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## *Full Length Research Paper*

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# SUPERVISED SCHOOL BASED HEALTH EDUCATION ON MALARIA: REINFORCING PUPILS' KNOWLEDGE.

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### ABSTRACT



**Background:** Malaria is a disease transmitted through the bite of the female Anopheles mosquito. It accounts for about 350–500 million clinical cases of morbidity worldwide and up to 50% of all deaths among African school-age children; being one of the commonest causes of childhood mortality in the country.

**Aim:** The effect of a supervised malaria school based health education on pupils' knowledge of malaria was determined.

**Materials and Methods:** The study was a school based interventional study. Health education was used to reinforce teachers' knowledge on malaria along with equipping them with relevant malaria teaching aids. Teachers' in turn incorporated information into their pupils' lesson notes. Pupils' knowledge on malaria was compared initially at baseline and after the series of class lessons taught by their teachers through an interviewer administered questionnaires.

**Statistical analysis:** Microsoft word Excel 2007 was used for data entry and cleaning while SPSS Version 16.0 was used for analysis.

**Results:** One hundred and thirty pupils participated in the study 67 (51.5%) males and 63 (48.5%) females. The mean age was  $9 \pm 1.54$  years. An improvement in malaria knowledge was recorded among the pupils at post-intervention in all aspects of the disease.

**Conclusion:** An improvement in pupils' knowledge on malaria may be achieved through a supervised teachers' health education on malaria.

**KEYWORDS:** Health education, malaria, pupil, school-based.

## INTRODUCTION

Malaria is a protozoal disease caused by infection with parasites of the genus Plasmodium which infects red blood cells and is naturally transmitted to man by the bite of a female Anopheles mosquito. It is characterized by cycles of chills, fever, pain, and sweating. [1] Each year; there are approximately 350–500 million clinical cases of malaria worldwide, killing between one and three million people, the majority of whom are young children in Sub-Saharan Africa (SSA). [2, 3]

In 2008, there were an estimated 243 million cases of malaria and 863,000 deaths (89% of which occurred in Africa). Although anyone can have malaria, but children under 5 years and pregnant women are mostly affected. Children are particularly at risk because they lack developed immune systems, and they represent 85% of all malaria deaths. [4] School-age children represent 26% of Africa's population and the proportion of individuals who are infected with malaria parasites is highest among them. Malaria accounts for up to 50% of all deaths among African school-age children. Schools can therefore be targeted to support community-wide malaria control. [5, 6] Malaria is responsible for about 66 per cent of all clinic visits in Nigeria and the cause of an estimated 250,000 deaths in children less than five years of age every year. [7] Being the commonest cause of hospital attendance in all age groups in all parts of Nigeria, it is also one of the four commonest causes of childhood mortality in the country.

School health interventions have been shown to be effective in reducing vulnerability of pupils to morbidity and school absenteeism due to malaria. Children easily acquire and adapt new knowledge and skills – with a high possibility of long-term influence. School children are avenues for passing health knowledge/skills to the community – which will sustain health knowledge. [8] Health teaching in schools is more likely to improve directly or indirectly, pupils' health and academic excellence as better health enables one to perform better in academics than when one is in poor state of health. [9] Health education focusing on malaria control may be intensified both at schools and in the community to enhance community participation aimed at sustainable malaria control. [10]

Malaria has social consequences and is a heavy burden on economic development; more emphasis needs to be placed upon promoting healthy practices and developing the necessary life skills related to malaria recognition, management and prevention. [11] Schools provide the most effective and efficient way to reach large portions of the population, including young people, school personnel, families and community members. Students can be reached at influential stages in their lives, during childhood and adolescence when lifelong behavioural patterns are formed. [8,12]. There is evidence that school health programmes reach more people through their families and communities than any other form of health education approaches.[13] Health education is an important component in disease control programme especially in rural areas. It is one of the main activities necessary for carrying out malaria control interventions [also called Information-Education-Communication, (IEC), where people are informed of what they can do to prevent and treat malaria. [14]

Inputs from nutrition have often been included in child health promotion strategies because poor health and nutrition are known to affect a child's ability to learn. [15] Education on the other hand promotes positive health behaviours, contributes to the prevention of disease; helps children acquire knowledge, practices, and behaviours that protect them from disease. [16]

## METHODOLOGY

This was a school-based interventional study comprising of 3 phases (pre-intervention, intervention and post-intervention phases). Pupils of public primary school located in Jebbu Bassa in Bassa Local Government Area (LGA) which is one of the seventeen LGAs of Plateau state were studied. Pupils in higher classes (primary 4-6) were selected because of presumed ease of communication and their previous exposure to school teachings on malaria.

A multistage sampling method was used to obtain the minimum sample size of 130 calculated. At pre-intervention, baseline data was collected on pupils' socio-demographic characteristics and knowledge of malaria. At intervention, the teachers were trained one hour a day (during the break period) in the staff room for three consecutive days. Trained teachers then included topic learnt in the lesson notes to be taught to their pupils three days a week for three months. The teachers were monitored to ensure that they comply with the context of the training. Monitoring was effected by queuing into the already existing supervisory system of the local government education authority by the Primary Education Board, by once weekly visitation to the school during integrated science lesson period (time table had been previously collected from the Headmaster) and a twice weekly phone call reminder few minutes to the lesson time. At post-intervention after three months, same data as the pre-intervention was collected from the pupils.

Ethical clearance was sought and obtained from the Jos University Teaching Hospital (JUTH) Ethical Committee. Written permission was obtained from the Chairman of Bassa Local Government Area. Consent was sought from parents [through concise consent form given to the pupils for their parents prior to the commencement of the study] and obtained before administration of the questionnaires.

## RESULTS

One hundred and thirty pupils participated in the study comprising of 67 (51.5%) males and 63 (48.5%) females. About 96 (73.8%) were aged 10 years and below while 34 (26.2%) were more than 10 years of age and Christianity was the most practiced religion (Table I).

**Table 1:** Bio-data of pupils

Characteristics	[N=130]		
	Frequency	%	
Age	≤10 years	96	73.8
	>10years	34	26.2
Sex	Male	67	51.5
	Female	63	48.5
Religion	Christianity	111	85.4
	Islam	19	14.6
Type of family setting	Nuclear	80	61.5
	Polygamous	21	16.2
	Extended	29	22.3
Position in the family	≤4	120	92.3
	>4	10	7.7
Number of siblings	≤3	109	83.8
	>3	21	16.1

At pre-intervention, the following were the responses given on the cause of malaria; (7.7%) had no idea, (61.5%) attributed the cause to evil spirit, (4.6%) sleeping in same room with someone with the infection and (12.4%) felt living in a dirty environment will cause malaria. Only (13.8%) said a bite from infected mosquito will the cause of malaria. At post-intervention on the other hand, (79.2%) attributed the cause of malaria to bite from infected mosquito (Table 2).

**Table 2:** Responses to knowledge on cause of malaria at pre and post-intervention

Knowledge	PRE-INTERVENTION		POST-INTERVENTION	
	Frequency	%	Frequency	%
Bite from mosquito	18	13.8	103	79.2
From evil spirit	80	61.5	6	4.6
Do not know	10	7.7	5	3.8
Sleeping same room with person with malaria	6	4.6	6	4.6
Dirty environment	16	12.4	10	7.7
Total	130	100	130	100

Likelihood-ratio chi-square  $X^2=144.8$ ;  $df=4$ ;  $p=0.00$  (Statistically significant)  
 At post-intervention, pupils seem to have a better knowledge of the cause of malaria.

On the prevention of malaria (Table 3) at pre-intervention, the following were the responses given by the pupils: (38.5%) knew nothing about it; (10%) wearing of protective clothing will prevent the infection, (5.4%) prayers, (15.4%) burning of leaves while (31%) said the use of Insecticide Treated Bednets (ITNs) could prevent it. At post-intervention for the same question on malaria prevention, the following responses were obtained as a means of preventing the disease: (17%) had no idea, (9.2%) burning of leaves, (4.6%) prayers, (9.2%) wearing of protective clothing and (60%) use of ITNs.

**Table 3:** Responses to knowledge on prevention of malaria at pre and post-intervention

Knowledge	Pre-Intervention		Post-Intervention	
	Frequency	%	Frequency	%
Use of ITNs	40	30.7	78	60.0
Wearing of protective clothing	13	10.0	12	9.2
Prayers	7	5.4	6	4.6
Burning of leaves	20	15.4	12	9.2
Do not know	50	38.5	22	17.0
Total	130	100	130	100

Likelihood-ratio chi-square  $X^2=25.8$ ;  $df=4$ ;  $p=0.000$  (Statistically significant)

## DISCUSSION

The age range of the pupils is comparable to that used in a similar school-based study carried out in Kyela District, South-western, Tanzania to assess the knowledge on malaria and its prevention.[17] The ease of communication and comprehension of the content of health education taught by the teachers will be better with this age range; than with a younger age range.

A good knowledge of a disease will go a long way in equipping the pupil because the health and well-being of children is fundamental to optimal education. From the results obtained in this study, an improvement in knowledge of malaria was observed at post-intervention which may be attributed to the deliberate emphasis placed on the teaching on malaria together with the visual teaching aids (charts/posters) used which were all placed at strategic locations in the classrooms.

Schools definitely have a role to play in improving the health of children such as, educating them on health issues especially on common endemic diseases like as malaria which will indirectly improve social and economic development of the nation. [18] Knowledge inculcated in children will help them later in life with the desire that it improves their approach to health issues positively thus reducing the financial burden of ill-health and in the long term improve economic development. Knowledge on prevention of malaria is equally as important as knowledge of the causes. Major barriers to prevention and significant reduction in most diseases, malaria inclusive are lack of understanding of the cause and methods of prevention. In a purposively study design conducted between November and December 2004 in a School in Naraingarh, Haryana in India; on health awareness, majority of students possessed reasonably adequate general knowledge about malaria but also lacked the basic knowledge on effective methods of prevention. [19]

This study wasn't specific on ownership of mosquito bed nets and its usage, but findings from a study carried out among school children in Igbo-Eze South LGA, Enugu State, found a higher percent of non-compliance of mosquito bed nets despite its possession. [20] Different reasons may have been given for this finding, but, the public health and economic implications of these should not be overlooked. As a control strategy, if pupils acquire and put into proper use the knowledge acquired, they may further enlighten their parents on the usefulness of control measures against malaria in their homes/communities such as the regular use of mosquito bed nets. This is also the most promising and yet most tasking of the World Health Organization (WHO) strategies for malaria control through the provision and use of Insecticide Treated bed Nets (ITNs), which has been described as an important and popular tool for malaria control programme. They are, therefore, seen as one of the main tools of achieving Roll Back Malaria (RBM's) objective of halving the world's malaria burden by the year 2010. It also calls for a 30-fold increase in the purchase and use of ITNs in Africa. [21]

## CONCLUSION

It is certain that gaps in malaria knowledge exist which may also have accounted for poor knowledge seen at pre-intervention among the primary school graduating class studied. Ignorance, disease and poverty are interlinked and this cycle will need to be broken if realistic malaria elimination in Africa is desirable.

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