0.967, d.f = 22); knowledge of malaria awareness and causes of malaria ($\chi^2= 64.857$, P-value = 0.970, d.f = 88); knowledge of malaria awareness and measures against malaria control ($\chi^2 = 67.066$, P-value = 0.953, d.f = 88); knowledge of malaria awareness and measures used to avoid mosquito bite ($\chi^2= 92.430$, P-value = 0.353, d.f= 88); knowledge of malaria and episode of malaria among the study respondents ($\chi^2= 72.582$, P-value = 0.882, d.f = 110) knowledge of malaria awareness and the various malaria symptoms mention by the respondents ($\chi^2= 1.101$, P-value = 0.480, d.f=110), knowledge of malaria awareness and treatment seeking behaviours of the respondents ($\chi^2=53.249$, P-value = 0.871, d.f=66) (Table 2). This showed that the educational status and knowledge of malaria awareness of the respondent were independent on the other socio-demographic factors of the respondents.

Chi – square association between *Almajirai* that used bed nets as blanket and the respondents who use other preventive measures of malaria is presented in Table 3. The calculate χ^2 value was found to be higher (6.589) than the tabulated χ^2 value (3.84). Thus, there is a significant association. Hence, null hypothesis is rejected.



Table 1: Socio-demographic Characteristics of *Almajirai* in Traditional *Qur'anic* Centres of Municipal and Gwale L.G.As of Kano State

Variables	Frequency (%)
Age (years)	
9 -13	200(44.1)
14-18	137(30.2)
19-23	97(21.4)
24-28	20(4.4)
Sub-total	454
Educational Status	
Primary	95(20.9)
Junior Secondary School	50(11.0)
Senior Secondary School	15(3.3)
Post-Secondary School	3(0.7)
None of the above	291(64.1)
Sub-total	454
Preventive measures	
Mosquito coils	51(11.2)
Rambor marjic paper	20(4.4)
Dry peels of lemon	16(3.5)
Bed net	258(56.8)
None of the above	109(24.0)
Sub-total	454
Malaria episode	
Less than 3months	264(58.1)
3-6 months	79(17.4)
6 months-1 year	57(12.6)
1-2 years	31(6.8)
Above 2 years	23(5.1)
Sub-total	454
Common Symptoms of Malaria	
Headaches	98(21.6)
Coughing	45(9.9)
Vomiting/Diarrhoea	138(30.4)
Fever	147(32.4)
None of the above	26(5.7)
Sub-total	454
Ways to avoid mosquito bite	
Use of bed nets as blankets	322(70.9)
Blankets	56(12.3)
Smoke of dry peels of lemon	24(5.3)
Application of repellent lotion	24(5.3)
None of the above	21(4.6)
Sub-total	454
Sources of the treatment	
Home/ <i>Tsangaya</i> teacher	136(30.0)
Self/ chemist	198(43.6)
Self/vendors	50(11.0)
Hospital	8(1.8)
None of the above	62(11.4)
Sub-total	454



Table 2: *Almajirai* Knowledge, Attitude and Practices on Malaria in Traditional *Qur'anic* Centres of Municipal and Gwale L.G.As of Kano State.

Variables	No. Examined (%)	No. positive (%)	Chi-Square	DP	P-Value	Likelyhood Ratio	Phi-Cramers
Malaria Awareness							
Yes	356(78.)	140(39)					
No	98(22)	22(22)	11.479	22	0.967	14.701	0.159
Total	454	162	11.479	22	0.967	14.701	0.159
Cause of Malaria							
Mosquito bite	235 (52)	111 (47)					
Heat	129 (28)	15(12)					
Ingestion of Contaminated Food	59 (13)	12 (20)					
Old Believes/Witchcraft	19(4)	17(89)					
Don't Know	12(3)	7 (58)	64.857	88	0.97	58.408	0.378-0.523
Total	454	162	64.857	88	0.97	58.408	0.378-0.523
Malaria Prevention							
Mosquito Coil	51 (11)	21 (41)					
Rambo Martic Paper	20 (4)	12 (60)					
Dry Peels of Lemon	16 (4)	7(44)					
Bed Nets	258 (57)	93 (36)					
None of the Above	109 (24)	29 (27)	67.066	88	0.953	56.208	0.384-0.192
Total	454	162	67.066	88	0.953	56.208	0.384-0.192
Measures to avoid Mosquitoes							
Bite							
Bed Nets as Blankets	322(71)	103(32)					
Blankets	56(12)	23(41)					
Application of Repelling Cotton	24(5)	20(83)					

Table 2 cont'd

Smoke of dry Peels of Lemon	31 (7)	7(23)					
None of the above	21 (5)	9(29)	92.43	88	0.353	72.087	0.451-0.226
Total	454	162	92.43	88	0.353	72.087	0.451-0.226
Malaria Episode							
Less than 3 Months	264 (58)	91 (34)					
3-6 Months	79 (17)	30(38)					
6 Months – 1 Year	57 (13)	23 (40)					
1-2 Years	31(7)	10(32)					
Above 2 Years	23(5)	8 (35)	72.582	88	0.882	83.029	0.4-0.2
Total	454	162	72.582	88	0.882	83.029	0.4-0.2
Symptoms of Malaria							
Headaches	98 (22)	77 (79)					
Vomitting/Diarrhea	138 (30)	25 (18)					
Coughing	45 (10)	11(24)					
None of the Above	26 (6)	16 (62)					
Fever	147 (32)	33 (22)	1.101	110	0.48	97.542	0.492-0.220
Total	454	162	1.101	110	0.48	97.542	0.492-0.220
Treatment Seeking Behaviour							
Tsangaya Teacher/Home	136(30)	48(35)					
Self/Chemist	198(44)	50(25)					
Self/Vendors	53 (12)	39(74)					
Hospital	8 (2)	6 (75)					
None of the Above	59(13)	19 (32)	53.249	66	0.871	54.473	0.342-0.198
Total	454	162	53.249	66	0.871	54.473	0..342-0.198



Table 3: Chi – Square Association between *Almajirai* who Used Bet Nets as Blanket and those who Used other Preventive Measures of Malaria

Items	Positive	Negative	Total
Bed nets as Blankets	103	219	322
Others	59	73	133
Total	162	292	454
	χ^2 6.589		
	P – Value = 3.841		

DISCUSSION

Knowledge about malaria among the population is very important in the appreciation of the intervention for the control of malaria. In our study, majority of the respondents attributed malaria to mosquito. Other studies found that most of the respondents have a good understanding of the cause of malaria and its symptoms (Daddi *et al.*, 2005). However, there are still a few misconceptions about malaria with some attributing it to heat, ingestion of contaminated food and old believes/witch crafts. The study highlighted high level of awareness on malaria among the respondents. Majority (78.4 %) had heard malaria. It is expected that malaria is considered the primary health problem in the local governments of the study area. About three quarter of the study population (58.1 %) had a frequent episode of malaria attack more often, though few claimed to have suffered disease like dysentery, cholera, rashes, coughing e.t.c. Some of the respondents in the present study were acquainted with malaria symptoms, and 32.4 % of them recognised fever as a detrimental consequence of malaria. Moreover, the present findings showed that the respondents have developed various measures against malaria prevention as well as mosquito bite. Using mosquito coil, smoke of dry peels of lemon, bed nets, application of repellents body lotion and blankets were mentioned. This agrees with previous findings in other parts of Nigeria

(Erhun *et al.*, 2005), and other malaria-endemic countries (Kimbi *et al.*, 2014). In contrast a previous study among rural farmers in communities of Oyo State, reported low awareness on transmission and symptoms of malaria. Similarly a recent study from Southwest Nigeria also revealed that knowledge of malaria remains low among caregivers of children less than five, pregnant women and mothers (Adebayo *et al.*, 2015). Notwithstanding the attitude, majority of the respondents (70.9 %) use bed nets as blankets in order to prevent themselves from mosquito bite. Use of blankets (12.3 %), application of repellent body lotion, and the use of dry peels of lemon were indicated. With respect to treatment seeking behaviour 43.6 % of the respondent tended to begin treatment at home and sought drugs from unauthorized chemist. Home treatment also involved self-medication or unqualified prescription by *Tsangaya* teachers. 13.0 %, fellow *Almajirai*, family members 11.7 %, and vendors 30.0 %. Only few 1.8% sought treatment from the right place hospital. This behaviour of self-medication has been reported elsewhere in Nigeria (Adedotun *et al.*, 2010, Idowu *et al.*, 2008) and from other parts of Africa (Thera *et al.*, 2000; Deressa *et al.*, 2003).

CONCLUSION

The study demonstrates that respondents had average knowledge regarding malaria transmission, symptoms and prevention. However, this did not translate into improved preventive practices.

The present study found that despite high level of ITNs ownership there is a wide gap between knowledge and utilization of ITNs. Lack of adequate understanding of the benefits of ITNs and difficulty in use were the major constraints to its use. Hence from the results obtained, the respondents were considered as having negative attitude towards malaria. Community mobilization and health education regarding the importance of using ITNs to prevent malaria and saves lives should be considered.



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