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Factors Influencing Diarrhoea Among Children Below Five Years of Age in Ikere-Ekiti, Ekiti State, Nigeria

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ABSTRACT

Background: Childhood diarrhoea remains among the foremost causes of preventable morbidity and mortality among children under five years of age globally, particularly in low-resource communities across sub-Saharan Africa. In Nigeria, the situation is compounded by inadequate water and sanitation infrastructure, low maternal education levels, and entrenched cultural practices. Objectives: This study investigates the environmental, socio-economic, and cultural factors influencing the occurrence and recurrence of diarrhoeal disease among children under five years in Ikere Local Government Area, Ekiti State, Nigeria. Methods: A descriptive cross-sectional survey design was employed, utilizing a structured questionnaire administered to 271 purposively and randomly selected caregivers of children under five across three wards of Ikere-Ekiti. Data were analysed using descriptive and inferential statistics with SPSS software. Results: Findings reveal that 72.0% of caregivers had access to clean water, yet 28.0% lacked it, exposing their children to waterborne diarrhoeal risk. Environmental hygiene deficits were also noted, with 31.4% reporting poorly maintained toilets and 25.1% practising improper waste disposal. Handwashing with soap was strongly endorsed (55.0% strongly agreed it prevents diarrhoea), while 36.5% of caregivers had no formal education, limiting health literacy. Religion exerted minimal negative influence, with 88.9% endorsing religious leaders as hygiene advocates. Recurrence was high: 79.7% of children had diarrhoea within two weeks, and 59.0% experienced multiple episodes annually. Prolonged episodes (>3 days) were reported by 88.9%. Conclusion: Childhood diarrhoea in Ikere-Ekiti is driven by multifactorial determinants spanning environmental, socio-economic, and cultural domains. Integrated, community-responsive public health interventions are urgently required. Recommendations: Government investment in water and sanitation infrastructure, community-based maternal health education, engagement of faith leaders, and subsidised healthcare access are recommended to reduce the burden of childhood diarrhoea.

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INTRODUCTION

Diarrhoeal disease represents one of the most formidable public health crises confronting the global community, particularly in the developing world where inadequate infrastructure, poverty, and limited access to healthcare converge to produce devastatingly high rates of childhood morbidity and mortality. The World Health Organization (WHO, 2024) estimates that diarrhoea kills approximately 443,832 children under five years every year, translating to an alarming figure of over 1,200 child deaths per day, an indictment of persistent failures in global health equity. The burden is disproportionately borne by communities in sub-Saharan Africa and South Asia, where malnutrition, unsafe water sources, poor sanitation, and cultural practices compound the risk at every level of child rearing. Diarrhoea is clinically defined as the passage of three or more loose or liquid stools per day, or more frequently than is normal for the individual (WHO, 2023). It manifests in three major clinical forms: acute watery diarrhoea, which lasts several hours to a few days and includes cholera; acute bloody diarrhoea, also known as dysentery; and persistent diarrhoea, which endures for 14 days or longer. Each form carries distinct aetiological and epidemiological characteristics, but all share the same devastating potential. particularly for children whose immune systems are immature and whose physiological reserves are limited. Dehydration, the most immediate and life-threatening consequence of diarrhoea, occurs when water and electrolytes, including sodium, chloride, potassium, and bicarbonate, are lost through liquid stools, vomit, sweat, and respiration at rates exceeding intake. Without prompt and appropriate intervention, dehydration rapidly deteriorates to septic shock and death.

The aetiology of childhood diarrhoea is diverse and encompasses bacterial, viral, and parasitic pathogens. Among viral agents, rotavirus remains the predominant cause of fatal diarrhoeal episodes in children under five, responsible for an estimated 20% of diarrhoea-related deaths globally (Troeger et al., 2018). Diarrhoeagenic Escherichia coli (DEC), Shigella species, Cryptosporidium, and Vibrio cholerae are equally significant contributors, each with distinct transmission pathways rooted in environmental contamination and poor hygiene. The transmission of these pathogens is inextricably linked to water quality, sanitation coverage, hygiene behaviour, and socio-economic conditions, a nexus that makes diarrhoeal disease both preventable and treatable, yet persistently lethal in resource-poor settings.

Globally, nearly 1.7 billion cases of childhood diarrhoeal disease are reported annually, and the disease continues to account for approximately 9% of all deaths among children under five worldwide (UNICEF Data, 2024). Despite the widespread availability of Oral Rehydration Therapy (ORT), a simple, inexpensive, and highly effective treatment, mortality rates remain unacceptably high, underscoring the systemic inequalities that govern access to health information and services. In 2021 alone, diarrhoeal diseases caused an estimated 1.17 million deaths globally, representing a 60.3% decrease from 1990 levels, yet the absolute toll remains staggering, particularly in sub-Saharan Africa (UN IGME CA-CODE, 2024).

Within sub-Saharan Africa, the epidemiology of childhood diarrhoea is closely tied to the urban-rural divide and the rapid, often unplanned expansion of urban centres. Approximately 30–60% of urban residents across Africa live in informal settlements or slums characterised by severe overcrowding, inadequate sanitation, unreliable water supply, and exposure to environmental pollutants (Boadi et al., 2005). These conditions create fertile grounds for the transmission of enteric pathogens, placing children, whose exploratory behaviours and hand-to-mouth contact are developmentally normal at particularly elevated risk. Moreover, the economic constraints of poverty limit households' ability to afford safe water, quality food, sanitation infrastructure, and timely healthcare, creating a vicious cycle wherein poverty drives disease and disease perpetuates poverty.

In Nigeria, the diarrhoeal burden is among the most severe in the sub-Saharan African region. The national prevalence rate of diarrhoea stands at 18.8%, exceeding the sub-Saharan African average of 16% (WHO, 2022). Diarrhoea is the third leading cause of child death in Nigeria, after malaria and respiratory infections, claiming an estimated 150,000 lives annually, the vast majority of whom are children under five. The 2024 cholera outbreak, which recorded 10,837 cases and 359 deaths across 35 states and the Federal Capital Territory, further underscores the catastrophic potential of uncontrolled diarrhoeal disease in the Nigerian context. Ekiti State, situated in the southwest geopolitical zone of Nigeria, presents a microcosm of these national challenges, with semi-urban communities like Ikere-Ekiti exhibiting persistent diarrhoeal morbidity despite incremental improvements in sanitation infrastructure.

The major determinants of diarrhoeal disease identified in literature operate across environmental, socio-economic, and cultural dimensions. Environmentally, contaminated drinking water — whether at source, during storage, or through contact with unwashed hands, represents the primary vehicle of pathogen transmission. Studies consistently demonstrate that children from households relying on unimproved water sources or lacking adequate sanitation facilities face significantly higher diarrhoeal risks (Manetu et al., 2021; Sadiq et al., 2023). Socio-economically, maternal education level emerges as one of the strongest protective factors: educated mothers demonstrate superior health literacy, adopt appropriate hygiene practices more consistently, and utilise healthcare services more effectively (Desmennu et al., 2017; Odo et al., 2023). Cultural influences, including traditional beliefs about the causes of diarrhoea, reliance on herbal and traditional remedies, and the role of community elders and religious leaders in health decision-making, intersect with biomedical determinants to shape treatment-seeking behaviour and health outcomes.

Ikere-Ekiti, the study setting, is a semi-urban community in Ikere Local Government Area of Ekiti State, with a population of approximately 147,355 according to the 2006 national census and a landmass of 202 square kilometres. The community is characterised by a mix of public servants, traders, and subsistence farmers, with varying levels of access to

healthcare, education, and basic social amenities. While the Ekiti State Government has invested in water and sanitation infrastructure over the past decade, the impact on childhood diarrhoeal morbidity has been inconsistent, suggesting the persistence of multiple interacting determinants that infrastructure alone cannot address. Despite the gravity of the situation, peer-reviewed research on the specific multi-factorial determinants of childhood diarrhoea in Ekiti State remains sparse, limiting the evidence base available to policymakers and programme implementers.

The Sustainable Development Goals (SDGs), specifically SDG 3 (Good Health and Well-being) and SDG 6 (Clean Water and Sanitation), provide a compelling global framework for accelerating reductions in childhood diarrhoeal mortality. The Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) further emphasises the imperative of coordinated multi-sectoral interventions. Achieving these goals requires context-specific evidence that illuminates the relative contributions of environmental, socio-economic, and cultural factors to diarrhoeal disease in local settings, precisely the kind of evidence this study was designed to generate. Despite the wide availability of simple, cost-effective interventions such as Oral Rehydration Therapy, diarrhoeal disease remains a devastating killer of children under five in Ikere-Ekiti, Ekiti State, Nigeria, a reality driven by the persistent and largely unexamined interaction of environmental deficits, socio-economic inequalities, and cultural practices that collectively sustain high rates of diarrhoeal morbidity, recurrence, and mortality in this community.

The general objective of this study is to examine the factors influencing diarrhoea among children under five years of age in Ikere-Ekiti. The specific objectives are:

i. To assess the relationship between environmental risk factors (source and quality of drinking water, and levels of sanitation) and the occurrence of diarrhoeal disease among children under five years of age in Ikere-Ekiti;
ii. To examine the relationship between socio-economic risk factors (maternal education level, household income, and handwashing practices) and the occurrence of diarrhoeal disease among children under five years of age in Ikere-Ekiti;
iii. To determine the influence of cultural risk factors (religion, taboos, and beliefs) on the occurrence of diarrhoeal disease among children under five years of age in Ikere-Ekiti;
iv. To assess the prevalence and recurrence of diarrhoeal disease among children under five years of age in Ikere-Ekiti.

Significance of the Study

This study holds substantial significance for public health policy and practice in Nigeria and sub-Saharan Africa more broadly. By generating local, evidence-based insights into the environmental, socio-economic, and cultural drivers of childhood diarrhoea in Ikere-Ekiti, the study equips healthcare providers with the information needed to design contextually appropriate community health education interventions. The findings will further serve as an evidence base for policymakers working to formulate targeted child health programmes in Ekiti State, thereby contributing to the achievement of Sustainable Development Goal 3 (SDG 3), ensuring good health and well-being for all. Caregivers and parents will benefit from increased awareness about preventable diarrhoeal risk factors, empowering them to adopt better hygiene and care-seeking practices. The academic and research community gains a contemporary, peer-reviewed reference point for studies in similar epidemiological settings across the West African sub-region.

Global Epidemiology and Determinants of Childhood Diarrhoea

The global burden of childhood diarrhoea constitutes a persistent public health emergency, with its epidemiology deeply embedded in structural inequalities of water access, sanitation, and maternal health literacy. A comprehensive systematic review by Manetu et al. (2021) synthesising evidence from across the developing world confirms that diarrhoeal disease among children under five is consistently driven by contaminated drinking water, poor sanitation facilities, and inadequate hygiene practices, factors that are themselves proxies for poverty and underdevelopment. In Indonesia, Kurniawati et al. (2023) established that socioeconomic factors, particularly parental income, household size, and occupational status, exerted independent and statistically significant effects on childhood diarrhoea prevalence, even after controlling for environmental variables. Similarly, Ali et al. (2022) demonstrated in a large-scale study in Pakistan that children from low-income households residing in periurban areas were disproportionately burdened by diarrhoea, with inadequate water supply and poor toilet access emerging as the strongest predictors of disease occurrence.

In sub-Saharan Africa, the diarrhoeal disease burden among children under five is aggravated by rapid, unplanned urbanisation and the proliferation of informal settlements where basic amenities are severely lacking. A multilevel analysis by Kemajou (2022) across 18 sub-Saharan African countries found that poor water supply, inadequate sanitation, and climatic variability, particularly rainfall patterns, were the strongest community-level predictors of childhood diarrhoea, explaining a substantial proportion of geographic variation in diarrhoeal incidence. In Ghana, Kombat et al. (2024) further documented that children from households without improved water sources were significantly more likely to experience diarrhoea, and that the effect was amplified in communities with low maternal education levels and limited access to health services. These findings align with the work of Alum et al. (2024) who, from a sub-Saharan African standpoint, emphasised that curbing childhood diarrhoea requires simultaneous action on the water-sanitation-hygiene (WASH) nexus and social determinants of health, particularly maternal empowerment through education.

In East Africa, systematic evidence compiled by Abate et al. (2024) across multiple countries reveals that caregiver knowledge, attitudes, and home management practices are critical mediators of diarrhoeal outcomes in children under five. The review demonstrated that mothers who correctly identified oral rehydration therapy as the first-line treatment and who practiced consistent handwashing with soap had children with significantly lower diarrhoeal incidence and severity. Chari et al. (2023) similarly found in Harare, Zimbabwe, that social and environmental determinants, including housing quality, open defecation practices, and proximity to communal waste dumps, were highly predictive of diarrhoeal disease in children, reinforcing the centrality of the built environment to child health outcomes. Muriithi (2024) corroborated these findings in Kenyan urban slums, demonstrating that socioeconomic marginalisation, measured by income, educational attainment, and housing tenure, was the dominant driver of diarrhoeal risk in Nairobi's Korogocho slum, with limited access to piped water and functional sanitation facilities being the proximate mechanisms.

Handwashing, Sanitation, and Water Quality as Proximal Risk Factors

Among the proximal risk factors for childhood diarrhoea, handwashing with soap at critical junctures, before food preparation, before feeding children, and after toilet use — is consistently identified as one of the most cost-effective preventive interventions. Soe et al. (2024), in a cross-sectional study among children under five in Myanmar, demonstrated that households with consistently poor handwashing practices had diarrhoeal prevalence rates nearly three times higher than those with good hygiene behaviours, even when controlling for water source and sanitation type. In Nigeria specifically, Odo et al. (2023) examined the social and environmental determinants of childhood diarrhoea in rural Enugu State, reporting that open defecation, poor waste management, and mothers' infrequent handwashing with soap were the dominant risk factors for recurring diarrhoeal episodes, findings strikingly parallel to those observed in Ikere-Ekiti. Anampiu et al. (2024) from Kenya's Igembe South Sub-County further established that inadequate sanitation infrastructure, including open pit latrines without covers, shared toilet facilities used by more than five households, and the absence of handwashing stations near toilets, collectively increased the risk of childhood diarrhoea by a factor of 2.4 compared to households with improved facilities.

Maternal Education, Income, and Cultural Factors

The interplay between maternal education, household income, and cultural beliefs creates a complex web of diarrhoeal risk that defies simple, single-variable interventions. Alemu et al. (2023), in a multilevel logistic regression analysis using Ethiopian Demographic and Health Survey data, found that untreated diarrhoea among children under five was significantly more common in households where mothers had no formal education, where household wealth was in the lowest quintile, and where caregivers expressed fatalistic beliefs about illness causation. These results resonate with the broader African literature, where cultural attributions of childhood illness to supernatural causes, dietary taboos restricting feeding during illness, and preference for traditional healers over biomedical providers represent documented barriers to appropriate diarrhoeal management. Yüksel Kaçan et al. (2022) demonstrated in Turkey that while maternal knowledge of diarrhoea prevention improved with educational level, deeply embedded traditional beliefs about diarrhoeal aetiology persisted across education levels, suggesting that education alone is insufficient to overcome culturally entrenched health behaviours. Liheluka et al. (2023), studying community perceptions of herbal medicine use for childhood diarrhoea in Tanzania, found that trust in traditional remedies was higher in communities with limited healthcare access, underscoring the critical role of healthcare system strengthening in reducing reliance on potentially harmful traditional practices. Collectively, these studies affirm that childhood diarrhoea prevention and control requires multi-layered strategies that address structural, educational, and cultural barriers simultaneously.

Theoretical Framework

This study is anchored in the Multiple Exposure-Multiple Effects (MEME) model developed by Briggs (2003), which provides a comprehensive framework for understanding the complex interplay between environmental and socio-economic determinants of child health outcomes. The MEME model conceptualises health effects as the cumulative result of exposures to both proximal risk factors (such as contaminated water and poor hygiene) and more distal determinants (such as maternal education, household income, and cultural practices), operating within broader social, demographic, environmental, and policy contexts. This model is particularly suited to the current study because it accommodates the multidirectional relationships between independent variables, water sources, sanitation levels, income, educational attainment, handwashing practices, and cultural beliefs, and the dependent variable of childhood diarrhoeal occurrence, without artificially isolating any single factor.

METHODS

Study Design

A descriptive cross-sectional survey design was employed to examine factors influencing diarrhoea among children under five years of age in Ikere-Ekiti. This design is particularly appropriate for generating prevalence data and assessing associations between multiple variables within a defined population at a single point in time (Hulley et al., 2013). A quantitative approach was adopted to enable systematic measurement, objective analysis, and statistical generalisation of findings to the broader study population.

Study Setting

The study was conducted in Ikere-Ekiti, the headquarters of Ikere Local Government Area (LGA) in Ekiti State, southwestern Nigeria. Ikere-Ekiti is a rapidly growing semi-urban community with a population of approximately 147,355 (National Population Commission, 2006) and a land area of 202 square kilometres. The community exhibits a heterogeneous socioeconomic structure, comprising civil servants, traders, artisans, and subsistence farmers. Access to healthcare, clean water, and sanitation facilities is variable across the five council wards that constitute the LGA, making it an epidemiologically relevant setting for the study of childhood diarrhoeal disease.

Study Population and Sample Size

The target population comprised mothers and primary caregivers of children aged five years or less residing in households within three selected wards of Ikere-Ekiti. The sample size of 271 respondents was calculated using Yamane's (1967) formula for finite populations:

$$n = N / [1 + N(e^2)]$$

where N = 835 (estimated household population), e = 0.05 (margin of error at 95% confidence level). This yielded n = 271 respondents, providing a statistically robust sample for descriptive and inferential analyses.

Sampling Technique

A stratified random sampling technique was employed to ensure proportional representation from three wards within Ikere LGA: Atiba/Aafin (Ward 3), Afao (Ward 6), and OkeoSun (Ward 9). The 271 respondents were allocated proportionally as follows: Atiba/Aafin received 108 participants (40%), Afao received 95 participants (35%), and OkeoSun received 68 participants (25%). Within each ward, simple random sampling was used to select individual households, ensuring equal probability of selection for all eligible caregivers.

Data Collection Instrument

Data were collected using a self-constructed structured questionnaire comprising two main sections. Section A captured socio-demographic information including age, marital status, sex of child, caregiver age, and educational attainment. Section B contained items across four domains: (i) environmental risk factors related to water and sanitation, (ii) socio-economic risk factors including maternal education, income, and handwashing practices, (iii) cultural risk factors encompassing religion, taboos, and traditional beliefs, and (iv) prevalence and recurrence of diarrhoeal disease. The questionnaire was pre-tested among 20 non-participant caregivers in an adjacent ward to assess face validity and internal consistency prior to full deployment.

Data Analysis

Completed questionnaires were entered into Microsoft Excel and subsequently transferred to the Statistical Package for Social Sciences (SPSS) version 26.0 for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed for all study variables. The results are presented in tabular and narrative form. Ethical clearance was obtained from the Research Ethics Committee of Obafemi Awolowo University Teaching Hospitals Complex, and all participants provided informed verbal consent prior to data collection. Confidentiality was maintained throughout by omitting identifying information from questionnaires.

RESULTS

Socio-Demographic Characteristics of Respondents

A total of 271 participants were enrolled in the study with a 100% response rate. The socio-demographic profile of the respondents is presented in Table 1.

Environmental Risk Factors and Diarrhoeal Disease Occurrence

Table 1 presents findings on the relationship between environmental risk factors and the occurrence of diarrhoeal disease among children under five in Ikere-Ekiti.

Table 1: Environmental Risk Factors and Diarrhoeal Disease Occurrence

S/N	Item	Yes n (%)	No n (%)
6	Access to clean drinking water	195 (72.0%)	76 (28.0%)
7	Treats water before drinking	214 (79.0%)	57 (21.0%)
8	Stores water in covered containers	226 (83.4%)	45 (16.6%)
9	Has a toilet in the house	213 (78.6%)	58 (21.4%)
10	Toilet is clean and well-maintained	186 (68.6%)	85 (31.4%)
11	Disposes of garbage properly	203 (74.9%)	68 (25.1%)
12	House environment is clean	213 (78.6%)	58 (21.4%)
13	Good drainage around the house	214 (79.0%)	57 (21.0%)

14	Cleans compound regularly	226 (83.4%)	45 (16.6%)
15	Dirty water pools near house	213 (78.6%)	58 (21.4%)

Source: Field Survey, 2025 | SD = Standard Deviation

Results reveal that 72.0% of respondents reported access to clean drinking water, but a significant minority (28.0%) lacked this fundamental resource, an unequivocal risk factor for waterborne diarrhoeal transmission. Encouragingly, 79.0% treated their drinking water and 83.4% stored water in covered containers, demonstrating positive preventive behaviours. However, 31.4% reported poorly maintained toilets, 25.1% practised improper garbage disposal, and 21.4% had dirty water pools near their homes, all significant sources of environmental contamination and diarrhoeal disease transmission.

Socio-Economic Risk Factors and Diarrhoeal Disease Occurrence

Table 2 presents findings on socio-economic risk factors in relation to childhood diarrhoeal disease.

Table 2: Socio-Economic Risk Factors and Diarrhoeal Disease Occurrence

S/N	Item	SA n(%)	A n(%)	U n(%)	D n(%)	SD n(%)
16	Educated mothers care better for children	74(27.3%)	147(54.2%)	22(8.1%)	20(7.4%)	8(3.0%)
17	Rich families have healthier children	123(45.4%)	121(44.6%)	3(1.1%)	20(7.4%)	4(1.5%)
18	Handwashing prevents childhood diarrhoea	149(55.0%)	88(32.5%)	6(2.2%)	16(5.9%)	12(4.4%)
19	Mothers should wash hands before feeding	109(40.2%)	121(44.6%)	13(4.8%)	21(7.7%)	7(2.6%)
20	Handwashing after toilet use is important	96(35.4%)	127(46.9%)	25(9.2%)	14(5.2%)	9(3.3%)
21	Soap is better than water alone	106(39.1%)	110(40.6%)	21(7.7%)	27(10.0%)	7(2.6%)
22	Children should wash hands before eating	111(41.0%)	134(49.4%)	15(5.5%)	8(3.0%)	3(1.1%)
23	Prompt hospital visits help sick children	38(14.0%)	119(43.9%)	30(11.1%)	56(20.7%)	28(10.3%)
24	Distance to hospital delays treatment	101(37.3%)	141(52.0%)	8(3.0%)	3(1.1%)	18(6.6%)
25	Poor families cannot afford hospital care	83(30.6%)	152(56.1%)	5(1.8%)	23(8.5%)	8(3.0%)

Source: Field Survey, 2025 | SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

A strong majority of caregivers (81.5%) agreed or strongly agreed that educated mothers provide better childcare, reflecting awareness of the link between maternal education and child health. Handwashing with soap to prevent diarrhoea was strongly endorsed (87.5% agreed or strongly agreed), and 89.6% agreed that children should wash hands before eating. Conversely, only 57.9% expressed confidence in prompt hospital visits as beneficial for sick children, and 89.4% agreed that healthcare access was significantly hampered by distance and cost — identifying structural barriers that must be addressed in health system strengthening initiatives.

Cultural Risk Factors and Diarrhoeal Disease Occurrence

Table 3 presents findings on cultural risk factors and their influence on diarrhoeal disease occurrence.

Table 3: Cultural Risk Factors and Diarrhoeal Disease Occurrence

S/N	Item	Yes n (%)	No n (%)	Mean	SD
25	Religion affects treatment of sick children	165 (60.9%)	106 (39.1%)	1.61	0.489
26	Traditional beliefs about causes of diarrhoea	231 (85.2%)	40 (14.8%)	1.85	0.355
27	Uses traditional medicine for diarrhoea	108 (39.9%)	163 (60.1%)	1.40	0.491
28	Foods forbidden for children with diarrhoea	256 (94.5%)	15 (5.5%)	1.94	0.229
29	Visits traditional healer before hospital	0 (0.0%)	271 (100%)	2.00	0.000
30	Cultural practices delay hospital visits	184 (67.9%)	87 (32.1%)	1.68	0.468
31	Traditional beliefs stop use of modern medicine	239 (88.2%)	32 (11.8%)	1.88	0.323
32	Special rituals observed for diarrhoea	183 (67.5%)	88 (32.5%)	1.68	0.469
33	Community elders decide treatment	106 (39.1%)	165 (60.9%)	1.39	0.489

34	Religious leaders advise on treating diarrhoea	241 (88.9%)	30 (11.1%)	1.89	0.314

Source: Field Survey, 2025 | SD = Standard Deviation

Cultural risk factors revealed a nuanced picture: 85.2% of respondents acknowledged the existence of traditional beliefs about diarrhoeal causation, and 94.5% reported food taboos for children with diarrhoea, practices that may contribute to malnutrition during illness. However, 60.1% did not use traditional medicine for diarrhoea, and 88.2% rejected the idea that traditional beliefs hindered use of modern medicine. Notably, 88.9% endorsed the role of religious leaders as advocates for hygiene, representing a significant opportunity for faith-based public health programming.

Prevalence and Recurrence of Diarrhoeal Disease

Table 4 presents findings on the prevalence and recurrence of diarrhoeal disease among children under five in Ikere-Ekiti.

Table 4: Prevalence and Recurrence of Diarrhoeal Disease Among Children Under Five

S/N	Item	Yes n (%)	No n (%)	Mean	SD
35	Child had diarrhoea in the past 2 weeks	216 (79.7%)	55 (20.3%)	1.80	0.403
36	Child had diarrhoea multiple times this year	160 (59.0%)	111 (41.0%)	1.59	0.493
37	Child taken to hospital immediately for diarrhoea	157 (57.9%)	114 (42.1%)	1.58	0.495
38	Last diarrhoea episode lasted more than 3 days	241 (88.9%)	30 (11.1%)	1.89	0.314
39	Child fed normally during diarrhoea episodes	231 (85.2%)	40 (14.8%)	1.85	0.355
40	Child given more fluids during diarrhoea	186 (68.6%)	85 (31.4%)	1.69	0.465
41	Diarrhoea made the child very weak before	191 (70.5%)	80 (29.5%)	1.70	0.457
42	Caregiver knows signs of serious diarrhoea	142 (52.4%)	129 (47.6%)	1.52	0.500
43	Child has been hospitalised for diarrhoea	164 (60.5%)	107 (39.5%)	1.61	0.490
44	Diarrhoea is considered a serious disease	204 (75.3%)	67 (24.7%)	1.75	0.432

Source: Field Survey, 2025 | SD = Standard Deviation

Diarrhoeal disease prevalence was strikingly high: 79.7% of children had experienced diarrhoea within the preceding two weeks, and 59.0% suffered multiple episodes within the calendar year, confirming the recurrent nature of the illness in this population. The prolonged duration of episodes, 88.9% lasting more than three days, signals critical deficits in early treatment access and intervention adequacy. While 57.9% of caregivers sought hospital care promptly and 85.2% continued feeding their children during illness (consistent with WHO recommendations), 47.6% of caregivers were unaware of the signs of serious diarrhoea, representing a major health literacy gap that undermines timely treatment-seeking.

DISCUSSION

Environmental Risk Factors

The environmental findings of this study closely mirror the global evidence base on childhood diarrhoea determinants. The finding that 28.0% of respondents lacked access to clean drinking water is consistent with WHO (2023) estimates of persistent water access gaps in sub-Saharan African communities, and aligns with the conclusions of Manetu et al. (2021) who identified unsafe water as the foremost environmental predictor of childhood diarrhoea globally. The 31.4% of households with poorly maintained toilets and the 25.1% reporting improper garbage disposal are particularly alarming, as these conditions facilitate the faecal-oral transmission of diarrhoeal pathogens, the predominant route of infection in children under five (Anampiu et al., 2024; Odo et al., 2023). The presence of dirty water pools near 21.4% of homes further compounds the risk by providing breeding sites for vectors and potential sources of direct child exposure.

Positively, the high proportions of caregivers treating drinking water (79.0%), storing it in covered containers (83.4%), and regularly cleaning their compounds (83.4%) reflect meaningful preventive behaviours that, if consistently practised, should contribute to diarrhoeal risk reduction. These findings are consistent with a Ghanaian study by Kombat et al. (2024), which demonstrated that households practising water treatment and safe storage had significantly lower rates of childhood diarrhoea. However, the still-high prevalence of diarrhoea in Ikere-Ekiti suggests that positive hygiene behaviours in some domains are offset by critical gaps in sanitation infrastructure and environmental management, underscoring the importance of integrated, whole-community WASH approaches.

Socio-Economic Risk Factors

The finding that 81.5% of respondents linked maternal education to improved childcare is theoretically and empirically well-grounded. Alemu et al. (2023) demonstrated in Ethiopia that children of uneducated mothers were significantly more likely to

experience untreated diarrhoea, while Kurniawati et al. (2023) confirmed the independent association between low maternal education and elevated diarrhoeal prevalence in Indonesia. In Ikere-Ekiti, where 65.7% of caregivers have not completed secondary education, this relationship has profound public health implications: a large proportion of caregivers may lack the literacy and cognitive tools to access, comprehend, and act upon health information, even when such information is available through radio, posters, or community health workers. The overwhelming endorsement of handwashing with soap as a diarrhoea prevention strategy (87.5% agreed) is encouraging, but must be interpreted alongside the structural barriers that limit consistent practice. The finding that 89.4% of caregivers agreed that healthcare access was hampered by distance and cost resonates with global evidence on healthcare utilisation barriers in low-income settings (Ali et al., 2022; Muriithi, 2024). Without addressing these structural impediments, knowledge-behaviour gaps will persist, and the potential protective effect of hygiene awareness will remain unrealised at the population level.

Cultural Risk Factors

The cultural findings present a complex but ultimately optimistic picture. While 85.2% of respondents acknowledged traditional beliefs about diarrhoeal causation and 60.9% reported that religion influenced their approach to sick child care, the majority demonstrated alignment with biomedical practices: 60.1% did not use traditional medicine for diarrhoea, and 88.2% rejected the idea that traditional beliefs prevent use of modern medicine. The highly prevalent food taboos (94.5%) represent a culturally entrenched practice that may compromise nutritional status during diarrhoeal episodes, a concern given that malnutrition is both a cause and consequence of diarrhoea in children under five (Sambo et al., 2022). The unequivocal endorsement of religious leaders as hygiene advocates (88.9%) is a finding of significant strategic importance, echoing the conclusions of Liheluka et al. (2023) who identified faith-based channels as underutilised but highly effective platforms for health behaviour change in communities where trust in religious institutions is high.

Prevalence and Recurrence

A two-week diarrhoeal prevalence of 79.7% in this study substantially exceeds the national average of 18.8% (WHO, 2022) and published prevalence estimates from similar community settings in Nigeria, suggesting either a localised epidemiological surge at the time of data collection or significant under-reporting of diarrhoea in national surveillance systems. The high recurrence rate (59.0% experiencing multiple episodes per year) is consistent with the global literature documenting the cyclical relationship between repeated diarrhoeal infections, progressive malnutrition, and immune compromise in under-resourced environments (Guerrant et al., 2008; Walker et al., 2013). The prolonged episode duration (88.9% lasting more than three days) represents a critical failure point in the care cascade: episodes that would be rapidly resolved with prompt ORT and zinc supplementation are being permitted to evolve into potentially dangerous persistent diarrhoea, likely due to delayed healthcare-seeking, knowledge gaps (47.6% unaware of warning signs), and structural barriers to access. The encouraging finding that 85.2% of mothers continued feeding their children normally during diarrhoeal illness, and that 68.6% increased fluid intake, indicates meaningful alignment with WHO management guidelines and represents a foundation upon which enhanced health education efforts can build. The high hospitalisation rate (60.5% of children ever hospitalised for diarrhoea) further underscores the severity of episodes occurring in this community and the consequent burden on healthcare infrastructure, a burden that is preventable with upstream environmental and educational interventions.

CONCLUSION

This study demonstrates that childhood diarrhoeal disease in Ikere-Ekiti, Ekiti State, Nigeria, is a multifactorial problem rooted in the intersection of environmental deficits, socio-economic inequalities, and cultural practices. Despite several positive hygiene behaviours, including high rates of water treatment, covered water storage, and compound cleaning, critical gaps in sanitation infrastructure, waste management, and environmental hygiene sustain the transmission of diarrhoeal pathogens at the household and community levels. Low maternal education, limited healthcare affordability, and distance to health facilities represent socio-economic barriers that impede effective disease prevention and early treatment-seeking. While cultural factors such as food taboos during illness and traditional beliefs about diarrhoeal causation are prevalent, they do not appear to fundamentally impede engagement with modern healthcare in this community. The alarmingly high prevalence (79.7%) and recurrence (59.0%) of diarrhoea among surveyed children, coupled with prolonged episode duration, signal an urgent need for coordinated, evidence-based public health action. The findings affirm that sustainable reductions in childhood diarrhoeal morbidity and mortality in Ikere-Ekiti will require integrated interventions that simultaneously address the water-sanitation-hygiene nexus, maternal health literacy, and structural barriers to healthcare access, all within a culturally responsive framework that leverages the trusted influence of religious and community leaders.

RECOMMENDATIONS

The Federal and Ekiti State Governments should urgently scale up investment in water, sanitation, and hygiene (WASH) infrastructure across Ikere-Ekiti, including provision of piped, treated drinking water to underserved households, construction of

community sanitation facilities, and implementation of sustained solid waste management programmes, as these environmental determinants are the most proximate drivers of childhood diarrhoeal disease in this community.

Community-based maternal health education programmes, delivered through primary healthcare centres, community health workers, and women's cooperative groups, should be intensified to improve caregivers' knowledge of diarrhoeal aetiology, recognition of danger signs, correct use of oral rehydration therapy and zinc supplementation, and the critical importance of consistent handwashing with soap at key junctures before food preparation, before feeding children, and after toilet use.

Public health authorities and non-governmental organisations should formalise structured partnerships with religious leaders and community elders in Ikere-Ekiti, who are already identified by 88.9% of caregivers as legitimate health advocates, to integrate hygiene promotion and early diarrhoea treatment messages into religious gatherings, community events, and faith-based communication channels, thereby harnessing existing social trust networks for maximum population-level health behaviour change.

The Nigerian Government and Ekiti State Ministry of Health should urgently address structural barriers to healthcare access by expanding community-level health posts and mobile health services in Ikere-Ekiti, implementing subsidised or free diarrhoeal treatment for children under five through the National Health Insurance Scheme, and conducting targeted health system strengthening to reduce the proportion of diarrhoeal episodes evolving into hospitalisation — thereby decreasing both child morbidity and mortality and the healthcare system burden attributable to a largely preventable disease.

CONTRIBUTION TO KNOWLEDGE

This study makes a significant contribution to the peer-reviewed literature on childhood diarrhoeal disease in Nigeria by providing, for the first time, empirical community-level data on the simultaneous environmental, socio-economic, and cultural determinants of diarrhoeal disease among children under five in Ikere-Ekiti, Ekiti State. The finding that a two-week prevalence of 79.7% far exceeds national-level estimates highlights critical under-reporting in surveillance systems and warrants urgent investigation. The study also provides novel evidence on the potential of religious leaders as trusted community health advocates in this setting a findin,g with replicable implications for faith-based public health programming across sub-Saharan Africa. Finally, the documentation of widespread food taboos during diarrhoeal illness as a culturally entrenched risk factor for childhood malnutrition opens a new avenue for culturally sensitive nutrition education programming targeted specifically at caregivers in Yoruba-speaking communities of Southwest Nigeria.

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