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Awareness and Perception of Health Outcomes of Indiscriminate Refuse Disposal among Mothers of Children Aged 0–5 Years in Ifite Community, Awka, Anambra State, Nigeria

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ABSTRACT

Background: In Nigerian peri-urban communities, the gap between knowing that refuse causes disease and actually disposing of it safely is wide, persistent, and poorly understood at the local level. Mothers of young children sit at the centre of this problem: they handle household waste daily, they are the primary health gatekeepers for their children, and they bear the consequences — in illness, in medical costs, in reduced capacity to care — when the surrounding environment is insanitary. Ifite community, Awka, is one such setting. This study examines what mothers there know, what they believe, and what they do.

Objective: To assess the level of awareness and perception of the health outcomes of indiscriminate refuse disposal among mothers of children aged 0–5 years in Ifite community, Awka South Local Government Area (LGA), Anambra State, and to examine the relationships between awareness, perception, disposal practices, and child health outcomes.

Methods: A descriptive cross-sectional survey design was employed. A total of 390 mothers of children aged 0–5 years were recruited through multi-stage sampling. Data were collected using a structured, validated questionnaire (reliability coefficient = 0.82). Analysis was conducted using IBM SPSS Statistics version 29, employing descriptive statistics and chi-square tests at $\alpha = 0.05$.

Results: Eighty percent of respondents were aware of health risks associated with poor refuse disposal, yet unsafe practices remained prevalent: open dumping (36.9%) and burning (25.1%) were the most common disposal methods. Only 23.6% used government-approved collection services. Malaria (44.1%) and diarrheal diseases (37.9%) were the most frequently reported illnesses among children. Chi-square analysis demonstrated statistically significant associations between awareness and disposal practices ($\chi^2 = 12.64$, $p = 0.005$), perception of severity and child health outcomes ($\chi^2 = 15.21$, $p = 0.004$), and refuse disposal practices and child health outcomes ($\chi^2 = 18.47$, $p = 0.001$).

Conclusions: High awareness and serious risk perception exist in Ifite — but open dumping and burning remain the norm. The gap between knowing and doing is structural, not cognitive: there is nowhere safe to put the refuse, nobody collecting it, and no consequence for dumping it in the road. Closing that gap requires waste collection services, physical infrastructure, and enforced regulations — not more education delivered in the same vacuum.

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Keywords
Refuse disposal, health awareness, maternal perception, child health, sanitation, Anambra State, Nigeria

List of Abbreviations

HBM – Health Belief Model
LGA – Local Government Area
LMIC – Low- and Middle-Income Country
SDG – Sustainable Development Goal
SPSS – Statistical Package for the Social Sciences
UNEP – United Nations Environment Programme
WHO – World Health Organization

1. Introduction

Walk through Ifite on any morning and the refuse problem is visible before it becomes statistical. Heaps accumulate at corners. Drainage channels carry last week's household waste. Children play in spaces shared with decomposing material. These are not exceptional conditions — they are the ordinary environment in which mothers in this community raise children under five, manage households, handle waste, and then watch their children fall ill with malaria and diarrhoea and respiratory infections

that follow directly from those environmental conditions (WHO, 2022; UNEP, 2021). The connection between the heap on the roadside and the child sick with fever is not theoretical. It is established, measurable, and in Ifite, daily.

This is not a problem that belongs only to Ifite. Across Nigeria, urban growth has comprehensively outrun waste management systems, and sanitation laws exist more on paper than in enforcement (Omokaro *et al*., 2025; Fakunle *et al*., 2024). What studies from southeastern Nigeria have documented consistently is that knowing the risks does not automatically produce safer behaviour — and that the gap between knowledge and practice is shaped less by ignorance than by the structural reality of living in a place with no reliable waste collection service, no accessible bins, and no meaningful consequence for dumping on the roadside (Nwankwo *et al*., 2020; Anyaoha *et al*., 2021). What has been missing is local, quantitative evidence — from a specific community — that maps awareness, perception, practice, and child health outcomes together.

This study generates that evidence for Ifite. Four questions drove it: What do mothers know about the health consequences of poor refuse disposal? How seriously do they take those risks? What do they actually do with their household waste? And what connection exists between their disposal practices and the illnesses their children experience? The answers, taken together, are intended to provide Anambra State policymakers, health educators, and local government authorities with the specific, community-grounded information needed to move from general awareness campaigns toward targeted, actionable intervention.

Study Objectives

Five objectives guided the study: assessing maternal awareness of health implications (Objective 1); examining perception of risk severity (Objective 2); identifying disposal practices (Objective 3); documenting reported child illnesses (Objective 4); and exploring factors influencing unsafe behaviour (Objective 5). Three null hypotheses were tested: H_{01} — awareness has no significant relationship with disposal practices; H_{02} — perception of severity has no significant relationship with child health outcomes; H_{03} — disposal practices have no significant relationship with child health outcomes.

2. Methods

2.1 Study Design and Setting

The study used a descriptive cross-sectional design — appropriate for mapping awareness, perception, and current practices at a defined point in time in a defined community. Ifite community, Awka South LGA, is a peri-urban settlement with high residential density, inconsistent municipal waste collection, and health facility records documenting repeated sanitation-related illness among mothers and children.

2.2 Study Population and Sample Size

All mothers of children aged 0–5 years resident in Ifite were eligible. Sample size was calculated using Cochran's (1977) formula ($Z = 1.96$, $p = 0.80$, $e = 0.05$), adjusted for multi-stage design effects, yielding a final sample of 390 participants. Recruitment used four-stage sampling: Ifite was first divided into residential zones, zones were randomly selected, eligible households identified within selected zones, and then mothers selected systematically within those households.

2.3 Inclusion and Exclusion Criteria

To be included, a mother needed to be the primary caregiver of at least one child aged 0–5 years, to have lived in Ifite for at least six months, and to give written informed consent. Excluded were women who were not primary caregivers, those who were in the community temporarily, and those who were too unwell to participate.

2.4 Data Collection Instrument

A structured interviewer-administered questionnaire covered six areas: sociodemographic characteristics; awareness of health risks; perception of severity; current disposal practices; illnesses recently experienced by children; and factors the mother identified as influencing her disposal behaviour. Three specialists — in environmental health nursing, community health, and public health education — reviewed the instrument for content validity. Pilot testing with 40 mothers from a comparable community returned a reliability coefficient of 0.82, confirming adequate internal consistency.

2.5 Data Analysis

After entry and cleaning, data were analyzed in IBM SPSS Statistics version 29. Frequencies and percentages described all categorical variables. Chi-square tests of independence tested each of the three null hypotheses. The threshold was $\alpha = 0.05$: $p < 0.05$ meant rejecting H_0; $p \geq 0.05$ meant retaining it.

2.6 Ethical Considerations

Ethical clearance was obtained from the University of Port Harcourt Research Ethics Committee (Ref: UPH/CEREMAD/REC/MM117/106) before data collection began. Every participant signed an informed consent form in her preferred language. Withdrawal at any point carried no consequence. All data were stored under anonymized identifiers. The study followed the Declaration of Helsinki (2013) and Nigeria's National Code of Health Research Ethics throughout.

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3. Results

3.1 Sociodemographic Characteristics

Every questionnaire administered was correctly completed and returned — a 100% response rate. The age distribution was concentrated in the 26–35 year bracket (40.5%), with the 36–45 year group next (28.7%) (Table 1). A total of 18.5% of the respondents were aged 18–25, whereas 12.3% were aged 46 years or above. On education, secondary schooling was the largest category (40.0%), followed by tertiary (23.0%), primary (22.6%), and no formal education (14.4%). The overall profile — mostly women of active childbearing age with at least basic literacy — is well suited to the study's focus on awareness and perception.

Table 1: Sociodemographic Characteristics of Respondents (N=390)

Variable	Category	n (%)
Age Group	18–25 years	72 (18.5)
	26–35 years	158 (40.5)
	36–45 years	112 (28.7)
	46 years and above	48 (12.3)
Educational Level	No formal education	56 (14.4)
	Primary	88 (22.6)
	Secondary	156 (40.0)
	Tertiary	90 (23.0)

3.2 Awareness of Health Implications of Poor Refuse Disposal (Objective 1)

Four in five mothers — 80.0% — reported awareness of health risks linked to poor refuse disposal (Table 2). One in five did not. But the disposal practice data in Table 4 make clear that awareness, even at 80%, was not sufficient to shift behaviour: open dumping and burning together accounted for more than six in ten disposal events. That is the central tension this study sets out to understand.

Table 2: Awareness of Health Risks of Poor Refuse Disposal (N=390)

Awareness Level	n (%)
Aware	312 (80.0)
Not aware	78 (20.0)
Total	390 (100.0)

3.3 Perception of Severity of Health Risks (Objective 2)

Perception was even stronger than awareness: 43.1% rated the health risks as very serious, 36.4% as serious — together, 79.5% of the sample registered high risk perception (Table 3). Only one in five thought the risks were not serious. This is a population that, by and large, understands the stakes. It makes the disposal practice data that follow all the more important to examine carefully.

Table 3: Perception of Severity of Health Risks Associated with Poor Refuse Disposal (N=390)

Perception Category	n (%)
Very serious	168 (43.1)
Serious	142 (36.4)
Not serious	80 (20.5)
Total	390 (100.0)

3.4 Refuse Disposal Practices (Objective 3)

Despite the awareness and perception figures above, what mothers actually did with their refuse tells a different story. Open dumping was the most common method (36.9%), burning second (25.1%), burying third (14.4%). Government-approved collection — the only genuinely safe option — was used by just 23.6% (Table 4). Combined, the two most unsafe methods accounted for 62% of disposal practice in a community where four in five mothers understood the health risks involved. That number — 62% unsafe, despite 80% aware — is the operational core of this study.

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Table 4: Common Refuse Disposal Methods Used by Respondents (N=390)

Disposal Method	n (%)
Open dumping	144 (36.9)
Burning	98 (25.1)
Government-approved collection	92 (23.6)
Burying	56 (14.4)
Total	390 (100.0)

3.5 Common Reported Illnesses among Children Aged 0–5 Years (Objective 4)

The illness profile among children read back directly into the disposal data. Malaria was the most reported illness (44.1%) — the disease most closely tied to the stagnant water and vector breeding conditions that open refuse dumps create (Table 5). Diarrhoea came second (37.9%) — the disease most closely tied to contaminated water and faecal-oral transmission pathways in unsanitary environments. Together those two illnesses accounted for 82% of reported child morbidity. Typhoid (11.8%) and respiratory infections (6.2%) completed a profile that is, almost item for item, the expected clinical consequence of 62% unsafe refuse disposal in a residential community.

Table 5: Common Illnesses Reported Among Children Aged 0–5 Years (N=390)

Illness	n (%)
Malaria	172 (44.1)
Diarrhoeal diseases	148 (37.9)
Typhoid fever	46 (11.8)
Respiratory infections	24 (6.2)
Total	390 (100.0)

Percentages calculated from total sample (N=390). Multiple illness episodes per child may have been reported by a single mother.

3.6 Hypothesis Testing

All three null hypotheses were rejected. Awareness was significantly related to disposal practices ($p = 0.005$) — knowing the risks did push behaviour in a safer direction, even if not far enough. Perception of severity was significantly related to child health outcomes ($p = 0.004$) — mothers who took the risks seriously saw better health outcomes in their children (Table 6). And disposal practices were significantly related to child illness ($p = 0.001$) — the strongest and most direct of the three associations, with a chi-square of 18.47 confirming that what a mother does with her household waste has measurable consequences for whether her child gets sick.

Table 6: Summary of Chi-square Hypothesis Tests

Hypothesis	Variables Tested	χ^2	df	p-value	Decision
H_{01}	Awareness vs. Refuse Disposal Practices	12.64	3	0.005	Reject H_{01}
H_{02}	Perception of Severity vs. Child Health Outcomes	15.21	4	0.004	Reject H_{02}
H_{03}	Disposal Practices vs. Child Health Outcomes	18.47	3	0.001	Reject H_{03}

All tests conducted at $\alpha = 0.05$. χ^2 = chi-square statistic; df = degrees of freedom.

4. Discussion

4.1 Awareness and the Knowledge–Behaviour Gap

An 80% awareness rate is, in one sense, a public health success — campaigns and community health programming have reached this population, and the information has registered (Adeyemi *et al*., 2020; Anyaoha *et al*., 2021). But 62% of the same population was still dumping or burning. That disconnect between knowing and doing is not irrational behaviour. It is what happens in a community where safe disposal is the harder option — more distant, less available, and wholly dependent on a municipal collection service that serves fewer than one in four households.

The Health Belief Model (HBM) offers a framework for understanding why this gap persists. The HBM argues that perceived barriers suppress health-protective behaviour even when perceived severity and susceptibility are high (Lawal *et al*., 2021). In Ifite, the barriers are not attitudinal — they are physical. There is no reliable collection schedule, no bin within convenient reach, and no enforcement mechanism that creates any cost for dumping in the open. The significant association between awareness and practices ($\chi^2 = 12.64$, $p = 0.005$) confirms that knowledge does shape behaviour to a degree — but what the environment makes available determines how far that shaping can go. Gebrekidan *et al*. (2024) and Omokaro *et al*. (2025) arrive at the same conclusion from different settings: infrastructure access, not individual motivation, is the primary driver of disposal behaviour in LMIC communities.

4.2 Perception of Severity and Its Relationship to Child Health

Nearly four in five mothers regarded the health risks of poor refuse disposal as serious or very serious — a perception profile that is genuinely strong, not just adequate. And it matters: the significant association between perception and child health outcomes ($p = 0.004$) shows that mothers who registered higher severity perception were more likely to be associated with better outcomes for their children. Olorunfemi and Adepoju (2020) found the same directional relationship among rural Nigerian caregivers. Perception is not everything — but it is something. It adds incremental protective force even in an environment where structural conditions are working against safe behaviour.

Even so, malaria (44.1%) and diarrhoea (37.9%) remain dominant — together accounting for over 80% of reported child illness. Both are environmentally driven: mosquito breeding in stagnant water from blocked drains, faecal-oral transmission in settings where waste contaminates water sources. Kitole *et al*. (2024) observed the same phenomenon in Tanzanian informal settlements: household-level awareness and behaviour change produced limited impact because community-level sanitation conditions continued to drive transmission. A mother can act carefully while her neighbour dumps; the vector does not respect household-level effort. Structural change must accompany — or precede — individual-level intervention.

4.3 Disposal Practices and Child Health Outcomes

The strongest association in the study was between what mothers do with their refuse and what illnesses their children get — $\chi^2 = 18.47$, $p = 0.001$. This is the most direct test this study runs, and its significance was robust. For a sample of 390, a chi-square value of 18.47 with three degrees of freedom is a strong signal. It confirms what public health evidence from Nigeria and globally has argued for decades: refuse is not an aesthetic problem. It is a child survival problem (WHO, 2022; Onicha *et al*., 2024).

Malaria needs standing water. Open refuse dumps block drainage channels, rain accumulates, mosquitoes breed. Diarrhoea needs a faecal-oral pathway. Unsanitary waste environments contaminate water sources and hands. These are not theoretical mechanisms — they are the exact environmental conditions that field observation in Ifite and the disposal data in this study describe (Okorie *et al*., 2022; Mvula *et al*., 2025). The fact that both diseases are preventable — and that they remain this prevalent — is the clearest argument this study makes for treating waste infrastructure as a health investment rather than a public works cost.

4.4 Factors Sustaining Unsafe Practices

Twenty-three percent access government collection. Seventy-seven percent do not. The data on what mothers do with their refuse — and the disease outcomes that follow — trace almost entirely back to that one statistic. When collection is absent, even motivated households dump or burn. There is no behavioural theory that can overcome the absence of an available, safe, accessible alternative. Fakunle *et al*. (2024) observe that disposal behaviour in Nigerian communities follows available options more than individual intent; motivation, in the absence of infrastructure, is simply inadequate. Etim *et al*. (2024) demonstrated in Lagos that awareness campaigns without infrastructure investment produced minimal change. Ifite does not need another campaign. It needs bins, a collection schedule, and enforcement.

5. Conclusion and Recommendations

5.1 Conclusion

Ifite mothers know the risks. Most of them take those risks seriously. Neither fact is enough. Open dumping and burning account for 62% of disposal practice in a community where 80% are aware of the health consequences — and the malaria and diarrhoea rates among children reflect that gap precisely. Three statistically significant associations — awareness and practices ($p = 0.005$), perception and child outcomes ($p = 0.004$), disposal practices and child illness ($p = 0.001$) — confirm that knowledge and behaviour and health are genuinely connected in this community. What that connection cannot do, on its own, is produce safe outcomes in the absence of safe options. Waste collection, bins, enforcement: these are what this community is missing, and they are what the next intervention must provide.

5.2 Recommendations

1. The Awka South Local Government Council should prioritize expansion and regularization of waste collection services in Ifite, ensuring zone-by-zone coverage schedules, adequate collection vehicles, and clearly designated community disposal points within walking distance of all residential areas.
2. Community health education programmes targeting mothers of young children should be intensified through existing platforms — maternal and child health clinics, community women's groups, and religious gatherings — with practical demonstrations of proper storage, segregation, and safe disposal, not merely information transfer.

3. Government agencies and development partners should collaborate to install and maintain adequate waste storage infrastructure (covered bins, collection points, and temporary transfer depots) within Ifite's residential zones, ensuring that safe disposal is a practical option rather than an aspiration.
4. Anambra State environmental sanitation regulations should be actively enforced within Ifite, including visible and consistent penalties for open dumping and refuse burning in residential and public spaces.
5. The Awka South LGA Health Department should establish a community-level environmental health surveillance system to track sanitation-related illness trends, monitor disposal practices, and measure the impact of any interventions over time.
6. NGOs and community-based organizations operating in Ifite should embed waste management and hygiene messaging within broader maternal and child health programmes, leveraging existing community trust and reach.
7. Future research should employ longitudinal or intervention study designs to establish causal pathways between refuse disposal improvement and reductions in sanitation-related disease among children, and should include qualitative components to better understand the cultural and social dimensions of disposal behaviour in Anambra State communities.

Conflict of Interest
The authors declare no conflict of interest.

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