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## Knowledge, Attitude and Practice of Hospital Pharmacists on Malaria in South - Eastern Nigeria

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### ABSTRACT

Malaria is presently a public health problem with huge negative socio-economic burden, high incidence of morbidity and mortality in the tropics and sub-Saharan Africa. Conducting a Knowledge, Attitude and Practice study on pharmacists who are among the key caregivers in malaria treatment will help to reveal any knowledge, attitudinal or practice gap for necessary awareness and intervention program which could impact positively on the care givers to improve treatment outcome and patients quality of life. Methods: The study was a cross sectional survey carried out in tertiary hospitals. Structured questionnaires were used to test respondents Knowledge, Attitude and Practice in relation to malaria. Collected data were copied into SPSS Version 16 spreadsheet and analyzed using descriptive statistics. P values of 0.05 or less were considered significant. Results: The hospital pharmacists from the three hospitals showed good knowledge of malaria, the right attitude towards the disease but poor practices. The result revealed that 85.5%, 88.9% and 93.3% of respondent from UNTH, NAUTH and ESUTH believed that malaria is a dangerous disease; while 82.2% in UNTH, 91.1% in NAUTH and 100% in ESUTH recognized that patients with malaria need more attention. The respondents showed poor documentation practice. However, they scored below average in their practice of malaria treatment, prevention and control. This informs the need for continuing education, training and professional development. Understanding the levels of Knowledge, Attitude and Practice will enable a more efficient process of creating awareness and sensitization as it will allow diabetic care programs to be tailored more appropriately to the needs of the affected population. The study revealed that the pharmacists have a good knowledge of the disease state and understand the treatment practices to be able to contribute meaningfully in the disease treatment, prevention and control.

**KEYWORDS:** Malaria, Knowledge, Attitude, Practice, Pharmacist and Treatment.

### INTRODUCTION

Malaria is a mosquito borne tropical and infectious disease with high morbidity, mortality and prevalence. Optimum prevention and control help to reduce morbidity and high mortality rate of malaria. Good knowledge, attitude and practice of the pharmacists who are core and integral part of the care givers is necessary for standard patient care since they are in a strategic position to interact with and educate patients. Patients' education is an invaluable tool in malaria treatment and good knowledge, attitude and practice of the hospital pharmacists will help to improve treatment outcomes, prevent complications associated with pregnancy and resistance associated with irrational drug therapy. The study used assessment of knowledge, attitude and practice of the hospital pharmacists to identify the gaps and needed

modifications, improvement and innovations required in the treatment of malaria to improve treatment outcomes and patients quality of life [9]. Today malaria is one of the top killer diseases in sub-saharan Africa. Annually, malaria kills more people in the tropics than any other infectious disease. The human and economic costs associated with declining quality of life, consultations, treatments, hospitalizations and other events related to malaria are enormous and often lead to low productivity and lost incomes. Experiences with malaria have shown that prevention is better and cheaper than cure; however the practice of malaria preventive measures has been related to the knowledge and belief of people and have been found to be low and difficult to implement when malaria risk is perceived



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to be low, [6]. Malaria knowledge, attitudes and practices (MKAP) have been examined in many rural and partly urban multiethnic populations in Africa,[2,3,4].

Recommendations that preventive measures be incorporated into malaria alleviation programs in addition to developing an appropriate educational intervention strategy highlighting the importance of compliance have been made following results of "perceived malaria" management in a Nigerian setting, [6]. MKAP is thus becoming more important for the design and improvement of malaria control activities, to the establishment of epidemiological and behavioral baselines and to identifying indicators for monitoring intervention programs,[7]. This study assessed the Knowledge, Attitude and Practice of (KAP) hospital pharmacists towards malaria in tertiary health centers in south-eastern Nigeria through questionnaire based survey.

## **METHODS**

### **Research Instrument**

A structured questionnaire comprising of 33 standardized questions all designed to assess the hospital pharmacist knowledge, attitude and practice was used to obtain data from the respondents. The self administered questionnaire was pretested among hospital pharmacists in other hospital in the area to ensure comprehensibility, appropriateness of sentence and sensitivity of questions. The questionnaire was divided into four main sections namely;

- I. Demographic data of the respondents.
- II. Knowledge on malaria.
- III. Attitude to malaria treatment.
- IV. Practices on malaria.

#### **Research Instrument Validation**

The study instrument which was an already standardized questionnaire was field tested among hospital pharmacist working in hospitals within the study area. The feedback was used to review the questionnaire for content validity and reliability. The characteristics of the hospital and participants used in the field testing were similar to that of the study site and sample.

### **Data Collection**

A structured questionnaire was designed and used for the collection of data from the respondents after obtaining their informed consent to participate in the study. A total of 140 questionnaires were administered over a period of five months and 136 were properly completed and returned. Simple random sampling without replacement was used.

### **Inclusion criteria**

All the qualified hospital pharmacists with at least the basic B. Pharm or Pharm D qualification working in the three tertiary hospitals who gave their informed consent to participate in the study.

### **Exclusion Criteria**

- All non pharmacists
- All qualified pharmacists who are not working in the tertiary hospital
- All qualified pharmacist working in the tertiary hospitals who did not give their informed consent to participate in the study.

### **Sample size**

Sample size was calculated using the sample size determination table (Barlett et al, 2001 ) based on the population size of 145 pharmacists in the three hospitals, a total of 136 pharmacists was used in order to increase the precision of the parameters for more reliable results (Odusanya, 2004).

### **Ethical Issues**

The study did not involve any patient, invasive techniques or any form of hazard. Ethical approval was obtained from the hospital and informed consent was obtained from the pharmacists involved before administering the questionnaire. The objective of the study was explained to the respondents and their consent obtained, utmost confidentiality of information was maintained by excluding respondents' names and any information that could be linked to them. This also helped to rule out any form of bias.

### **Data Analysis**

The data were collected from the questionnaires, entered into a spread sheet and analyzed using the SPSS version 16.0.  $P < 0.05$  was interpreted as significant. Descriptive statistics of frequencies, percentages and bar charts were generated and relationship between variable factors determined.

#### **Limitations of the Study**

There was no way of determining the sincerity of the respondents and the mood of the respondents while responding to the questions which could affect their response were not assessed.

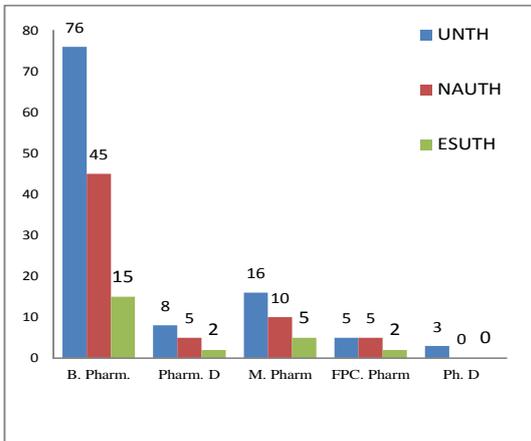
## **RESULTS AND DISCUSSION**

Out of the 145 questionnaires distributed during the survey, 136 was properly filled and returned giving a return rate of 94%. The number of males that participated in the study was 79 (58.1%) and 57 (41.9%) females. The average number of pharmacist per hospital was 45.

**Table 1: Socio – demographic characteristics of respondents**

Sex	UNTH	NAUTH	ESUTH	Group Total
Male	46	26	7	79
Female	30	19	8	57
Total	76	45	15	136

**Figure 1: Bar chart representing the qualification of respondents**



**Table 2: Other characteristics**

Other characteristics	UNTH	NAUTH	ESUTH
Mean duration of hospital practice (Years)	8	6	3
Average no of Pharmacist per hospital	45	45	45
Average no of patients seen daily	48	18	10
Average duration of time spent on each patient (Minutes)	8	10	15

**Table 3: Malaria Related Knowledge of Respondents.**

Questions on knowledge	Correct Answers: n	Percentage: %	Hospitals
What is the cause of Malaria?	65	85.5	UNTH
	41	91.1	NAUTH
	15	100	ESUTH
How many species of malaria parasites are available?	35	46.1	UNTH
	24	53.3	NAUTH
	11	73.3	ESUTH
What are the means of transmission of malaria parasite?	61	80.3	UNTH
	40	88.9	NAUTH
	15	100	ESUTH

When is malaria vector most active?	67	88.2	UNTH
	43	95.6	NAUTH
	14	93.3	ESUTH
Malaria could be broadly classified into how many groups?	63	82.9	UNTH
	37	82.2	NAUTH
	14	93.3	ESUTH
What are the goals of malaria prevention and control?	67	88.2	UNTH
	44	97.8	NAUTH
	14	93.3	ESUTH
Diagnosis of malaria could be made through?	67	88.2	UNTH
	43	95.6	NAUTH
	14	93.3	ESUTH
What is the appropriate ACT obtainable?	53	69.7	UNTH
	29	64.4	NAUTH
	13	86.7	ESUTH
Intermittent Preventive Therapy (ITP) is given to which group of people?	70	92.1	UNTH
	44	97.5	NAUTH
	15	100	ESUTH
ITP is given after how many weeks of gestation?	70	92.1	UNTH
	44	97.5	NAUTH
	15	100	ESUTH
Which form of nutrients increases the bio-availability of Arthemether-Lumenfantrine?	64	84.2	UNTH
	40	88.9	NAUTH
	14	93.3	ESUTH
Is malaria preventable?	66	86.6	UNTH
	42	93.3	NAUTH
	14	93.3	ESUTH
Malaria could be prevented via?	65	85.5	UNTH
	39	86.7	NAUTH
	15	100	ESUTH
Resistance could be prevented via?	65	85.5	UNTH
	43	95.6	NAUTH
	14	93.3	ESUTH

**Table 4: Hospital Pharmacist Attitude towards Malaria**

Questions on Attitude	Correct Answers: n	Percentage: %	Hospitals
Do you think malaria is a dangerous disease?	70	85.5	UNTH
	40	88.9	NAUTH
	13	93.3	ESUTH
A malaria patient needs what kind of attention?	63	82.9	UNTH
	41	91.1	NAUTH
	15	100	ESUTH
Pregnant women should not take Sulphadoxine/ pyrimethamine?	61	80.3	UNTH
	37	82.2	NAUTH
	15	100	ESUTH

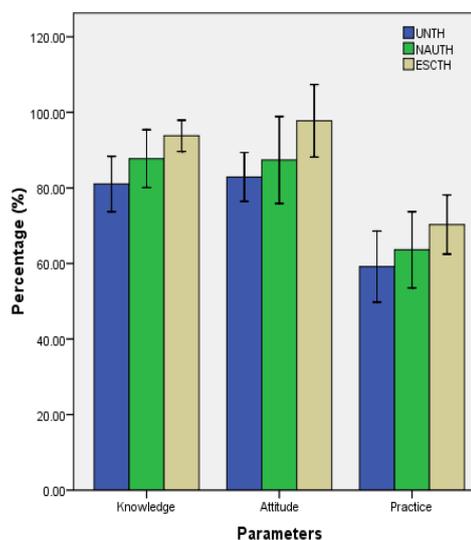
**Table 5: Hospital Pharmacists Practices on Malaria**

Questions on Practice	Correct Answers: n	Percentage: %	Hospitals
Do you identify all stake holders for the disease services?	44	57.9	UNTH
	30	66.7	NAUTH
	12	80	ESUTH
Do you gather data about the patient, medication use?	52	68.4	UNTH
	32	71.1	NAUTH
	11	73.3	ESUTH
Do you gather data about physician prescription pattern?	48	63.2	UNTH
	31	68.9	NAUTH
	11	73.3	ESUTH
Do you carry out research to determine patients need in management?	30	39.5	UNTH
	16	35.6	NAUTH
	9	60.0	ESUTH
Do you talk to key decision makers among prescribers, employers, etc?	37	48.7	UNTH
	22	48.9	NAUTH
	7	46.7	ESUTH
Do you put together list of necessary services?	51	67.1	UNTH
	31	68.9	NAUTH

	12	80.0	ESUTH
Do you formulate mission statement, goal and objectives for the disease program?	52	68.4	UNTH
	31	68.9	NAUTH
Do you identify outcomes of disease specific services?	13	86.7	ESUTH
	40	32.6	UNTH
	24	53.3	NAUTH
Do you develop disease-tools and methods and protocols?	9	60.0	ESUTH
	43	56.6	UNTH
	23	51.1	NAUTH
Do you educate patients on disease state prevention and management?	10	66.7	ESUTH
	53	69.7	UNTH
	35	77.8	NAUTH
Do you document all necessary activities?	10	66.7	ESUTH
	60	78.9	UNTH
	43	95.6	NAUTH
	14	93	ESUTH

UNTH=University of Nigeria Teaching Hospital,  
NAUTH=Nnamdi Azikiwe University Teaching Hospital,  
ESUTH=Enugu State University Teaching Hospital

**Figure 2: Comparison of the three parameters (Knowledge, Attitude and Practice) of the three hospitals**



**Table6: ANOVA comparing the three parameters (Knowledge, Attitude and Practice) of Pharmacists in the three hospitals.**

Parameters	Knowledge	Attitude	Practice
Hospitals			
UNTH	81.04±12.67 a	82.90±2.60 a	59.18±14.00 a
NAUTH	87.74±13.25 ab	87.40±4.63 a	63.64±15.01 a
ESUTH	93.79±7.15 b	97.76±3.86 b	70.30±11.68 a
F values	4.407*	12.404**	1.855 <sup>ns</sup>

**NB:** Mean ± Standard Deviation; ns= none-significant; \*= p<0.05; \*\*= p<0.01;

Results from surveys on knowledge, attitudes, and practices (KAP) of hospital pharmacist are applicable to design or improve the attitude of pharmacists and their practices in treatment of patients with malaria [8]. The demographic data on qualification of respondents shows that hospital pharmacist do not strive to update their qualification as majority of them have only B. Pharm. Very few have M.Pharm and FPCPharm but there was no Ph. D holder among the respondents from ESUTH and NAUTH. This could have affected the general knowledge they have on malaria. The number of patients seen daily by a pharmacist affected the duration of time spent on a patient, this was evident from the data gotten from the tertiary hospitals. Respondents from UNTH and NAUTH who have spent greater number of years in hospital practice have poor attitude and practice of malaria probably because they have poor knowledge of pharmaceutical care as it was not in the curriculum in their days.

Assessing the knowledge of the respondent from the data, 85.5, 91.1, and 100% of respondents from UNTH, NAUTH and ESUTH respectively, know the cause of malaria and mode of transmission of malaria while 88.2%, 95.6 and 93.3% in the same order, knew the classification, diagnosis and the goals of prevention and control of malaria.

Also, 92.1, 97.5 and 100% of the respondents from UNTH, NAUTH and ESUTH respectively knew when intermittent preventive therapy (IPT) should be administered and to whom it is given. Similarly, 86.6, 93.3% and 95.5% of respondents from UNTH, NAUTH, and ESUTH respectively knew that malaria could be prevented and the means of prevention of resistance. 84.2%, 88.9% and 93.3% of the respondents from UNTH, NAUTH and ESUTH respectively know that fat increases the

bioavailability of artemether-lumenfantrine. The assessment of the attitude of the respondent shows that 85.5%, 88.9% and 93.3% of respondent from UNTH, NAUTH and ESUTH thinks that malaria is a dangerous disease, while 82.2% in UNTH, 91.1% in NAUTH and 100% respondents in ESUTH says patient with malaria needs more attention. It is an indication that they know the severity of not treating the disease condition on time and the consequences of improper treatment.

In the assessment of the respondents practice, the study shows that they have poor knowledge of hospital practice on malaria which was evident from the result. 57.9, 66.7 and 80.0% of the respondents from UNTH, NAUTH and ESUTH respectively agreed that all potential stake holders for the disease services should be identified and that list of necessary services should be put together. 68.4, 71.1 and 73.3% of respondents from UNTH, NAUTH and ESUTH accepted that data should be about the patients medication use and about the physicians prescription pattern.

The ANOVA shows that there is a slight difference in Knowledge between the three hospital (F= 4.407\*). Statistically, there is no difference between UNTH and NAUTH in Attitude but there is a significant difference between both hospital and ESUTH (F= 12.404\*\*). However, statistically, there is no difference in terms of Practice in the three hospitals (F= 1.855<sup>ns</sup>). The hospital pharmacists practice in the three hospitals are statistically none-significant. The assessment of knowledge, attitude and practice of pharmacist on malaria serves as an indicator for adherence to globally accepted guidelines on treatment of malaria. Since attitude and practice are greatly dependent on knowledge, lack of consistency in the knowledge, attitude and practice in the tertiary health institutions informs the need for on the job training, mandatory continuous education and specialization, this is consistent with Kaliyaperumal proposals [8]. In this era of pharmaceutical care, treatment outcome and patients quality of life is greatly dependent on the inputs of the care givers, efforts should be geared towards mandatory continuing education, documentation, research and development [9, 10].

## CONCLUSION

The study revealed a pharmacist population with a good knowledge and attitude toward malaria but deficient in practice. Understanding the levels of Knowledge, Attitude and Practice will enable a

more efficient process of creating awareness, sensitization and will allow malaria prevention and treatment programs to be tailored more appropriately to the needs of the affected population. It revealed the pharmacists have good knowledge of the disease state and understand the management practices to be able to contribute meaningfully in the management of the disease state especially in this era of health promotion. The study suggests that hospital pharmacists have good knowledge of malaria and positive attitude towards the disease state with indications for need to improve training in order to achieve greater positive treatment practice and improved treatment and prevention strategies and outcome.

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