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The Role of Faith-based Organisations in Childhood Malaria Management among Mothers of Under-five Children in Osogbo, Nigeria

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Abstract

Malaria remains a major health challenge in Nigeria despite efforts at reducing its prevalence. Previous studies on malaria focused mainly on the biomedical aspects. However, little is known about the role of faith-based organisations in malaria management. Health Belief Model (HBM) provided the framework explaining mothers understanding of malaria illness, while exploratory and descriptive designs were utilized. The study was conducted among selected mothers of under-five children in Osogbo using the qualitative method comprising twelve focus group discussions (FGDs); six among mothers 15-35years (three each among literates and non-literates); six among mothers 35years and above (three each among literates and non-literates mothers). Qualitative data were content analysed. Malaria treatment behaviour of the mothers was a complex process, assisted by faith-based organisations through the provision of insecticides treated net (ITNs), awareness campaigns, routine immunization of pregnant mothers, and more. However, hording militated against the effective use of ITNs by mothers in malaria management. This finding corroborates common understanding that faith-based organisations play important role in malaria management by actually providing biomedically accepted resources which led to the reduction of mosquito spread, hence increases the chances of the survival of both children and mothers. Therefore, increased collaboration between government and faith-based organisations is needed to improve malaria management facilities and avail mothers with appropriate education on malaria management strategies to reduce complications from malaria.

Keywords: Childhood malaria, faith-based organisation, management

Introduction

Malaria has remained a significant threat to children's health despite efforts expended for its eradication. Globally, in 2021, there were 24 million malaria cases and 620,000 malaria-related deaths, however, 272,000 (about 80%) of this death occurred in under-five children. African region bears the greatest incidence of malaria, particularly in Sub-Saharan Africa (SSA) region where 96% of malaria-related deaths and 95% of malaria cases occurred in 2021. Four African countries- Nigeria (31.3%), Democratic Republic of Congo (12.6%), United Republic of Tanzania (4.1%) and Niger (3.9%) were responsible for about half of the global malaria death and morbidity in 2021 (WHO, 2023).

Malaria is a serious health challenge in Nigerian because 97% of the population is at risk of malaria transmission throughout the year especially in the southern region, but three months less in the northern region. *Plasmodium falciparum* is the common species of mosquito responsible for malaria transmission in Nigeria. Six *Plasmodium* species are known to infect humans in Nigeria (*Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium ovale curtisi*, *Plasmodium ovale wallikiri*, *Plasmodium vivax*, and *Plasmodium knowlesi*) (Lalremruata et al., 2017; Rougeron et al., 2022). Nigeria has the highest number (26.6%) of the global malaria cases and deaths in 2021 (WHO, 2021). Nigeria accounted for 54% of malaria cases in the SSA region in 2021 (WHO, 2021). However, the number of malaria cases decreased between 2020 to 2021, from 312.7 to 307 per 1000 of the malaria vulnerable population. Meanwhile malaria deaths increased from 0.94 to 0.9 per 1000 of the population of the risk population (WHO, 2021).

Childhood malaria parasite prevalence in Nigeria is 23% which represent (a reduction from 27% in 2015 and 42% in 2010), but a major regional, rural-urban, and socioeconomic variations. However, the childhood malaria prevalence across the zones in Nigeria ranges from 16% in the South-south and South-east zones to 34% in the North-west zones. Malaria prevalence among the rural population is 2.4 times higher than that in the urban populations (31% versus 13%) (WHO, 2021). These statistics are worrisome given the significant level of improvement and innovation made in malaria management. This scenario therefore, calls for a more realistic ways to combat the rate of malaria spread and deaths particularly in children.

Malaria medical conditions can be sufficiently treated if they are diagnosed on time, with appropriate treatment/ intervention measures (WHO, 2023). The leading causes of morbidity and death among under-five children in Nigeria include pneumonia, diarrhea, and malaria (WHO, 2021; Abraha et al., 2022). These diseases when diagnosed early can be cured, while the chronic ones can be sufficiently managed to prevent and/or delay the development of complications. When mothers whose children are suffering from malaria the leading cause of morbidity and mortality in Nigeria resort to self-medication, will lead to misdiagnosed and complications due to inappropriate, inadequate, or ineffective treatment (Nwogu, et al., 2022). Since a large proportion of

morbidity and mortality among Nigerian children comes from mainly malaria diseases, it is possible to significantly reduce malaria cause-specific disease and death rates by improving the poor state of the existing healthcare facilities through the involvement of faith-based organisations to fill in the health care shortage gaps and making them attractive point of referral.

Religious bodies, faith leaders, and faith-based organisations are important partners in global management programming, through their geographic spread, compassionate values, closeness with communities and are strategic position in the fight against malaria, tuberculosis (TB) and human Immunodeficiency virus (HIV) (The Global Fight, 2018). Faith-based organisations play significant role in malaria management in Osun state due to failure of the existing healthcare institutions to the health needs of the people. Inadequate funding, shortage of qualified health personnel, poor attitude of staff, shortage of equipment, prevalence of fake drugs, and substandard private clinics have added to compound shabby state health care institutions in the state (OSMH, 2013). Faith-based organisations have played significant support for positive malaria management in both urban and rural areas of the state by aligning themselves with malaria public health initiatives of the state government. Acceptance and confidence of the faith-based organisations in health management is that religion has profound effect on the health beliefs and behaviours of people, and religious prescriptions may impact on utilisation of health care services (United Nations Development Programme [UNDP], 2011; Rumun, 2014).

Traditional religion contributes to malaria management in Osogbo through use of herbs sold in shops and open markets across the state. Traditionalists are of the view that illness originated from natural forces, and it can only be subdued through natural means (herbs) and supernatural means. This perception led to the incorporation of traditional medicine into global health care system to deliver culturally competent medical care for the people (Diana et al., 2023). Traditional medicine is described as the combination of knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness (WHO, 2007). Modern medicine is perceived to have originated from traditional medicine, which has been embraced and practiced globally today; an estimated 70-95 percent of Africa, Asia, and Latin American countries are reported to use traditional/herbal medicines procured through local practitioners or as self-medication for satisfying primary care needs (Robinson and Zhang, 2011). Therefore, traditional/herbal medicine fills in the gap where orthodox medical care is lacking or inaccessible, and the single alternative chose of healthcare available to patients, and communities (Qi and Kelley, 2014).

The foregoing expositions, underscores the need to examine the role of faith-based religious organisations in malaria management among mothers of under-five children in Osogbo, which is the gap the study intends to fill.

A brief review***Role of catholic church in malaria management***

The Catholic Church through Catholic Relief Services (CRS) has actively participated in the global malaria management programmes, especially in less developed countries, leading to reduction in malaria morbidity and death. In 2022, CRS embarked on 18 malaria projects in 15 countries, which assisted in saving the lives of about 27,000 under age children and preventing 3.7 million malaria cases in under-five children through the Seasonal Malaria Chemoprevention (SMC) programme and Insecticides-Treated Nets (ITN) awareness campaigns financed by the Global Funds for AIDS, Tuberculosis and Malaria, the Bill and Melinda Gates Foundation (BMGF), and other active individual donors. CRS has partnered with global ministries of health (MOHs) and supports national management strategies (NMS) on malaria prevention, community and hospital case management through social and behaviour change (SBC), use of high precision data for health care decision making, purchase and supply chain management, capacity building and advocacy at the regional, national, international levels. CRS facilitates empirical-based, far-reaching programmes, testing groundbreaking responses that give credence to the evidence-base and endlessly enhance programme quality. CRS in conjunction with numerous networks of local, national, international, faith-based, civil society and non-governmental organisations (NGOs), government, universities and research partners are responsible in repositioning national health systems (Nigeria Malaria Brief 2018; CRS, 2019).

CRS has supported several malaria intervention programmes across the world, from 2007 to date, the CRS has actively empowered National Malaria Programme (NMP) vector management initiatives via the distribution of more than 200 million ITNs in Cambodia, Ghana, Guinea, Niger, Nigeria, Senegal, Sierra Leon and The Gambia. CRS supports extensive coverage and periodic distributions, assist countries in forecasting and quantifying needs, procurement, distribution and monitoring utilisation of nets. Further, CRS activities include alternative ways to allocate ITNs for improve and sustained coverage-through schools, emergency response initiatives and communities. CRS participated in increasing the number of under-children and pregnant women who sleep under ITNs through comprehensive coverage of ITN. For instance, percentage of women and children who slept under ITN increased from 7% to 90% and 7% to 86% respectively from 2007 to 2021. CRS supported the cross border scaling-up of 990,000 ITNs in The Gambia, and 8.5 million in Senegal-with coverage rates of 82% in The Gambia, 92% in Senegal and 84% in border communities in 2019 (“Strengthening the capacity September 11, 2023”; Peacebuilding Fund, 2023). In the area of Seasonal Malaria Chemoprevention (SMC), the CRS in close collaboration with NMPs is playing a led role dispensing this life saving programme through national health systems. CRS has supported Benin, Burkina Faso, Cameroon, Guinea, Mali, Niger, Nigeria, Senegal and The Gambia in the scale-up of SMC since 2014. CRS has supported the distribution of SMC to 63 million under-five

children and SMC activities in highly volatile and insecure border region of extremist groups operating and in Ebola era in Guinea towards the end of 2022. CRS in conjunction with NMPs formulated and successfully executed SMC awareness programmes. Working in close collaboration with technical groups, CRS supports countries in dire need of formative research and develop comprehensive guidance, training materials and tools for SMC implementations-through state-of-the-art practices and application of guidelines (Nigeria Malaria Brief 2018; CRS, 2023).

CRS encourages facility- and community-based malaria case management mostly in very significant endemic areas and the operationalisation of policy recommendations. CRS ensures that malaria case management incorporates passive and active case diagnosis and treatment of all symptomatic and asymptomatic cases specifically, among transitioning nations between control and sub-national eradications through capacity building projects of health workers at all levels. CRS functions harmoniously with government workers to strengthen surveillance and case management systems so that established malaria cases are diagnosed, investigated, categorised, supervised treatment and followed-up is provided (CRS, 2023).

In Nigeria, the CRS began operation, as Principal Recipient (PR) to the Global Funds for one year malaria grant covering 24 states in January, 2017, and distributed 14 million long-lasting insecticidal net (LLINs) in six states covering 28 million Nigerians. In October 2017, CRS was named PR to continue the GF grant from January 2018 to December 2020 in thirteen states (The Global Fight, 2018). CRS is implementing the grant with three sub-recipients (SRs); the Malaria Consortium (MC), Society for Family Health (SFH) and Management Sciences for Health (MSH). The award was anchored on vector control, case management, and communication social mobilisation. The programme was to allocate 29 million LLINs through mass campaign in seven states and 15 million additional nets via routine distribution through Antenatal Care (ANC) and Expanded Programme on Immunization (EPI). Furthermore, the programme provided state-of-the-art diagnosis and treatment of about 42 million malaria cases in the 13 targeted states, and integrated community case management of childhood illnesses (malaria, diarrhea respiratory illnesses) in two states. The grant also provides technical assistance to strengthen health management information system supply chain management (The Global Funds, 2022).

CRS programming strengthens available structures and encourage relevant stakeholders especially State malaria elimination programmes (SMEP), supervise malaria intervention and enhance SMEP ability to monitor and evaluate malaria initiatives and quality data to direct ideal programmatic decisions at the national, state and local government area levels. Vital strategy for malaria intervention is the distribution of LLINs which are the easiest and most effective means to prevent malaria. Each family received one LLIN for every two persons, and continued with behaviour change communication (BCC) campaigns to ensure that households regularly use the nets correctly.

CRS adopted a GIS-enabled mobile technology platform- Cash and Asset Transfer (CAT) ensure more that LLIN distribution is effectively managed at scale. The CAT Platform registers recipients, trace attendance, manage distributions, and monitor coverage. Precision digital android gargets are deployed to enhance accountability, data quality, and time required for large scale LLIN distributions. The findings from a pilot in Oyun LGA, Kwara state, confirmed further that technology use can assist accomplish significant rates of coverage; therefore, expand impact for malaria prevention (Nigeria Malaria Brief, 2018).

CRS has established a learning/working group partnership with government of Nigeria and NMEP to share best practices and support development of same technology-based programmes which improves malaria case management services, increase access to diagnosis and treatment at the community level and at the health care level in 24 states using two pilot states. CRS in conjunction with the National Agency for Food and Drug Administration and Control (NAFDAC) ensure quality control testing of pharmaceutical products (FFPs). CRS engaged the services of United States Pharmacopoeia (USP) which assisted NAFDAC established 15 quality management system (QMS) standard operating procedure (SOP) manuals which assisted NAFDAC put established High- Performance Liquid Chromatography (HPLC) systems in two NAFDAC laboratories. This programme increased the state logistics management coordinating units (LMCUs) using a supply chain specialist per LMCU which increased the percentage of health facilities without stock-out of routine malaria health products from 60 to 88 percent (Nigeria Malaria Brief, 2018).

Role of pentecostalism in malaria management

The movement has supported global malaria management through relief and development agencies of two frontline Protestant denominations by initiating a new strategy to manage malaria in sub Saharan Africa (SSA). For instance, the Episcopal Relief and the Development Netlife partnership program and the United Methodist Committee on Relief (UMCOR) by merging a shared vision have assisted many SSA countries with endemic malaria cases. The objective of this collaboration is to reduce malaria induced morbidity and mortality, develop indigenous organisations' ability to empower rural communities to fight malaria scourge and improve inter-faith dialogue in other to share knowledge and develop malaria management best practices. Netsforlife and UMCOR began partnership work in 2010, and amplified United Methodist/Anglican Episcopal anti malaria collaborative efforts in Africa, particularly in the Democratic Republic of Congo (DRC) and Sierra Leon where their work have been outstandingly successful (UNOCHA, 2012). The driving force of the partnership is a common belief in the strength of African churches to commence action, encourage rural communities to become completely healthy, change behaviour and join resources for greater reach and impact.

This partnership led to the successful mobilisation of the communities through a public lunch event in the DRC. The event was preceded by a door-to-door distribution of 30,000 nets and establishment of CORESA, a groundbreaking faith-based coalition to propagate good health. Netsforlife and UMCOR of late have streamlined their collaboration with the National Integrated Maternal and Child Health Campaign in Sierra Leon, with distribution of about 400,000 nets and training of more than 3800 volunteers. With the sole aimed at accomplishing universal coverage of the vulnerable population of contracting malaria, this collaborative drive was the major health effort in the DRC's history. Netsforlife and UMCOR are mobilizing funds through grassroots awareness programmes through churches, schools, seminaries and other institutions to sustain and develop this life saving programme (*Episcopal Relief and Development, 2010*).

The Netsforlife inspiration Fund is teaching, appealing and unifying Episcopalians to embrace the Millennium Development Goals (MDGs) and the fight against malaria in the Episcopal Church. The aim of the campaign is to create awareness about malaria and its prevention. The Netsforlife inspiration Fund was also targeted to raise \$5 million by December, 2012 to support Netsforlife continue with its work, training rural volunteers to achieve life-saving nets, enlighten community members on the correct use of mosquito net, its maintenance, and support ongoing monitoring and evaluation of net use. The Imagine No Malaria is an initiative of the united Methodist Church (UMC) to eradicate malaria mortality and mortality in Africa by 2015. The UMC is a foundation member of the United Nations Foundation of Nothing But Nets campaign, that operates through Imagine No Malaria and aims at improving healthcare facilities and supporting communities efforts for lasting victory over malaria (*Episcopal Relief and Development, 2010; House, 2021*).

Role of Islam in malaria management

The involvement Islam in malaria management re-emphasises the centrality of health to the human socio-economic development, development cannot ensue without a healthy society (reference). The malaria mortality and morbidity have been among global health issues that the Organisation of Islamic Conference (OIC) has been working hard to eliminate for long among member countries. The supportive role Islam increased in momentum through the Islamic Development Bank (IDB) organised international seminar on malaria in Teheran 2004 purposely for the realisation of the Millennium Development Goals (MDGs) on health.

The aim of the conference was to reverse malaria prevalence in member countries of Africa, with a common understanding that malaria is an endemic disease ravaging susceptible groups in most IDB member African nations. The communiqué from the conference revealed an appreciable decline on the impacts of malaria among IDB member nations. Libya and Tunisia have been liberated from malaria spread while Algeria, Egypt and Morocco were on the verge of accomplishing final malaria elimination. The outcome of the

conference revealed appreciable lessening of malaria spread in member nations of the IDB in Sub-Sahara Africa (Talisuna, 2008).

The partnership meeting of the OIC and the Roll Back Malaria (RBM) in the headquarters of IDB Jeddah, Saudi Arabia to increase awareness on malaria scourge among IDB countries marked a major breakthrough in the malaria management role of Islam. The report of world malaria Day, under the United Nations MDGs, revealed that tremendous progress has been made against prevention and treatment of malaria over the years, with a strong commitment and collaborative action towards ambitious malaria elimination targets, particularly in OIC countries.

Malaria was the dominant issue on the OIC agenda on disease management and one of the main six thrust of OIC Strategic Health Programme of Action (SHPS-2014-2023) (OIC Health, 2023). Stronger commitment of OIC member nations to strengthen its existing collaboration with RBM and global Fund for malaria was further re-emphasised, with more attention was accorded to malaria management aimed at bridging the financial gap to accomplishing universal coverage of management efforts. On this premise, philanthropists, donor nations, and organisations in the OIC region were persuaded to increase their contributions for malaria control and eradication efforts to eliminate the financial constraints to achieving universal coverage of malaria eradication efforts among endemic member nations (OIC Health, 2023).

Significant progress has been reported recently on malaria eradication in some OIC countries, but much efforts is needed in a new post 2015 development plan, with an ambitious malaria elimination taret. Despite the groundbreaking innovations in malaria management, WHO reported that OIC countries are responsible for more than half of the global malaria burden because about 85% of malaria cases occurring in OIC countries happens in SSA member states. Nigeria, Uganda, Mozambique, Burkina Faso, Niger, Susan, Guinea, Indonesia Cote d'Voire, Senegal, Cameroon, Pakistan and Benin Republic, are among the 23 malaria most infected nations globally contributing about 80% of global malaria cases. Specifically, 12 SSA OIC member countries are on the list of 18 highest-malaria burdened countries responsible for 90% of malaria infections in 2013 (UNOCHA, 2015).

OIC in partnership with, and aid from the Global Funds (GF) for AIDS, Tuberculosis and Malaria have invested more than US \$4 billion for malaria management activities since 2002. In addition, more than 210 million ITNs have been distributed in line with effective national guidelines on ITN (The Global Fund (2023). The Jeddah deliberations saw member nations' stronger commitment to malaria management efforts by government, philanthropists and non-governmental organisations, through multisectoral actions on malaria eliminate in OIC countries by 2023. Domestic and international financing for malaria of \$2.5 billion in 2012 was less than half of the \$5.1 billion RBM needed annual estimate through 2020 to achieve universal coverage of malaria management interventions. Africa OIC member nations face a funding deficit

of about \$2.8 billion through 2017 for adequate scalp-up for malaria management activities (UNOCHA, 2015).

Role of traditionalism in malaria management

A thorough understanding of preventive measures and health seeking behaviour is important for effective malaria management. Malaria management is enhanced by taking into account the local beliefs and practices (Koudou et al., 2005). Individuals' illness classifications, symptoms recognition and causes help improve management health seeking behaviour (Beiersmann et al., 2007). Access to health services in low income is often limited particularly in the rural areas and remote regions (Peters et al., 2008). Traditional medicine and traditional healers are indigenous to the culture which have historically operated predominantly outside the state-funded health care system and beyond the practices and curriculum of dominant medical profession (Adams *et al.*, 2012)-are important component of health seeking and treatment for many people in the low- and medium income countries of Asia-pacific, and elsewhere (WHO, 2013).

TM/TH is often utilised by the general population on regular basis for maintaining health (Siti *et al.*, 2009; Supardi, 2011) and or for both chronic and acute disease malaria (de Rus et al., 2014). The vast majority of M/TH is prior to or absence of conventional medical services (Suwankhong et al., 2011). It is reported that TM/TH users are most likely women, or low- income women (Sawalha, 2007). In contrast, other studies have identified no relationship age, education, income and TM use (Sydara et al., 2005).

Given the significant prevalent rates of TM/TH use in low- to medium-income countries and TM/TH use in many cases is the only health care available/accessible to many people in these communities (Picking et al., 2011). TM/TH is an important issue challenging and/or influencing the effective, safe and coordinated conventional medical services to these populations (Okere et al., 2006), a situation affecting management around a range of health conditions including malaria. As such, it is imperative that those involved in managing and providing preventive strategies, policies and conventional health care facilities while initially practicing home remedies followed by TM use. In contrast, prompt seeking of care and treatment of malaria from health care center with regards to malaria are cognisant of the behaviour, decision-making and perceptions of community members relating to TM/TH use.

Majority of respondents from India (Das, et al., 2013), Myanmar (Jian-Wei et al., 2012) and Vanuatu (Tyan et al., 2011) revealed that immediate care was not sought and they delayed seeking treatment from health center while initially practicing home remedies followed by TM use. In contrast, prompt seeking of care and treatment for malaria from health center or hospital was more common with regards to sick infants and young children (Das et al. 2013) and children under 15 years (Jian-Wei et al., 2012), elderly or young persons with severe symptoms and for pregnant women (Tyan et al., 2011). However,

parents or caregivers of children revealed delays in seeking hospital care (Al-Taiar et al., 2009).

Theoretical framework

The Health Belief Model (HBM) is adopted to give a theoretical underpinning to the study. It was first propounded in the 1950s to explain and predict health-related behaviors (Hochbaum, 1958), and has been greatly used to explain health behaviour research (Glanz, et al., 2008). The use of HBM for this study was based on the simple reason that the model has been used widely in the study of health behavior in different contexts among various populations, and has copiously conveyed considerable usefulness in health behaviour research (Cockerham, 1992; Becker et al., 1979).

Components of Heath Belief Model

Perceived susceptibility: is the subjective risk of contracting a condition. People differ on their acceptance of susceptibility to a disease condition. On one extreme of the spectrum of perceived susceptibility, are mothers who deny the likelihood of their children contracting malaria, and failed taking pre-emptive measures against contracting malaria. At the middle of the spectrum, (in more moderate position), are mothers who accept statistical possibility of their children contracting malaria, but a possibility not likely to occur. Lastly, are mothers who feel that their children are in great danger of contracting malaria. For instance, mothers who perceive the danger of their children getting malaria, will use insecticide treated nets (ITNs), and spraying of insecticides in the rooms where their children sleep, such actions are capable of preventing mosquito bites and reduce transmission of malaria in children. For mothers who deny the possibility of their children contracting malaria and those who accept statistical possibility of their children getting malaria, will not use malaria preventive measures thereby exposing their children malaria complications such as anaemia, paralysis and death. Study suggests that perceived susceptibility to illness is an important predictor of preventive health behaviors (Jones et al., 2015).

Perceived severity: This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). A mother who perceives that childhood malaria is not a threat to the wellbeing of her child, may not take prerequisite health action like taking the child to hospital for proper evaluation and treatment. She may resort to home management of the situation with herbal remedies which could be harmful to children's health (Sevinç, and Ayşe, 2020). However, a mother who perceives complications from childhood malaria as serious, may be worried with such thoughts as- whether the childhood malaria complications will lead to death, reduction in cognitive or permanent disability on her child. Such thoughts may compel a mother to take the child to health care facility with proven

competencies in malaria management such as pool of qualified medical practitioners, standard diagnostic laboratories and quality drugs.

Perceived benefits of taking action: refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). The course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit, such that the person would accept the recommended health action if it was perceived as beneficial. The construct presupposes that mothers would embrace health-related actions which they believe suitable to address childhood malaria. The suitability of health action taken by mothers depends, on the extent other health alternatives are perceived inadequate or opposed to the successful implementation of malaria control measures in children. For instance, a mother may choose herbal medication over Artemisinin use in childhood malaria treatment based on her belief of the effectiveness and relative low cost of herbal medication despite of its reported high risk potentials.

Barriers to taking action: This refers to a person's feelings on the obstacles to performing a recommended health action. There is wide variation in a person's feelings of barriers, or impediments, which lead to a cost/benefit analysis. The person weighs the effectiveness of the actions against the perceptions that it may be expensive, dangerous (e.g., side effects), unpleasant (e.g., painful), time-consuming, or inconvenient. The existence of obstacles can discourage a mother from taken specific health actions to address the childhood malaria condition notwithstanding her conviction that taken specific health actions are reasonable and effective to addressing malaria challenges. Factors such as unfriendly attitude of staff, long distance and high cost of transportation to health institutions of proven quality can deter mothers from using such facilities in preference very close, cheaper and patients' friendly facilities.

Cue to action: This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g., chest pains, wheezing, etc.) or external (e.g., advice from others, illness of family member, newspaper article, etc.). Availability of healthcare information and role of relevant others could assist mothers to take constructive health actions that could facilitate quick resolution of childhood malaria effects). Cue to action act together to influence whether or not a specific person will partake in these preventive or promotional health behaviours (Rosenstock, 1974).

Self-efficacy: This refers to the level of a person's confidence in his or her ability to successfully perform a behavior. Self-efficacy is a construct in many behavioral theories as it directly relates to whether a person performs the desired behavior. This construct explains the capability of mothers to initiate

and successfully carry out malaria treatment on their own with the help of malaria management information received. Mothers can purchase essential malaria drugs outside the existing formal healthcare system without the prescription of malaria management experts

The foregoing narratives on the application of HBM on malaria management of mothers of under-five children reveal the mothers the main caregivers of children, share a common basic need and understanding to prevent, treat, and improve the health status and medical predicaments of their children. The choice of health facility required to manage specific malaria complication depends on the facility that the mothers consider the most efficient, effective, and cheap available alternative healthcare facility. Despite the common desire for favourable management outcomes of the mothers, some of them do not have the same opportunities for seeking and receiving health care services. Many factors interact to influence the malaria care seeking management behaviour of the mothers 'in illness situation, among such important factors are age, education, income, sociocultural beliefs and practices, place of residence, availability, accessibility and affordability of health care services, individual perceptions about the cause of the illness and perceived effectiveness of the available treatment options (Audu *et al.*, 2014; Akeju *et al.*, 2016).

Materials and methods

Research design

This study adopted exploratory and descriptive designs, while qualitative techniques of social inquiry were employed. These designs became inevitable due to the fact that the study required appropriate procedures of identifying the role of faith-based organisations in childhood malaria through in-depth analysis of the health seeking behaviour patterns of mothers. Meanwhile, the qualitative technique of inquiry-Focus Group Discussion (FGD) which the study adopted, introduced the subjective dimension of situational analysis of mothers

The study area

The study area, Osogbo the capital city of Osun State came into existence in 1907 when the British Cotton Growing Association (BCGA) and the Nigerian Tobacco Company (NTC) built their factories for growing and ginning of cotton and tobacco. This became a major turning point in the transformation of the city into viable commercial centre in the whole of South-western Nigeria. Osogbo lies on latitude of 7°30'N and 4°30'E in the Savannah rain forest belt Southwest, Nigeria. The total population stands at approximately 3.5 million (2006 census). There are more men than women in the state with the number of males at about 1,734,149, while the females are about 1,682,810. Under 5 years old children comprise about 20% of the total population (NDHS, 2008). National Population Commission (NPC, 2006) reports that Osogbo occupies an area of about 47 km² and is known as "Ilu Aro" (home of dyeing activities), hence an important native dyeing centre in the Southwest, Nigeria. Osogbo is

the center of agricultural activities in the whole Yoruba nation because of its rich arable lands and the tropical rainfall which continually wets the entire landmass. Osogbo is ravished by two seasonal variations-the dusty dry season-from November to March and the humid wet season from- from April to October yearly.

The rainy season creates massive flood which provides fertile breeding ground for mosquitos. The increased soil cover removal in an uncontrolled manner contributed to the massive flood in Osogbo which supports favourable breeding habitats for mosquitoes (Mwayangi et al., 2007). The presence of used tyres everywhere in the city contributed immensely to the thriving habitats for mosquitoes in Osogbo metropolis. The impact of used tyres on mosquito breeding and spread of disease causing agents remains unknown to many residents in Osogbo because they do not consider them worthy for disposal during monthly environmental sanitation exercise in the state (Adeleke et al., 2013).

Study population

The study sampled mothers of under-five children who were 15years and above, whose children contracted malaria six weeks to the actual date of the investigation in Osogbo and examined their perceptions on the role of faith-based organisations in malaria management. The greater task of malaria management in children is borne by mothers their major caregivers, who devote greater part of their time with them than any other category of caregivers of children. The study was administered on mothers who were resident in Osogbo Metropolis at the time of the study for upward of four months which is long enough for the manifestation of *malaria*.

Sampling method

The study utilised the non probability sampling technique in selecting the study population. The sample size was 12 FGDs (comprising four-six mothers for each FGD). Ultimately, the study utilised the purposive sampling method which helped in identifying mothers of under-five children and soliciting their support to participate in the study. Several stages were involved in the use of this sampling method in the study. Geographical variation was maintained in the study by ensuring that at least 6 wards in Osogbo and Olorunda LGAs were covered. To achieve this, contact persons were selected for the community but new areas selected different contact persons who helped in the identification of households with under-five children. The contact person serves as guarantor in situations mothers were in doubt of the real motives of the study. This made the mothers relaxed and freely gave out consent participated in the discussions. With this development, the households with under-five children were conspicuously mapped out by the researcher who also paid frequent visits at the pleasure of the mother before the organisation of the interviews. Educational level and age of the mothers were other variables considered in the sampling procedure more experienced mothers might have different

perceptions of childbirth that the relatively younger mothers. Furthermore, level of education of the mothers differs. Education affects the perceptions health and illness of people (Amzat, 2009) which is revealed in the responses of the mothers in the interactive group discussions later in the study.

Inclusion criteria

- The caregivers (mothers) of children in the age range of 0 to 5 years were approached in each of the chosen households in the study. This was inclusive to mothers whose children suffered from malaria in the six weeks preceding the date of the interview and who have lived continuously for four months in the present location.
- Only respondents that gave consent of inclusion were selected for the survey.

Research instrument

The collection of data for the study was made using the qualitative research method- focus group discussion guides (FGDs) was employed to gather the primary data. The study made use of five field assistants carefully trained on how to collect data through conducting interviews. 12 FGDs were conducted in the following format:

Table 1: Categories of mothers of under-five children in FGDs

No of FGDs	Education Category	Age Category
3	Literate mothers	15-35
3	Literate mothers	35 and above
3	Non-literate mothers	15-35
3	Non- literate mothers	15 and above
12 (Total)		

Tool for enhancing of qualitative collection

An important tool used to enhanced the effectiveness of the qualitative data in the study, was the transact walk to understand the geographical structure of the community which involved the grand and mini-tours. The grand tour is familiarisation of the extended parts and important areas of the community such as courtesy visits to Oba's palace and royal families, LGA headquarters and community library and more. In the course of the tour, friendships and trusts were established with some people who assisted in the data gathering. The grad tour was made during data collection to specific location for actual data gathering. The tour helped in understanding the topography of the community which could lead to mosquito breeding like poor drainage, stagnant pools of water, types of plants, unscreened windows and doors and more.

Data analysis

Data generated through FGDs were organised, transcribed and subjected to content and narrative analyses. The first stage of analysis was limited to

grouping of data into issues that dealt directly with general and specific research questions raised in the study. In the second stage, further content analysis was carried out to explore sub-themes and unanticipated issues. The third stage involved a critical case study that facilitated the construct of a holistic picture of the processes of childhood malaria management of mothers in Osogbo.

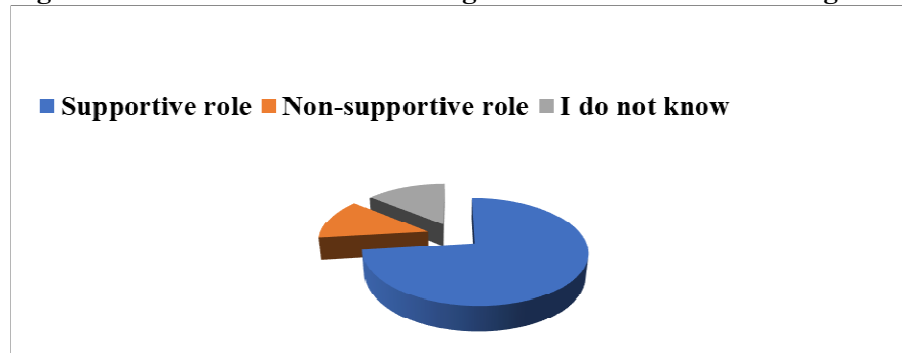
Ethical considerations

All necessary ethical issues required in social science researches were duly observed during data collection. In summary, every participant who was involved in study was informed about the purpose and procedure of the study, and about their rights as participants before they were asked for informed oral consent. Participation was completely voluntary and each participant was free to withdraw from the study at any time. Ethical approval was sought and gotten from the Chairman, Health Ethical Review Committee of Ladoke Akintola University of Technology Teaching Hospital (LAUTECH) Osogbo, and now University of Osun Teaching Hospital (UNIOSUNTH). The Ethical Approval Number - **LHH/REC/2016/01/12/255**.

Results

The findings of this study from both the quantitative and qualitative data are presented jointly in tables and figures. As figure 1 shows, most of the mothers reported that religion plays supportive role in malaria management in Osogbo, while least number of the mothers reported that religion does not play supportive role in malaria management.

Figure 1: The role of faith-based organisations on malaria management



This finding was corroborated in the qualitative group narrative discussions that Christianity, Islam and Traditional religions do not forbid adherents from seeking malaria or any other form of treatments for the purpose of getting well. According to a mother:

There is no provision in Islam that forbids mothers from seeking treatment for their children in the hospital or from other sources. During Jumat prayers, the Imams encourage mothers to go to the healthcare centres for counselling on childhood malaria management. They also invite malaria health administrators from public and private institutions to our worship centres to educate mothers on how to control malaria in children and in expectant mothers. *(FGD/Young Educated Mother/ 25years/Osogbo)*

Another mother maintained that:

Some Islamic women associations assist mothers in malaria management through the procurement and distribution of Insecticides treated nets free of charge. Also, seminars and workshops on childhood malaria management are organized for women by public health official from designated health bodies with active support of the Imams. *(FGD/Old Educated Mother/ 36years/Osogbo)*

The foregoing narratives underscore the importance of incorporating religious leaders in malaria management programmes for greater outreach and acceptance which reported that the role of religion in malaria management is appreciated better when malaria awareness activities are carried out through religious bodies notably in areas with strong religious regulations on women and with little level of awareness (Maigemu and Kalthum, 2015).

Some of mothers reported that while their religion support malaria management, however it forbids them from using any healthcare management measures that contravene their doctrine. This finding was corroborated by a mother that:

I will not use any disease management procedure that is offensive to Islam no matter the effectiveness of such procedure. Some of these malaria drugs are meant to reduce our population by the western countries. Any practice that limits the number of children to be conceived is anti Islam. I was told that some of these malaria drugs can cause sterility in children so that they cannot reproduce in future. This is one of the ways the western nations intend to achieve their policy on global population reduction. *(FGD/Non-educated Old Mother/ 55years/ Osogbo)*

This narrative shows that malaria prevention and control could be given more impetus if religious leaders are incorporated into the programmes because when individuals perceive illness seeking measures as offensive from the stand point of religion it becomes very difficult to change such behaviour until religious leaders inform adherents to do otherwise.

The study highlighted similar malaria management between Islam and Christianity, many of the mothers from both faiths reported in FGD that their faiths support malaria management through dissemination of healthcare information on malaria prevention and control. This position was corroborated further by a mother that:

The Roman Catholic Church should be commended for her supportive role in malaria management in children and in pregnant women. The church assists mothers with information on the danger posed by malaria on the health of mothers and children if left untreated. Before the commencement, in between or at the end of mass, priests allow primary healthcare officers from the state or non-government organizations to enlighten mothers on the modern ways of managing malaria in children and in pregnancy. *(FGD/Young Educated Mother/20years/ Osogbo)*

Another mother reported that:

When my child had severe malaria complication, my neighbour a Roman Catholic, took us to their hospital where she was treated free of charge because I am a widow and could not afford the cost of treatment. Despite the fact that I am not a member of the faith, the Reverend Sisters at the hospital took us home and fixed an insecticide treated net on our bed. After about a week of our discharge from the hospital, they bought for us 500 liter water storage tank filled with water from their water tanker and they sprayed inside and outside of our house with chemicals because they were not satisfied with the sanitary situation there *(FGD/Non- educated Old Mother/45years/ Osogbo)*

Another mother maintained that:

Sometimes after church services, mothers of under-five children were allocated ITNs free of charge, while the pregnant ones were administered with sulphadoxine-pyrimethamine (SP). *(FGD/Young Educated Mother/18years/Osogbo).*

The study also reveals similar supportive role of the Anglican Church in malaria management, a mother said that:

The Anglican Church in collaboration with primary healthcare officers organizes regular and periodic health awareness campaign for mothers on how to manage childhood malaria. For instance, the women's wing of the Evangelical Fellowship of Anglican Communion (EFAC) assists mothers of under-five

children with free provision, distribution and retreat of their bednets when the chemicals used in treating them have become ineffective. These services have gone a long way in saving mothers of buying fake bednets from unscrupulous vendors who take advantage of the scarcity of ITNs from public healthcare facilities to sale fake bednet. (*FGD/Old Educated Mother/60years/ Osogbo*).

Furthermore:

Some of my friends have been on the queue for a long time to get ITNs but all to no avail. Healthcare officers in government hospitals hoard these nets and make them available to their family members and friends who in turn sold them at exorbitant price to people in need of them. (*FGD/Young Educated Mother/32years/ Osogbo*).

The above narratives conform to the health protective measures against malaria in children and mothers during pregnancy (FMOH, 2013; NDHS, 2013).

The study revealed that traditional religion supports malaria but through herbal pathway. For instance, mothers who professed the traditional religious faith believed that malaria originates from natural and supernatural sources hence, should be managed outside official health care facilities.

In narrative group discussions, some of the mothers reported that malaria from natural sources like sunrise, rain, wind and more is managed with herbs while malaria induced by supernatural forces like coma and anaemia are managed through spiritual purification. This point of view was buttressed further that:

When my children play in the rain or sun and contract malaria, I administer herbs on them because the malaria is from natural sources. I use a mixture of lime and lemon in water to treat quartan fever in my children. Also, mixture of ginger and three spoons of raisins boiled in water to treat severe fever in my household. (*FGD/Non Literate Old Mother/44years/Osogbo*)

Also, another mother said:

Herb can cure any form of malaria in children and adults that is why I have maintained the habit of giving herbal medications to my children. I do not know why people spend lots of money in the hospitals when nature has blessed us adequately to fight the scourge of diseases. A mixture of a teaspoon of Cinnamon powder and a teaspoon of honey is an excellent relief for malaria any day. Also, grapefruit boiled with a quarter of water is good

cure for malaria because grapefruit contains natural quinine-like substances that fight malaria. *(FGD/Educated Young Mother/39years/Osogbo)*

Another mother maintained that:

Any malaria that keeps reoccurring comes from the devil; such malaria can only be eliminated through spiritual cleansing of the child. For instance, febrile malaria convulsion that throws a child on the floor with foam gushing from the mouth is not ordinary malaria. This is the hand work of evil forces hence; spiritual appeasement is performed before commencing treatment *(FGD/Non-educated Middle Aged Mother/66ears/Osogbo)*

Furthermore:

Serious consequences may befall a child if this appeasement is not performed before medications. For instance, the child may die and comeback again as Abiku. At times, the child may stray away into the thick forest or be drown in the sea by the evil spirit without anybody being aware of it. So appeasement is a process of begging the spirits of convulsion to let go of the child and let him live. *(FGD/ Educated Middle Aged Mother/40years/Osogbo)*

The foregoing narratives shows that religion and health go hand in glove, without a healthy life, there can never be religion (Munthali, 2021). Appropriate enlightenment programmes that will change long held misconceptions about malaria complications, which has no link with mystic powers become imperative (WHO, 2022).

Discussion

i.) Role of faith-based organisations in malaria management

The study revealed that majority of the mothers reported that religion plays significant supportive role in childhood malaria management. This finding aligns with previous study which confirmed that religion supports malaria management in Niger Republic, the religious beliefs of the people allowed mothers to use western medicines for the treatment of childhood malaria ([Bedford & Sharkey, 2014](#)). The same study reported in the contrary, that the religious beliefs militate against childhood malaria treatment in Nigeria and Kenya because the discouraged mothers from using western drugs for childhood malaria treatment ([Bedford and Sharkey, 2014](#)).

Religious organisations support malaria management through the provision of ITN and vaccination of expectant mothers and children which aligned with the health protective measures against malaria in children and mothers during pregnancy (FMOH, 2013). The use of ITNs among pregnant women is linked

to reduced prevalence of malaria infection, less premature births, and an improved reduction in maternal anemia and placenta infection, which are associated with lower maternal and infant death rates (Kuetche, and Tabue, 2023). Based on the aforementioned positive effects, WHO supports ITNs use as the main prevention measure against malaria in high endemic areas.

Islamic and Christian religious organisations provide vaccinations services to pregnant mothers because it is reported that children and expectant women suffer the impacts of malaria parasites more than other malaria susceptible groups to complications, malaria has harm potential on health status of mothers and of the unborn children (NDHS, 2013). Routinely, one dose of sulphadoxine-pyrimethamine is given to expectant women in their first and second trimesters while a third dose is prescribed for expectant women with HIV infections. Currently, emphasis is centred on the usefulness of giving three doses of sulphadoxine-pyrimethamine during pregnancy in all women (NDHS, 2013).

ii.) Religion and malaria management activities

The study revealed that malaria management activities receive wide acceptance by religious faithfuls with the inclusion of religious organisations and their leaders malaria management initiatives. Similar finding was reported in the study, “Influence of traditional on malaria control practices among household heads in Zamfara State Northwest, Nigeria”, which reported that the role of religion in malaria management is appreciated most when malaria awareness activities are carried out with the help of religious bodies particularly, in areas with strong religious regulations on women and with little level of awareness (Maigemu & Hassan, 2015). In line with this assertion, it is advisable for governments and international donor agencies when embarking on enlightenment campaigns on malaria management activities to involve religious leaders and appeal to them to use their daily preachings to educate their congregations on the role of religion on malaria management practices.

Furthermore, the study “Is religious affiliation influencing prevention and treatment of malaria among children in Uganda?” reported that faith-based organisations control access and treatment of malaria in the community because the people have great confidence in, and listen to their religious leaders more than other group leaders, Moslems listen to, and believe more in their leaders than any other religious groups because of the strict Islamic religious code (Ndugga, 2013). This finding reveals the need to monitor and regulate the kind of information religious bodies and their leaders dish out to their congregants because belief is important component of trust (Joshua *et al.*, 2021; Muhammad, et al., 2022; Thomas, 2023). Wrong health care information from religious bodies and their leaders can have serious implications on their followers and the society at large. The 2003 crisis on the safety of the oral polio vaccine was attributed to misinformation by religious leaders and Governors in the predominantly Muslim north of Nigeria against the World

Health Organization, the United Nations Children's Fund (UNICEF) and Nigeria's federal authorities (Ebenezer, 2005).

Similarly, the rate of compliance to the use of insecticide-treated nets and residual indoor spraying which has been identified as the current preferred method of malaria vector control to suppress transmission of malaria particularly in holoendemic and hyperendemic scenarios will increase if religious leaders are involved in the awareness campaigns (Malaria Fact Sheet, 2020). Religious organisations play a great role in malaria management because they have become an important part of social lives of their members. Therefore, religious institutions are perceived as representative of God on earth, hence their injunctions might be faulted by their members especially when such roles are for the good of the people.

Religious organisations helps resolve malaria pandemicity in rural communities by empowering clergies to preach about appropriate malaria management skills, stop isolating people, de-emphasize outright boycott of traditional healing methods, rather invite and request healthcare experts to educate the rural communities on the rudiments of malaria management because prayer is in harmony with modern medicine (“Malaria and Faith, November 21, 2008”). This exposition confirms that faith-based organizations, their leaders and communities of faith, are indispensable link between rural and urban dwellers, and educate them to embrace appreciate malaria protective measures. On this premise, religious organisations set up network of volunteers and community groups needed to support and maintain positive transformations on the social norms, behaviors and attitudes of the community residents.

iii.) Herbal malaria management among mothers

The study revealed that the use of herbs for malaria management was common practice mostly among traditional mothers. This finding is corroborated in previous study which reported that practice of herbal malaria management was prevalent among traditional mothers in Shai Osudoku District of Accra, Ghana. However, contrary to popular opinion, the women’s cultural beliefs did not influence their preference for herbal malaria management (Appiah, 2022). The major obstacle associated with herbal remedies for malaria management is appropriate dosage specification. The indispensability of herbs in African healthcare delivery system makes it necessary to harmonize the practice in order to eliminate quarks that have hijacked the profession thereby jeopardizing the health of users. Herbal medications should be detoxified with the appropriate specified dosage to make them fit for human consumption with minimal side effects.

iv.) Subsisting misconceptions about malaria

The study revealed that misconception has continued to influence malaria management practice, despite of the significant improvement in malaria management. For instance, the traditional mothers in the study reported that febrile convulsion has a mystic link. However, convulsion is cause by

abnormal electric currents in a group of brain cells leading to seizures, muscles jerk to severe and prolong convulsion (WHO, 2023). A convulsing child or adult, is misunderstood, discrimination against and subjected to social stigma which affect his or her quality of life. Febrile convulsion is caused by genetic and environmental factors, such as vaccines and viruses (Sawires *et al.*, 2022). These factors must be taken into consideration by clinicians in assessing, diagnosing and treating a child manifesting fevers and seizures, and explain the sequelae of the febrile convulsion to the parents of the child.

Febrile convulsion is a prevalent order among children from 9 months to 5 years, usually non-threatening and self-limiting with favourable diagnosis, sadly in Ghana, popular belief about febrile convulsion is a disorder that can't be treated in the hospital therefore, it is managed at home with herbal remedies based on certain beliefs and practices which are limiting in related studies (Owusu, 2022). The foregoing descriptions bring to the fore the need for adequate enlightenment programmes that will change wrong perceptions about convulsion. In the light of this discovery, mothers should always seek medical advice in critical situations like convulsion and coma because delay in treating the child might lead to his or her death.

Conclusion

The study examined the role of faith-based organisations in malaria management among mothers of under-five children in Osogbo. The study showed that the mothers exhibited appreciable level of knowledge on the malaria management roles of faith-based organisations by indicating the various support roles rendered by faith-based organisations in malaria management such as Insecticides Treated Nets (ITNs) and Indoor Residual Spraying (IRS) as effective methods for malaria prevention. However, certain factors such as scarcity through hoarding of these facilities by corrupt health officials prevented some mothers from using them, hence encouraged malaria transmission and spread in the study area. The study revealed that appreciable efforts have been expended in malaria management, but misconception has continued to hamper malaria management in Nigeria. Conclusively, adequate public enlightenment campaigns will continue to be useful response to childhood malaria management. Therefore, concerted efforts of both government and faith-based organisations should be intensified to enhance appropriate public education programmes aimed at reducing misconceptions and ignorance associated with malaria management which lead to severe malaria complications in children. ITN and IRS facilities which enhance malaria management should free and readily available for children and pregnant women.

Recommendations

The study made the following recommendations.

1. Increased collaboration between faith-based organisations and government: Faith-based organisations and government should expedite action in the course of formulating and implementing policies that can guarantee equal access to qualitative childhood malaria management facilities through proper documentation of the target risk group of children and pregnant women in need of ITNs. Thorough health information system should be established in the rural communities to document the distribution of free ITN to the rural communities using health workers to facilitate usage in high malaria endemic areas. Therefore, adequate community health information management system that will ensure both acquisition and usage of ITN should be emphasized.
2. Enlightenment: Efforts should be made to enlighten uneducated mothers on the importance of using malaria management facilities since the study revealed that educated mothers performed better than uneducated ones in the use of malaria management facilities. There is need for renewed interest in the inclusion of educational facet to anti-malaria intervention programme. This study emphasises that any intervention which excludes the educational facet is ignoring a significant factor in illness control efforts. Therefore, malaria-specific education should be accelerated for the less educated mothers to enable them understand the aetiology of malaria in highly endemic areas. Furthermore, increased maternal awareness will increase the bargaining powers and rights of mothers in the health seeking behaviour for their children. Therefore, faith-based organisations and government should make available malaria management facilities to fill malaria management facility deficit gap.

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