SOCIO-ECONOMIC VARIABLES INFLUENCING FEBRILE CASE MANAGEMENT IN KADUNA STATE, NIGERIA

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Abstract

Research Problem
Febrile diseases such as malaria, pneumonia, measles, diarrhea remain a public health problem, and leading cause of death in children under-five. Despite various interventions, the influence of socio-economic factors on febrile cases management in the State is not well understood, which is why this study is designed to examine how these socio-economic variables influence febrile case management in Kaduna State.

Methods/theory
The study adopted mixed methods design, drawing on data from 1,200 mothers of under-five children, household heads and community health workers. The quantitative data were analysed using descriptive statistics, Chi-square and Linear Regression tests. The qualitative data were analysed thematically. Health Belief Model was reviewed and adopted as the framework for analysis

Results
The findings of this study confirmed the presence of healthcare facilities, but shortage of manpower and drugs supplies were found. The location of residence to a nearby hospital was not far (0-5km); however, the cost of treatment, inadequate and lack of regular health workers were found as the factors affecting the management of febrile illnesses. Access to healthcare facilities was significantly associated with febrile case management (X2P value=.000), also, linear regression confirmed association between proximity to healthcare facility and febrile diseases management

Conclusion
Adequate healthcare facilities are observed in Kaduna State, especially primary healthcare to provide the primary care at the grassroots, however, inadequate health practitioners and treatment expenses are the major problems affecting the management of febrile diseases.

Key Contributions to Knowledge
The study contributed to empirical literature on the specific socio-economic barriers to febrile case management in Kaduna State, filling a geographic gap in the literature on child health in Nigeria's North West region. It offers insight for health policy and programme design to the concerned authorities.

Recommendation
It therefore recommends that free medical services to under-five children should be given to address the issue of the cost of treatment of febrile disease in the state.

Section 1: Introduction

Socio-economic factors invariably influence the management of diseases children contract. Febrile diseases result in a series of complications and child mortality, thereby impacting on the socio-economic development of the society. Globally, the world lost an estimated number of 4.9 million children before they attained the age of five, alongside 2.1 million older children, adolescents and youths due to preventable infectious diseases. Children born in Sub-Saharan African and Asia accounted for more than 71 children death per 1000 deaths, almost 14 times higher than Europe and North America. Malaria, pneumonia and diarrhea which are preventable are among the leading causes of these deaths. Three countries including Niger, Nigeria and Somalia recorded under-five children death rate above 100 deaths per 1000 births in 2024. (WHO, 2026; UNICEF and UNIGME, 2025). However, human behaviours, such as social interaction, negligence and exposure to infection might be the contributing factors for febrile disease transmission even though the trend of febrile diseases, and how frequent are children contracting them is not well comprehended in Kaduna State.

Accessibility to services in healthcare facilities and money to settle the treatment expenses perhaps influence the management of these diseases. The complications of the disease include convulsion, anaemia, hearing disability, death among others. Most, if not all deaths of under-five children are caused by febrile diseases, and children often die from birth to their fifth birthday due to illnesses. Various health related interventions including policies and programmes have initiated locally and internationally through mobilization, sensitization campaigns, the provision of insecticide treated nets (ITNs) to under-five children and various child immunization/oral vaccines aimed at prevention of febrile diseases (Dambo, 2025). Still, febrile cases continue to persist in many communities leading to complications and death. Many studies have been undertaken on different diseases however, the studies have not been able to specifically focus on malaria, measles, pneumonia and diarrhea especially on the way and manner socio-economic factors influence the management of these diseases in Kaduna State. This is why this study is significant because it addresses this gap.

The level of education, family composition, ethnic and religious affiliation perhaps promote the onset of febrile disease management using orthodox medicine, though some households opt for alternative approach through self-treatment or traditional medicine due to easy accessibility and low cost when it comes to the cost of treatment. The manifestation of febrile diseases has not only become life threatening among under-five children, but also, its management faces a lot of socio-economic challenges and so leads to the morbidity and mortality of under-five globally. However, a little decline in the occurrence of the illnesses has been reported due to various interventions by the local and international organisations geared towards the reduction of the alarming rate of child mortality worldwide. The number of children with episodes of febrile disease in Kaduna State according to Multi-indicator Clusters Survey, 2016-2017, was 383 and 527, which is higher than Ekiti, Edo and Kwara States with 17 and 26, children respectively. Neonatal mortality was also highest in Kaduna State with 63 per 1,000 births and lowest in Bayelsa State with 13 deaths per 1,000 births and malaria is among these diseases affecting children (NBS, 2018; NDHS, 2018). Despite the foregoing reports, there is no empirical finding showing the manner in which mothers manage febrile disease in Kaduna State.

The central problem of this study is despite the presence of febrile diseases in the State leading to children morbidity and mortality,

empirical evidence on the way febrile diseases are managed in Kaduna State, and how specific factors for example access to healthcare services, income of the parents and geographical distance contribute to the management or otherwise of febrile diseases is not sufficiently available; and whether or not the management of the disease leads to the decline of its prevalence in the state, and the management approach parents employ most when children contract one of the diseases in Kaduna State are not well established which this study intends to examine and fill these gaps by providing empirical evidence on these aspects. In achieving this, the paper seeks to examine access to healthcare facility/services, income for the management of febrile diseases and proximity to healthcare facilities for the management of febrile diseases in Kaduna State. In order to get more insights from different points of view related to the topic under study, various conceptual and empirical studies were reviewed.

Section 2: Literature Review

Febrile Diseases and Case Management

Febrile disease in this study means any childhood disease accompanied by fever with a high body temperature. Malaria, measles, pneumonia, diarrhea and others are examples of febrile illnesses in children; while case management refers to a series of activities in the medical setting or at home in order to take a febrile child out of the ill-condition. Malaria remains endemic and the burden is heaviest in the African region, where an estimated 90% of all the malaria deaths occur with the Democratic Republic of Congo and Nigeria accounting for the highest mortality due to malaria worldwide. Other febrile diseases experienced by children include pneumonia and measles which are the leading causes of children deaths not only malaria, but it is the dominant one which attributed to mosquito bite, and fever is the symptom of them all (Shimelis et al., 2020; Dawaki et al., 2016). In addition, other studies revealed that hundreds of millions of children and pregnant women infected with malaria in Sub- Sahara African died at various stages of complications such as severity, anaemia, child delivery related complication or lifelong disability. The 2030 Agenda for SDGs recognizes the urgent need in placing quality of care in the fabric of national, regional and global action towards promoting well-being for all (WHO, 2020; WHO and UNICEF, 2020; WHO and World Bank, 2018), and access to healthcare service to manage the disease condition is paramount in improving child health and prevent mortality rate for children under five. However, most of the studies conducted covered a regional/global perception, where dearth in information in Kaduna State still remains which this study focuses on to obtain data from mothers of children under-five and relevant bodies. Since, febrile diseases and its management are often influenced by socio-economic factors, whether or not such factors promote or affect the management of the diseases in the healthcare facilities is also the focus of this study.

Socio-Economic Factors and Healthcare Utilization

Socio-Economic factors in this study refers to those factors that promote the use or otherwise of the healthcare facility in the management of febrile diseases and how they improve children' health status, and prevent them from contracting diseases causing morbidity and mortality before reaching their fifth birthday. These factors are many, but this study restricts itself to access to healthcare facilities, income and proximity to hospital as factors of febrile disease management in Kaduna State.

Access to Healthcare and Child Health Outcome: Access to healthcare facility refers to the access of healthcare services to children,

which is measured based on the availability, accessibility and affordability of the healthcare services to under-five children. Studies conducted in various African countries revealed the unequal distribution of healthcare facilities, where other part was ignored, shortage of manpower in Nigeria where few doctors covered a thousand population. Most women in Nigeria according Nigeria Demographic Health Survey were faced with the problem of accessing healthcare services, especially getting permission to go for treatment which remained an obstacle with 60% of women in rural areas having this problem than women in urban areas, although the dynamic nature of society perhaps influences women in rural areas to seek for medical treatment as do urban women which helps children recover from diseases and remain healthy (Mremi et al., 2018; Ayuba and Wash, 2016; NDHS 2018). Similarly, one-third of women are said to have experienced difficulties in getting to healthcare facilities for themselves and children. Thus, this in most cases results in embracing home or non-medical treatment by most mothers which may affect the health outcome of the sick child. Despite that SDGs are aimed at providing health, security and universal access to essential care services to individuals, families and communities, others find it difficult to access effective care (Adedokun et al. 2017; WHO, World Bank and OCED, 2018). However, the adequacy of medical personnel and the level of their skill in handling childhood related diseases are not well researched in Kaduna State. Mixed methods is employed in this study to bridge the gap created by previous studies so as to have a wider view of people from different angles. However, sometimes healthcare facilities and doctors might be available, but the hospital treatment charges may hinder many mothers from utilizing it, considering their financial position.

Income and Febrile Case Management: This refers to the amount of money a household head earns daily/monthly from wages and other sources, which influences the management of febrile diseases when a child contracts the disease. Studies revealed that mothers' income determined whether a child was taken to immunization or not, because of the cost attached to immunization services, especially after 9 months, and wealth therefore signifies economic power and the ability to pay for healthcare for the child (Chukwudeh and Ojo 2018; Arthur, 2019). Therefore, the family's income played vital roles in the health status of entire family members, especially children, who are delicate and prone to many diseases. Despite studies conducted elsewhere on income in relation to disease management, the issue of income affecting the management of febrile diseases in Kaduna State is not well researched paying attention to whether the management is free, expensive or subsidized, which was explored by this study. Obviously, households with high incomes did not see the costs of treatment as a barrier to healthcare service utilization in febrile case management, but proximity to the hospital could delay prompt action, especially where many kilometers are covered before reaching a hospital and the road network is bad and unsafe.

Proximity to Healthcare Facility and Febrile Diseases Management: Proximity in this study means the location of residences to a nearby healthcare facility which includes the distance covered to the hospital for the management of febrile diseases. Therefore, a distance more than 5 kilo meters to a hospital is considered in this study a far distance. Studies found proximity as the major factor in seeking-care from health centres. Therefore, to be near to a health facility was to live within 5km from it, and majority lived 81.7% within 5km of the general hospital. In Makarfi, a study revealed in a study, and most of the services/diagnostic equipment were not within

the respondents' reach, until when they went to Makarfi town. Lack of these necessitated the practice of the presumptive treatment of febrile cases (Seun-Addie and Nwokocha, 2018; Ansah et al. 2016; Ajumobi et al., 2017). Distance is discovered as the factor influencing the treatment of fever in the health facility. However, the data would have been more reliable if an additional method of data collection was used to get more and in-depth information from husbands, who are mostly, heads of households.

Identifying the Research Gap

Most of literatures reviewed centred on a broad analysis of febrile diseases, including technical reports from agencies on its trend across the globe and Africa without narrowing it to specific geographical context of Kaduna State, a gap which this study is designed to fill. Similarly, there has been a dearth of empirical knowledge on the way specific factors that include access to healthcare facilities to children, income to settle treatment charges and proximity to hospital influencing febrile disease management, particularly, from the divergent views of the people concerned using methodological triangulation instead of relying on only single method, hence, this study is set to provide a comprehensive whole, and a clearer picture of the febrile disease management in Kaduna State.

Section 3: Theoretical Framework

The Health Belief Model (HBM) concerns itself with the way and manner people take action in order to prevent disease or further damage when it occurs. According to Amzat and Razum (2014), HBM has many versions; but its proponents (Rosenstock et al. 1988 and Rosenstock, 1977) provided a clear and comprehensive version which revolves around some factors that trigger action such as perceived susceptibility/risks to a disease, perceived severity, perceived benefits of taking action, perceived barriers of taking action, self-efficacy, cues to action and modifying factors.

Health Belief Model has been widely used to explain different health-seeking behaviours, this study applies it to the specific context of febrile diseases management, and the way and manner specific socio-economic variables influence the management of febrile disease in Kaduna State. This makes HBM appropriate because of the perceived risk, and children are more susceptible to malaria, measles, pneumonia and diarrhea which often motivate action to avoid further damage. Cockerham (1978) maintained that the likelihood of action involved a weighing of the perceived benefits to actions against the perceived barriers. This is because if the disease is severe, it causes the death of a febrile child and onset management averts the complications resulting from the disease, including death, which nursing mothers see as benefits of taking appropriate action. This benefit (Ban and Kim, 2020) has a positive effect on behaviour. Similarly, the information disseminated over the media and health care professionals' advice on the importance of managing febrile disease due to its devastating effects coupled with the death of a child in a neighboring house or a child of significant others encourage febrile cases management. However, various management methods prevail (orthodox, traditional and/or patent medicine vendor), but the choice of the method depends on its perceived effectiveness in the management of febrile conditions.

Obviously, socio-economic factors for example access to hospitals/services, income of the parents and proximity to the hospitals shape health decision making of whether or not febrile management is sought in the modern healthcare facilities. Thus, mothers may have been interested at the onset management of febrile diseases, but structural barriers such as inaccessibility to a health facility and services to most mothers, spatial location of the nearby hospital, inadequate

funds due to low income to pay for transportation and hospital charges remain barriers in the management of febrile disease in modern health facilities. Therefore, the findings of this study might have contributed to the HBM that, even when mothers perceived febrile disease as severe, and recognized the benefit of hospital management the structural barriers might override this perception leading to alternative management strategies where they would use over the counter drugs for self-treatment and traditional medicines. This is because, they are available within their social environment at affordable prices. Based on the foregoing, the model is rich in analysing febrile-seeking behaviour, especially looking at the factors that trigger action, and indeed some barriers that constrain taking appropriate action in the febrile management process. However, the theory fails to take into account the subjective assessment of individuals which is often a determining factor for healthcare service utilization when someone is sick which is the weakness of this model.

Section 4: Materials and Methods

This study adopted descriptive research design, and mixed methods of quantitative and qualitative were employed. The reason for using both methods was to get sufficient data from a multiple set of respondents, and the population of the study included mothers, household heads and community health workers. Yamane's 1967 formula of sample size determination was used and 400 sample was picked from each of the senatorial zone, making it a total of 1,200 respondents as the sample size for this study. In addition, twelve (12) qualitative interviews, six (6) from each of the IDI and KII were conducted. Multi-stage cluster sampling technique was employed in this study. The reason behind the adoption of the multi-stage cluster was simply because, the state is wide with a large population that could not be covered by this study.

Therefore, in the first stage, the existing divisions of senatorial political zones in the state were used as clusters to select two (2) local government areas from each of the Senatorial Zone using lottery method from the compiled list of twenty four (24) LGAs in the state. Followed by the selection of two (2) political wards as another clusters through lottery method. Three (3) communities within the political wards selected were further selected in a simple random way; and thereafter, selected the streets within the communities after compiling the names of the streets and picked three (3) at random. In the fifth stage, a systematic sampling technique was employed using interval (the Kth term method) to select households within the streets selected in the preceding stage, and mothers of under-five children, specifically the first wife was purposively selected in the final stage of the selection. A total of twelve interviews were conducted to get qualitative information using purposive sampling technique to select respondents. The data in this study was collected using a structured questionnaire and interviews, which was analyzed through the use of the statistical package for the social sciences (SPSS Version 26), where descriptive statistics results were presented in frequencies and simple percentages for interpretation and analysis. Hypotheses were tested using Chi-square cross tabulation and Linear Regression to measure the relationship between variables contained in the hypotheses. The qualitative data were thematically analysed: interviews were transcribed verbatim and coded using NVivo software. A coding framework was developed based on the research objectives. Themes were identified through an iterative process of open, axial, and selective coding. Key themes included: access to healthcare, income constraints, proximity, and perceived barriers to treatment. The verbal quotations were presented in an indented style in the text.

Mothers of under-five children, household heads and community health workers were purposively selected based on their direct involvement in and/or knowledge of febrile management in the community.

Section 5: Results

Socio-economic Characteristics of the Respondents

To elicit response on the respondents' ethnic affiliation, the data shows that 46.8% were Hausa mothers, 11.1% Fulani, 5.4% Atyab, 8.9% were Gbagyi people while 6.9% Bajju. There were other tribes (Yoruba, Igbo, Ebira,etc.) that constituted 20.4% of the respondents. This shows the true reflection of the heterogeneous nature of Kaduna State, where different tribes are found residing in the state; however, the Hausa tribe constitutes the majority. It was found in marital status that 6.6% were single mothers, married mothers (78.9%) who formed the majority, 5.9% divorced, separated mothers (3.3%) and widows (5.3%). Therefore, majority (78.9%) of the mothers who participated in this study are married, which shows that marriage in the State is little bit stable, and couples live together under one roof with their children. On respondents' religious affiliations, 55.1% are the adherents of Islamic religion while 43.7% are the adherents of Christianity and 0.7% were the followers of African traditional religion and 0.6% did not respond to the question. This shows that mothers in the state belong to either of the two dominant religions with followers of Islamic religion constituting the majority.

Furthermore, the educational qualification of respondents showed that 32.3% had non-formal education, 19.3% possessed primary education, 29.4% secondary education, 17.9% tertiary education and 1.2% declined to disclose their educational level. This shows that mothers have pursued one form of education or the other, but their participation in acquiring formal education was very minimal with only 17.9% having the higher level of education. This finding therefore displayed a wider gap in women participation in western education compared to men. Some mothers are perhaps denied the opportunity to go to school due to some socio-cultural reasons, such as early marriage and households' cultural restriction of western education on the girl-child and the likes. In occupational status of mothers, 14.6% were unemployed mothers, 14.3% civil servants, the employed mothers in the private sector 5.0% and full house wives 39.5%. Those who engaged in the agricultural production were 7.3%, 15.9% in petty trading, 2.0% artisans, 1.1% engaged in other occupations, such as teaching in religious schools, and 0.4% declined to comment on the question asked. This shows that majority of the mothers are full time housewives. Those who were gainfully employed in either the civil service or private sectors were not more than 20%. This reflects the level of education of mothers, because majority did not have the certificate to seek formal employment to earn income, and mostly waited for their husbands for their needs, including healthcare provision.

Table 1: Presence of Healthcare Facilities in Various Communities in the State

Responses	Frequency	Percentage
Yes	965	86.2
No	140	1.3
No response	15	1.3
Total	1120	100.0

Table 1 above shows that 86.2% had a healthcare facility in their communities, while only 12.5% claimed not to have it and 1.3% did not respond to the question. This implies that there is availability of healthcare facilities for disease management in the state. The qualitative data showed a similar finding where in a Key Informant Interview conducted with a community health worker, he revealed that:

The hospitals in our area are adequate, and enough to cover the population of the area (KII, a 42 year old Community Health Worker, Ikara LGA).

Similarly, a KII conducted also supported this finding where a community health worker reaffirmed the adequacy of the hospital, indeed sufficient to cover the population in the area, as quoted below:

The number of hospitals is adequate to cover the population. Beside health clinics/PHCs, there is also one general hospital. Therefore, any case above our limit, I refer the patient to the next level of care by giving a referral note, I don't try managing an illness condition beyond my capabilities. That is how we are trained, because we are the grassroots health practitioners (KII, a 35 year old Community Health Worker, Kagarko LGA).

In addition, a community health worker in an interview stated that, hospitals in the area are fairly distributed among population as according to him:

Actually, the hospitals are now fairly distributed unlike before. People now have access to the hospital in almost everywhere within the LGA (KII, a 38 year old Community Health Worker, Giwa LGA).

Table 2: The types of Healthcare Facility across Communities in the State

Type of Health Facility	Yes	No	Percentage
Clinic	420(37.5%)	700(62.5%)	1120(100%)
Health center	288(25.7%)	832(74.3%)	1120(100%)
Primary health center	459(41.0%)	661(59.0%)	1120(100%)
General hospital	200(17.9%)	920(82.1%)	1120(100%)
Specialist hospital	35(3.1%)	1085(96.9%)	1120(100%)
Tertiary hospital	55(4.9%)	1065(95.1%)	1120(100%)

The table 2 shows the type of health facility in the community, where the majority (41.0%) had primary healthcare facilities in their areas, followed by 37.5% who had a clinic in their areas. In addition, 25.7% had health centre in their areas, while 17.9% admitted to having general hospitals in their areas, specialist hospitals (3.1%) and tertiary hospitals (4.9%). It could be deduced from this finding that majority of the hospitals in the state are primary healthcare, clinics and health centers; there were very few general hospitals and 82.1% admitting none in their areas. Specialist hospitals were not many (3.1%) while 96.9% did not have specialist and only few (4.9) tertiary hospitals were in the state while majority (95.1%) did not have in their area. This affects the referral system in case the condition of the febrile child is beyond management at the lower level hospital with inadequate equipment and manpower. Also, the distribution of health facilities is not fair, because even the primary healthcare centres are not adequate (only 41.0%) thought, it is the most prevalent in the State compared to other category of the hospitals.

Table 3: Views on whether Febrile Children are Taken to the Hospital

Responses	**Frequency**	**Percentage**
Yes	1003	89.6
No	60	5.4
No response	57	5.1
Total	1120	100.0

The table 3 above reveals data collected on whether children are taken to the hospital when they were sick. Majority (89.6%) admitted that they took children to hospital while a very few (5.4%) did not and 5.1% did not response to the question. This finding shows that mothers in the state use hospitals for disease management. Qualitative data conducted with a community health worker testified that mothers brought their children to them for management when they had any of the febrile diseases. He said that:

Yes of course, febrile children are brought to this hospital for treatment, you see right here with me mothers who brought children with such diseases, and they came at onset for treatment before it becomes severe (KII, a 35 year old Community Health Worker, Kagarko LGA).

In another IDI conducted with the household head, he revealed that it was a norm in his household for his wives to take not only the child to the hospital when he/she was sick for management but also themselves for pregnancy-related issues. He said that:

It is a norm in my household for my wives to take my children to the hospital if they are sick, because I am satisfied with the hospital management. Every time I allow them to go for a pregnancy related issue and children sickness (IDI, a 47 year old Household Head, Ikara LGA).

Again, in an IDI conducted with a household head, he said he allowed his wives to visit the hospital when children contracted febrile diseases to get early treatment. He stated that:

I allow my wife to visit hospital whenever my child is sick, because I don't want the condition to deteriorate; it is my policy that any disease a child contracts shall be taken to the hospital (IDI, a 50 year old Household Head, Jema'a LGA).

Table 4: Factor Respondents Consider in Taking a Febrile Child to Hospital

Factors	Responses		Percentage
	Yes	No	
Quality of the service	753(67.2%)	367(32.8%)	1120(100%)
Accessibility of the service	254(22.7%)	866(77.3%)	1120(100%)
Availability of the service	245(21.9%)	875(78.1%)	1120(100%)
Affordability of the service	205(18.3%)	915(81.7%)	1120(100%)
Others	82(7.3%)	1038(92.7%)	1120(100%)

Table 4 shows the factors mothers considered in taking febrile children to the healthcare facility. Majority (67.2%) indicated that the quality of the service attracted them and 32.8% did not consider the quality of the service. However, only 22.7% considered

accessibility to services in taking a febrile child to hospital and majority (77.3%) did not consider accessibility in taking a febrile child to hospital. Availability of the service attracted mothers with only 21.9%, but 78.1% did not consider service availability. Again, only 18.3% of mothers considered affordability in taking a febrile child to hospital, but majority (81.7%) did not consider it. Also, 7.3% mentioned other factors but majority (92.7%) did not consider any factor in taking a febrile child to the hospital. This implies that majority of mothers are attracted by the quality of the services in taking a febrile child to hospital for the management of febrile diseases. Therefore, mothers could take febrile children to any healthcare facility that provided quality services in the management process. Qualitative data corroborate this finding in a KII conducted with a community health worker, revealed the kind of the services the hospital offered to children thus:

The facility has the necessary requirements (equipment and personnel) to treat febrile disease including laboratory, pharmacy and constant drug supply. The drugs are supplied by the Global Fund, Free-MCH, and the facility operates KADCHMA insurance and Basic Healthcare (KII, a 42 year old Community Health Worker, Ikara LGA).

Despite having healthcare facilities in the state, inadequate secondary and tertiary facilities was observed which affect referral of patients with serious conditions beyond the grassroots healthcare facilities. Mothers always considered the quality of the service in taking children to any hospital where such services are provided. Moreso, the issue of income which is another variable in relation to the management of febrile disease was also examined and presented in the next subheading.

Table 5: Average Household Head's Income per Month

Income	Frequency	Percentage
N1,000.00 – N20,000.00	482	43.0
N21,000.00 – N40,000.00	283	25.3
N41,000.00 – N60,000.00	143	12.8
N61,000.00 – N80,000.00	66	5.9
N81,000.00 – N100,000.00	39	3.5
More than 100,000.00	40	3.6
No response	67	6.0
Total	1120	100.0

Table 5 reveals the average household head income per month where 43.0% earned between N1,000.00 – N20,000.00 monthly, 25.3% of the respondents earned between N21,000.00 – N40,000.00, 12.8% earned between N41,000.00 – N60,000.00, 5.9% household heads earned between N61,000.00 – N80,000.00, 3.5% earned between N81,000.00 – N100,000.00 while those who earned more than N100,000.00 per month were 3.6% of the respondents and 6.0% did not disclose the amount their household heads earned monthly. This implies that the incomes of household heads per month was very low (N1000 – N20,000) and demonstrates the manifestation of low incomes among household heads, because majority earned less than $1 per day, which might affect the management of febrile diseases in hospitals. A household head maintained that, the incomes of most families were not adequate to provide for the needs of the house, including the medical care. He stated that:

I do not earn much money to treat my child in the hospital, and at the same time buy the food for the family, and the drugs in at government hospital is not cheaper (IDI, a 62 year old Household Head, Kudan LGA).

Table 6: Factors Affecting Hospital Treatment when a Child is Sick

Factor	**Responses**		**Percentage**
	Yes	No	
Money for treatment	619(55.3%)	501(44.7%)	1120(100%)
Cost of transportation	215(19.2%)	905(80.8%)	1120(100%)
Lack of drugs in the hospital	202(18.0%)	918(82.0%)	1120(100%)
Staff Attitude to patients	188(16.8%)	932(83.2%)	1120(100%)
Long waiting time	221(19.7%)	899(80.3%)	1120(100%)
Lateness of medical staff	115(10.3%)	1005(89.7%)	1120(100%)
Others	53(4.7%)	1067(95.3%)	1120(100%)

Table 6 above displays factors inhibiting mothers from receiving hospital treatment when a child was sick. Majority (55.3%) admitted lack of money for treatment but 44.7% did not see treatment expenses as an obstacle. Similarly, 19.7% said long waiting time was the factor affecting the management of febrile children in the hospital while 80.3% said long waiting time was not the factor affecting hospital management. Also, 19.2% claimed cost of transportation as the factor and 80.8% did not agree that transportation fee is a factor inhibiting management of febrile children in the hospital. Similarly, lack of drugs in the hospital was another factor affecting febrile disease management there (18.0%), but 82.0% did not see that. Staff attitude to patients was admitted by 16.8% as the factor but 83.2% did not see that as the factor affecting febrile disease management in the hospital, 10.3% claimed lateness of medical staff as the factor but 89.7% did not. It could be deduced from this finding that money for the payment of treatment was the most important factor stopping mothers from taking their children to hospital when they contract febrile disease. In a KII conducted with a community health worker, he stated the payment of treatment charges was an obstacle, thus:

Of course, if a father has a good source of income, he doesn't feel the treatment cost when his children are sick, but father with inadequate sources leads to delay treatment, and struggles to get the money to take the child to the hospital. People of all categories visit this hospital, but the dominant category is women, because of their nature. They bring themselves or their children to receive services such as ANC, Immunization and febrile disease treatment (KII, a 35 year old Community Health Worker, Kagarko LGA).

Similarly, a household head argued that the treatment cost was a challenge to parents taking children to hospital for treatment, as quoted below:

You know disease management is money, and this is another challenge because most parents cannot take their children to hospital because of the treatment cost (IDI, a 47 year old Household Head, Ikara LGA).

Again, in a KII conducted, a community health worker maintained that the collection of money for the treatment of febrile disease was the reason many mothers refused to take their febrile children to hospital, as stated:

I collect money for injection given to patients, and collecting money is one of the reasons why

mothers refuse to come to the hospital when children are sick because they don't have the money. I appeal for the adequate provision of the drugs for management, if possible to be provided free of charge, when such is done, mothers will come out in large number since they need the services. Mothers complain of lack of money, and mostly married women with no means of income (KII, a 38 year old Community Health Worker, Chikun LGA).

A community health worker in a KII conducted said that the treatment cost was a burden to most households considering their income level, as revealed below:

Treatment cost in the hospital is burden to some people, and stop many mothers from coming to the hospital, therefore, I discourage collecting money, because most of households are low income earners (KII, a 25 year Community Health Worker, Kudan LGA).

It was found from the findings that money for the payment of treatment expenses was the major factor affecting the management of a febrile disease in hospitals, perhaps due to the fact that majority of households heads were farmers residing in rural areas with very little monthly income of less than $3 per day which is the benchmark for measuring low income based on the International Poverty Level (IPL), as indicated in Table 6 which invariably affects the utilization of hospitals in the management of febrile diseases.

Table 7: Distance from esidential Areas to a Nearby Hospital

Distance	**Frequency**	**Percentage**
0 - 2 km	452	40.4
3 – 5km	321	28.7
6 - 8 km	170	15.2
9 – 11km	76	6.8
more than 11 km	57	5.1
No response	44	3.9
Total	1120	100.0

Table 7 shows the distance from residence to a nearby hospital where some covered 0-2 km (40.4% of respondents), 3-5 km (28.7%), 6-8 km (15.2%), 9-11 km (6.8%) while those who covered more than 11 km (5.1%) and 3.9% did not respond to the question. This implies that the kilometers most households covered to the nearest hospital were okay to convey febrile children easily. This implies that about 69.1% of the respondents covered 5km from the residence to hospital (where it indicated 40.4% covered 0-2 km and 28.7% 3-5 km, respectively). The qualitative data also revealed similar finding involving a few kilometers from their residence to a hospital thus:

The distance from my residence to health centre is 1km which is a trekkable distance. The government does well in the establishment of the health centre, & locating it at the central area, but there is need for addition to be able to serve the community well. It is the duty of the government to build hospital and provide them with equipment (IDI, a 45 year old Household Head, Chikun LGA).

In another IDI conducted with a household head, he also stated a similar finding where distance was not far. He state that:

The distance is 1.5km, but I cannot trek to the hospital. My wife always takes my children to the hospital. Honestly, the hospital is built

near to the people, and can be reached without much stress (IDI, a 50 year old Household Head, Jema'a LGA).

Again, a household head in an IDI affirmed the equitable distribution of health care facilities within a walking distance thus:

The distance from residence to hospital is not more than 1km; there is equitable distribution of the healthcare centres. It is the government who is responsible for the establishment of hospital because people voted for it to improve their well-being (IDI, a 52 year old Household Head, Kagarko LGA).

However, one of the community health workers in a KII confirmed that distance was not far from people's residence. He said that:

The distance from residence to the health facility is from 1-3kms. Government has the responsibility of establishing hospital, especially the local government authority at the grassroots (KII, a 38 year old Community Health Worker, Giwa LGA).

These findings revealed that majority of the hospitals are located close to the people. Both the quantitative and qualitative data affirmed that distance was from 1km – 5km, which was similar to the United Nations' definition of a close distance to a healthcare facility. This indeed might be the reason why even the transportation most mothers used was the motorcycle and trekking.

Section 6: Discussion

This study discovered the presence of healthcare facilities as confirmed by 86.2%, the majority of respondents, but some of the healthcare facilities are not functional as observed during the survey. Lack and/or shortage of technical staff (especially doctors, Nurses, CHEW, Laboratory technician in some PHCs and Health clinics), dilapidated buildings and the absence of constant drugs supply in most of the healthcare facilities were observed. This influences mothers to resort to alternative means against their wish to manage a febrile child. In addition, this study discovered different types of healthcare facilities in the state that included clinics, health centers, primary health centres, general hospitals, specialist and tertiary hospitals; but primary health centres were dominant in Kaduna State. This therefore shows the inadequacy of the secondary, specialist and tertiary hospitals in the State, which affects the effective referral of patients from the lower to the higher level hospitals, especially in the case of a child with severe febrile diseases such as cerebral malaria that might not be handled properly by the lower healthcare facilities. The data from both IDI and KII confirmed adequate healthcare facilities with clinics, health centres and primary health care as the dominant health facilities. This finding agrees with Yisa et al. (2025) in a study conducted to analyse the strength of healthcare as a means of achieving universal health coverage in Nigeria revealed that majority of Nigerians relied on primary healthcare centres, despite many of them not being functional and with shortage of medical personnel, shortage of medicine and lengthy waiting time for patients. Also, Dambo (2025) maintained that, hospitals in some locations in Nigeria are only buildings (structures) with few or no man-power and other essential equipment needed for the provision of health services to people, especially children who are the vulnerable population. Similarly, Ashaolu et al. (2025) in a study conducted in Chad confirmed that children were taken to the hospital for childhood disease management, and this was higher among mothers with high educational level in the community. In contrast, Ahinkorah et al. (2022) in a study conducted in Burundi revealed that less than fifty percent of children who were ill 2 weeks preceding the survey sought healthcare management.

Furthermore, this study revealed that children were treated at the hospital whenever

they contracted febrile diseases (89.6%). The qualitative data also revealed a similar finding where community health workers during KII confirmed the high turn-out of children in the hospital for treatment, and because of the free drugs given to them, such as the ones from KADCHMA, SDSS, Global Fund, Free-MCH, Basic Health Care, Anti-malaria, Zinc tablet, ORS, among others, in the management process. This finding corroborates Fekadu et al. (2025) in a cross sectional survey in western Ethiopia were majority of the respondents utilized healthcare facility for the management of illness for children. The finding is however in contrast with that of Adedokun et al. (2017) who reported low utilization of health services (30% only) among children when they contracted diseases. This study further discovered that the quality of the services was the factor which motivated mothers (about 67.2%) to take febrile children to hospital. Similarly, household heads during IDI revealed that they allowed febrile children to be taken to hospital for treatment because they were satisfied with the treatment provided. This finding correlates with that of Fekadu et. al. (2025) who found perceived severity of the illness, father's educational level and high income of the parents as factors influencing healthcare seeking.

This finding therefore confirmed the validity of the Health Belief Model (HBM) where susceptibility of children to febrile diseases and related complications influence mothers to take action, especially if the service is accessible and effective in treating the disease because of the perceived benefit in treating febrile child in the health facility. The Chi-square analysis shows a strong relationship between access to hospital and the management of febrile disease where the P value of .000 is lower than the 0.05 alpha level and the computed X2 value of 47.03 is greater than the critical value of 23.685. Therefore, the relationship between access to healthcare facility and the management of febrile disease exists and mothers would manage febrile diseases whenever children contracted in the modern health facilities more than any place of treatment.

The study discovered that most households have low average income in the state, which reflected the nature of their farming activity as their source of income, because the income of the household heads (43.0%) earned between N1000.00 – N20,000.00 per month, which is very low considering other needs of the households such as education, health issue, etc. Thus, this invariably affects the management of febrile diseases in hospitals and influences the use of other alternative management methods that are cheaper than hospital- based management. This finding is almost in agreement with Omorogbe's (2018) finding in a study conducted in the University of Benin Teaching Hospital, Edo State who discovered that majority (82.3%) of the respondents were middle income earners of less than N60, 000.00 per month. The qualitative data from both KII and IDI supported this finding, where money was spent and equally reaffirmed that the management of febrile diseases of under-five children was not free-of charge despite the interventions of donor partners, especially UNICEF. Mothers have to pay for the drugs and other hospital services such as hospital cards, drip, blood transfusion and laboratory investigation. Therefore, the health of under-five children would continue to be at risk if the services are paid, considering the low income of majority of the households in the State.

In addition, this study further discovered the cost of transportation, lack of drugs, staff attitude to patients and long waiting time as additional impediments, but money for treatment was the main factor inhibiting mothers from receiving hospital treatment (55.3%) and mothers experiencing this when their children were sick. This is because their income is too small to cover the medical bill, which is an additional burden. The qualitative

data from both IDI and KII revealed similar findings where the treatment cost became a challenge, and inhibited many mothers from patronizing health care facilities because they did not have good sources of income. This influenced them to resort to using other alternatives, mostly the chemist shop. Many studies conducted reaffirmed this finding. For example, Dambo (2018) found inadequate money for treatment among nursing mothers (50%) as an impediment to taking children to the health facilities for malaria treatment in Giwa LGA, Kaduna State. In contrast, Zenebe et al. (2025) in a study conducted among North West Ethiopia people saw cost of treatment at healthcare facility as something easy to do. Similarly, Nonso et al. (2024), on the other hand, in a study conducted in Enugu State revealed that the cost of treatment in the hospital was affordable considering the monthly income of the families, but waiting for more than 2hours before being attended to whenever they visited hospital was found in the area.

The study further revealed that hospitals were not far from residence, and situated within 0-2km and 28.7% within 3-5km. Therefore, about 69.1% lived not more than 5km from their residence, which confirmed the United Nations definition of a close distance to a nearby hospital. This is why mothers used healthcare facilities for the disease management because they are sited close to where people lived. The KII and IDI conducted revealed similar findings where many community health workers and household heads admitted that healthcare facilities were located within 1-3 km and a trekkable distance from their residence. This finding corroborates that of Nonso et al. (2024), who discovered in Enugu State that majority of respondents live near to health centers. The Linear Regression analysis shows a strong relationship between proximity and the management of febrile diseases where the P value of 0.005 is lower than the 0.05 alpha level and the computed value of 7.142 which is greater than critical value of 3.000 F. Therefore, the null hypothesis was rejected, while the alternate hypothesis, which states that Proximity to healthcare facility influences the management of febrile disease in hospitals by mothers, was accepted. This shows the strong effect of the proximity to healthcare facilities and the management of febrile disease and concludes that febrile diseases would be managed at the healthcare facility if such facilities are built close to the people.

Section 7: Conclusion

The study examined socio-economic variables influencing febrile case management in Kaduna State. The findings of this study showed the presence of different hospitals in the State at dominant of primary health centres (PHCs). Furthermore, households were mostly attracted to health facilities for the management of febrile diseases because of the quality of the services provided, despite the fact that there is a number of health facilities in the State, shortage of medical staff, drugs, equipment, non-functional and dilapidated buildings were observed. Money for treatment was the major factor affecting febrile-seeking management, because of the low income of the household heads.

Section 8: Recommendations

Based on the aforementioned findings therefore, the study offers the following recommendations:

1. Government and other stakeholders should provide more healthcare facilities to the people at areas where there are no hospitals, especially secondary health facilities as a possible remedy for those who constantly use chemists for their febrile children where proper diagnoses are not carried out to know actual disease before treatment is undertaken. This could be done through sufficient budget

allocation to the healthcare sector, and partnership with philanthropists and donor partners.

2. Free febrile diseases management should be given to all under-five children in the state, especially malarial diseases that are very much common by the government and health related non-profitable organisations. This is to address the challenges of lack of money for treatment as one of the major factors affecting febrile management.

3. The government should also employ more health workers, review their current salary package and introduce strict shift duty in all primary health centres so as to ensure adequacy and the availability of health workers at the health facility.

References

Adedokun, S. T., Adekambi, V. T., Uthman, O. A. & Lilford, F. J. (2017). Contextual factors associated with health care services utilization for children with acute health care childhood illnesses in Nigeria. PLOS ONE, 12(3). E017358. https://doiorg/10.1371/journal.phone.01735 78

Ahinkora, B.O., Seidu, A-A., Hogan, J.E., Budu, E., Mohammed, A., Kwabena, E.A., Adoboi, F. & Audu, C. (2022). Barriers to healthcare access and healthcare seeking for childhood illnesses among child bearing women in Burundi, PLOSE ONE, 17(9): e0274547, Doi:10.1371/journal.pone.0274547

Ajumobi, O., Sabitu, K., Ajayi, I.O., Nguku, P. Utere, J., Wassawa, P., Isiguzo, C., Anyanti, J. & Liu, J. (2017). Demand related factors influencing care givers' awareness of malaria test and health workers' testing practices in Makarfi, Nigeria. Malaria Journal, 16:487, http://doi.org/10.116/s12936-017-2138-8

Amzat J. and Razum, O. (2014).Medical Sociology in Africa. Switzerland: Springer International Publishing.

Ansah, E.K, Gyapong, M., Nar-Bana, S., Bart-plange, C.& Whilty, C.J.M. (2016). Factors influencing choice of care seeking for acute fever comparing private chemical shops with health centers and hospitals in Ghana: a study using case control methodology. Malaria Journal, 16:144. Doi: 10.1186/s12936-616-1351-1

Arthur, E. (2019). The effect of household socio-economic status on the demand for child healthcare services.African Development Review, 3(10), 87-98

Ayuba, I.G.H. & Wash, P.M. (2016).An assessment of the provision and distribution of health facility in Buruku Town, Plateau State, Nigeria.International Peer-review Journal of Health Medicine and Nursing. 24, 99-110

Ashaolu, J.O, Do, L.T., Isaac, K.R., Taiwo, S.A. and Sylvain Y.M. (2025). Determinants of childhood diarrhea in low & middle income countries: a comparative analysis of epidemiological & medicine learning approaches. BMC, Public Health, 25,3845, https://doi.org/10.1186/s/2889-025-25076-7

Ban, H. & Kim, H. (2020). Applying the modified health beliefs model (HBM) to Korean medical tourism, International Journal of Environmental Research and Public Health, Doi:10.3390/ijerph17103646

Chukwudeh, S.O. & Ojo, F.E. (2018). Social context of child survival strategies among mothers in polygamous marriage in Ibadan, Nigeria.The Journal of Sociology and Anthropology, 16(2), 112-128

Cockerham, W. C. (1978). Medical sociology. USA: Prentice-Hall, Inc. Englewood Cliffs, N.J.

Dambo, Y. (2025). A study on the factors affecting the prevention and management – seeking behavior of childhood disease in Nigeria, Journal of Philosophy, Policy and Strategic Studies, 1(8): 121 - 130

Dambo, Y. (2018). Childhood malaria prevention and treatment option: A study in Giwa local government area, Kaduna State-Nigeria. The Journal of Sociology and Anthropology, 16(2), 129-144.

Dawaki, S., Al-mekhlfi, H.M., Ithoi, I., Ibrahim, J., Atroosh, W.M., Abdulsalam, A.M., Sady, H., Elyana, F.N., Adamu, A.U., Yelwa, S.I., Ahmed, A, Al-Areei, M.A., Subramaniam, L.R., Nasir, N.A. & Lau, Y. (2016). Is Nigeria winning the battle against malaria? Prevalence, risk factors and KAP assessment among Hausa communities in Kano State.Malaria Journal, 15:351 Doi:10.1186/s12936-016-1394-3

Fekadu, S.O., Merdassa, Z.D. & Desalega, M. (2025). Healthcare – seeking behaviors for common childhood illnesses & associated factors among mothers/caregivers of under-five children in Haro-Limu district, East Wallega, Oromia Ethioia: a cross sectional study. Front Public Health, 16; 13:1519027. Doi:10.3389/fubh.2025.1519027

Mremi, I.R., Mbise, M. & Chaula, J. (2018). Distribution of primary health care facilities in Mtwara District Tanzania: availability and accessibility of services. Tanzania Journal of Health Research, 20(4), Doi:http://dx.doi.org/10.4314/thrb.v20i4.10

NBS & Unicef (2018). Multiple indicator cluster survey (MICS 2016-2017) final report, Abuja: National Bureau of Statistics and United Nations Children Funds.

NDHS, (2018). Nigeria Demographic & Health Survey, National Population Commission, Abuja

Nonso, M.J., Chukwuemeka, A.O., Ciden, N.Y., Chinoson, N.T., Kosisochukwu, N., Anthony, M.E., Chizurum, E.S., Kingsley, O.C. and Micheal N.K. (2024). Factors affecting the utilization of maternal and child health services in urban primary healthcare centers in Enugu state (Abakpa & Uwani), Medical Research Archive, https://esmed.org/MRA/index.php/mra/article/view/564

Omorogbe, C. E. (2018). Socio-economic factors influencing in-patient satisfaction with healthcare at the University of Benin teaching hospital (UBTH) Benin city, Nigeria. International Journal of Nursing, Midwifery and Health-related Cases, 4(4), 63-80

Seun-Addie and Nwokocha, E.E. (2018).The influence of acceptability of the Roll Back Malaria programme on maternal health in Ibadan, Nigeria.The Journal of Sociology and Anthropology, 16(2), 49-59

Shemelis, T., Tadesse, B. T., W/Gebriel, F., Crump, A. J., Schierhout, G., Dittrich, S., Kaldor, J. N. and VazNery, S. (2020). Aetiology of acute febrile illness among children attending a tertiary hospital in Southern Ethiopia, BMC Infectious Diseases, 20:903, https://doi.org/10.116/s/279-020-05635-*

UNICEF & UNIGME (2025). Levels and trends in child mortality. The United Nations inter-agency group child mortality estimation report.

WHO (2026). Fact sheet, child mortality (under 5 year). https://www.who.int/news-room/fact-sheets/detail/child-mortality-under-5-years.

WHO & World Bank (2018). Delivering quality health services.A Global imperative for universal health coverage.https://creativecommons.org/licenses/by-nc-s9/3.0/igo

WHO (2020). World malaria report 2020: 20 years of Global process and challenges, https://creativecommons.org/lincense/by-nc-sa/3.0/igo

WHO, World Bank & OECD (2018).Developing quality health services: a global imperative for universal health coverage.https://creativecoomons.org/license/by-nc59/3.0/igo

WHO & UNICEF (2020). Emergency call to action for measles and polio outbreak

Yisa, S.S., Joseph, T.O. & Dzekem, R.D. (2025). Strengthening primary healthcare in Nigeria: a means to achieve universal health coverage. BMJ Global Health, 28, 10(10): e01846. Doi: 10.1136/bmjgh-2024-018486

Zenebe, J.Z., Marew, A., Birhanu, S., Belachew, A & Kasse, T (2025). Delays in healthcare seeking for dirrheal disease & associated factors among caregivers of under five children in health centers of North West Ethiopia: a mixed method study. BMC, Public Health, Volume, 25, 138.