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The Social Experience of Malaria Treatment-Seeking: pathways, Gender, and Inequality in Jimma Zone, Ethiopia

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Abstract

Background: Malaria remains one of the most persistent public health challenges in Ethiopia, where its meaning and treatment are shaped not only by biological causes but also by cultural beliefs and social inequalities. Despite increased awareness and government-led control efforts, the disease continues to affect communities in endemic areas. This study examined how communities in Jimma City understand and manage malaria, specifically focusing on how local beliefs, gender roles, and economic barriers shape treatment choices.

Method: An ethnographic study was conducted in Jimma City, southwest Ethiopia. Data were collected through in-depth interviews (n = 32), key informant interviews (n = 8), two focus group discussions, participant observation, and document review. Participants included household members affected by malaria, traditional healers, religious leaders, community elders, and health professionals. Interviews were conducted in Afaan Oromo and Amharic, transcribed verbatim, translated into English, and analyzed using thematic analysis.

Result: Malaria was understood through overlapping cultural and biomedical explanatory models. Local terms such as *buda* (evil eye), *busa* (seasonal fever), and *sekera* (killer disease) shaped how symptoms were recognized and interpreted. Treatment-seeking followed a pluralistic pathway, commonly beginning with home remedies, herbal treatments, and prayer, followed by biomedical care when symptoms worsened or persisted. Gender dynamics strongly influenced care-seeking: females were typically the first to recognize illness and provide care but often lacked decision-making authority and financial control, contributing to delays in accessing treatment. Males' occupational and social activities increased their exposure to malaria risk. Structural barriers

including poverty, drug stockouts, transport constraints, inadequate housing, and weak health infrastructure further constrained timely and effective care.

Conclusion: In Jimma City, malaria is experienced as a social as well as biomedical condition, embedded in local belief systems, gender relations, and structural inequalities. Malaria control efforts that focus solely on biomedical interventions risk overlooking the social realities that shape treatment-seeking behavior. Effective and sustainable malaria control requires engagement with local explanatory models, strengthening women's decision-making power, and addressing systemic barriers that perpetuate vulnerability.

Keywords: *Malaria; treatment-seeking behavior; explanatory models; gender inequality; ethnography; Ethiopia*

Introduction

Malaria remains one of the most persistent public health challenges globally, despite decades of biomedical advances and large-scale control efforts[1-3]. Transmitted through the bite of an infected *Anopheles mosquito* and caused by *Plasmodium* parasites, the disease continues to result in substantial morbidity and mortality, particularly in sub-Saharan Africa[1]. In 2024, an estimated 282 million malaria cases and 610,000 deaths were reported worldwide, with Africa accounting for more than 95% of this burden[4]. Ethiopia remains among the countries most affected, where malaria continues to pose significant public health and socio-economic challenges [5]. Beyond its immediate health impacts, the disease severely undermines household livelihoods, productivity, and social stability [6-8]. The country's diverse ecology, climate variability, and patterns of settlement create conditions that sustain transmission in many regions, often leading to unpredictable seasonal surges [9, 10]. For instance, the Jimma Zone experiences persistent transmission due to favorable environmental conditions, including high rainfall, moderate temperatures, and widespread mosquito breeding sites[11, 12]. Although national malaria control programs have expanded access to insecticide-treated nets, diagnostics, and antimalarial drugs, the disease continues to affect communities unevenly, raising questions about the limits of biomedical interventions alone[13-16].

Previous studies [7, 17-19] have extensively documented the broader socio-economic impacts of malaria in Jimma, particularly regarding its detrimental effects on health, education, economic productivity, and social stability. However, these investigations have paid limited attention to the intricate social and cultural dimensions that influence community health behaviors. Furthermore, they have yet to delve deeply into how local beliefs, traditional practices, and socio-economic

realities collectively shape the community's response to malaria prevention and control strategies[19, 20]. Significantly fewer investigations have examined the cultural meanings and nuanced social contexts surrounding the disease[21, 22]. As a result, important questions remain about how traditional practices, gender relations, and community perceptions shape prevention and treatment decisions. When these cultural and social dimensions are overlooked, malaria control programs may fail to align with the lived experiences and everyday practices of local communities [7, 11, 22, 23].

Anthropological approaches emphasize that health and illness should be understood not only as biological phenomena but also as subjective experiences deeply embedded in cultural and social contexts[24, 25]. Building on this context, previous research indicates that community beliefs, family roles, and customary practices exert a strong influence on the adoption or rejection of malaria interventions[26, 27]. In Ethiopia, some findings point to widespread awareness and preventive behavior, while others reveal persistent challenges, particularly in remote and pastoral settings where healthcare access is limited [28, 29]. These mixed outcomes suggest a need for deeper exploration in urban areas such as Jimma, where social change may shape health practices in unique ways.

Gender represents another critical dimension that influences the success of malaria prevention and treatment. While women are frequently the first to identify symptoms within the household, they often lack the socio-economic authority or autonomy to act on that knowledge[30]. In Ethiopia and other low-income countries, men typically control finances and decide when and where to seek care, while women shoulder the daily burden of caregiving [31, 32]. As a result, malaria interventions that ignore gendered decision-making structures risk reinforcing the very inequalities that limit their effectiveness[33].

This study examined how cultural beliefs, gender relations, and treatment-seeking behaviors shape community responses to malaria prevention and control in Jimma. Grounded in anthropological perspectives, it generates context-specific evidence to inform the design of culturally responsive and community-centered interventions. By foregrounding local social dynamics, the findings have the potential to strengthen malaria prevention efforts and enhance the sustainability of control programs in Jimma Zone and the wider Oromia Region, where persistent transmission, rapid urbanization, and social inequality continue to challenge conventional public health approaches.

Methods

Study setting

The study was conducted in Jimma City, the capital of Jimma Zone in Oromia Regional State, located approximately 351 kilometers southwest of Addis Ababa. Jimma lies at an altitude of about 1,820 meters above sea level and is characterized by warm temperatures and high annual rainfall, estimated between 1,450 and 1,800 mm. These ecological conditions create a favorable environment for malaria transmission, particularly in areas where drainage is poor and stagnant water accumulates around residential neighborhoods and construction sites[12, 17]. Jimma is an important commercial and cultural center with a long history of trade. Its population is socially and linguistically diverse, including Oromo, Amhara, Gurage, Kefa, Dawro, and other groups. According to the 2007 Population and Housing Census data for Jimma Zone, the population is predominantly Muslim (85.6%), followed by Orthodox Christian (11.2%) and Protestant (3.0%). While primary affiliation with traditional religions is statistically marginal at less than 1%, the community practices a form of epistemological pluralism, where formal religious identity coexists with local cultural explanatory models. Participants do not perceive a conflict between being a devout Christian or Muslim and believing in traditional beliefs of malaria. Consequently, treatment often involves spiritual first-aid, such as the use of Holy Water **(***Tsebel)* for Christians or *Zamzam* (holy water) for Muslims are utilized as spiritual remedies alongside biomedical interventions.

The local economy is dominated by coffee production and trade, alongside *khat* cultivation, livestock rearing, and small-scale horticulture. These livelihood activities shape daily routines and patterns of movement, which in turn influence exposure to malaria risk.

Health services in Jimma are provided through a pluralistic system that includes public, private, and non-governmental actors. The public sector consists of two hospitals, four health centers, thirteen health posts, and a blood bank. In addition, private providers operate several hospitals, clinics, pharmacies, and drug shops across the city. Non-governmental organizations also offer selected health and social services. This diverse health landscape requires households to navigate multiple options when illness occurs, often making decisions based on cost, availability of medicines, and trust in providers rather than preference alone[12, 17].

Study design

An ethnographic design was employed to explore the social and cultural dimensions of malaria prevention and treatment in Jimma City. Ethnography was chosen because it allows for close attention to lived experience, everyday practices, and local meanings of illness[34].

Fieldwork was conducted in two different seasons in order to capture variations in malaria experience over time. The first phase of data collection took place between April and August 2025, following approval of the research proposal. This was followed by a second phase from September to November 2025, which coincided with the peak malaria transmission season in Jimma. Collecting data during this period enabled observation of treatment-seeking behavior and community responses during times of heightened risk.

Reflexivity and Researcher Positionality

The principal investigator (TG), a male PhD candidate in Social Anthropology at Jimma University, maintained reflexivity throughout the research process. Reflexive practice was achieved through continuous fieldnotes and analytic memos that documented personal assumptions, positionality, and interactions with participants. Particular attention was given to how

the researcher's academic background, gender, and role as an insider–outsider might influence data collection, participant responses, and interpretation of findings. Regular debriefing with the supervisory team (DT and MS) further supported critical reflection and methodological rigor.

Sampling and participants

A purposive sampling strategy was used to recruit participants with direct experience or knowledge of malaria prevention, illness, or treatment. Specifically, the research team targeted three administrative sub-divisions (Hermata, Mendera Kochi, and Bosa Kito) which were identified as malaria hotspots by the Jimma City malaria coordinator and health professionals. These regions were selected due to their high transmission rates to ensure the study captured the most relevant household experiences. Community entry was facilitated by local Health Extension Workers (HEWs), who served as gatekeepers and introduced the researcher to eligible households. Efforts were made to ensure diversity by gender, age, socio-economic background, and community roles. Participants were selected for their ability to provide rich, relevant insights, following established protocols[35-37].

In total, 56 unique participants were involved in the study. These comprised thirty-two household informants with recent experience of malaria illness, eight key informants (health professionals, religious leaders, traditional healers, and community elders), and two FGDs were conducted separately by gender. The female FGD had 10 participants while the male FGD had 8 participants. These participants were purposively selected to represent a wide generational range, with ages spanning from 19 to 56 years. The final headcount of 56 reflects the adjustment to avoid double-counting two individuals who participated in both an IDI and an FGD, as shown in the demographic analysis in Table 1. The inclusion of two participants in both the In-Depth Interviews

(IDIs) and Focus Group Discussions (FGDs) was intentional and aimed at enhancing methodological triangulation. This approach enabled comparison between individual illness narratives and broader community perspectives, thereby strengthening the depth, consistency, and credibility of the findings. Participants represented a wide range of ages and marital statuses, ensuring diversity of perspectives rather than demographic representativeness. This combination captured both individual illness narratives and shared community perspectives.

Sampling continued until thematic saturation was reached, meaning additional interviews no longer generated substantially new insights, thereby supporting the depth and credibility of the qualitative findings.

Data collection

Data were collected using multiple qualitative methods to allow for triangulation[35]. These included in-depth interviews, key informant interviews, focus group discussions, and participant observation. Semi-structured interview guides and focus group discussion guides were used to ensure consistency while allowing flexibility to explore participants' experiences in depth. (see Table 3 for a detailed summary). In-depth interviews focused on household experiences of malaria, including symptom recognition, treatment decisions, and caregiving practices. Key informant interviews provided broader perspectives on malaria prevention and control from professional, religious, and traditional viewpoints. Focus group discussions were used to explore collective understandings of malaria, local illness terminology, and shared treatment practices. Observer-as-participant was conducted in households and at health facilities, allowing direct observation of care-seeking interactions, communication between patients and health workers, and prevention practices[38]. These observations were recorded using detailed, handwritten field notes to

document the nuances of provider-patient communication and household caregiving practices that were not fully captured in verbal interviews. In addition to written notes, environmental risks specifically, the presence of stagnant water in residential areas were documented through photographic evidence to provide visual context for the structural vulnerabilities identified. These field notes and visual records were later expanded and integrated into the thematic analysis.

To cultivate prolonged engagement and maintain methodological consistency as this study constitutes the doctoral research of the lead author (TG), all IDIs and KIIs were conducted solely by TG. For the FGDs, the lead author was supported by two trained research assistants (one male and one female). Participant observation was conducted using an observer-as-participant framework in households and health facilities, with data recorded through structured fieldnotes and reflexive memos to ensure analytical depth. The data collection process was conducted under the rigorous methodological oversight of the supervisory team (DT and MS), with frequent debriefing sessions held to ensure the findings remained theoretically grounded and academically robust.

All interviews and focus group discussions were conducted in local languages, including Afaan Oromo-speaking people and Amharic speaking people. With participants' consent, discussions were audio-recorded, transcribed verbatim, and translated into English. To ensure accuracy and preserve cultural meanings, a subset of transcripts was back-translated.

Inclusion and exclusion criteria

The study included adult participants (≥18 years) who had resided or worked in Jimma City for at least one year prior to data collection. Participants comprised three groups: (i) household informants with recent personal experience of malaria illness or involvement in household-level

caregiving for malaria; (ii) community members participating in focus group discussions, selected based on their common lived experiences of residing in a malaria-endemic area, allowing for a collective exploration of varied beliefs and treatment-seeking behaviors; and (iii) key informants, including health professionals, religious leaders, traditional healers, and community elders, purposively selected based on their professional responsibilities or community roles relevant to malaria prevention, treatment, or health-seeking practices. All participants were able and willing to provide informed consent.

Individuals under 18 years of age, temporary residents (less than one year of residence), those who were acutely ill at the time of data collection, or those unwilling to provide informed consent were excluded from the study.

Data analysis

Data analysis followed a thematic analysis approach[39]. Transcripts, field notes, and documents were read repeatedly to achieve familiarity with the data. The document review specifically focused on local health facility reports, malaria policy documents, and Jimma Zone health statistics from 2024/2025. These materials were used to contextualize and triangulate the qualitative findings, particularly regarding reported drug stockouts, malaria transmission trends, and structural barriers affecting treatment-seeking practices. Initial codes were developed inductively, reflecting recurring ideas and patterns emerging from participants' accounts. These codes were then grouped into broader categories and refined into key themes. This analytical process followed a collaborative approach to ensure investigator triangulation. While the lead author (TG) performed the primary coding of the complete dataset as part of the doctoral research, the senior authors (DT and MS) reviewed the final codebook and a representative subset of the transcripts to

ensure inter-coder consistency and thematic depth. Linguistic accuracy was maintained through a back translation process whereby TG conducted the initial translations from the local languages (Afaan Oromo and Amharic), which were then independently verified by DT to ensure the conceptual and cultural equivalence of local terminology.

Analysis was iterative and reflexive, moving back and forth between the data and emerging interpretations. Themes were examined in relation to the study objectives and relevant theoretical perspectives, including explanatory models of illness, treatment-seeking behavior, gender relations, and structural constraints. This process allowed findings to remain grounded in participants lived experiences while also engaging with broader conceptual frameworks. Trustworthiness of the study was ensured through methodological triangulation, prolonged engagement in the field, thematic saturation, and supervisory review of the coding process and emerging themes.

Ethical considerations

This study received ethical approval from the Jimma University College of Social Sciences and Humanities Institutional Review Board (IRB) (Ref: CSSH/5/57/2025). The study did not involve any clinical interventions or trials. All participants were informed about the purpose of the study, and informed consent was obtained prior to participation. Confidentiality was maintained by using pseudonyms and removing identifying details from transcripts and reports. Participation was voluntary, and participants were informed of their right to withdraw from the study at any point without consequence.

Results

A total of 56 participants took part in this study, including household informants, key informants, and focus group discussion participants. The demographic characteristics of study participants are summarized in Table 1.

The findings in this section were derived from interviews, focus group discussions, and participant observations conducted in Jimma, Ethiopia. While direct quotes are primarily drawn from IDIs and KIIs to illustrate personal experiences, findings were triangulated with FGD data to represent collective community norms. Furthermore, participant observations at health facilities and within households provided context on the practical application of these beliefs, highlighting the gap between reported intentions and actual treatment-seeking behaviors.

The analysis was focused on how malaria was understood, experienced, and responded to within specific cultural and social settings. The results were organized into four major themes: explanatory models and local terminologies, treatment-seeking pathways, gendered dynamics of care, and structural and economic barriers. Through these themes, a deeper understanding was provided of malaria as both a biological condition and a social reality shaped by everyday life in Jimma. When accounts were compared and analyzed, malaria was revealed to be deeply tied to daily social life, often expressed through local idioms such as *buda, busa, and sekera.*

Explanatory Models and Local Terminologies

In Jimma City, malaria was understood and explained through a range of local terms that did not always correspond directly with biomedical definitions. Participants commonly used expressions such *as busa, sekera,* and *buda* to describe illness episodes that biomedical practitioners would

classify as malaria. These local terminologies shaped how symptoms were recognized, interpreted, and acted upon within households and communities.

Busa was widely used to refer to recurrent seasonal fevers, particularly those occurring during the rainy period. Many participants associated *busa* with environmental and seasonal changes rather than with mosquito bites alone. One woman explained:

"Every year when the rains come, busa also comes. The children fall sick one after the other" (IDI-11 Woman, 17 June 2025).

This individual account was also reflected in the Focus Group Discussions, where participants collectively described *busa* as a predictable seasonal illness that commonly returns during the rainy season. Unlike the more personal fear and uncertainty expressed in several IDIs, the FGDs revealed a broader community-level normalization of malaria, which helps explain why many households initially adopted a 'wait-and-see' approach before seeking biomedical care.

This framing normalized malaria as a predictable and recurring condition, often leading households to initially manage symptoms at home.

Sekera was used to describe severe or life-threatening forms of illness, characterized by high fever, intense chills, weakness, and loss of speech. For many, the experience of 'sekera' was not just a biological state but a state of total social paralysis; one participant noted that the illness:

"*Finishes a person."* (IDI-14 Man, 18 June 2025).

Because it robs them of their ability to even speak or request help. Participants associated *sekera* with sudden deterioration and a high risk of death. As one participant stated:

"When someone shakes badly with fever and cannot speak, we say it is sekera, the killer disease" (IDI-08 Woman, 13 June 2025).

Illness episodes labeled as *sekera* were treated with greater urgency and fear, often prompting families to seek stronger forms of intervention.

The term *buda* was linked to spiritual harm, envy, and the evil eye. Some participants believed that malaria-like symptoms could result from social tension or spiritual attack rather than physical causes alone. An elderly woman explained:

"Malaria is not only about mosquitoes. It is like buda; it comes when someone envies you, when your body is not protected. If it catches you, it can finish you" (IDI-03 Woman, 14 August 2025). In such cases, illness was understood not merely as a physical condition but as a reflection of social vulnerability.

Participants often combined these explanatory models rather than treating them as mutually exclusive. While many acknowledged mosquitoes as a cause of malaria, local terms such as *busa, sekera*, and *buda* remained central to how illness was narrated and managed. It is critical to note that while these local idioms represent the community's socio-cultural reality, they do not replace the biomedical diagnosis of *Plasmodium* infection; rather, they exist as a parallel framework that determines the 'social life' and perceived severity of the disease. These labels influenced treatment choices, the timing of care-seeking, and decisions about whether to pursue home remedies, spiritual interventions, or biomedical services. Overall, malaria was experienced as both a bodily illness and a socially meaningful condition embedded in local systems of belief and interpretation.

Treatment-Seeking Pathways

Treatment-seeking for malaria in Jimma City rarely followed a single or linear pathway. Instead, households moved through a sequence of options, adjusting their responses as symptoms evolved and as resources, advice, and interpretations of illness changed (Table 2). Decisions about care were shaped not only by the severity of symptoms but also by cost, accessibility of services, and prevailing social beliefs about the nature of the illness.

Most participants reported that treatment typically began at home, particularly when symptoms were perceived as mild or familiar. Common home-based responses included resting, drinking hot beverages, and taking over-the-counter painkillers purchased from local shops. One participant explained:

"At first, we stay at home and see if it will pass. We drink tea, take tablets, and wait" (IDI-05 Woman,10 June 2025).

This initial period of waiting was generally described as a deliberate and practical decision rather than neglect, reflecting prior experiences in which similar symptoms had resolved without formal care.

When symptoms persisted or worsened, households often turned to herbal remedies. Participants mentioned the use of bitter leaves, papaya leaves, and gerawa (*Vernonia amygdalina*, commonly known as bitter leaf) as treatments believed to reduce fever and restore strength. A father described:

"We crushed the leaves, mixed them with water, and gave it to the child. The fever went down, so we did not go to the clinic immediately" (IDI-09 Man, 12 May 2025).

Such improvements were frequently interpreted as confirmation that biomedical care was not yet necessary.

Spiritual practices also formed an important component of treatment-seeking pathways, particularly when illness was associated with buda or perceived spiritual causes. Prayer, holy water, and consultations with religious leaders were commonly sought either alongside or prior to biomedical treatment. One religious leader explained:

"I prayed first and used holy water. When it did not improve, I decided to go to the health center" (KII-02 Man, 15 May 2025).

Traditional healers further supported this pathway by preparing herbal mixtures and performing spiritual rituals to counteract perceived social or spiritual causes of illness. These practices were not viewed as alternatives to biomedical care but as complementary responses addressing different perceived dimensions of illness.

Biomedical care was usually sought when symptoms became severe, prolonged, or interfered with daily activities such as work or caregiving. In a small number of cases, participants reported seeking biomedical care at an earlier stage of illness, particularly when symptoms were recognized as severe based on prior experience or when illness was interpreted as *sekera*. These instances were relatively limited and did not represent the dominant pattern of care-seeking observed across households. This pattern was further supported through participant observations conducted at local health centers. Researchers frequently observed patients arriving for clinical care only after showing visible signs of prolonged illness and physical exhaustion. In addition, observations of patient-provider interactions suggested that participants discussed their use of herbal remedies more openly during private interviews than during routine clinical consultations.

However, clinic visits were often delayed due to concerns about cost, distance, long waiting times, and uncertainty about the availability of medicines. Several participants described turning to private clinics after being unable to obtain treatment at public facilities. As one trader noted*:*

"I went to a private clinic because the public one had no drugs. It was expensive, but I had no choice" (IDI-07 Man, 20 June 2025).

Treatment decisions were strongly influenced by social networks. Advice from neighbors, relatives, and friends played a central role in shaping perceptions of illness severity and appropriate responses. One of the respondents noted:

"*We squeezed gerawa and papaya leaves together and drank one glass of it. A neighbor told us to do this. She said she had used it before and advised us, 'Give her this,' and after she took it, she got better right away*" (IDI-21 Woman, 12 May 2025).

Participants frequently described consulting multiple people and combining different forms of advice. As a result, treatment-seeking emerged as a socially negotiated process rather than an individual decision, with households moving between home care, traditional remedies, spiritual practices, and biomedical services depending on changing circumstances.

Overall, treatment-seeking for malaria in Jimma reflected a flexible and adaptive process shaped by cultural interpretations of illness, household dynamics, and structural constraints within the health system. Rather than following a fixed pathway, families navigated a pluralistic landscape of care options, responding pragmatically to both symptoms and the realities of access.

Gender dynamics of care

Malaria care in Jimma City was deeply shaped by gendered divisions of labor, authority, and exposure to risk. Women were consistently described as the primary caregivers within households and were typically the first to recognize malaria symptoms among children and other family members. They prepared home remedies, monitored illness progression, and frequently urged that biomedical care be sought. Despite this central role, women's ability to act on their knowledge was often constrained by limited decision-making power and restricted control over household finances.

Men generally held authority over when and where treatment was sought, particularly when financial expenditure was required. This imbalance often resulted in delays in seeking biomedical care, even when women perceived the illness as serious. One male participant acknowledged this tension, stating:

"*I kept saying, 'It will go away.' But my wife insisted: 'You are harming yourself, harming the children. Go and get checked*" (IDI-04 Man, 17 April 2025).

Such accounts illustrate how women's experiential knowledge was frequently overridden by male decision-making authority, with potential consequences for timely treatment.

In some cases, women acted independently when symptoms became severe or when they perceived waiting as dangerous. One woman described how she sought treatment without her husband's approval:

"Even though I felt weak, I went to a clinic by myself with my neighbor. My husband told me to stay home until the pain became serious, but I knew it was busa and didn't want to wait" (IDI-10 Woman, 17 April 2025).

These actions, while protective, often placed women at risk of criticism or conflict within the household.

Gendered patterns of exposure to malaria were also evident. Men were reported to have higher exposure to mosquito bites due to occupational and social activities that required spending long hours outdoors at night, including casual labor and social gatherings. A health officer explained: *"Adults who work outside at night suffer more, men more than women. The mosquitoes catch us there" (KII-05 Man, 28 April 2025).*

These activities increased men's vulnerability to infection while simultaneously positioning them as gatekeepers to healthcare decisions.

Women, particularly pregnant and breastfeeding mothers, faced additional social burdens. Several participants reported that women were blamed when children became ill, with accusations that illness was transmitted through breast milk or inadequate caregiving. One mother recalled:

"When I breastfed and my baby became sick, they said it was from my milk. I carried the blame" (IDI-13 Woman, 20 April 2025).

Such narratives reveal how malaria illness could become moralized, reinforcing gendered blame and emotional distress for women.

Overall, the findings highlight a central contradiction in malaria care in Jimma: women's labor and knowledge were indispensable to illness management, yet their authority to make timely

treatment decisions remained limited by patriarchal household structures. These gendered dynamics contributed to delays in care and shaped how malaria was experienced and managed at the household level.

Structural and economic barriers

In addition to cultural interpretations and household dynamics, malaria prevention and treatment in Jimma City were strongly shaped by structural and economic constraints. Participants consistently described barriers related to poverty, health system limitations, transportation challenges, housing conditions, and gaps in preventive services, all of which affected the timeliness and effectiveness of care.

Although malaria diagnosis and treatment were officially intended to be provided free of charge at public health facilities, participants frequently reported shortages of antimalarial medicines and diagnostic supplies. When drugs were unavailable, patients were instructed to purchase them from private pharmacies or seek care at private clinics, where costs were substantially higher. One participant explained:

"They told us the medicine was finished and sent us to buy it outside" (IDI-22 Man, 15 August 2025). These unexpected expenses placed a heavy financial burden on households, particularly those with limited and unstable incomes. Furthermore, the experience was often defined by economic exhaustion. One respondent described the frustration economic exhaustion:

"I spent all my money, and since the illness wouldn't go away, that's why I came here" (IDI-18 Man, 14 August 2025).

Health extension workers and community informants further reported that medicines intended for public facilities were sometimes available in private pharmacies. According to these accounts, patients who were unable to obtain free treatment were later able to purchase the same drugs at higher prices. As one health extension worker noted:

"People are told the drugs are not available, but later they find them being sold in private pharmacies" (KII-12 woman, 15 August 2025*).*

Such experiences undermined trust in the health system and intensified out-of-pocket spending. Review of local health facility reports and Jimma Zone malaria surveillance documents from 2024/25 further supported participant accounts regarding recurring medicine shortages and seasonal increases in malaria cases. These documentary findings corroborated interview and observational data suggesting that public health facilities were often perceived as unreliable during periods of high malaria transmission.

Transportation barriers also delayed access to care, especially during emergencies. Participants described long distances to health facilities, lack of affordable transport, and limited availability of ambulances. One participant recounted:

"When my wife collapsed, there was no ambulance, and I had to carry her to the main road" (IDI-06 Man, 18 August 2025).

These delays were described as frightening and exhausting, particularly for households without social or financial support.

Housing and environmental conditions further increased malaria risk. Many participants lived in poorly constructed houses with open eaves, cracks, or holes that allowed mosquitoes to enter

easily. Stagnant water was commonly observed near residential areas, especially around construction sites and poorly drained compounds. As one participant explained:

"Mosquitoes enter through the openings in the house, and water stays nearby" (IDI-16 Woman, 22 July 2025).

Field observations conducted in Hermata and Bosa Kito sub-cities further documented stagnant water accumulation near residential construction sites, blocked drainage canals, and poorly managed waste disposal areas that created favorable mosquito breeding conditions. These observations supported participants' descriptions of structural vulnerabilities, demonstrating that many environmental risks extended beyond individual household control.

These conditions made it difficult for households to effectively reduce exposure, even when preventive knowledge was present.

Preventive interventions, particularly insecticide-treated bed nets, were inconsistently distributed and unevenly used. Some participants reported owning bed nets but not using them regularly, while others described repurposing them for other household needs. As one health worker explained:

"*During our house-to-house visits, approximately 80% of households own bed nets, but only about 65% use them properly. Some are left unused or repurposed for other household needs"* (KII-05 Man, 28 April 2025).

Health workers noted that bed net distribution occurred at long intervals and that replacement was not always timely. Limited availability, household crowding, and competing priorities influenced bed net use.

Taken together, these findings demonstrate that malaria prevention and treatment in Jimma were constrained by economic hardship, health system shortages, transportation failures, inadequate housing, and inconsistent preventive services. These structural barriers shaped household responses to illness and often forced families to delay care or rely on incomplete and fragmented treatment pathways.

Discussion

This study demonstrates that malaria in Jimma City is experienced not merely as a biomedical condition, but as a socially embedded illness shaped by culturally meaningful explanatory models, gendered household relations, and structural inequalities, all of which directly influence the timing of treatment-seeking and the effectiveness of malaria control interventions. While biomedical frameworks emphasize parasites, vectors, and standardized treatment protocols, community members interpret malaria through local idioms such as *buda, busa, and sekera*, which shape symptom recognition, perceived severity, and timing of treatment-seeking decisions [33]. Each of these terms offers a different way of interpreting the illness: *buda* associates illness with envy and spiritual harm, *busa* links symptoms to recurring seasonal fever, and *sekera* emphasizes the potentially fatal nature of the illness.

These findings align with Kleinman's (1980) notion of explanatory models, demonstrating that malaria symptoms are interpreted through culturally coherent systems of meaning that shape when illness is recognized as serious and when biomedical treatment is considered necessary [40]. The findings from Jimma extend this framework by showing that explanatory models are not merely alternative interpretations of disease, but also carry moral and social implications that influence responsibility, blame, and urgency in care-seeking. In Jimma, in some cases, malaria was linked to spiritual vulnerability, envy, or moral transgression, generating suspicion, blame, or anxiety within households and communities. Illness is therefore experienced not only as physical suffering but also as a social event, particularly affecting caregivers most often women who may be held responsible when children fall ill[25, 33, 40].

Comparable patterns have been documented in other African contexts, where fever and malaria are understood through overlapping biomedical and local idioms. Studies from Ghana, Tanzania, Kenya, Burkina Faso, Uganda, and Malawi show that communities frequently use locally meaningful fever terms that do not neatly correspond to biomedical classifications, yet remain central to treatment decisions [41-43]. These terms reflect experiential knowledge shaped by seasonality, severity, and past outcomes rather than ignorance of malaria transmission. These local terms are not simply misconceptions to be corrected; rather, they represent parallel knowledge systems that coexist with biomedical understandings and actively shape treatment choices, care-seeking trajectories, and responses to public health messaging. In Malawi, researchers even suggested that listening to local illness terms could be used as a simple screening tool to identify malaria cases [44]. This insight carries an important lesson for public health in which malaria interventions cannot afford to ignore these cultural frameworks. This study aligns with the findings of Rujumba and Kwiringira (2010), who argued that health-seeking behavior is inextricably linked to cultural idioms and social insecurity; according to their research in Northern Uganda, community perceptions of illness are often shaped by the interface of culture and broader socio-political crises, necessitating interventions that are culturally grounded[45]. The findings from Jimma reinforce this insight, suggesting that malaria control efforts that rely exclusively on biomedical language risk missing the idioms through which illness is recognized and acted upon [27, 43].

In Jimma, malaria is conceptualized not only as a seasonal challenge but also as a significant moral and spiritual event. This coexistence of biomedical and local knowledge systems reflects epistemological pluralism, in which different ways of knowing operate alongside one another rather than hierarchically[46, 47]. Within this pluralistic worldview, a single case of fever may be

clinically understood as a parasite-driven illness while simultaneously being interpreted as a spiritual affliction tied to *buda* (envy or the 'evil eye') or *sekera* (divine punishment). Because these frameworks exist concurrently, a patient may seek clinical treatment to address the symptoms while simultaneously seeking spiritual intervention to address the perceived moral cause. Consequently, interventions that ignore these underlying idioms risk failing to engage with the full reality of the patient's illness experience. The religious identity of informants in the study area was predominantly Muslim and Orthodox Christian, both of which played a foundational role in shaping these interpretations. Religious frameworks in Jimma do not merely coexist with biomedical ones; they provide a moral and ontological grounding for illness. For many informants, malaria is not merely a biological event but is interpreted through a lens of spiritual vulnerability or divine warning (sekera). This necessitates spiritual first-aid such as prayer, use of **(***Tsebel)* for Christians or *(Zamzam)* for Muslims; participants seek to restore both physical and spiritual harmony. These different perspectives reflect the ongoing tension between biomedical authority and local knowledge systems [47]. In Jimma, both systems coexist and compete biomedical clinics present malaria as *Plasmodium falciparum* transmitted by mosquitoes, while communities reinterpret the disease through idioms of envy, morality, and seasonality. These local terms are not simply misconceptions to be corrected; rather they represent a parallel knowledge system that shapes choices, accountability, and forms of care. Together, these findings position malaria not merely as a biomedical health outcome, but as a socially produced illness shaped by cultural meanings, gendered power relations, and structural constraints that influence symptom recognition, treatment decisions, and engagement with malaria services.

Linked to these beliefs are the treatment choices families make. In Jimma, households rarely followed a single or linear pathway of malaria treatment; instead, they moved between home

remedies, spiritual practices, and biomedical care depending on illness interpretation, symptom progression, and resource availability. Treatment typically began with home-based responses such as herbal teas, steaming, or over-the-counter medications, including paracetamol. People also turned to prayer, holy water, or advice from neighbors. Biomedical care at clinics was often the last step, taken only when symptoms did not go away or became worse. Malaria was not always treated as an immediate emergency; rather, families often adopted a period of watchful waiting, drawing on familiar remedies and past experiences before seeking biomedical care when symptoms persisted or worsened.

Kroeger's (1983) model of treatment choice focused on cost, access, and effectiveness helps explain some of these choices[48], but does not fully capture the Jimma context. People's decisions also depended on how they named the illness. When illness was interpreted as *buda* (spiritual attack), prayer and holy water were often sought as initial responses. If it was called *busa* (a seasonal fever), herbal or home remedies were common and when they thought it was sekera, a serious and sometimes frightening condition that many described as a kind of divine warning or punishment, they treated it with more urgency, often seeking stronger spiritual help first. However, reliance on spiritual care did not exclude biomedical treatment. When symptoms did not improve following prayer or holy water, many participants described biomedical care as a subsequent step, sometimes framed as complementary rather than contradictory to spiritual intervention. Even so, they couldn't always go right away because the clinic might be far, or too expensive, or short on medicine, this is in alignment with the previous studies [43, 49].

This pattern mirrors findings from other parts of Africa and Asia, families combine traditional remedies, home care, and clinic visits, adjusting their choices according to cost, trust, and access [41, 50, 51]. Studies from Uganda and Ghana demonstrate that delays in seeking biomedical care

often reflect strategic decision-making under uncertainty rather than negligence or lack of knowledge [42, 51]. In Jimma, households navigated a pluralistic healthcare landscape, adjusting their choices in response to symptom severity, advice from social networks, and structural constraints. This process is consistent with the concept of medical pluralism, in which care-seeking involves movement between multiple therapeutic options rather than adherence to a single system[52].

These decisions were rarely made by individuals alone. Instead, they were negotiated within households and social networks, reflecting what Janzen describes as the "therapy management group"[53]. Importantly, delayed use of clinics should not be interpreted as ignorance or lack of biomedical knowledge. As Kleinman (1980) demonstrates, families often possess clear understandings of illness but interpret symptoms through culturally meaningful explanatory models that prioritize familiar forms of care[40]. Moreover, reliance on non-clinical options is frequently a rational response to the limitations of health systems themselves, including cost, distance, long waiting times, and unreliable availability of medicines[54, 55]. In this context, seeking biomedical care only when illness becomes serious reflects a process of continuous negotiation between cultural beliefs, household power dynamics, and structurally constrained health services, rather than a failure to recognize the value of modern medicine. For malaria programs, the lesson is simple but important. Telling families to go straight to clinics will not work unless clinics are reliable, affordable, and trusted. Programs need to recognize the role of local beliefs, include both men and women in decision-making, and make sure medicines are actually available. Only then can families in Jimma move more quickly from the first signs of fever to effective treatment.

A striking theme is the gendered paradox of malaria care. Women were central to recognizing symptoms and managing day-to-day care, yet their limited authority over financial resources and treatment decisions often constrained their ability to act on this knowledge, contributing to delays in seeking biomedical care. The gender-stratified design of our focus group discussions was instrumental in revealing the underlying power dynamics shaping malaria treatment-seeking. In the female-only group, participants spoke candidly about the waiting period often imposed by the need to seek a husband's financial approval, allowing important gendered experiences and household decision-making processes to emerge more openly. These findings suggest that gendered power relations do not merely influence who identifies the illness, but actively dictate the pathway of care often forcing women to navigate a complex sequence of home remedies and spiritual seeking while waiting for male controlled resources. This stratification highlights that addressing malaria in Jimma requires interventions that go beyond individual health education to address the household power structures that delay biomedical care. Delays in care-seeking are best understood through the intersection of religion, gender, and power. While women are central caregivers, their decision-making is often limited by male control over finances. Simultaneously, interpreting illness through frameworks like *buda* prompts initial reliance on prayer or holy water as a moral obligation. Thus, delayed care reflects a negotiated response shaped by economic dependence and spiritual duty. When outcomes are poor, women face a double burden of blame institutional judgment for delayed treatment and community judgment for moral failure. This demonstrates that care-seeking in Jimma is a socially situated strategy operating within intersecting constraints of religious identity and household power.

Treatment seeking has a gender dimension as well. Women often noticed symptoms early, cared for the sick, and urged clinic visits, but final choices were usually made by men. This reflects what

Vlassoff and Bonilla (1994) describe as gendered burdens, where women shoulder the responsibility of caregiving while lacking decision-making power, an imbalance that has direct consequences for the timeliness of malaria diagnosis and treatment [56]. In Jimma, this imbalance meant that even when women recognized malaria early, treatment could be delayed if men hesitated or decided to wait. This study aligns with research conducted in the Karamoja region which found that for many women, daily survival needs such as ensuring children have eaten take precedence over individual health rights. This intersection of poverty and male-dominated decision-making often forces women to conceal their own health vulnerabilities to maintain household care[57]. These findings are mirrored in Malawi, where researchers found that a mother's primary role as a caregiver is often undermined by a lack of financial autonomy and the social requirement to seek a husband's approval before visiting a clinic [58]. The study found that this reflects Vlassoff and Bonilla's (1994)[56] thesis on gendered vulnerability but also extends it. In Jimma, women's authority was constrained not only by patriarchal household structures but also by cultural idioms of blame associated with caregiving and illness. Breastfeeding was sometimes accused of transmitting malaria, placing mothers under moral scrutiny. These cases resonate with Kleinman's (1980) observation that illness is never purely biological, but also carries moral and social weight that shapes caregiving expectations and responsibility. Similar findings have been documented elsewhere in Ethiopia and beyond. For example, Deressa, Ali, and Berhane (2003) [5] observed that although women often recognize malaria symptoms early, their role in deciding when and where to seek treatment is limited by male authority and control over resources [31] highlighting how cultural practices in Nepal, such as menstrual seclusion and postpartum restrictions, heighten women's exposure to malaria and restrict their access to health services. Comparable results have been noted in Nigeria, where pregnant women, despite being at higher

risk, often rely on traditional birth attendants and delay biomedical treatment due to mistrust and economic constraints [59]. This study is similar to the Jimma findings, showing that gendered power dynamics consistently delay timely modern treatment and increase women's vulnerability.

Another important theme emerging from the findings is structural violence, expressed through persistent poverty and systemic inequality. While cultural models shaped the meaning of illness, economic and infrastructural barriers were often the most decisive determinants of malaria outcomes. Families reported catastrophic out-of-pocket costs (often 800–1,000 birr per episode), chronic drug shortages, and unreliable ambulance services. These constraints compelled households to shift between treatment options rather than follow recommended biomedical pathways. Financial constraints remain the primary driver for the use of traditional herbs over biomedical facilities. This is consistent with the evidence provided by Rujumba et al. (2025), who demonstrated that economic empowerment through Village Savings and Loan Associations (VSLAs) significantly reduces the burden of transport costs. According to their study, when caregivers are empowered economically, they no longer worry about money for transport, which facilitates more timely and consistent treatment-seeking[60].

Treatment at clinics was expensive, medicines were sometimes out of stock, and transport was unreliable. Poor housing conditions, including open eaves and structural gaps, facilitated mosquito entry, while stagnant water near construction sites created favorable breeding environments. Insecticide-treated bed nets were inconsistently available and, in some households, repurposed for competing domestic needs. Families in Jimma did not avoid biomedical treatment; rather, they often sought it under conditions where health system limitations such as drug stockouts, transport barriers, and user costs forced them to delay care or combine multiple treatment strategies.

The findings from Jimma powerfully illustrate Paul Farmer's (2004) concept of structural violence, whereby preventable suffering is produced not by individual failure or cultural misunderstanding, but by persistent economic inequality and systemic weaknesses in health service delivery. In this context, malaria endures because socio-economic structures such as catastrophic out-of-pocket costs, chronic drug stockouts, and unreliable infrastructure compel vulnerable households to navigate illness through fragmented and delayed care-seeking trajectories. This framework reveals that the 'pluralistic pathways' observed in this study are often not a matter of preference, but a pragmatic response to the structural constraints that limit biomedical access. Consequently, malaria in Jimma must be addressed as a social injustice rooted in these systemic inequalities, requiring interventions that move beyond the clinical to confront the underlying poverty and neglect that allow the disease to thrive[61].

The economic and infrastructural challenges observed in Jimma mirror experiences reported across malaria endemic settings in Africa and Asia. In Kenya [62] found that families living in poverty often have no choice but to turn to unsafe or incomplete malaria treatments due to the high cost of proper care. Likewise, a study from Malawi by [63] revealed how limited household income and weak infrastructure delay access to prevention and treatment, trapping communities in what they called an "evil circle" of poverty and illness. This intersection of poverty and illness creates a cycle that is difficult to break without the institutional support that Ganafa et al. (2025) argue is often missing due to fragmented accountability**.** This study aligns with their conclusion that addressing healthcare barriers requires looking beyond individual choices to the systemic failures that marginalize specific social groups[64].

In many African settings, the struggle to afford healthcare combines with cultural expectations to slow timely malaria treatment [65], while economic and geographic constraints among Uganda's

Batwa communities contribute to delayed malaria care [66]. These accounts support the concept of structural violence, in which systemic poverty and health system weaknesses compel households to navigate illness in ways that deepen their vulnerability [61]. Findings from Jimma fit squarely within this pattern, where catastrophic out-of-pocket spending, transport failures, and drug stockouts push families toward delayed or inadequate treatment.

Taken together, these findings demonstrate that malaria in Jimma cannot be effectively understood or addressed through biomedical strategies alone. Treatment-seeking practices are shaped by culturally embedded explanatory models, gendered household power relations, and structural constraints that delay diagnosis and disrupt continuity of care. Recognizing these social realities is essential for designing malaria interventions that improve early treatment uptake, strengthen trust in health services, and support sustainable control efforts in urban Ethiopian settings.

Limitations of the Study

Despite the depth of ethnographic insight provided, this study has several limitations. First, as a qualitative inquiry conducted within the specific urban context of Jimma City, the findings are not intended to be statistically generalizable to other urban and rural Ethiopian settings. Because Jimma is a rapidly urbanizing trade hub, the structural barriers and health infrastructure dynamics identified here may differ significantly from those in more remote or pastoral regions of the country.

Second, although prolonged field engagement helped build rapport, there remains the potential for social desirability bias, whereby some participants may have downplayed their reliance on traditional healers in favor of biomedical narratives to align with perceived institutional expectations. Specifically, a form of strategic silence was observed, in which some participants prioritized biomedical explanations to avoid being perceived as 'backward' by health authorities or reported to Health Extension Workers.

Third, because the study relied partly on retrospective illness narratives, some accounts may have been influenced by recall bias. Additionally, the document review was limited by the availability and completeness of local health facility records, which at times lacked sufficient socio-behavioral context to complement participant narratives.

To strengthen credibility and mitigate these limitations, the study employed methodological triangulation through interviews, focus group discussions, participant observation, and document review. Ultimately, this research prioritizes contextual depth and transferability rather than numerical representativeness, offering a thick description of the social experience of malaria in an urban Ethiopian setting.

Conclusion

This study shows that malaria in Jimma City is experienced not only as a biomedical condition but also as a socially embedded illness shaped by local explanatory models, gender relations, and structural barriers. Our findings suggest that community interpretations such as *busa*, *sekera*, and *buda* continue to influence how symptoms are recognized and managed, often leading households to navigate pluralistic treatment pathways involving home remedies, spiritual practices, and biomedical care. While women play a central role in caregiving and symptom recognition, limited decision-making authority and economic constraints may delay timely treatment-seeking. These findings suggest that malaria interventions in this context may be more effective if they engage with local social realities while also addressing barriers that limit access to reliable and affordable healthcare services.

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Availability of data and materials

Dataset

The datasets used in the current study are available from the corresponding author upon request.

Contributions

The study was conceived and designed by TG and DT. From proposal development to manuscript editing, TG, DT, and MS contributed. Field studies, data collection, transcription, back-translation, and primary coding of the data were conducted by TG (PhD Candidate). The analytical framework and data interpretation were led by TG, with DT (Main Supervisor) and MS (Co-supervisor) providing close supervision, reviewing the codebook and transcript subsets, and guiding the manuscript drafting. All authors participated in the revision process and have read and approved the final manuscript

Ethics declarations

This study received ethical approval from the Jimma University College of Social Sciences and Humanities Institutional Review Board (IRB) (Ref: CSSH/5/57/2025). The study did not involve any clinical interventions or trials. All participants were informed about the purpose of the study, and informed consent was obtained prior to participation. For literate participants, written signatures were obtained; however, for non-literate participants, an oral informed consent process was conducted in the local language (Amharic or Afaan Oromo) in the presence of a witness and formalized via a thumbprint. Confidentiality was maintained by using pseudonyms and removing identifying details from transcripts and reports. Participation was voluntary, and participants were informed of their right to withdraw from the study at any point without consequence.

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Competing interests

The authors declare that they have no competing interests.