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Research Article

Knowledge of Malaria Management in Pediatrics among Undergraduate Pharmacy Students in University of Ibadan, Nigeria

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ABSTRACT

Malaria is a foremost preventable cause of death and a major public health concern. Inadequate knowledge of malaria management in pediatrics among future pharmacists could affect the standard of services rendered. Pharmacists are the most accessible healthcare professional; thus they should possess good knowledge of malaria management in pediatrics. This study was designed to assess pharmacy students' knowledge of malaria management in pediatrics. A cross-sectional survey among 140 pharmacy students of a Nigerian University, between July and August 2019, using a validated self-administered questionnaire. Data were summarized with descriptive statistics. Association between knowledge and year of study was determined using Chi-square, with $p < 0.05$ considered significant. The majority (83.5 %) of the participants had good knowledge of the causes of malaria, while 43.6 % knew malaria could be transmitted to the unborn child by pregnant mothers. Most (65.0 %) knew that sulphadoxine-pyrimethamine is the drug of choice for IPTP, while 27.5 % of the respondents knew the frequency of its use during pregnancy. Half of the participants (50.7 %) are not knowledgeable of the symptoms of uncomplicated malaria. Thirty-one (22.1 %) knew ACT is recommended for all forms of uncomplicated malaria, and only 16.4% knew its dosage is based on weight not the age of the patient. Participants in the 5th year of study have significantly higher knowledge of relief of fever using a tepid sponge ($P=0.011$) and not recommending chloroquine as a first-line drug in malaria treatment in paediatric ($P=0.018$). The participants' knowledge of causes and symptoms of malaria is poor and there is a substantial gap in their knowledge of pharmacotherapy of malaria in pediatrics. More clinical exposure of the students to the topic taught in classroom might improve their understanding.

Keywords: *Malaria, Pharmacy Students, Knowledge, Pediatric*

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INTRODUCTION

Malaria is a potential deadly parasitic disease of global concern. It is caused by protozoan of the genus *Plasmodium*, however, *P. Falciparum* malaria is the most common in sub-Saharan Africa, where the burden of the disease is the highest worldwide (WHO, 2012). In 2016, WHO reported that about 285,000 children die of malaria before their fifth birthdays (WHO, 2018). About 81 % of malaria cases and 91 % of malaria deaths occurs in the African region, where it remains one of the major causes of death and morbidity, especially among children and pregnant women (Schumacher and Spinelli, 2012).

Malaria infection accounts for 30 % of hospitalization among children less than five years of age and about 60 % of out-patient hospital visits in Nigeria (Nigeria Malaria Fact Sheet, 2017). Children are at the highest risk for severe

malaria and death between six months and five years of life. Children are most vulnerable during this period because they have lost maternal immunity and their specific immunity to infection is yet to be developed. Neonates and young infants are not exempted from malaria infection because apart from infection from the bite of the female anopheles mosquito and possibly through the infusion of infected blood products, neonates and young infants might also be vertically infected by plasmodia that crossed the placenta (Schumacher and Spinelli, 2012). WHO is emphasizing the need for malaria prevention, early management and an adequate dosage regimen for the patients to effectively treat malaria (WHO, 2017) could result in good clinical outcomes, prevention of complications and death.

Pharmacists are one of the most easily accessed healthcare personnel (Kelling, 2015) and based on the

shortage in healthcare personnel in public health space, pharmacists' services in public healthcare are of great importance (Manolakis and Skelton, 2010). However, low-quality of professional services from pharmacies with little or no verbal advice to the patients in the treatment of malaria and no formal arrangement to facilitate referral were reported in various developing countries (Malik et al., 2012; Ogbonna et al., 2015). There has been a report of pharmacists having a better knowledge of malaria treatment than Proprietary Patents' Medicine Vendors who were reported to be more accessible than pharmacists in some developing countries (Beyeler et al., 2015). However, staff of pharmacies and in some cases pharmacists, have been reported to be deficient in knowledge of dosage regimens and in gathering information required for the proper management of malaria (Minzi and Haule, 2008).

In order to engage the pharmacists effectively in primary care initiatives and especially management of malaria among pediatrics among who the disease is more severe and fatal, the capacity of the practitioners must be strengthened to deliver appropriate and safe services. There is scarcity of literature on pharmacy students' knowledge of malaria management in pediatrics population in Nigeria. Therefore, this study aimed at assessing the knowledge of pharmacy undergraduate students at university of Ibadan, on causes, symptoms, and management of malaria in pediatrics.

MATERIALS AND METHODS

Study Design: This study was a descriptive cross-sectional study conducted among 140 pharmacy students from the University of Ibadan, Nigeria, between July and August 2019.

Study Site: The University of Ibadan is located in Ibadan, Oyo State, it was founded in 1948. Presently the university has a total of 13 faculties and an undergraduate students' population of approximately 29,000 as at the 2018 / 2019 academic session according to the school's information management centre. The Bachelor of Pharmacy degree in the University of Ibadan, Nigeria, presently runs a 5-year program.

Study Population: Study participants consisted of fourth- and fifth-year pharmacy students of the Faculty of Pharmacy, University of Ibadan. This category of the students was chosen mainly because "Malaria and its pharmacotherapy" is usually taught as a topic at the beginning of the fourth year.

Sample Size Determination: The sampling frame consisted of an updated list of 180 registered fourth- and fifth-year pharmacy students provided by the faculty office.

Sampling Method: A total sampling of all fourth- and fifth-year students were eligible to participate in the study, however, 30 students declined participation in the study. Out of the 150, ten were involved in the pre-test and were excluded from the study. Thus, giving a total of 140 eligible participants to guide enrolment.

Study Instrument: The main instrument used for data collection was a pre-tested semi-structured questionnaire which comprised of three sections. Section A obtained

demographic information. Section B contained questions on malaria in general. Section C contained questions on the pharmacy students' knowledge of malaria management in pediatric and the concept of IPTP use among pregnant women. The cut-off point of 80% was assigned as 'good' knowledge and less than 80% as poor knowledge of malaria and symptoms of malaria in pediatrics. This binary categorization of knowledge scores was according to Bloom's cut-off criteria and other similar studies (Bloom, 1956; Akande-Sholabi et al., 2019a; Akande-Sholabi., 2020).

Pre-test/Validation of the Questionnaire: The questionnaire content validity was done by academic staff in the Department of Clinical Pharmacy and Pharmacy Administration, University of Ibadan, who specialized in pharmacy practice. It was then pretested among ten 5th-year students who were later exempted from the main study. The pre-test and validation led to a minor modification of a question which was reworded for better understanding. The question was in Section C, 'What dose of Artemether-lumefantrine will you recommend for a child of 5 years with a body weight of 18Kg was reworded as, 'what numbers of tablets of Artemether-lumefantrine (20/120mg) will you recommend for a child of 5 years with 18Kg'.

Inclusion/Exclusion Criteria: All participation was voluntary. Consented 4th and 5th-year pharmacy students of the University of Ibadan were included in the study, while 1st, 2nd and 3rd-year undergraduate pharmacy students and post-graduate students of the faculty of pharmacy were excluded from the study.

Data Collection Procedure: Students were approached in their respective classes shortly after a compulsory course, they were informed of the objectives and purpose of the study and immediately administered the questionnaire. Each questionnaire took about 12 minutes to be completed, after which the questionnaire was returned and checked for completeness.

Data Analysis: Data were entered into SPSS version 23 and analyzed using descriptive statistics. Results were presented in frequencies, means and percentages. Chi-square was used to determined association between knowledge and year of study, with $p < 0.05$ considered significant.

Ethical Consideration: Ethical approval was received from the UI/UCH Research Review Board with registration no. UI/EC/19/0162. The study was carried out by following the principles outlined in the Helsinki Declaration of 1964 (Snezana, 2001).

RESULTS

Demographics of the Participants: A total of 140 Participants participated in the study. The 4th-year students were 74 (52.9%) and 5th-year were 66 (47.1%). The participants' age range between 19 to 33years with an average of 22.3 ± 2.3 . Males were 72 (51.4%).

Participants' Knowledge of Causes and Transmission of Malaria: Majority of the participants have good knowledge of causes and transmission of malaria. Detail is in Table 1.

Participants' knowledge of causes and common symptoms of malaria in pediatrics: The students' knowledge of common causes and symptoms of malaria presented by pediatrics are represented in table 2 below. Generally, the participants' knowledge of the causes and common symptoms of malaria is poor with about two-thirds (90, 63.3%) scoring less than 80%. Almost all (136; 97.1%) of the participants indicated that fever is a major sign of malaria among pediatrics, a majority (120; 85.7%) also indicated that all forms of fever should not be linked to malaria. Only 43.6% were knowledgeable of mother-to-child malaria transmission via the placenta.

Participants' knowledge of pharmacotherapy of malaria in pediatrics: Table 3 shows the knowledge of participants on

the management of malaria in a pediatric population. Generally, the participants' knowledge of pharmacotherapy of malaria in pediatrics is poor with none scoring at least 80% and with an average score of 6.4 ± 1.8 of the total of 14. A good number of participants (62.9%) did not know that ACTs are not injectable, while 82.5% did not know the dosage of ACT is based on the weight of the patient and not the age. A majority (89.3%) do not know artemether is the recommended drug for cerebral malaria in pediatrics.

Participants' knowledge of the dosage of Artemether-Lumefantrine (20/120) for a child of 5 years with a weight of 26kg was assessed; 14.3% of the participants' answer was correct, 55.0% provided an incorrect answer and 30.7% did not respond to the question.

Table 1: Participants; knowledge of causes and transmission of malaria

| Questions on causes and transmission of malaria | Correct answer | | |
|-----------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------|----------------|
| | 4 th Year n=74 (%) | 5 th Year n= 66 (%) | Total n=140 |
| <i>Plasmodium falciparum</i> is the most common malaria causative organism (Yes) | 74 (100) | 64 (97.0) | 138 (98.6) |
| Only the female anopheles mosquito causes malaria (Yes) | 66 (89.2) | 58 (87.9) | 124 (88.6) |
| Malaria is only caused by stress (No) | 72 (97.3) | 65 (98.5) | 137 (97.9) |
| Malaria can be transmitted from an infected person to another person through the vector (Yes) | 54 (73.0) | 58 (87.9) | 112 (80.0) |
| Malaria occurs more frequently in certain period of the year (Yes) | 49 (66.2) | 48(72.7) | 97 (69.3) |
| Malaria is more common in the tropical region (Yes) | 68 (91.9) | 64 (97.0) | 132 (94.2) |
| Complicated malaria can cause death if not properly treated (Yes) | 71 (95.9) | 64 (97.0) | 135 (96.4) |
| One of the ways of preventing malaria is by taking some certain medication(s) (Yes) | 67 (90.5) | 57 (86.4) | 124 (88.5) |
| Person with severe malaria, may recover even without been treated (No) | 48 (64.9) | 44 (66.7) | 92 (65.7) |
| Malaria can be treated with the use of antimalarial (Yes) | 72 (97.3) | 64 (97.0) | 136 (97.1) |
| SCORE | | | |
| <80% (Poor knowledge) | 13 (17.5) | 14 (21.2) | 27 (19.3) |
| 80-100% (Good knowledge) | 61 (82.4) | 52 (78.8) | 113 (80.7) |
| Mean score | 8.3±1.3 | 8.4±1.1 | 8.4±1.2 |

Total obtainable score = 10

Percentage individual score = Individual score divided by total obtainable score multiply by 100

Table 2: Participants knowledge of causes and symptoms of malaria in pediatrics

| Questions | Correct Answers | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|------------|---------|
| | 4 th year (n=74) | 5 th year (n=66) | Total | p-value |
| 1. Fever is a major sign of malaria in pediatrics (Yes) | 72 (97.3) | 64 (97.0) | 136 (97.1) | 0.509 |
| 2. All form of fever in pediatric should be link to malaria and as such patient should be treated for malaria even without malaria test (No) | 63 (85.1) | 57 (86.4) | 120 (85.7) | 0.431 |
| 3. A single bite of female anopheles mosquito may cause malaria in pediatric (Yes) | 40 (54.1) | 38 (57.6) | 78 (55.7) | 0.337 |
| 4. A child may acquire malaria infection from the mother during pregnancy via the placenta (Yes) | 32 (43.2) | 29 (43.9) | 61 (43.6) | 0.975 |
| 5. Malaria can be transmitted from an infected adult in the family to the children via mosquito bite (Yes) | 29 (39.2) | 20 (30.3) | 49 (35.0) | 0.546 |
| 6. A child can develop convulsion as a result of untreated malaria (Yes) | 67 (90.5) | 64 (97.0) | 131 (93.6) | 0.27 |
| 7. Malaria is more common among children under 5years (Yes) | 54 (73.0) | 50 (75.8) | 104 (74.3) | 0.584 |
| 8. High temperatures, convulsions, extreme weakness, severe vomiting, jaundiced or pallor indicating anemia are signs and symptoms of uncomplicated malaria (No) | 52 (70.3) | 55 (83.3) | 107 (76.4) | 0.165 |
| 9. Fever, headache, chills, joint pains & sometimes vomiting are signs and symptoms of complicated malaria (No) | 34(45.9) | 35 (53.0) | 69 (49.3) | 0.486 |
| 10.Pediatrics can recover from complicated malaria even without been treated (No) | 48 (64.9) | 44 (66.7) | 92 (65.7) | 0.578 |
| SCORE | | | | |
| <80% (Poor Knowledge) | 59 (79.7) | 38 (57.6) | 90 (63.3) | 0.585 |
| 80-100% (Good Knowledge) | 15 (20.3) | 28 (42.4) | 50 (36.7) | |
| Mean Score | 6.7±1.5 | 7.1±1.3 | 6.9±1.4 | |

P value for χ^2 test, Total obtainable score = 10, Percentage individual score = Individual score divided by total obtainable score multiply by 100

Participants were further asked if, after 15 days of taking correct dosages of Artemether-Lumefantrine (20/120), the child still came down with fever and tested positive for malaria and reported in a community pharmacy, which drug will be

appropriate for the recommendation for treatment of the child. This question was not responded to by 39.3% of the participants. Their responses are represented in Table 4.

Table 3: Participants knowledge of Pharmacotherapy of Malaria in Pediatrics

| Questions | Correct Answer | | | P value |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|------------|---------|
| | 4 th year (n=74) | 5 th year (n=66) | Total | |
| 1. Malaria can cause severe anemia in pediatric which may require blood transfusion (Yes) | 61 (82.4) | 57 (86.4) | 118 (84.3) | 0.785 |
| 2. Severe vomiting in pediatric can be resolved through use of oral antiemetic agent (No) | 13 (17.6) | 10 (15.2) | 23 (16.4) | 0.580 |
| 3. Severe vomiting in pediatric can lead to dehydration which may require rehydration via use of Oral rehydration salt solution (ORS) (No) | 5 (6.8) | 5 (7.6) | 10 (7.1) | 0.979 |
| 4. Caregiver of pediatric patients continue to give paracetamol for days as long as the fever persist (No) | 38(51.3) | 35 (53.0) | 73 (52.1) | 0.311 |
| 5. Fever in pediatric can also be relief by tepid sponging (Yes) | 49 (66.2) | 52 (78.8) | 101 (72.1) | 0.011* |
| 6. Pediatric patients running fever and also having chilling should be well clothed with thick clothing (No) | 43 (58.1) | 36 (54.5) | 79 (56.4) | 0.275 |
| 7. There are drugs that can be taken to prevent malaria infection (Yes) | 59 (79.7) | 47 (71.2) | 106 (75.7) | 0.413 |
| 8. Chloroquine is the one of the first line drugs recommended for treatment of malaria in pediatric (No) | 49 (66.2) | 48 (72.7) | 97 (69.3) | 0.018* |
| 9. Ibuprofen suspension is also an antimalaria that is useful in pediatric (No) | 57 (77.0) | 49 (74.2) | 106 (75.7) | 0.733 |
| 10. Artemisinin-Combination Therapy injectables are the best in complicated malaria in pediatric (No) | 20 (27.0) | 16 (24.2) | 36 (25.7) | 0.919 |
| 11. Artemisinin-Combination Therapy (ACT) are the best drug of choice in all forms of malaria in pediatric (Yes) | 18 (24.3) | 13 (19.7) | 31 (22.1) | 0.736 |
| 12. Dosages of ACT is based on the age of the patients (No) | 9 (12.2) | 14 (21.2) | 23 (16.4) | 0.189 |
| 13. Artemether drug comes as oral formulation use (No) | 20 (27.0) | 25 (37.9) | 45 (32.1) | 0.192 |
| 14. Artemether is a drug of choice for cerebral malaria (Yes) | 18 (24.3) | 11 (16.7) | 29 (20.7) | 0.097 |
| SCORE | | | | |
| <60% (Poor Knowledge) | 68 (91.9) | 56 (84.8) | 124 (88.6) | |
| 60-79% (Fair Knowledge) | 6 (8.1) | 10 (15.2) | 16 (11.4) | |
| 80-100% (Good knowledge) | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| Average score | 6.1±1.8 | 6.7±1.8 | 6.4±1.8 | |

P value for χ^2 test, Total obtainable score = 14, Percentage individual score = Individual score divided by total obtainable score multiply by 100
Participants knowledge of use of Artemether-Lumefantrine (20/120) in treatment of malaria in pediatric

Table 4: Participants' suggested medication on failure of Artemether-Lumefantrine (20/120) in treatment of malaria in pediatric

| Medication | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Dihydroartemisinin + Piperaquine | 21 | 15.0 |
| Artemether+ Amodiaquine | 18 | 12.9 |
| Chloroquine | 12 | 8.6 |
| Quinine | 9 | 6.4 |
| Amodiaquine | 7 | 5.0 |
| Artemether-Lumefantrine | 5 | 3.6 |
| Artemether injection | 5 | 3.6 |
| Refer patient to Hospital | 2 | 1.4 |
| Proguanil | 2 | 1.4 |
| Artesunate | 2 | 1.4 |
| Sulphadoxine Pyrimethamine | 2 | 1.4 |
| No response | 55 | 39.3 |
| Total | 140 | 100.0 |

Participants' Knowledge of Intermittent Preventive Therapy in pregnancy (IPTp): Twelve participants did not attempt the question on drugs used for IPTp. The majority of the participants (67.1%) that answer the question defined IPTp

in malaria correctly, 19.3% gave a wrong definition and 13.6% did not attempt the question. Participants' drug of choice for IPTp and knowledge of the correct frequency of use of the drug are represented in Table 5.

Table 5: Participant's suggested medications used for IPTp and frequency of use in a course of pregnancy

| Medication | Frequency of use in a course of pregnancy | | | |
|---------------------------------|-------------------------------------------|----------------------|-----------------|--------------------|
| | Correct Answer (%) | Incorrect Answer (%) | No Response (%) | Correct answer (%) |
| Sulphadoxine-Pyrimethamine (SP) | 36 (39.6) | 25 (27.5) | 30 (33.0) | 91 |
| Arthemeter/Lumenfantrine | 0 (0.0) | 0 (0.0) | 4 (50.0) | 4 |
| Proguanil | 0 (0.0) | 12 (42.9) | 16 (57.1) | 28 |
| Pyrimethamine | 0 (0.0) | 3 (60.0) | 2 (40.0) | 5 |
| Total | 36 (28.1) | 40 (31.2) | 52 (40.6) | 128 |

DISCUSSION

Malaria is a preventable public health problem and future healthcare providers must be well knowledgeable of the causes, mode of transmission, prevention and management so as to educate the general public. Majority of the participants in this study have good knowledge of causes and transmission of malaria which is consistent with a study in Nsukka-Nigeria among non-medical students (Anene-Okeke et al., 2018). This is contrary to a report of low knowledge of causes of malaria among non-medical participants in a study in southwestern Nigeria (Edet-Utan et al., 2006).

This study revealed that the participants are deficient in knowledge of symptoms and treatment of malaria among pediatric population. Though less than half scored at least 80%, the average score of participants in knowledge of causes and symptoms of malaria in pediatrics is fair. However, the participants in their 5th-year of study have higher scores and this could be indicative that the participants knowledge could improve as they have more exposure to clinical practice. A study in Southern Benin, reported good percentages of the pharmacists involved in their study could identified symptoms of malaria but some still missed out some important ones (Ganfou et al., 2017).

In this study, the participants have good knowledge of control of fever with the use of antipyretic and tepid sponging. This is an important counseling tip in malaria management in pediatrics (Waruiru and Appleton, 2004; WHO, 2012) especially in Nigeria where the practice of wrapping of children in blanket during fever episode is still common among mothers as reported in a study in western Nigeria (Oshikoya et al., 2006). However, those in their 5th year of study have significantly higher level of knowledge in this aspect compared to those in the 4th year of study.

Nonetheless, the participants appear deficient in knowledge of chemoprophylaxis use in pregnancy. Although, about two-third of the students were knowledgeable on use of sulfadoxine-pyrimethamine as a drug of choice for Intermittent preventive Treatment (IPTp) of malaria in pregnancy but less than half of them knew the frequency of its use in a course of pregnancy. WHO emphasized the need to educate the healthcare worker about the important of IPTp in pregnant women in order to achieve reduction of malaria infection among pregnant women and also reducing it risks for the mother, her fetus and the neonate (WHO, 2018). Transmission of malaria via placenta is an established finding (Andrews and Lanzer, 2002). This study however, showed that majority of the participants have poor knowledge of transmission of malaria via placenta. This finding is consistent with the report of a study in Ibadan-Nigeria showing a substantial gap in pharmacists' knowledge of the management of malaria in pregnancy (Akande-Sholabi et al, 2019b). This might explain the need for the review of the topic in the curriculum of the pharmacy students with more emphasis on malaria management in pregnancy and pediatrics population.

To adequately treat malaria infection, the healthcare practitioner should be well knowledgeable on the current guideline of its treatment. In this study, the participants' knowledge of pharmacotherapy for malaria was found to be

inadequate with an average score of less than half of the total obtainable score and none having up to 80% score. Some of the negatively worded questions were answered wrongly. Furthermore, a good number of the participants indicated continuous use of paracetamol as long as fever persists in the patient which is not considered safe for use due to its hepatotoxic effects (Ranganathan et al. 2006). It is therefore expected that the patient should report to the hospital if fever persists for more than two days after the use of paracetamol as stated in the product's information leaflet.

WHO recommended artemisinin-based combination therapy ACT for treatment of uncomplicated malaria caused by *P. falciparum* in chloroquine resistance areas (WHO, 2006) which has been on the WHO Model List of Essential Medicines for Children for treatment of uncomplicated malaria since October 2007 ([http://www.who.int/childmedicines/publications/EMLc%20\(2\).pdf](http://www.who.int/childmedicines/publications/EMLc%20(2).pdf)) and also in the National policy of Nigeria (Nigeria Malaria Fact Sheet, 2017). This information could probably have guided a significant number of the 5th-year participants to know that chloroquine is not the first-line drug in the treatment of malaria. It is of concern that the majority of the participants also did not know arthemeter/lumefantrine (AL) dosage is based on weight and not the age of the patient. More worrisome is the choice of some participants of single antimalarial therapy for a child who had taken AL and failed. This finding is contrary to Argaw (2015) report among health practitioners in Ethiopia who had good knowledge of recommended antimalaria based on the guidelines. Similarly, the study among medical doctors and pharmacists in Malawi showed that pharmacists are more conversant and knowledgeable on types, dosages and different formulations for pediatrics than the medical doctors (Kalilani-Phiri et al., 2011). Pharmacists are the first point of call for most patients in the treatment of common ailments including malaria and it is therefore, important for them to be well knowledgeable in its management.

The participants' knowledge deficit in malaria management among pediatrics could be due to their lack of full exposure to hospital clinical experience as of the time of data collection. It is very important that students in professional programs be able to put into practice what they have learned in the classroom (Zakaria and Awaisu, 2011). Teaching methods such as classroom/practice/classroom process model that enhances learning can be incorporated into the curriculum.

In conclusion, participants' knowledge of management of malaria in paediatric is inadequate. There might be need to review the content of malaria as a topic in the pharmacy school curriculum. Furthermore, clinical exposure of the students to the topic taught might improve their understanding, particularly in the area of pediatric care, where malaria is more fatal. It is imperative for future pharmacist as a healthcare giver to have good knowledge treatment of malaria especially among most vulnerable.

The study employed a self-assess questionnaire which is prone to recall bias. Furthermore, the study was limited to only 4th and 5th- year pharmacy students because they were the only ones among others who have been taught malaria and its

treatment. The results can therefore not be generalized for the pharmacy students in the university.

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