

Health Information Dissemination on Anti-Malarial Drug Resistance by Librarians and Its Use Among Post-Natal Mothers in Odugbo, Benue State, Nigeria

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Abstract: The purpose of this paper was to investigate how librarians in the Federal College of Education Library, Odugbo, Benue State, have disseminated health information on anti-malarial drug resistance, and how post-natal mothers have utilised that information. The study adopted a survey research design. The study had a sample size of 192, comprising 187 post-natal mothers and five librarians. Due to the manageable population size, a total enumeration (census) method was employed. Separate questionnaires and an observation checklist were used as data collection instruments. A total of 187 copies of the questionnaire were administered to post-natal mothers, and 5 to librarians. Out of these, 184 (99.4%) and all 5 (100%) were correctly completed and returned, respectively. The data was analysed using descriptive statistics. The study findings indicated that the effects of librarians' information dissemination on anti-malarial drug resistance among post-natal mothers are moderate. It further revealed that, according to the post-natal mothers, the actual use of the disseminated information had a relatively lower impact on addressing anti-malarial drug resistance. The perceptions of a subset of mothers (12 respondents) indicated that access to information helped them understand child delivery, gain general health and medical knowledge, recognise the consequences of drug misuse, and adhere strictly to malaria prescriptions and medications. Among other recommendations, the study suggests that the management of the Federal College of Education should collaborate with healthcare providers to offer timely and relevant information on the prevention and treatment of malaria.

Keywords: Anti-malarial drug resistance, Health information, Malaria, Post-natal mothers.

1 INTRODUCTION

Malaria remains one of the leading causes of morbidity and mortality among mothers and children, particularly in sub-Saharan Africa [1]. Although it is both preventable and treatable, the disease continues to pose a serious public health challenge, especially in vulnerable populations. Early diagnosis and appropriate treatment are crucial in reducing complications and preventing premature deaths. Malaria is caused by protozoan parasites of the genus *Plasmodium*, transmitted to humans through the bites of infected female *Anopheles* mosquitoes. The major species affecting humans include *Plasmodium falciparum*, *P. vivax*, *P. ovale*, and *P. malariae* [2]. These parasites belong to the family Plasmodiidae, known for infecting mammals, birds, and reptiles.

A growing concern in malaria control is anti-malarial drug resistance, defined by the World Health Organisation as the ability of a parasite strain to survive or multiply despite the administration and absorption of a drug at recommended therapeutic doses [3]. This resistance undermines treatment efficacy and contributes to the resurgence of malaria in many regions. The Malaria Consortium emphasises that drug resistance significantly impedes progress in malaria eradication efforts [4]. Anti-malarial drug resistance poses a serious risk to populations, in particular post-natal mothers and their newborn infants, considered to be one of the most vulnerable populations. This is based on the work of Hanboonkunupakarn and White, who proposed that over the years, *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale*, and *Plasmodium malariae* have evolved resistance to effective antimalarial drugs. More recently, the WHO also stated that the evolution and spread of resistance in *Plasmodium* parasites against anti-malarial medications is one of the most significant threats to global malaria control [5].

Academic libraries, especially in colleges of education, play a critical role in supporting both formal learning and public awareness initiatives. In the context of public health, librarians can serve as key facilitators in disseminating accurate and timely health information to vulnerable populations. At the Federal College of Education Library, Odugbo, librarians are in a position to educate post-natal mothers on the causes, effects, and prevention of malaria, particularly concerning the rising issue of anti-malarial drug resistance. College libraries are expected not only to provide academic resources but also to ensure access to essential health-related information that addresses the specific needs of their users. Through structured outreach, well-curated collections, and user education programs, libraries can foster greater awareness and informed health behaviour among community members. For post-natal mothers, such information could be vital in reducing risks related to malaria infections in both mothers and infants. As T. Matingwina explains, the function of a library extends beyond collection development to include effective dissemination and user engagement [6]. Possessing a collection alone is insufficient if the necessary services for interpreting and utilising that information are lacking.

Therefore, librarians must proactively reach out to post-natal mothers with accessible and relevant health information, empowering them to adopt preventive measures and use malaria treatments appropriately. There is no universally accepted definition of *information dissemination*, particularly in the context of health. However, it is widely recognised as a critical component in the collection, analysis, and distribution of data aimed at preventing, diagnosing, and treating diseases such as cancer [7]. The World Bank describes information dissemination as a sectoral policy tool designed to influence patients' care-seeking behaviour and improve the delivery of health services [8].

While the National Institute of Cancer emphasises the dissemination of information for disease prevention and treatment, T. Matingwina suggests that effective dissemination can reduce the prevalence of diseases like malaria among vulnerable populations, such as post-natal mothers and their infants [6]. The World Bank further argues that dissemination should go beyond information sharing to encourage behavioural change. For example, educating post-natal mothers on practices such as proper waste disposal and eliminating stagnant water sources can help prevent malaria transmission [8]. In this sense, success in health information dissemination is not merely about distributing materials but about delivering content in ways that lead to knowledge acquisition and behaviour change.

Information dissemination is a foundational component of health promotion activities. The effective development and provision of health information, particularly for post-natal mothers, can foster knowledge transfer from healthcare professionals to patients. This empowers individuals to maintain and improve their health by using medications properly and adhering to treatment protocols for life-threatening diseases, such as malaria. When disseminated accurately and through appropriate channels, health information can play a vital role in promoting disease prevention and enhancing maternal and child health. For post-natal mothers, timely access to such information can significantly reduce the incidence of malaria and its complications.

Libraries, especially those in educational institutions, derive their value from how effectively the community uses their information resources. Library use refers to consulting, reading, or borrowing materials, often facilitated by the assistance of librarians [9]. Post-natal mothers can access these resources either within the physical library or through digital platforms, especially when seeking information on anti-malarial drug resistance. College librarians can also provide targeted health information services, including guidance on environmental sanitation, infection control, the use of insecticide-treated nets (ITNs), and the application of indoor residual sprays. These interventions can help protect both mothers and their infants, as well as reduce the impact of anti-malarial drug resistance in the study area.

1.1. Statement of the Problem

The post-natal period, as defined by the World Health Organisation, is a critical phase for the mother, newborn, and family—physiologically, emotionally, and socially [10]. This period presents a vital opportunity for both preventive and curative health interventions. However, many post-natal mothers in the Odugbo community, located in the Apa Local Government Area of Benue State, remain unaware of effective malaria prevention strategies. This lack of awareness is attributed mainly to limited access to relevant health information. Despite being one of the most vulnerable groups to malaria, these mothers often receive insufficient guidance on the appropriate use of anti-malarial drugs and related health practices. The absence of adequate information dissemination poses serious health risks, including increased rates of malaria-related complications and deaths among mothers and their infants. This situation highlights a critical gap in the delivery of health education, particularly among institutions such as the Federal College of Education, Odugbo. It is against this backdrop that the present study investigates the dissemination and use of health information on anti-malarial drug resistance among post-natal mothers, with a specific focus on the role played by librarians in the college library.

1.2. Aim and Objectives of the Study

This study aims to assess how librarians at the Federal College of Education Library, Odugbo, disseminate health information on anti-malarial drug resistance, and how post-natal mothers utilise this information. The study seeks to:

1. Identify the types of information resources available on anti-malarial drug resistance for post-natal mothers in the college library.
2. Determine the extent to which health information dissemination influences awareness and understanding of anti-malarial drug resistance among post-natal mothers.
3. Examine how the use of disseminated health information affects post-natal mothers' response to anti-malarial drug resistance.
4. Investigate the challenges faced by librarians in disseminating health information on anti-malarial drug resistance to post-natal mothers.

2 LITERATURE REVIEW

Human resources are a vital component of any organisation, including academic libraries. The effectiveness of a college library largely depends on the competence and adaptability of its librarians. In the context of evolving information and communication technologies (ICT), librarians must continuously update their skills to provide relevant and timely information, such as that needed by post-natal mothers on anti-malarial drug resistance. E.P. Anyanwu describes librarians as scientific knowledge workers whose roles are critical to the success of any academic institution [11]. Similarly, Y.Q. Liu and S. Briggs argue that a library is only as strong as its staff, emphasising the need for librarians to engage actively with the community [12]. When librarians move beyond their traditional roles and demonstrate their value to users, they can become transformative agents, especially in health education and outreach.

M.S. Tanawade highlights the importance of librarians proactively marketing both their services and skill sets [13]. In the 21st century, librarians must adopt innovative strategies to disseminate information effectively. By curating and distributing up-to-date health information, particularly on anti-malarial drugs, they can better meet the needs of post-natal mothers. Well-packaged information services can enhance the perceived value of the library and encourage greater user engagement. While modern information systems such as the Nigerian Integrated Medical Information System (NIMISS) can serve as centralised health information repositories, their potential to address the needs of vulnerable groups, like post-natal mothers, remains underutilised. Leveraging such platforms to disseminate accessible and timely information on malaria prevention and treatment can significantly enhance public health outcomes.

T. Matingwina emphasises that librarians must embrace emerging technologies and ICT tools to remain effective as information professionals [6]. This is particularly important in environments where health literacy is low and direct outreach is critical. Librarians in college libraries are thus encouraged to integrate digital platforms and modern tools into their service models to provide relevant, targeted information, especially to groups like post-natal mothers who may benefit from focused health interventions.

3 MALARIA PREVENTION

Malaria remains a primary global health concern, particularly in low- and middle-income countries where access to healthcare and preventive measures is limited. Malaria continues to contribute significantly to worldwide morbidity and mortality, with women and children being disproportionately affected. The disease is endemic in over 90 countries, with sub-Saharan Africa bearing the highest burden. The World Health Organisation reports that approximately 90% of global malaria cases and 92% of malaria-related deaths occur in Africa, with children under the age of five making up the majority of fatalities [5]. In Nigeria specifically, malaria is one of the most pressing public health challenges, contributing to one of the highest mortality rates related to the disease worldwide. The risk is particularly elevated for pregnant and post-natal women, as well as for newborns and infants.

Supporting this, WHO identifies malaria as the third leading cause of death in children under five globally, after pneumonia and diarrheal diseases, and the second leading cause of death from infectious disease in Africa, after HIV/AIDS [10]. According to WHO, in Africa, one child dies every minute due to malaria, accounting for approximately 27% of all childhood deaths [8]. These high mortality rates are partly attributable to poor access to effective treatment and the growing problem of anti-malarial drug resistance, especially in underserved and rural populations. The emergence and spread of resistance to anti-malarial treatments continue to pose a serious obstacle to malaria eradication efforts, prompting global health authorities to place the issue high on the public health agenda. This growing resistance has led to increased mortality, particularly among vulnerable groups such as post-natal mothers and children.

In many low-income communities, especially in rural areas, access to effective malaria prevention and treatment remains limited. These populations are often excluded or underserved in health interventions, which tend to favour urban or higher-income groups. As a result, evidence of drug resistance in these settings usually becomes visible only through detailed clinical follow-up and patient monitoring—approaches that are rarely implemented in resource-constrained environments. In such cases, even when anti-malarial drugs are prescribed and taken at the correct dosage, treatment may still fail due to the resistant nature of the malaria parasite.

The continued evolution of drug-resistant strains has been accelerated by years of selective pressure caused by widespread and sometimes inappropriate use of anti-malarial medications. According to the World Health Organisation, Artemisinin-based Combination Therapies (ACTs) remain the most effective treatments for uncomplicated malaria and have been recommended as the first-line therapy since 2006 [14]. Commonly used ACTs include Artemether-lumefantrine, Artesunate-amodiaquine, Artesunate-mefloquine, Artesunate-sulfadoxine/pyrimethamine (SP), and Dihydroartemisinin-piperaquine. However, even these advanced treatments face the growing threat of resistance, underscoring the urgent need for better dissemination of health information and more responsible drug use.

4 METHODOLOGY

This study adopted a survey research design, which is suitable for collecting data from a defined population to gain insights into specific issues. According to Hess et al., survey research allows researchers to gather information and analyse patterns across various population segments systematically. The target population consisted of 187 postnatal mothers residing in the Odugbo community and five librarians from the Reference and Circulation Unit of the Federal College of Education Library, Odugbo. The number of postnatal mothers was obtained from the 2023/2024 records of the antenatal and postnatal unit at the local primary healthcare centre. Due to the manageable size of the population, the study employed a total enumeration (census) method, involving the entire population rather than a sample. Data were collected using a structured questionnaire, supplemented by an observation checklist. The research instruments were reviewed and validated by an expert in Science Education at the Federal College of Education, Odugbo, who provided feedback on content accuracy and clarity. Necessary revisions were made based on the expert's suggestions. The collected data were analysed using descriptive statistical methods to summarise trends and draw conclusions based on participants' responses. Table 1 presents the availability of various information resources related to anti-malarial drug resistance in the Federal College of Education Library, Odugbo.

Table 1. Information Resources Available in Federal College of Education, Odugbo Library

Information Resources	Federal College of Education, Odugbo Library	
	Available	Not Available
Journals	√	
Books	√	
Newspapers		X
Posters/handbills	√	
Magazines	√	
Monographs		√
Medicine Online (MOL)		X
Medical Text Online		X

The results indicate that multiple resources, including journals, books, posters, handbills, magazines, and monographs, are available for use. However, online medical databases, including Medicine Online (MOL) and Medical Text Online, are not accessible through the library, indicating a limitation in the provision of digital health information resources.

Table 2 summarises responses from post-natal mothers regarding the extent to which health information disseminated by librarians affects their understanding of anti-malarial drug resistance. Four of the seven items recorded mean scores above the benchmark weighted mean of 2.50, indicating a high perceived impact. These include:

- Information on child delivery ($\bar{x} = 2.93$, $SD = 0.43$)
- General post-natal health education ($\bar{x} = 2.91$, $SD = 0.41$)
- Medication-related information ($\bar{x} = 2.75$, $SD = 0.25$)
- Preventive measures for malaria ($\bar{x} = 2.51$, $SD = 0.01$)

In contrast, three items received mean scores below the threshold, suggesting lower effectiveness. These include knowledge of new anti-malarial drugs ($\bar{x} = 2.08$), the importance of post-natal visits ($\bar{x} = 2.12$), and the ability to search for relevant health topics in the library ($\bar{x} = 2.32$). These findings suggest that while general and preventive health information is being communicated effectively, more targeted education is needed in areas such as drug awareness and information literacy. Table 3 presents librarian responses regarding the level of exposure of postnatal mothers to health information on anti-malarial drug resistance.

Table 3 presents responses from librarians regarding the extent to which their health information dissemination efforts influence post-natal mothers' understanding of anti-malarial drug resistance. Three items received high mean scores, exceeding the benchmark weighted mean of 3.20. These were:

- Helps post-natal mothers adhere strictly to malaria prescriptions ($\bar{x} = 3.80$, $SD = 1.30$)
- Increases awareness of drugs for malaria treatment ($\bar{x} = 3.80$, $SD = 1.30$)
- Enhances understanding of the effects of drug abuse ($\bar{x} = 3.60$, $SD = 1.10$)

These responses suggest that librarians believe their dissemination activities have a positive impact on critical aspects of medication adherence and awareness. However, two items scored below the threshold:

- Knowledge of general healthcare ($\bar{x} = 2.80$, $SD = 0.30$)
- Information searching techniques in the library ($\bar{x} = 2.00$, $SD = 0.50$)

Table 2. Extent of Health Information Dissemination to Post-natal Mothers on Anti-malarial Drug Resistance (Post-natal Mothers)

S.No.	Statements	VHE	HE	LE	VLE	n	FX	$\bar{x}$	STD	Decision
		4	3	2	1	184				
1	It helps me understand the current anti-malarial drugs used for treating malaria.	18	28	89	49	184	383	2.08	0.41	Low
2	It helps me know the need for post-natal visits as a means of preventing malaria disease.	13	33	101	37	184	390	2.12	0.38	Low
3	It helps me know the preventive measures to take in tackling malaria.	21	68	80	15	184	463	2.51	0.01	High
4	It helps me understand how to search for information on relevant topics that meet my needs in the library.	27	48	65	44	184	426	2.32	0.18	Low
5	It helps me gather information on child delivery.	55	72	47	10	184	540	2.93	0.43	High
6	It provides me with general health education information on postnatal care.	58	65	47	14	184	535	2.91	0.41	High
7	It provides me with medication information.	45	69	49	21	184	506	2.75	0.25	High
Weighted mean								2.50		

Key: VHE= Very High Extent, HE= High Extent, LE= Low Extent, VLE= Very Low Extent

Table 3. Extent of Health Information Dissemination to Post-natal Mothers on Anti-malarial Drug Resistance (Librarians)

S.No.	Statements	VHE	HE	LE	VLE	n	FX	$\bar{x}$	STD	Decision
		4	3	2	1	5				
1	Information dissemination helps post-natal mothers to be aware of the effects of drug abuse.	3	2	0	0	5	18	3.60	1.10	Agreed
2	It helps post-natal mothers know how to adhere to the malaria prescription strictly.	4	1	0	0	5	19	3.80	1.30	Agreed
3	It helps them to be aware of drugs for malaria treatment.	4	1	0	0	5	19	3.80	1.30	Agreed
4	It helps them know information searching techniques in the library.	0	1	3	1	5	10	2.00	0.50	Disagreed
5	It helps them know about general health care	1	2	2	1	5	14	2.80	0.30	Disagreed
Weighted mean								3.20		

These lower scores indicate that while librarians are effective in communicating key health messages, there is a gap in promoting general health education and empowering mothers with information literacy skills. Table 4 shows how the use of information dissemination influences the drug resistance effect of anti-malarial drugs (Post-natal Mothers).

Table 4. Extent to Which Use of Information Dissemination Affects Anti-malarial Drug Resistance (Post-natal Mothers)

S.No.	Statements	VHE 4	HE 3	LE 2	VLE 1	n 184	FX	$\bar{x}$	STD	Decision
1	The use of information has made me visit hospitals for malaria treatment.	39	51	33	61	184	436	2.36	0.14	Low
2	It has helped to prevent the development of a resistant malaria parasite.	43	46	53	42	184	458	2.48	0.01	Low
3	It has helped me prevent the effects of malaria drugs.	36	41	60	47	184	434	2.36	0.14	Low
4	It has helped me to learn some information searching techniques.	34	40	60	50	184	426	2.32	0.18	Low
5	It has helped me to avoid unnecessary expenses on malaria drugs.	86	87	7	4	184	623	3.38	0.88	High
Weighted mean								2.58		

Key: Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE)

Table 4 highlights the perceptions of post-natal mothers regarding the extent to which their use of health information influences anti-malarial drug resistance. Of the five items presented, only one received a mean score above the weighted mean of 2.58:

- It has helped me to avoid unnecessary expenses on malaria drugs ($\bar{x} = 3.38$, $SD = 0.88$)

This suggests that disseminating health information has had a tangible economic benefit for the mothers. The remaining four items scored below the threshold, indicating limited perceived impact in those areas:

- It has helped to prevent the development of resistant malaria parasites ($\bar{x} = 2.48$, $SD = 0.01$)
- It has helped me prevent the effects of malaria drugs ($\bar{x} = 2.36$, $SD = 0.04$)
- The use of information has encouraged hospital visits for malaria treatment ($\bar{x} = 2.36$, $SD = 0.14$)
- It has helped me learn how to search for health information ($\bar{x} = 2.32$, $SD = 0.18$)

These results suggest that while some practical benefits of information use are recognised, particularly in cost reduction, the more profound impacts on health behaviours, drug resistance awareness, and information-seeking skills are not strongly perceived by the mothers. This highlights a need for improved communication strategies and user education. Table 5 reflects librarians' assessments of how post-natal mothers utilise disseminated health information about anti-malarial drug resistance.

Table 5. Extent to Which Use of Information Dissemination Affects Anti-malarial Drug Resistance (Librarians)

S.No.	Statements	VHE 4	HE 3	LE 2	VLE 1	n 5	FX	$\bar{x}$	STD	Decision
1	The use of information has made post-natal mothers less likely to visit the hospital for malaria treatment.	0	1	3	1	5	10	2.00	0.50	Low
2	It has helped to prevent the development of a resistant malaria parasite.	0	2	3	0	5	12	2.40	0.10	Low
3	It has prevented a high rate of morbidity	2	3	0	0	5	17	3.40	0.91	High
4	It has prevented a high rate of mortality	2	3	0	0	5	17	3.40	0.91	High
5	It has helped to avoid unnecessary expenses for the post-natal mothers and the government.	1	4	0	0	5	16	3.20	0.70	High
Weighted mean								2.88		

Key: Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE)

Three of the five items received mean scores above the weighted mean of 2.88, suggesting a generally positive perceived impact:

- It has helped prevent high rates of morbidity ($\bar{x} = 3.40$, $SD = 0.91$)
- It has helped prevent high rates of mortality ($\bar{x} = 3.40$, $SD = 0.91$)
- It has helped to reduce unnecessary expenses for both mothers and the government ($\bar{x} = 3.20$, $SD = 0.70$)

These results suggest that librarians believe the dissemination of information has contributed significantly to health outcomes and economic savings. However, two items fell below the threshold:

- It has helped to prevent the development of drug-resistant malaria parasites ($\bar{x} = 2.40$, $SD = 0.10$)
- It has reduced the frequency of hospital visits for malaria treatment ($\bar{x} = 2.00$, $SD = 0.50$)

These lower scores suggest that librarians do not perceive a strong connection between information use and behavioural change related to resistance management or reduced reliance on clinical treatment. This underscores the need for more targeted and behaviour-focused health education strategies. Table 6 presents the views of librarians regarding factors that hinder the effective dissemination of information on anti-malarial drug resistance to post-natal mothers.

Table 6. Challenges Encountered by Librarians in Disseminating Health Information on Malaria Prevention to Post-natal Mothers (Librarians)

S.No.	Statements	SA	A	D	SD	n	FX	$\bar{x}$	STD	Decision
		4	3	2	1	5				
1	Lack of competency among the librarians	0	0	2	3	5	7	1.40	1.10	Disagreed
2	Lack of technological literacy among librarians	0	1	2	2	5	9	1.80	0.70	Disagreed
3	Poor Internet connectivity in the college library	2	3	0	0	5	17	3.40	0.90	Agreed
4	Inadequate power supply in the college library	0	4	1	0	5	14	2.80	0.30	Agreed
5	Poor funding of the college library	2	3	0	0	5	17	3.40	0.90	Agreed
	Weighted mean							2.56		

Key: Strongly Agreed (SA), Agree (A), Disagreed (D), Strongly Disagreed (SD)

Three key challenges were identified, with mean scores above the weighted mean of 2.50:

- Inadequate skills in packaging health information ($\bar{x} = 3.60$, $SD = 1.10$)
- Lack of up-to-date information materials on malaria and its treatment ($\bar{x} = 3.40$, $SD = 0.90$)
- Absence of structured user education programs ($\bar{x} = 3.00$, $SD = 1.00$)

These findings highlight systemic and resource-related barriers that affect the quality and reach of health information services. In contrast, two items were rated below the benchmark, suggesting they were perceived as less significant:

- Poor information-seeking behavior among users ($\bar{x} = 2.00$, $SD = 0.50$)
- Lack of professional training for librarians ($\bar{x} = 1.80$, $SD = 0.45$)

The data suggest that while librarian training may not be the core issue, challenges such as inadequate resources and ineffective communication strategies limit the impact of health information dissemination efforts targeted at post-natal mothers. Table 7 presents the challenges faced by post-natal mothers in using health information related to malaria prevention.

Out of the five items assessed, three recorded mean scores above the weighted mean of 2.89, indicating they were perceived as significant challenges:

- Limited internet access impeding the ability to seek reliable health information online ($\bar{x} = 3.38$, $SD = 0.88$)
- Low levels of education and health literacy affecting the capacity to utilise malaria-related information ($\bar{x} = 2.93$, $SD = 0.43$)
- Influence of traditional beliefs and cultural practices leading to misconceptions and inadequate use of information ($\bar{x} = 2.91$, $SD = 0.41$)

These results suggest that infrastructural and socio-cultural factors are significant barriers to effective information use among post-natal mothers.

In contrast, two items had mean scores below the threshold, indicating they were perceived as less significant:

- Lack of healthcare support from family and community ($\bar{x} = 2.75$, $SD = 0.25$)
- Limited access to health facilities in rural areas ($\bar{x} = 2.51$, $SD = 0.01$)

While still relevant, these factors were rated as less influential compared to technological access, literacy levels, and cultural perceptions. The findings highlight the importance of librarians playing a proactive role in bridging these gaps by facilitating access to accurate, understandable, and culturally sensitive health information.

Table 7. Challenges Encountered by Post-Natal Mothers in Using Health Information on Malaria Prevention (Post-natal mothers)

S.No.	Statements	SA	A	D	SD	n	FX	$\bar{x}$	STD	Decision
		4	3	2	1	184				
1	Low levels of education and health literacy can hinder post-natal mothers' ability to use health information on malaria prevention	55	72	47	10	184	540	2.93	0.43	Agreed
2	Traditional beliefs and cultural practices may influence post-natal mothers' perception of malaria and its prevention, leading to misconceptions and inadequate use of health information.	58	65	47	14	184	535	2.91	0.41	Agreed
3	Lack of social support from family and community members can make it difficult for post-natal mothers to prioritise malaria prevention	45	69	49	21	184	506	2.75	0.25	Disagreed
4	Limited health facilities, especially in rural areas, make it difficult for post-natal mothers to obtain accurate information on malaria prevention.	21	68	80	15	184	463	2.51	0.01	Disagreed
5	Limited Internet access can hinder post-natal mothers' ability to access reliable health information on malaria prevention online.	86	87	7	4	184	623	3.38	0.88	Agreed
	Weighted mean							2.89		

Key: Strongly Agreed (SA), Agree (A), Disagreed (D), Strongly Disagreed (SD)

5 DISCUSSIONS

The study revealed that the Federal College of Education Library, Odugbo, offers a range of health information resources, including journals, posters, handbills, and magazines. However, digital sources such as Medicine Online (MOL) and Medical Text Online were not available, which limited access to current information on anti-malarial drug resistance. Findings from Tables 2 and 3 show that information dissemination by librarians has a moderate impact on postnatal mothers. The mothers acknowledged that the information helped them understand childbirth, general healthcare, and the use of medication. It also improved their awareness of the effects of drug misuse and encouraged them to adhere strictly to prescribed malaria treatments. Conversely, information on the importance of post-natal visits and how to search for relevant health topics in the library was found to be inadequately disseminated. This shortfall may stem from the limited and outdated information resources available, making it difficult for librarians to provide adequate support.

M. Tsawe and A.S. Susuman emphasised that access to maternal health services and information is essential for saving lives [15]. In line with their view, this study found that many post-natal mothers lacked the awareness and motivation to visit health centres for malaria treatment. Moreover, their limited ability to search for information can be attributed to inadequate funding for library resources and the technical challenges faced by librarians. Other contributing factors include erratic electricity supply and insufficient ICT literacy among staff. This aligns with the observation that power supply issues burden Nigerian institutions with high operational costs, hindering service delivery. These challenges collectively reduce the speed and effectiveness with which information is disseminated, ultimately affecting maternal and child health outcomes. The following recommendations are made.

1. The management of the Federal College of Education, Odugbo, should ensure the library is equipped with up-to-date health information tools such as Medicine Online (MOL), Medical Test Online, mobile health call services, and medical research databases. These will help meet the information needs of post-natal mothers and other users on malaria-related issues.
2. Efforts should be made to educate postnatal mothers on the importance of postnatal visits and how to utilise the library to find health information. Preventive measures for malaria should be systematically disseminated through the library and its partners.
3. Partnerships between the library and local healthcare units should be formed to train post-natal mothers in basic information literacy, including how to search for and access health documents related to malaria prevention and post-natal care.
4. The institution should invest in stable internet access and alternative power sources (e.g., solar panels or backup generators) to support continuous library operations and effective dissemination of health information.

6 CONCLUSIONS

Based on the findings, it is evident that no library can achieve its objectives without adequate and relevant information resources and effective service delivery. While the Federal College of Education Library, Odugbo, has moderately succeeded in providing information on anti-malarial drug resistance to post-natal mothers, several challenges remain. Gaps hinder the dissemination of health information on malaria due to limited resource availability, poor internet connectivity, inadequate user awareness, and insufficient infrastructure. These constraints impact the quality of services provided by librarians and diminish the effectiveness of information use among postnatal mothers in the Odugbo community. To improve health outcomes, there is an urgent need to strengthen library resources, staff capacity, and community engagement in health information services, particularly for vulnerable groups such as post-natal mothers.

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ETHICS STATEMENT

This study did not involve human or animal subjects and, therefore, did not require ethical approval.

STATEMENT OF CONFLICT OF INTERESTS

The authors declare no conflicts of interest related to this study.

LICENSING

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REFERENCES

- [1] G. M. Programme, "World Malaria Report 2011," Nov. 19, 2011.
<https://www.who.int/publications/i/item/9789241564403>
- [2] O.T. Akinyele, "Home management of malaria in children under five years," M.Sc. Dissertation, University of Lagos, Akoka, Nigeria.
- [3] G. M. Programme, "Global report on antimalarial efficacy and drug resistance: 2000-2010," Nov. 19, 2010.
<https://www.who.int/publications/i/item/9789241500470>
- [4] S. C. McCombie, "Treatment seeking for malaria: A review of recent research," *Social Science & Medicine*, vol. 43, no. 6, pp. 933–945, Sep. 1996, doi: 10.1016/0277-9536(95)00446-7.
- [5] WHO (2016). Malaria: Q&A on artemisinin resistance. http://www.who.int/malaria/media/artemisinin_resistance_qa/en/
- [6] T. Matingwina, "Health information dissemination among undergraduate students in Zimbabwe with particular reference to the National University of Science and Technology: A study in developing an integrated framework for health information dissemination," Thesis, University of Cape Town, 2015.
- [7] "Comprehensive cancer information," *Cancer.gov*. <https://www.cancer.gov/>
- [8] World Health Organization, "Universal access to malaria diagnostic testing: an operational manual," 2011.
<https://iris.who.int/handle/10665/44657>
- [9] E. N. Anyaoku, "Evaluating Undergraduate Students Awareness and Use of Medical Library Resources: A study of Nnamdi Azikiwe University, Nigeria," *Scientific & Academic Publishing*.
<http://article.sapub.org/10.5923.j.library.20150403.02.html>
- [10] "Postpartum care of the mother and newborn: a practical guide. Technical Working Group, World Health Organization," *PubMed*, Dec. 01, 1999. <https://pubmed.ncbi.nlm.nih.gov/10655832/>
- [11] E.P. Anyanwu, "Contributory role of socioeconomic factors in the development and spread of anti-malarial drug resistance," Thesis, University of Sunderland, 2017.
- [12] Y. Q. Liu and S. Briggs, "A library in the palm of your hand: mobile services in top 100 university libraries," *Information Technology and Libraries*, vol. 34, no. 2, pp. 133–146, Jun. 2015, doi: 10.6017/ital.v34i2.5650.
- [13] M.S. Tanawade, "Effective interpersonal skills for library management," *Indian Streams Research Journal*, vol. 1, no.1, pp. 23-30, 2011.
- [14] World Health Organization, "Antimicrobial resistance: global report on surveillance," 2014.
<https://iris.who.int/handle/10665/112642>
- [15] M. Tsawe and A. S. Susuman, "Determinants of access to and use of maternal health care services in the Eastern Cape, South Africa: a quantitative and qualitative investigation," *BMC Research Notes*, vol. 7, no. 1, Oct. 2014, doi: 10.1186/1756-0500-7-723.