

A Qualitative Exploration of Caregivers' Home Management of Malaria among Under-Five Children in the Federal Capital Territory, Abuja, Nigeria

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Abstract

Background

Quantitative surveys of caregiver home management of malaria describe *what* caregivers do, but not *why*. Understanding the reasoning, constraints, and lived experience behind home management decisions is essential to designing interventions that caregivers can realistically adopt.

Methods

A qualitative study using ten focus group discussions (FGDs) was conducted with 70 caregivers of under-five children in three area councils of the Federal Capital Territory (FCT), Abuja, purposively selected to reflect the age and education range of the wider study population. Each FGD comprised seven participants and lasted approximately 45 minutes. Sessions were audio-recorded, transcribed, and analysed thematically, with two researchers independently coding transcripts to ensure inter-rater reliability.

Results

Six major themes emerged. Caregivers held partial and mixed knowledge of malaria, correctly identifying mosquito bites as a cause while simultaneously attributing malaria to dirty water and malnutrition. Home management was dominated by paracetamol, used correctly by dose but incorrectly as a substitute for antimalarial treatment, often combined with herbal remedies and followed by a period of observation before facility care was sought. Financial and structural barriers treatment cost, facility deposit requirements, poor health worker attitudes, and drug unavailability were the dominant drivers of home management over formal care. Awareness of national treatment guidelines was almost absent. Prevention knowledge existed but was not practised, most notably the absence of insecticide-treated nets despite caregivers' awareness of their importance. Caregivers themselves recognised that home management was largely ineffective and proposed community sensitisation, decentralised healthcare access, and health worker training as solutions.

Conclusion

Caregivers' home management decisions are shaped less by a lack of awareness than by structural and financial constraints that make formal care inaccessible, pushing caregivers toward a symptomatic, paracetamol-based home response. Interventions that address cost and facility-level barriers, alongside targeted correction of specific misconceptions, are likely to be more effective than knowledge-focused education alone.

1. Introduction

Malaria remains one of the leading causes of morbidity and mortality among children under five years of age in Nigeria, which accounts for roughly 30.9% of Africa's malaria cases and a similarly disproportionate share of global malaria deaths [1]. More than 90% of the Nigerian population lives in areas of active transmission, and outpatient malaria burden remains substantial even in communities with functioning health infrastructure [2]. Despite WHO and national guidelines recommending prompt diagnosis and treatment with artemisinin-based combination therapy (ACT) as the cornerstone of case management, evidence consistently shows that caregivers deviate substantially from this standard: more than two-thirds of malaria episodes in rural Africa, and roughly half in urban areas, are managed through self-treatment rather than the formal health system [3].

This pattern holds locally. In a study conducted in Idu, within the FCT, only about 55% of caregivers sought treatment from a pharmacy or clinic when their under-five child had malaria, with the remainder relying on home-based measures [4]. Caregivers across Nigeria frequently rely on patent medicine vendors and informal drug outlets as their first point of contact precisely because these are more accessible than formal facilities, a pattern that shapes what caregivers actually do even when their knowledge of appropriate treatment is reasonably sound [5]. Quantitative studies, including a companion analysis of this same study population, have documented substantial gaps in caregiver knowledge, attitude, and treatment practices, with the majority of febrile children managed at home using non-antimalarial medication and only a small minority receiving treatment within the recommended 24-hour window.

Quantitative KAP surveys, however, are limited in their ability to explain *why* caregivers make the decisions they do whether from genuine lack of knowledge, rational responses to structural barriers, or a combination of both. The Health Belief Model offers a useful lens for this gap: it proposes that health behaviour is shaped not only by knowledge but by perceived susceptibility and severity of illness, perceived barriers to action, and self-efficacy the caregiver's belief in their own capacity to carry out the recommended action [6]. A caregiver may know that formal treatment is preferable and still not seek it, if perceived barriers (cost, distance, facility deposit requirements) outweigh perceived benefits, or if they lack confidence that formal care is genuinely accessible to them. Numerical prevalence data alone cannot distinguish a knowledge gap from a self-efficacy or structural-access gap; only caregivers' own accounts can. This qualitative component was therefore designed as a complementary phase within a mixed-methods study, intended to capture the reasoning, constraints, and lived experience behind the treatment-choice patterns identified quantitatively, and to give caregivers themselves a voice in interpreting their own care-seeking behaviour.

Qualitative methods are well suited to surfacing this reasoning. This paper reports findings from focus group discussions conducted alongside the quantitative survey, exploring caregivers' knowledge, decision-making, and lived experience of managing malaria in under-five children at home, in order to contextualise and explain the patterns observed in the quantitative data.

2. Methods

2.1 Study design and setting

This qualitative study was conducted as a component of a larger cross-sectional study on caregiver knowledge, attitude, practices, and treatment outcomes regarding malaria in under-five children, in the Federal Capital Territory (FCT), Abuja, Nigeria.

2.2 Participants and sampling

Ten focus group discussions were conducted, each comprising seven caregivers of under-five children, for a total of 70 participants. Participants were purposively selected to reflect the age, marital status, and education range of the wider quantitative study population, and to be broadly similar in age and marital status within each group to facilitate open discussion. Data collection continued until thematic saturation was achieved.

2.3 Data collection

An open-ended FGD guide explored caregivers' sociodemographic characteristics, knowledge and attitudes toward malaria, decision-making around treatment, factors influencing home-based management, and the outcomes of home management practices. Discussions were held in a central community location, lasted approximately 45 minutes each, and were audio-recorded, transcribed, and translated where necessary. The FGD guide was reviewed by experts in malaria research and public health for content and construct validity, and piloted alongside the quantitative questionnaire in Gwagwalada Area Council, FCT.

2.4 Data analysis

Transcripts were analysed using thematic analysis. Codes were generated inductively from the data, grouped into broader subthemes and themes representing significant ideas, behaviours, and perceptions, and interpreted in relation to the study objectives. Two trained researchers independently coded the transcripts and compared findings to ensure inter-rater reliability. Findings are presented as major themes with supporting subthemes and illustrative direct quotations from participants.

2.5 Ethical considerations

Ethical approval

was obtained from the Federal Capital Territory Health Research Ethics Committee of the Federal Capital Territory Ministry of Health (approval number FHREC/2026/01/12/10-02-2016) and the Adeleke University Research Ethics Committee (approval number AUERC/2026/33PH/016). Approval from the Federal Capital Territory Health Research Ethics Committee was required as the regulatory ethics body with oversight of research conducted within FCT communities and health facilities, in addition to institutional approval from Adeleke University, the corresponding author's academic institution. All methods were carried out in accordance with the relevant guidelines and regulations, including the

Declaration of Helsinki. Written informed consent was obtained from all respondents prior to interview, and confidentiality was maintained throughout.

3. Results

Participants ranged in age from 18 to over 45 years, purposively selected to mirror the demographic characteristics of the wider survey population. The majority were married, had secondary school or no formal education, and were predominantly housewives. Six major themes emerged from the analysis, summarised in Table 1 and described in full below.

Table 1
Summary of Themes and Subthemes

Theme	Subthemes
1. Partial and mixed knowledge of malaria	General awareness as mosquito-borne; persistent misconceptions about causes; symptom recognition dominated by fever; limited knowledge of severe malaria signs
2. Home management dominated by paracetamol	Universal use of paracetamol as first-line treatment; correct dosage knowledge; combined use of drugs and herbal remedies; observation before seeking formal care; escalation only after home treatment failure
3. Financial and structural barriers to formal healthcare	Cost of treatment as primary barrier; deposit requirements as a deterrent; poor attitude of health workers; drug unavailability at facilities
4. Limited awareness of national treatment guidelines	Very limited knowledge of guidelines; suggestion of educational materials to improve adherence
5. Prevention knowledge present but not practised	Knowledge of prevention measures; gap between prevention knowledge and practice
6. Poor outcomes of home management and recommendations	Self-recognised ineffectiveness of home management; recurrence linked to environmental risk; recommendations for community sensitisation, accessible healthcare, and health worker training

3.1 Theme 1: Partial and mixed knowledge of malaria

Most caregivers were aware that malaria is transmitted by mosquito bite, and some demonstrated a relatively detailed understanding of the transmission mechanism, describing the transformation of the parasite following a bite. Fever was consistently the first association participants made with the word “malaria,” reflecting the dominant symptom awareness in the community.

Malaria is a disease caused by mosquito, infected human mosquito. Not male, it is a female term mosquito. That once it bites you, it transforms to a plasmodium falciparum that develop to malaria.

It is a sickness. It is a disease. It is spread by mosquito bite.

Despite this awareness, caregivers simultaneously held misconceptions that malaria could be caused by dirty or stagnant water, malnutrition, or general environmental exposure. Malnutrition was specifically cited as a contributing cause, reflecting a conflation of nutritional vulnerability with direct causation a misconception that may lead caregivers to attribute malaria episodes to poor feeding rather than mosquito exposure, potentially delaying appropriate treatment.

Malaria are coming from the dirty water.

Stagnant water when you are inside. By exposing themselves. Through water. Yes, water they drink.

When a child is not feeding well, when a child is minor. Yes, of course [it causes malaria].

Fever was universally recognised as the primary symptom, alongside body weakness, vomiting, loss of appetite, and high temperature consistent with the quantitative finding that 82.5% of respondents identified fever as a symptom of malaria.

Weakness of the body. Hotness of the body. Vomiting. High temperature.

They will not be eating and the temperature will be high.

Knowledge of severe malaria danger signs, however, was very limited: only one participant across all ten FGDs mentioned convulsion, referring to it imprecisely as “conversion” rather than “convulsion,” suggesting limited clinical familiarity with the term itself.

When the malaria is high and you are not treating it, it leads to conversion and leads to death.

This gap is clinically significant, since convulsions, severe anaemia, and respiratory distress are emergency indicators requiring immediate hospital referral, and caregivers unaware of these signs may delay escalation.

3.2 Theme 2: Home management dominated by paracetamol

All participants across the ten FGDs reported using paracetamol (PCM) as their immediate first response to a child’s fever, describing it explicitly as an interim measure to reduce fever while preparing to seek hospital care if needed.

I will first check the temperature. If the temperature is high, I will give the child paracetamol. To come to them before taking him or her to the hospital.

PCM is the first treatment I give at home.

Caregivers demonstrated correct weight- and age-based PCM dosing knowledge, consistent with the quantitative finding that all PCM users administered correct dosages.

If the child is one year old, I will give her half tablet. But this is from three years to five years. One tablet.

Inside that, you know, it is two. It is always two. You divide it into two.

This contrasted sharply with very low use of artemisinin-based combination therapy (ACT) the actual recommended antimalarial in the quantitative data, suggesting caregivers apply correct dosing to the drug they are familiar with, even though it has no antimalarial activity. This pattern echoes a study among caregivers attending a tertiary institution in Nigeria, where 69.0% used paracetamol alone as the first-line home treatment for malaria in under-fives [7].

Several participants described combining conventional drugs with herbal remedies, reporting variable effectiveness and describing waiting roughly two days before judging whether treatment was working. Where a specific preparation was named, participants identified boiled dongoyaro (neem) leaf this was the only herbal remedy named explicitly across the ten FGDs, and its identification is a distinct contribution of this qualitative component: the quantitative survey recorded that 24.6% of caregivers used a herbal remedy as primary treatment and 16.8% as a follow-up measure, but could not capture which preparation this represented. Reliance on unnamed herbal remedies and traditional healers as a first or adjunctive response to childhood illness has been documented elsewhere in Nigeria, including in Kogi and Ebonyi States [8] and Imo State [9], and traditional healers themselves are often reported to regard herbal preparations as effective against malaria [10].

We do both. Sometimes we just boil dongoyaro leaf.

Sometimes it works and sometimes it does not work.

It is after two days. After two days before the drugs will start working.

This tolerance of a multi-day response window likely delays recognition of treatment failure and further postpones escalation to formal care consistent with the quantitative finding that only 2.3% of caregivers initiated treatment within the recommended 24-hour window.

Sometimes I want to observe the child to see whether it is malaria or we just feel tired.

Caregivers consistently described seeking formal healthcare only once symptoms persisted despite home treatment, confirming a sequential “home-first, facility-second” pattern that helps explain the high hospital admission rate (55.0%) and severe malaria rate (16.8%) documented quantitatively.

When they do not work. We proceed to the hospital.

If the symptoms persist, then it did not work.

3.3 Theme 3: Financial and structural barriers to formal healthcare

Cost of treatment was unanimously identified as the single most important barrier to formal care-seeking, with participants describing the anticipated cost of a hospital visit as their first concern on recognising a child was unwell corroborating the quantitative finding that 74.4% cited cost as a barrier and 75.0% reported financial difficulty as a challenge to healthcare access.

For me, the fear of my treatment is cost of the treatment. Taking a child to the hospital, the first thing you think about is how you are going to pay for that treatment.

Beyond general cost concerns, participants described a specific structural deterrent: health facilities requiring a deposit before a child would be attended to, meaning caregivers unable to meet this requirement were turned away or received delayed attention even after attempting to seek care.

When they want you to take a child to the facility, the first thing they request is open the card. After the card, they will ask you how much you deposit. And once you do not have that amount of money to deposit, they will not give you proper attention.

Poor attitudes among health workers compounded this barrier, with participants describing rude treatment and calling for training that would help staff understand the economic hardship caregivers face.

When we visit the hospital the healthcare workers are always rude.

Training them. Let them understand that they are dealing with all kinds of people. We need their patience. We need their understanding. We need that the economy is hard. So sometimes we can do and they should be patient.

Drug unavailability at health facilities was also cited, further eroding trust in the formal health system and reinforcing reliance on home management even among caregivers willing to seek facility care.

Drug is not always available at the hospital.

3.4 Theme 4: Limited awareness of national malaria treatment guidelines

Awareness of national malaria treatment guidelines was almost entirely absent. Only one participant across all ten FGDs expressed any familiarity, correctly describing the test-before-treat principle but without mentioning ACT as the recommended drug, the 24-hour treatment window, or correct dosing consistent with the quantitative finding that only 11.4% of caregivers were aware that guidelines exist.

I am a little bit aware. Of the guidelines. Number one, most especially when you have malaria, do not rush to the chemist. Always test the child first before treatment. Do not just do phase eight. And if it is severe, rush in to consult your doctor.

When asked how adherence could be improved, participants suggested pictorial educational materials displayed in homes, reflecting awareness that point-of-care information in the home setting, rather than facility-based messaging alone, would better support decision-making.

Probably they have a pictorial chart within their houses. They can look at it and then they feel freer.

3.5 Theme 5: Prevention knowledge present but not practised

Participants readily named evidence-based prevention strategies, including sleeping under insecticide-treated nets (ITNs), maintaining a clean environment, ensuring adequate feeding, and providing clean drinking water.

Sleeping under mosquito treated net.

Clean your environment.

Feeding well.

By giving them clean water to drink. Giving them clean water.

Despite this knowledge, when asked directly, participants confirmed they did not have ITNs in their homes.

Do you have insecticide net in your house? No.

This knowledge-practice gap mirrors the broader pattern seen in the quantitative findings, where good knowledge did not consistently translate into good practice, and likely reflects financial constraints and limited access to preventive commodities rather than a lack of awareness.

3.6 Theme 6: Poor outcomes of home management and recommendations for improvement

Caregivers themselves recognised that their home management of malaria was largely ineffective, attributing this to not following correct treatment steps and being unable to judge the severity of a child's illness at home before beginning treatment.

From my experience, it is not effective. It is not effective at all. Because sometimes you will not follow the right steps. Maybe you do not know the level of the malaria. And so you just start the treatment. So I feel that doing the right thing is the best way.

This self-awareness caregivers explicitly linking their inability to determine “the level of the malaria” to inappropriate treatment complements the quantitative finding of only 22.0% treatment effectiveness among home-managed malaria cases, and points directly to the need for accessible diagnostic testing before treatment.

Participants also linked the recurrence of malaria episodes to persistent environmental risk, noting that treating an episode without addressing continued mosquito exposure meant the disease would return.

Sanitation. Because once you do sanitation within the community by keeping your environment clean... even if they provide drugs in the facility, if the precautions are not there, definitely if you treat malaria today, tomorrow it comes back. But the mosquitoes are still there waiting for us.

Three recommendations recurred across groups: community sanitation and health education addressing both prevention and treatment; decentralising healthcare to bring services physically and financially closer to communities; and training health workers to improve their attitudes toward patients navigating financial hardship.

First, advocacy. Let us understand what brings the malaria to homes and the preventive measures. Then other things follows like drugs and so on and so forth.

Bringing the healthcare closer to us. Very closer to us. Even at the doorsteps.

These recommendations align with the quantitative finding that poor quality of care ($p = 0.026$) and drug unavailability ($p = 0.031$) were significant factors influencing home management practices.

4. Discussion

These findings suggest that caregivers' reliance on home management is driven less by ignorance than by a rational, if ultimately inadequate, response to structural barriers that make formal care difficult to access. Caregivers in this study were not uninformed: they recognised fever as a symptom, understood mosquito transmission, dosed paracetamol correctly, and were able to name evidence-based prevention measures. What they lacked was not awareness in the abstract, but the specific clinical knowledge needed to recognise danger signs and treatment guidelines, and more fundamentally the financial and structural means to act on the knowledge they had. This pattern is consistent with prior qualitative work in similar West African settings, where cost and facility-level deterrents such as deposit requirements have been identified as decisive factors pushing caregivers toward home management even when formal care is preferred in principle [11].

The home-first, facility-second sequence documented in Theme 2 is not unique to this population; a study conducted in Kogi and Ebonyi States similarly found that many caregivers do not seek sick-child care from trained biomedical providers as a first step, a pattern the authors linked to persistently high under-five mortality [8]. Read alongside the present findings, this suggests that sequential care-seeking is not a localised anomaly but a structurally reinforced pathway across multiple Nigerian settings one that repeat exposure to facility deposit requirements and cost barriers appears to entrench over time, rather than a simple, correctable knowledge deficit.

The near-universal use of paracetamol as a substitute for antimalarial treatment is a critical finding with direct clinical implications. Caregivers' correct dosing knowledge for PCM, contrasted with their almost

complete lack of guideline awareness, indicates that health messaging has successfully taught safe medication practices for a familiar over-the-counter drug, but has not successfully redirected caregivers toward ACT as the appropriate first-line treatment. This suggests that generic “seek treatment early” messaging is insufficient; messaging needs to specifically and repeatedly name ACT and explain why paracetamol alone does not treat malaria.

The self-recognition among caregivers that their own home management was ineffective is notable, and arguably an underused entry point for intervention. Caregivers were not defending home management as adequate; they were describing it as a constrained choice. Viewed through the Health Belief Model, this pattern reflects a specific kind of gap: caregivers appeared to have reasonable perceived susceptibility and severity they recognised malaria as serious and worried about their children but low perceived self-efficacy in navigating the formal health system, compounded by structural barriers that made perceived costs of formal care outweigh perceived benefits [6]. This distinction matters for intervention design: programmes that address the deposit requirement and cost barriers directly, and that build caregivers’ confidence in their ability to access and navigate formal care, are likely to shift care-seeking behaviour more effectively than programmes that assume the primary barrier is a lack of caregiver motivation or awareness. A comparable qualitative study of home management of malaria in southwest Nigeria similarly found that community perceptions of treatment efficacy and feasibility, rather than knowledge alone, shaped how caregivers engaged with recommended antimalarial therapy [12], reinforcing that behavioural and structural context not information deficit alone should guide intervention design in this population.

4.1 Limitations

Findings from this qualitative component reflect the perspectives of caregivers in three area councils of the FCT and may not be transferable to other regions of Nigeria with different health-system contexts, sociocultural norms, or facility infrastructure. As with all self-reported data, responses may be subject to social desirability bias, particularly regarding sensitive topics such as facility experiences and treatment-seeking delays; participants may also have moderated criticism of health workers or facilities in a group setting. Thematic saturation was assessed across ten FGDs with inter-rater coding, which supports the credibility of the themes identified, but the purposive sampling approach means findings describe patterns within this population rather than population-representative prevalence, a role served instead by the companion quantitative analysis.

5. Conclusion

Caregivers’ home management of malaria in this study was shaped primarily by financial and structural barriers to formal care rather than by a fundamental lack of awareness. Paracetamol use as a substitute for antimalarial treatment, prolonged home observation, and delayed facility-seeking were consistent, caregiver-acknowledged patterns rooted in cost, facility deposit requirements, and negative prior experiences with the health system. Interventions that reduce financial and structural barriers to formal

care, combined with guideline-specific health messaging that explicitly addresses the paracetamol substitution pattern, are likely to be more effective than general knowledge-based education alone in improving malaria outcomes among under-five children in this setting.

Declarations

Ethics approval and consent to participate:

Ethical approval was obtained from the Federal Capital Territory Health Research Ethics Committee of the Federal Capital Territory Ministry of Health (approval number FHREC/2026/01/12/10-02-2016) and the Adeleke University Research Ethics Committee (approval number AUERC/2026/33PH/016). Approval from the Federal Capital Territory Health Research Ethics Committee was required as the regulatory ethics body with oversight of research conducted within FCT communities and health facilities, in addition to institutional approval from Adeleke University, the corresponding author's academic institution. All methods were carried out in accordance with the relevant guidelines and regulations, including the Declaration of Helsinki. Written informed consent was obtained from all respondents prior to interview, and confidentiality was maintained throughout.

Consent for publication:

Not applicable.

Competing interests:

The authors declare that they have no competing interests.

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Author Contribution

OMP conceived and designed the study, collected and analysed the data, and drafted the manuscript. ASM collected and analysed the data. ETJ and OO supervised the study and critically reviewed the manuscript. AO collected the data.

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Data Availability

The FGD transcripts analysed during the current study are available from the corresponding author on reasonable request, subject to participant confidentiality considerations.

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