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Journal of Tropical Disease and Public Health

Research Article

Adherence to Medical Guidelines on COVID-19 and Malaria by Pharmacists and Patent Medicine Vendors in Abuja, Nigeria During the COVID-19 Pandemic

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ABSTRACT

Background: The novel COVID-19 is a health challenge that has ravaged the world by its easy and quick means of transmission, bringing to a halt a lot of activities, both social and economic and has affected many nations negatively. With the prevalence of malaria, still rife in the tropics and sub-Saharan region and accountable for a significant number of deaths in the region, activities set in place to promote therapeutic and non-therapeutic knowledge about malaria has been hindered by the outbreak of COVID-19, reducing daily human contact between patients and health professionals.

Methods: Structured questionnaires were administered in the month of May 2020 to pharmacists and patent medicine vendors within the axis of Abuja Municipal Area Council (AMAC) in Abuja, Nigeria. The questionnaires obtained the demographics of each respondent, what health establishments they operate, their knowledge of the COVID-19 and malaria and attitude and practices towards the novel pandemic. The questionnaire also obtained each respondents' view comparing the clinical manifestations between malaria and COVID-19 and the rate of malaria cases within the area council.

Results: Both the pharmacists and patent medicine vendors within AMAC had good knowledge on the nature and source of COVID-19. Most of the respondents (90%) confirmed that they obeyed the recommended guidelines on the prevention and the spread of the virus. Respondents (88%) also reported similar clinical manifestations between malaria and COVID-19. The rate of malaria (33%) cases was still considered high during the pandemic.

Conclusion: With the outbreak of the COVID-19 in a malaria endemic country like Nigeria, health professionals are tasked with following the recommended guidelines to prevent the spread of COVID-19 while attending to malaria cases and keeping malaria controlled.

Keywords: Malaria; COVID-19; Pandemic; Medical guidelines; Pharmacist; Patent medicine vendor

INTRODUCTION

A medical guideline is a document with the aim of guiding decisions and criteria regarding diagnosis, management, and treatment in specific areas of healthcare [1]. Such documents have been in use for thousands of years during the entire history of medicine. However, in contrast to previous approaches, which were often based on tradition or authority, modern medical guidelines are based on an examination of current evidence within the paradigm of evidence-based medicine. These usually include summarized consensus statements on best practice in healthcare [1]. A healthcare provider is obliged to know the medical guidelines governing the profession and to follow the recommendations of the guidelines in the practice of his/her profession. Adherence to medication guidelines is frequently used as a measure of quality of care [2]. Ultimately, the goal of the guidelines is to improve patient outcomes. Therefore, adherence to such guidelines is very necessary to achieve a therapeutic outcome that will help to standardize medical care and reduce several risks to the patient and health provider [1].

MATERIALS AND METHODS

Area of study

This study was conducted in AMAC, Abuja, the capital of Nigeria in May, 2020.

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Received: June 19, 2021; **Accepted:** July 07, 2021; **Published:** July 30, 2021

Citation: Izu-Unamma HS, Ebong OO (2021) Adherence to Medical Guidelines on COVID-19 and Malaria by Pharmacists and Patent Medicine Vendors in Abuja, Nigeria During the COVID-19 Pandemic. J Trop Dis 9:292

Population and study design

The Pharmacists and Patent Medicine Vendors working within the axis of AMAC, Abuja were interviewed in May 2020 by use of structured questionnaires. The self-administered questionnaires collected data on respondents' demographics including the age, sex, pharmaceutical setting, and religion. Information was also obtained on respondents' knowledge, attitude, and practices towards COVID-19 and on the treatment regimens and frequency of malaria cases in the period of study.

Inclusion criteria

- Pharmacists who have their own pharmacy and or outlets in AMAC, Abuja
- Patent medicine vendors who have their own healthcare outlets and or medicine stores in AMAC, Abuja

Exclusion criteria

- Pharmacists who do not have their own pharmacy and or outlets in AMAC, Abuja
- Patent medicine vendors who do not have their own healthcare outlets and or medicine stores in AMAC, Abuja

Sample size

The sample size was determined using Taro Yamane's formula, $n=N/(1+N(e)^2)$.

Where n= sample size

N= population under study

e= margin error (0.05).

The approximate number of respondents were 80 as the sample size was derived as follows:

$n=100/(1+80(0.05)^2)$

$n=100/(1+80(0.0025)$

$n=100/(1+0.2)$

$n=100/1.2$

n=83 contacts as sample size

Sampling method

Both convenience sampling and voluntary response sampling methods were employed using structured questionnaires shared among the pharmacists and patent medicine vendors.

Data analysis

The data obtained from the study were entered into google forms and analyzed using google forms and Microsoft-Excel worksheet.

RESULTS

Demographic data of respondents

The results show the pharmaceutical outlets of respondents as 53% hospital pharmacies; 27.7% in consulting pharmacies; 15.7% in community pharmacies and 3% as patent medicine stores. For gender distribution, 44.6% of respondents were males and 55.4% females.

Respondents were within the ages of 18 years to more than 60 years with ages 21-30 years (54.2%); 18-20 years (2.4%), 60 years plus (2.4%). There were no respondents in the age group of 51-60 years.

Knowledge of COVID-19 among respondents

From the results, all respondents (100%) were aware and had heard of COVID-19 and confirmed that COVID-19 is of viral origin.

Guidelines concerning the COVID-19 pandemic

The results show that 81.9% of the respondents use nose masks regularly at work; 15.7% use occasionally while 2.4% do not use their nose masks at all (Figure 1).

Respondents were asked if they ensure the use of nose masks regularly in their facility. The responses show that 81.9% respondents insist on the use of nose masks; 16.9% do not comply strictly and 4.8% do not bother about it (Figure 2).

On the practice of social distancing during the COVID-19 pandemic, Figure 3 shows that most of the respondents (74%) affirm that they comply with regulations; 13.3% do it occasionally while 12% do not believe in it.

Respondents (93%) also provided the necessary gear for proper washing for hands of patients while 7.1% did not.

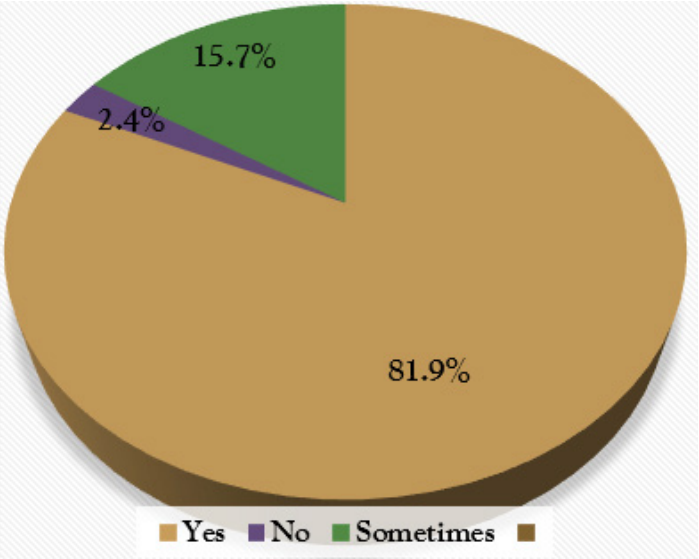

Figure 1: Percentage of respondents that use nose masks during the COVID-19 pandemic.

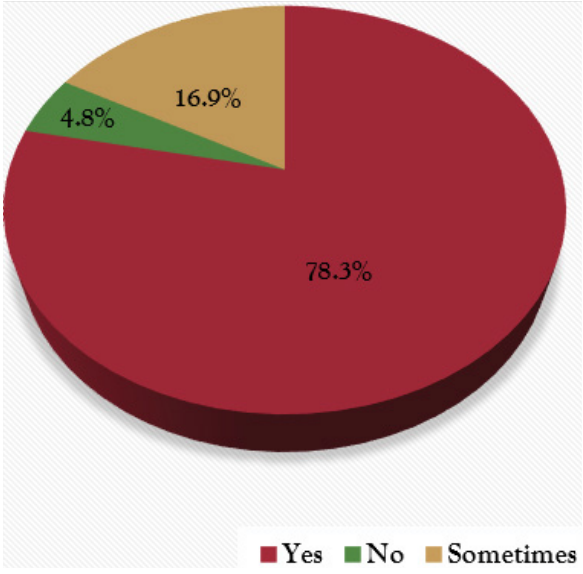

Figure 2: Percentage of respondents that ensure the use of nose masks by patients in their pharmacy/patent medicine stores.

Knowledge of patients on the clinical symptoms common to COVID-19

Respondents provided the major clinical symptom of COVID-19 patients as high fever (77.4%.) Other symptoms mentioned, such as catarrh and cough and shortness of breath are as shown in Figure 4.

Clinical symptoms common to Malaria

Most of the respondents (89.3%) also described the clinical symptoms for malaria as high fever, just as for COVID-19. Other symptoms include muscular pain, headache, blurred vision, tinnitus, and loss of appetite (Figure 5).

Malaria transmission peaks in the rainy season in Nigeria since transmission is more favored during this period. The month of May depicts the onset of the rainy season in the country. It was important to know if malaria infection rate increased or decreased alongside the COVID-19 cases. Respondents were asked to provide information on malaria cases within AMAC in the month of May 2020 compared to their data of May 2019. Of the respondents, 88%. reported to have had an increase in the number of malaria cases in their pharmaceutical establishments and this ranged

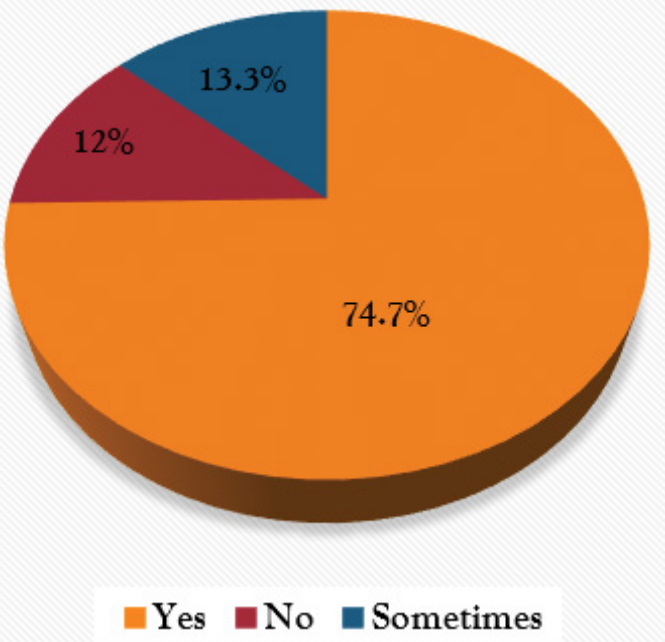

Figure 3: Percentage of respondents that ensure social distancing is practiced in their pharmacy/patent medicine stores.

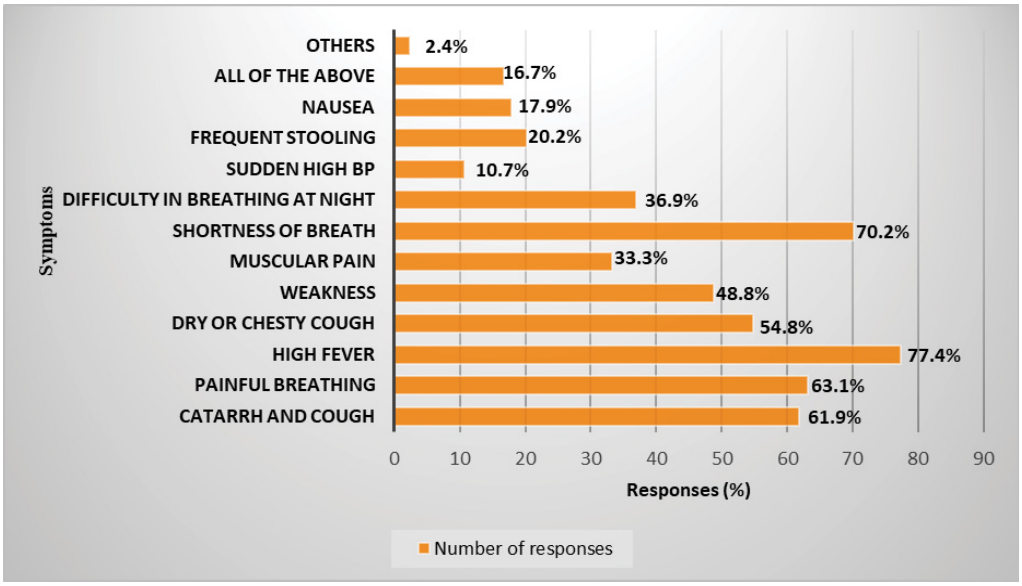

Figure 4: Respondents' knowledge on the clinical symptoms of COVID-19 infection

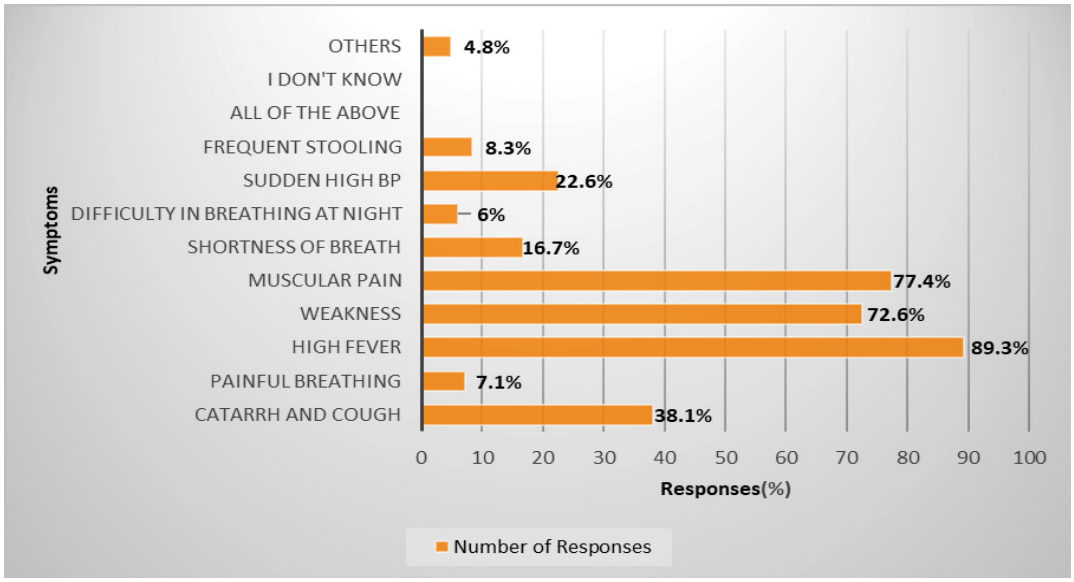

Figure 5: Respondents' knowledge on the clinical manifestations of Malaria.

from 11.9% to 33.3%, while 12% respondents did not report any increase (Figure 6).

Reaction of respondents towards COVID-19 infected person

Of the respondents, 27.4% reported to have had an encounter with COVID-19 patients and 72.6% had not. Respondents who had contact with COVID-19 patients also stated their reactions towards the situation as they all reported the cases to the Nigerian Centre for Disease Control (NCDC) to isolate the patients to reduce the risk of transmission of the infection.

Figure 7 illustrates the general response of the respondents to the question on what their immediate response would be when faced with a suspected COVID-19 patient. Majority of the respondents (80.8%) will inform the NCDC to isolate the patient or direct the person to a COVID-19 testing center; 13.7% said they will dispense any of the repurposed drugs, if available in their pharmacy and 5.5% will practically not attend to the patient.

Malaria treatment regimen used by respondents

The respondents were asked to name their preferred choice of antimalarial drug. Figure 8 summarizes the choices of antimalarials of the respondents in the treatment of malaria. Thet respondents,

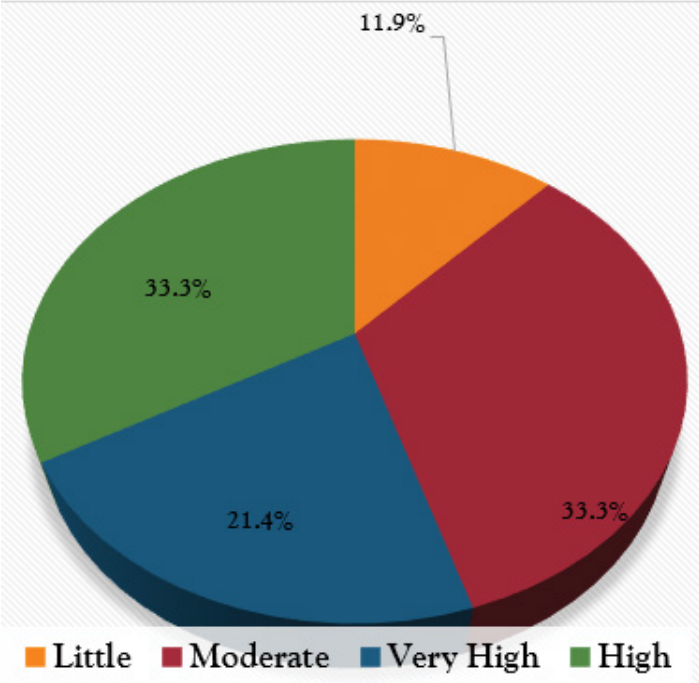

Figure 6: Percentage increase in rate of malaria cases reported by respondents' pharmacies/patent medicine store within May 2019 to May 2020 during the surge of the pandemic.

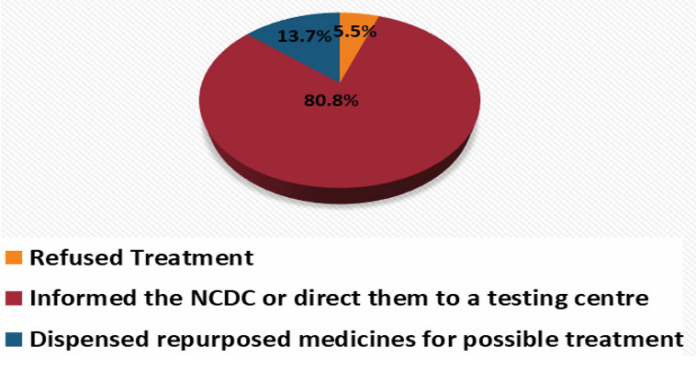

Figure 7: Respondents' response when in contact with a COVID-19 patient.

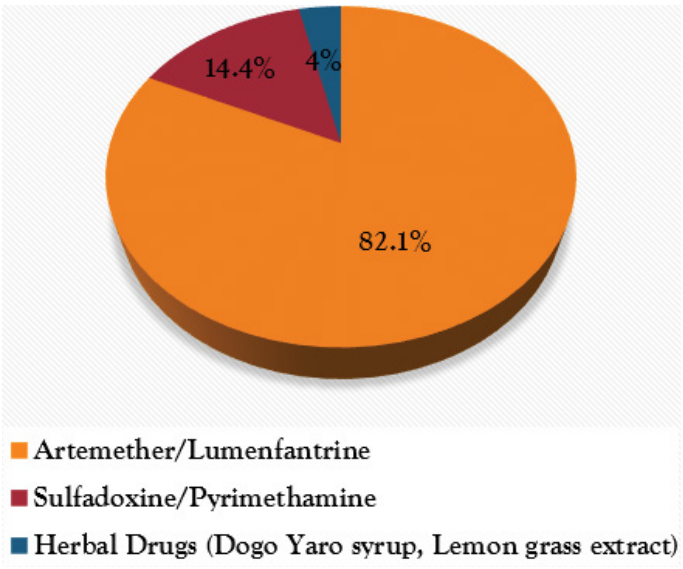

Figure 8: Respondents' personal choices of antimalarial drugs.

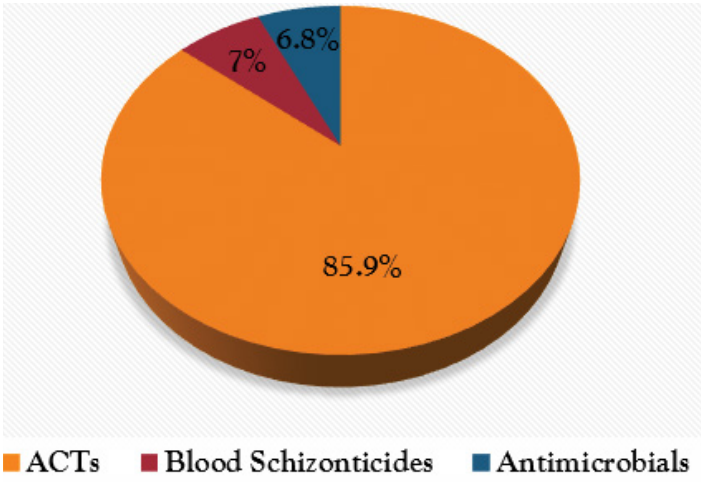

Figure 9: Class of antimalarials stocked by respondents in their pharmaceutical establishments/patent medicine stores.

82.1%, named the artemisinin-based combinations; 14.4%, the sulfadoxine/pyrimethamine compounds and others, 4%, mostly patent medicine vendors, preferred herbal medicines in the treatment of malaria.

Figure 9 summarizes the class of antimalarials stocked in the respondents' pharmacies/patent medicine stores. Majority of the respondents (85.9%) stocked artemisinin-based compound antimalarials in their pharmacy/patent medicine store; 7% of the respondents stocked 4-amino quinolones such as chloroquine and amodiaquine while 6.8% stocked antimicrobials such as tetracycline and doxycycline.

DISCUSSION

The COVID-19 pandemic has resulted in millions of infections, hundreds of thousands of deaths and major societal disruptions due to lockdowns and other restrictions introduced to limit disease spread. Studies have shown that relatively little attention has been paid to understanding how the pandemic has affected treatment, prevention, and control of malaria, which is a major cause of death and that predominantly affects people in less well-resourced settings and malaria endemic areas [3]. The results of this study show that the overall population of respondents were just a handful since this study was conducted during the COVID-19

pandemic which brought about restriction in movement in Abuja and in the country. This brought about drastic changes in the shift-times of workers and reduced the number of workers present at a particular shift hour in many businesses. Consequently, the study adopted convenience sampling and voluntary response sampling methods for data collection.

These results show that most of the pharmacies studied were established hospital pharmacies. This is because there were more open hospital pharmacies within the axis of the area council than community pharmacies and consulting pharmacies as patent medicine stores in the area were few [4].

The age distribution of majority of the respondents were between 21-30 years. Majority in the numbers of this age range may be so due to the natural fear of older individuals of getting infected with COVID-19. Although, all age groups are at risk of contracting COVID-19, older people face significant more risk of developing severe illness if they contract the virus due to physiological changes that come with ageing and potential underlying health conditions [5].

Majority of the respondents ensured that the recommended guidelines and protocols to reduce the risk of transmission of COVID-19 were duly observed at their workplaces.

The results obtained above also indicate the knowledge of respondents on the symptoms of both COVID-19 and Malaria. High fever is seen to be the most common and similar clinical manifestations of both diseases as it presents during the acute onset of disease. The results also show that the symptoms indicated in the chart are similar between the two diseases. Due to the similarity of symptoms between malaria and COVID-19, especially fever, difficulty in breathing, fatigue and headache at acute onset, a malaria patient may be misdiagnosed as COVID-19 patient and vice versa. Currently, people with fever may be tested for COVID-19 and then sent home due to a negative result, ignoring the possibility of malaria. Overlooking a malaria case can lead to fatal malaria complications. In contrast, febrile patients may get tested for malaria when they have COVID-19 infection as a possible scenario might occur when the patient may have COVID-19 and malaria co-infection and the diagnosis and treatment of one of them may lead to missing the other [6]. Misdiagnosis, due to the similarities of malaria and COVID-19 symptoms pose as a stumbling block in achieving a proper therapeutic outcome. It also places health care professionals who are designated to recommend the appropriate medications and guidelines, at high-risk target to the virus.

The results above also show that malaria cases are still on the rise in May, 2020. This was pointed out by the pharmacists to the fact that more antimalarials have been dispensed to patients within the area. Funds and personnel are being reassigned from malaria and other programs to enable COVID-19 response efforts. Malaria elimination campaigns must reach marginalized groups living in remote and border areas, but these programs are at particular risk of being scaled down for logistic or economic reasons associated with COVID-19. This will increase the number of communities at risk, compromise the provision of health care and surveillance for malaria and threaten elimination efforts [7].

The results show that just a few of the respondents had contact with individuals suspected to be infected with COVID-19. Majority of their reactions towards the situation was commendable by reporting such cases to the appropriate authorities for the proper action to take place. More respondents reported the use of artemisinin-based combination therapies for malaria as these have proved effective over the years against different forms of malaria parasite [8].

CONCLUSION

Solutions to help curb the negative impact of COVID-19 on malaria treatment programs and to create awareness on malaria and its transmission should increase. This study shows that malaria infection was also prevalent during the COVID-19 pandemic. It is advisable that maintenance of intensive malaria community-based surveillance activities continue, in addition to using best practices to safeguard health workers and communities, and that public health interventions should continue with strict precautions (hand hygiene, respiratory etiquette, physical distancing) observed by all participants. Also, as the COVID-19 pandemic rages on, it is crucial that other major killers such as malaria are not ignored. History tells us that if we do, the consequences will be dire, particularly in vulnerable populations.

LIMITATIONS OF THE STUDY

- COVID-19 restrictions and lock down at the time of data collection meant that only a limited number of pharmaceutical establishments could be accessed
- Not much literature is available on COVID-19 and malaria, especially in malaria endemic countries

ETHICAL REVIEW

This study was approved by the Departmental Board for students' projects.

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest.

ACKNOWLEDGEMENT

We thank the Pharmacists and Patent Medicine Vendors within AMAC that made themselves available to contribute immensely to this study.

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