

A Cross-Sectional Assessment of Caregivers' Nutritional Knowledge, Attitudes, and Practices on Infant Feeding in Yenagoa Local Government Area, Bayelsa State, Nigeria

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ABSTRACT

Suboptimal infant and young child feeding (IYCF) practices during the first 1,000 days cause irreversible cognitive deficits and childhood morbidity. This descriptive cross-sectional study assessed caregivers' nutritional knowledge, attitudes, and practices (KAP) regarding infant feeding in Yenagoa Local Government Area, Bayelsa State, Nigeria. Utilizing a validated interviewer-administered questionnaire (Cronbach's alpha (0.75), data were collected from a multi-stage sample of 422 caregivers of infants aged 0–24 months and analyzed via SPSS version 26.0 using Chi-Square tests and Pearson correlations ($p < 0.05$). Caregivers exhibited high baseline nutritional knowledge, with 97.4% recognizing exclusive breastfeeding benefits and 100% linking early nutrition to brain development. The overall attitudinal profile was favorable (Aggregate Mean = 3.27 > 2.50 criterion benchmark), demonstrating strong self-efficacy in preparing local foods ($x = 4.60$) and prioritizing healthcare worker advice ($x = 4.41$). However, critical misconceptions persisted: caregivers erroneously believed that breast milk alone is insufficient ($x = 3.17$) and that Bayelsa's hot weather necessitates introducing water before six months ($x = 2.57$). In practice, handwashing and demand-feeding achieved 100% compliance, but 36.2% of caregivers failed to avoid giving pre-lacteal or extra fluids before six months. The primary operational challenges were economic and socio-cultural, driven by spousal financial deficits ($x = 4.43$), high market costs of nutritious foods ($x = 4.41$), and intense domestic pressure from mothers-in-law to give water early ($x = 4.26$). Inferential tests confirmed that caregiver knowledge and practices are significantly associated with infant health outcomes ($p < 0.01$). Ultimately, a sharp gap exists between high theoretical knowledge and actual practice. Imparting nutritional education is insufficient without targeted interventions addressing domestic financial dynamics, municipal water utilities, and key family influencers like fathers and grandmothers.

Keywords: Routine Immunization, Caregivers, Knowledge, Attitude, Practice, Infant Feeding, Yenagoa LGA, Child Malnutrition.

Background to the Study

Child feeding is widely recognized as a critical indicator of public health, child survival, and socioeconomic development. Appropriate infant and young child feeding (IYCF) practices significantly reduce childhood malnutrition and prevent infectious diseases, particularly during the first 1,000 days of life. This window, from conception to a child's second birthday, is critical for rapid brain growth and immune system maturation, making infants exceptionally vulnerable to the irreversible consequences of poor nutrition (WHO, 2024). To optimize growth, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend initiating breastfeeding within the first hour of birth, maintaining exclusive breastfeeding for the first six months, and introducing safe complementary foods at six months alongside continued breastfeeding up to two years or beyond (UNICEF, 2024). Despite clear links to reduced mortality, low- and middle-income nations still suffer from suboptimal compliance (UNICEF, 2024). Globally, malnutrition contributes to nearly 45% of under-five deaths, manifesting as a triple burden of stunting, wasting, and overweight (UNICEF, WHO, & World Bank, 2021; WHO, 2023). Elevating

caregivers' nutritional knowledge, attitudes, and practices (KAP) is thus a primary strategy for achieving Sustainable Development Goals 2 and 3 (United Nations, 2022).

In Nigeria, inappropriate feeding habits pose severe challenges. Maternal knowledge gaps, traditional cultural beliefs, economic hardship, and insufficient family support heavily distort feeding decisions (FMOH, 2023). While baseline KAP directly dictates infant growth metrics (Bimpong et al., 2020) and positive attitudes reinforce compliance (Azeez et al., 2019), a severe discrepancy persists between high awareness and actual practices (Afolayan et al., 2024; Suleiman et al., 2020). This gap is underscored by the 2018 NDHS, which reported that 37% of Nigerian children under five were stunted, 7% were wasted, and 22% were underweight (NPC & ICF, 2019). In Yenagoa LGA, Bayelsa State, the local landscape reflects these national trends due to riverine settings, traditional customs, and structural limitations, highlighting the urgent need for localized empirical assessments.

Statement of the Problem

Inadequate child nutrition in Yenagoa LGA is a multifaceted crisis posing significant barriers to healthy infant development. Despite localized nutrition programs, a severe knowledge-to-practice gap persists. While over 79% of caregivers demonstrate good infant and young child feeding (IYCF) knowledge, less than 40% adhere to these recommended guidelines in daily routines (Toriola et al., 2023). Attitudes heavily modulate these outcomes; even when benefits are understood, only 54% of mothers maintain a favorable attitude toward exclusive breastfeeding (Ezechi et al., 2021). Consequently, only 10.5% of children in corresponding regional studies receive a minimum diversified diet (Bimpong et al., 2020). This behavioral disconnect directly impacts health outcomes. The nutritional status of children under five in Yenagoa is highly concerning, with localized rates of stunting reaching 14.4% to 14.8%, underweight at 7.3%, and wasting at 9.8%, threatening to permanently impair physical and cognitive development (Ahmed & Yusuf, 2019). This crisis is severely compounded by widespread household food insecurity, which affects 81.5% of local families and restricts access to safe, nutritious foods.

Suboptimal feeding habits remain prevalent: the exclusive breastfeeding rate in Bayelsa communities stands at a mere 37.2%, exposing infants to early weaning and contaminated fluids. Nationally, only 12.4% of children aged 6–23 months meet minimum dietary diversity standards (NDHS, 2024). Without localized, empirical data to identify the structural bottlenecks driving caregiver behavior in Yenagoa LGA, public health planners cannot design sustainable interventions to combat childhood malnutrition.

Aim and Objectives of the Study

The general objective of this study was to assess how caregivers' nutritional knowledge, attitudes, and feeding practices influence the development and overall health of children aged 0–24 months in Yenagoa Local Government Area of Bayelsa State.

The specific objectives were to:

- Assess the level of nutritional knowledge possessed by caregivers regarding child feeding in Yenagoa LGA.
- Examine caregivers' attitudes towards child feeding practices in Yenagoa LGA.
- Evaluate the nutritional practices of caregivers in relation to recommended child feeding guidelines in Yenagoa LGA.
- Identify the structural, socio-cultural, and economic challenges faced by caregivers in adopting appropriate child feeding practices in Yenagoa LGA.

- Is there a significant relationship between caregivers' nutritional knowledge, attitudes, and child feeding practices in Yenagoa LGA.

Research Questions

- What is the level of nutritional knowledge possessed by caregivers regarding child feeding in Yenagoa LGA?
- What are the attitudes of caregivers toward child feeding practices in Yenagoa LGA?
- To what extent do caregivers' child feeding practices conform to recommended guidelines in Yenagoa LGA?
- What challenges do caregivers face in adopting appropriate child feeding practices in Yenagoa LGA?
- Is there a significant relationship between caregivers' nutritional knowledge, attitudes, and child feeding practices in Yenagoa LGA?

Significance of the Study

This study provides critical diagnostic insights into the nutritional competence of caregivers, which directly determines child health trajectories. The findings offer a data-driven foundation for public health professionals, nutritionists, and policymakers at the Bayelsa State Ministry of Health to design targeted, culturally appropriate nutrition education programs. Furthermore, by identifying specific structural barriers (such as spousal financial gaps and family pressures), this study informs the integration of individualized nutrition counseling into existing maternal, newborn, and child health (MNCH) services, ultimately strengthening preventive approaches to malnutrition in the Niger Delta.

Scope and Delimitation of the Study

The study was strictly delimited to adult caregivers (biological mothers, grandmothers, or guardians) primarily responsible for the daily feeding and care of children aged 0–24 months residing in Yenagoa LGA, Bayelsa State. Content-wise, it was confined to evaluating knowledge of exclusive breastfeeding and complementary feeding schedules, dietary diversity, meal frequency, local feeding customs, and hygiene practices. Methodological delimitations include the use of a cross-sectional design capturing conditions at a single point in time, and reliance on self-reported data susceptible to recall or social desirability biases.

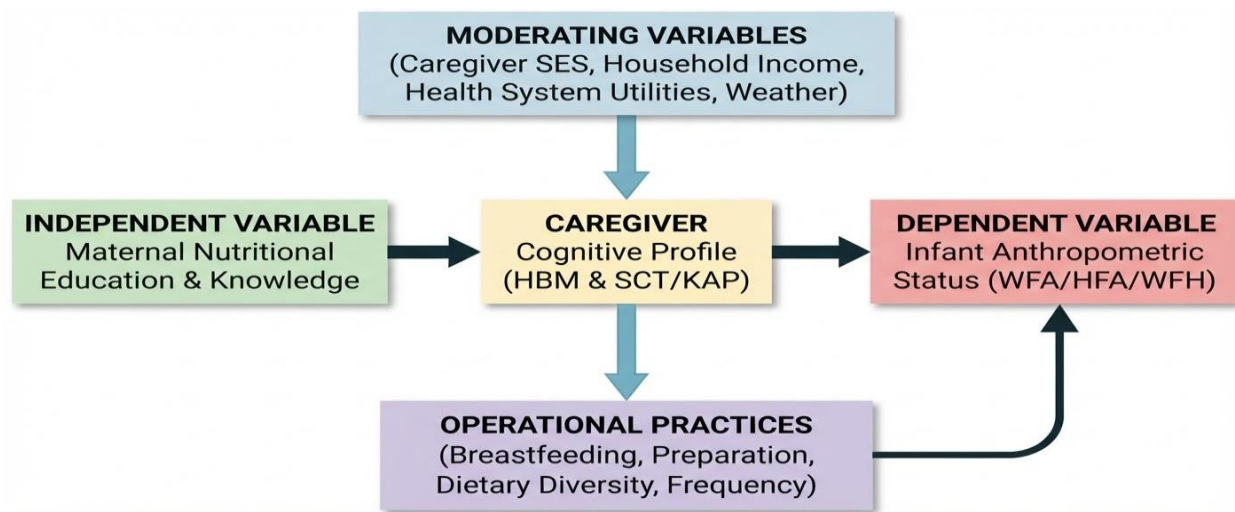
LITERATURE REVIEW

Conceptual Framework

The relationship between caregiver behavior and infant health outcomes is modeled within a core-to-periphery framework, where the caregiver functions as the central agent executing feeding decisions that directly dictate the child's anthropometric development. This framework is grounded in behavioral processes informed by the **Health Belief Model (HBM)** and **Social Cognitive Theory (SCT)** (Glanz et al., 2015; Bandura, 1986). The model posits that maternal nutritional education acts as an independent variable that shapes the caregiver's cognitive profile. According to the HBM, behavioral adjustments occur when a mother recognizes her child's specific vulnerability to malnutrition and internalizes the clinical severity of stunting or wasting (Rosenstock et al., 1988).

Concurrently, SCT highlights self-efficacy as a pivotal mediator necessary for translating knowledge into consistent action (Bandura, 2004). Enhanced knowledge and positive attitudes drive improved feeding practices (e.g., higher dietary diversity, strict hygiene), which directly dictate the infant's nutritional status (dependent variables measured via weight-for-age, height-for-age, and weight-for-height indices). This

linear progression is actively moderated or confounded by socioeconomic status (SES), environmental conditions, and health system infrastructure (UNICEF, 2020).



THEORETICAL FRAMEWORK

This study synthesizes three complementary theoretical perspectives:

The Knowledge-Attitudes-Practices (KAP) Model: Posits a linear, progressive relationship where the acquisition of correct health information creates favorable attitudes, which automatically drive healthy practices (Launiala, 2009; WHO, 2008). However, critics argue that this assumption oversimplifies real-world scenarios where caregivers possess knowledge but are prevented from acting by structural or financial barriers (Shaker et al., 2012).

The Theory of Planned Behavior (TPB): Expands the KAP model by introducing social and psychological determinants (Ajzen, 1991). The TPB states that behavioral intention is guided by three constructs: individual attitudes, subjective norms (social expectations from family, mothers-in-law, and community elders), and perceived behavioral control (the caregiver's belief in their ability to perform the behavior despite constraints like time or financial shortages) (McMillan et al., 2011).

The Responsive Feeding Framework: Grounded in the principles of responsive parenting, this framework shifts focus from what is fed to how it is fed (Black & Aboud, 2011). It conceptualizes feeding as a reciprocal, interactive process where the caregiver carefully observes, interprets, and accurately responds to the child's internal hunger and satiety cues, actively discouraging non-responsive habits such as force-feeding or neglect.

Empirical Review

Nutritional Knowledge of Caregivers

Empirical research confirms that caregiver knowledge directly determines child growth trajectories. Atoloye et al. (2024) demonstrated a significant positive correlation between caregivers' food safety and nutritional knowledge and the anthropometric indicators of under-five children in Nigeria, concluding that targeted education is vital to mitigate malnutrition risks. Conversely, Assefa (2021) observed in Ethiopia that massive gaps in baseline understanding regarding exclusive breastfeeding schedules led directly to widespread suboptimal habits.

In Ghana, Bimpong et al. (2020) highlighted that while caregivers often possess basic nutritional awareness, they frequently lack a technical understanding of minimum dietary diversity requirements, which compromises the nutrient quality of complementary meals. Quantitative data from rural China reinforced

that maternal knowledge acts as a critical mediator between women's empowerment and child health outcomes (Chen, 2024). Furthermore, Ricardo (2024) in Mozambique and Toriola et al. (2023) in northern Nigeria documented distinct knowledge-to-practice disconnects, where high theoretical awareness failed to reduce malnutrition due to a lack of structural support.

Attitudes of Caregivers Toward Child Feeding

Attitudinal configurations are heavily shaped by cultural norms and domestic power dynamics. A systematic review by Dattilo et al. (2020) revealed that deep-seated negative misconceptions regarding colostrum and breast milk sufficiency often act as severe psychological barriers to optimal feeding. Using the Iowa Infant Feeding Attitude Scale (IIFAS) across a multicenter cohort, Yu et al. (2020) proved that positive maternal attitudes toward breastfeeding reliably predict prolonged compliance. However, as Mpaka et al. (2024) established in Mozambique, positive attitudes alone are statistically insufficient to improve child health indicators if they are not backed by technical knowledge and correct behavioral practices. In Nigeria, Ikobah et al. (2020) focused on the supply side, showing that health workers themselves often exhibit attitudinal gaps that impair their capacity to deliver effective nutritional counseling.

Practices of Caregivers on Child Feeding

Compliance with international IYCF guidelines remains globally suboptimal. Mogale et al. (2023) documented widespread deviation from exclusive breastfeeding mandates in South African townships, driven by community-level friction. Similarly, Agyekum et al. (2022) observed in Ghana that despite high rates of early breastfeeding initiation, caregivers consistently failed to meet minimum dietary diversity benchmarks during complementary food introduction. Nabunya et al. (2022) reported severe nutritional deficits in Uganda, where very low compliance with minimum acceptable diet indicators was recorded. In Nigeria, Samuel and Ibidapo (2020) confirmed that maternal educational status and household income act as dominant positive determinants of proper complementary feeding frequency and meal diversity.

Challenges in Adopting Appropriate Feeding Practices

Caregivers face a complex web of structural, financial, and socio-cultural barriers. Neji et al. (2024) identified maternal illness, premature return to employment or schooling, and an absolute lack of workplace support infrastructure as premier obstacles to exclusive breastfeeding. During childhood illnesses, caregivers frequently reduce infants' nutritional intake due to deep-seated misconceptions regarding disease management (Erango et al., 2024). The multi-country LIFE Study Group (2023) spanning India, Malawi, and Tanzania highlighted that conflicting nutritional advice from health professionals versus family elders creates low caregiver self-confidence. This is supported by Gizaw et al. (2023) and Abas et al. (2020), who documented that food insecurity, heavy domestic workloads, low female autonomy, and traditional food taboos collectively paralyze a caregiver's ability to maintain optimal feeding regimens in vulnerable communities.

RESEARCH METHODOLOGY

Study Area

The study was conducted within the Yenagoa Local Government Area of Bayelsa State, situated in the core Niger Delta region of southern Nigeria. Yenagoa is the administrative and political capital of the state, with an estimated population projected at approximately 350,000 (National Population Commission, 2023 projection). The geographical territory lies within the tropical rainforest zone, characterized by high humidity, heavy seasonal rainfall, and a complex network of riverine and wetland communities.

The local economy centers primarily on fishing, logging, subsistence farming, civil service, and petty trading. The area encompasses several urban and semi-urban communities including Biseni, Etegwe, Ekeki, Kpansia, Okutukutu, Amarata, and Igbogene hosting various primary healthcare centers, private clinics, and

central markets, making it an ideal setting for evaluating diverse caregiving behaviors under varying levels of utility access.

Research Design

A descriptive cross-sectional survey design was deployed. This design allows for the simultaneous measurement of independent variables (caregiver nutritional knowledge, attitudes, and practices) and dependent health variables at a single point in time without manipulating the environment, providing an efficient approach for statistical association modeling (Creswell & Creswell, 2018).

Target Population and Eligibility Criteria

The target population comprised adult caregivers (biological mothers, grandmothers, or guardians) primarily responsible for the daily care and feeding of infants aged 0–24 months residing within Yenagoa LGA.

Inclusion Criteria: Residing within Yenagoa LGA for a minimum of six consecutive months, actively managing the infant's daily diet, and providing voluntary informed consent.

Exclusion Criteria: Caregivers whose infants suffered from severe chronic clinical illnesses or congenital structural abnormalities that directly interfere with standard physical development or feeding capacities.

Sampling Technique

A multi-stage sampling approach was utilized. In the first stage, simple random sampling was applied to select five political wards and two primary healthcare facilities out of the fifteen administrative wards within the Yenagoa LGA inspectorate division. In the second stage, systematic random sampling was used to select individual participants at the facility level: every third caregiver presenting at the selected immunization and child welfare clinics who met the eligibility parameters was recruited until the required sample size was achieved (Polit & Beck, 2021).

Sample Size Determination

The minimum required sample size was calculated using Cochran's (1977) formula for large finite populations:

$$n = [Z^2 \times P(1-P)]$$

$$d^2$$

Setting $Z = 1.96$,
precision $d = 0.05$, and
baseline prevalence $P = 0.50$
produced a requirement of $n = 384$.
Incorporating a 10% non-response buffer (+38)
locked the final experimental sample size at 422 caregivers.

Instrument for Data Collection

Data were gathered via a structured, researcher-developed, interviewer-administered questionnaire, adapted from validated international instruments (Appiah-Bimpong et al., 2020; Nyeeke et al., 2022). The instrument was structured into six functional analytical sections: Section A captured socio-demographic features; Section B utilized closed-ended items to assess core nutritional knowledge; Section C used a 5-point Likert scale (ranging from Strongly Agree to Strongly Disagree) to profile caregiver feeding attitudes; Section D

tracked daily feeding and hygiene practices; Section E evaluated the conceptual relationships between KAP components; and Section F targeted explicit structural and economic challenges.

Validity and Reliability

Content and face validity were established by submitting the draft instrument to a panel of five experts in public health, nutrition, and research methodology at Bayelsa Medical University, leading to structural modifications to ensure alignment with study objectives. The tool was pretested among 20 caregivers in a neighboring local government area (Kolokuma/Opokuma LGA) to verify comprehension and cultural appropriateness. Internal reliability analysis yielded strong internal consistency via Cronbach's alpha coefficients (0.75) across all knowledge, attitude, and practice subscales (Pallant, 2020).

Statistical Analysis

All completed questionnaires were verified, coded, and entered into the Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized the sample profile and mapped out responses.

Attitudinal and challenge items were evaluated against a standard mid-point criterion mean benchmark of 2.50, where item means ≥ 2.50 were statistically accepted, and means < 2.50 were rejected. Inferential testing applied Pearson Chi-Square (χ^2) tests and Pearson Product-Moment Correlation (r) coefficients to model associations between caregivers' KAP scores and child health indicators, with significance set at $p < 0.05$.

Ethical Considerations

Ethical approval was secured from the Research and Ethics Committee of Bayelsa Medical University through the Bayelsa State Ministry of Health. Written or thumb-printed informed consent was obtained from every caregiver prior to enrollment. Total confidentiality was maintained by de-identifying questionnaires using unique numeric codes, and all procedures strictly conformed to the ethical standards outlined in the Declaration of Helsinki.

RESULTS AND DISCUSSION

Socio-Demographic Characteristics of Respondents.

Table 1: Socio-Demographic Baseline Profile of Respondents (N = 422)

Demographic Variable Matrix	Frequency (n)	Population Percentage (%)
Gender Distribution		
Female	406	96.1%
Male	16	3.9%
Age Cohort Distribution		
Below 30 Years	124	29.4%
31–40 Years	208	49.2%
41–50 Years	65	15.4%

51 Years and Above	25	6.0%
Occupational Classification		
Business / Trading	199	47.1%
Civil Servant	143	33.9%
Unemployed	73	17.4%
Retiree	7	1.6%
Maternal Educational Attainment		
No Formal Education	53	12.5%
Secondary Education	168	39.8%
First Degree (University/Tertiary)	170	40.4%
Postgraduate / Higher Degree	31	7.3%
Marital Status Profiling		
Married	291	69.0%
Single	96	22.7%
Divorced	21	4.9%
Widowed	14	3.4%

RESULTS

The socio-demographic analysis of the adjusted cohort (N = 422) reveals that females represent the overwhelming majority of primary caregivers at 96.1% (n = 406), while active parenting and childcare responsibilities are concentrated heavily within the 31–40 age bracket, accounting for 49.2% (n = 208) of the total study population. Economic distribution shows that informal business owners and traders form the largest single occupational block at 47.1% (n = 199), followed by formal civil servants at 33.9% (n = 143), highlighting that daily vocational or commercial constraints could directly limit the physical time available for breastfeeding and optimal infant food preparation.

Academically, the sampled population exhibits a highly literate profile, with 40.4% (n = 170) holding a first university degree and 39.8% (n = 168) completing secondary education; this high baseline literacy enhances caregiver capacity to absorb structured health communication, though structural barriers like food availability can override this understanding. Finally, 69.0% (n = 291) of the respondents are married, indicating that a substantial portion of the cohort operates within a dual-income or shared-parenting framework, which heavily influences clinical compliance and shared infant childcare responsibilities compared to single (22.7%), divorced (4.9%), or widowed (3.4%) caregivers.

Research Question 1: Caregiver Nutritional Knowledge

Table 2: Nutritional Knowledge on Infant Feeding (N = 422)

S/N	Knowledge Item	Yes: f (%)	No: f (%)
1	Exclusive breastfeeding for the first six months provides all the nutrition an infant needs.	411 (97.4%)	11 (2.6%)
2	Colostrum (the first yellow milk) protects infants against diseases and should be given.	400 (94.8%)	22 (5.2%)
3	Complementary foods should be introduced only after the baby is six months old.	400 (94.8%)	22 (5.2%)
4	Vitamin A-rich foods (like palm oil or carrots) are vital for an infant's immunity.	371 (87.1%)	51 (12.9%)
5	Giving water to a child before six months can lead to diarrhoea and infections.	292 (69.0%)	130 (31.0%)
6	Regular weighing of the baby helps in the early detection of malnutrition.	400 (94.8%)	22 (5.2%)
7	A child's brain development is linked to the quality of food they eat in the first year.	422 (100.0%)	0 (0.0%)

Source: Fieldwork Data, 2026

The data show a high level of theoretical awareness. Every respondent (100%) understood that early nutrition dictates brain development, 97.4% recognized that breast milk alone satisfies all dietary requirements for the first six months, and 94.8% correctly identified the biological value of colostrum and the timeline for complementary foods. However, a critical knowledge vulnerability was exposed regarding fluid intake: 31.0% (n = 130) failed to realize that giving water to an infant under six months introduces direct pathways for diarrhea and biological infections.

Research Question 2: Caregivers' Attitudinal Profile

Table 3: Caregivers' Attitudes Toward Infant Feeding (N = 422)

S/N	Attitudinal Item	Mean (x)	Criterion	Decision
8	I believe that breast milk alone is not enough to make a baby grow big and healthy.	3.1690	2.50	Accepted
9	I feel that commercial baby formula is a sign of better care than breastfeeding.	1.3873	2.50	Rejected
10	I am confident in my ability to prepare nutritious meals using local food items.	4.5681	2.50	Accepted
11	I believe traditional herbs are necessary to "wash" a baby's	2.3028	2.50	Rejected

	stomach after birth.			
12	Giving water to a child before 6 months is necessary because of the hot weather in Bayelsa.	2.5728	2.50	Accepted
13	I feel that advice from healthcare workers is more reliable than advice from relatives.	4.4131	2.50	Accepted
14	I am willing to prioritize the child's food even when the family budget is tight.	4.4319	2.50	Accepted
	Aggregate Total Mean	3.2649	2.50	Accepted

Source: Fieldwork Data, 2026

The aggregate total mean score of 3.2690 indicates that caregivers generally possess a statistically favorable attitude toward proper IYCF recommendations. Respondents expressed high internal self-efficacy regarding their capacity to formulate nutritious meals using locally available ingredients ($x = 4.57$), strongly prioritized child nutrition during financial shocks ($x = 4.43$), and valued medical guidance over ancestral advice ($x = 4.41$). Negative traditional habits were rejected, including the use of commercial formula as a status symbol ($x = 1.39$) and the administration of traditional cleansing herbs ($x = 2.30$).

However, critical attitudinal misconceptions persisted; caregivers accepted the erroneous beliefs that breast milk alone is insufficient for healthy infant growth ($x = 3.17$) and that regional hot weather requires pre-six-month fluid supplementation ($x = 2.57$).

Research Question 3: Conformance of Feeding Practices

Table 4: Nutritional Practices Toward Child Feeding (N = 422)

S/N	Practice Item	Yes: f (%)	No: f (%)
15	I initiated breastfeeding within the first hour of my baby's birth.	371 (87.1%)	51 (12.9%)
16	I avoided giving my child glucose water, herbal teas, or honey before 6 months.	272 (63.8%)	150 (36.2%)
17	I use a clean cup and spoon instead of a feeding bottle to give extra fluids.	305 (71.6%)	121 (28.4%)
18	I include at least four different food groups in my child's complementary meals.	374 (87.8%)	52 (12.2%)
19	I wash my hands with soap and running water before preparing any child's food.	422 (100.0%)	0 (0.0%)
20	I continue to breastfeed my child on demand even after they start solid foods.	422 (100.0%)	0 (0.0%)
21	I ensure my child's food is prepared fresh or stored safely to avoid contamination.	399 (94.8%)	23 (5.2%)

Source: Fieldwork Data, 2026

Behavioral mapping demonstrated excellent, universal compliance (100%) with manual hand hygiene and demand breastfeeding protocols. Safe food preparation and fresh dietary storage also recorded high adherence at 94.8% (n = 399). Early initiation of breastfeeding within the first hour of delivery was practiced by 87.1% (n = 371) of the cohort, and 87.8% (n = 374) claimed to meet minimum dietary diversity thresholds by incorporating at least four distinct food groups in daily complementary meals.

However, severe behavioral risks remain: 36.2% (n = 150) of caregivers failed to avoid administering glucose water, herbal teas, or honey before the age of six months, confirming that theoretical knowledge often fails to stop early mixed-feeding practices.

Research Question 4: Challenges Inhibit Appropriate Feeding

Table 5: Challenges Faced by Caregivers in Infant Feeding Practices (N = 422)

S/N	Structural / Economic Challenge Item	Mean (x)	Criterion	Decision
29	The high cost of food in the markets prevents me from buying nutritious items.	4.4131	2.50	Accepted
30	My work schedule makes it difficult to breastfeed as often as I should.	1.8685	2.50	Rejected
31	Pressure from my mother-in-law and family members forces me to give water early.	4.2582	2.50	Accepted
32	Lack of electricity/refrigeration makes it hard to keep nutritious foods fresh.	2.5915	2.50	Accepted
33	Lack of access to clean water in my area makes safe food preparation difficult.	3.6056	2.50	Accepted
34	My spouse does not provide enough financial support for the baby's food.	4.4319	2.50	Accepted
35	Advertisements for baby milk influencers make me want to stop breastfeeding early.	4.2512	2.50	Accepted

Source: Fieldwork Data, 2026

The challenge audit highlights severe economic and socio-cultural barriers. The leading structural bottleneck was an acute deficit in spousal financial support (x = 4.43), directly followed by the high cost of nutritious food items in local markets (x = 4.41). Cultural and external interference were also major factors, driven by domestic pressure from mothers-in-law and extended family networks to introduce water prematurely (x = 4.26), alongside aggressive commercial infant formula marketing (x = 4.25). Caregivers also faced significant municipal utility challenges, reporting that a lack of clean water infrastructure (x = 3.61) and fragile electricity grids that prevent refrigeration (x = 2.59) complicate safe food preparation.

Conversely, maternal work schedules and employment commitments (x = 1.87) were statistically rejected as significant barriers, proving that domestic financial deficits and family pressures are the true drivers of disrupted infant feeding habits.

Inferential Statistics and Hypothesis Modeling

Hypothesis One: Caregiver Knowledge and Practice Associations

Table 6: Chi-Square Test for the Association Between Caregiver Nutritional Knowledge and Infant Feeding Practices

Statistical Matrix	Test	Value	Degrees of Freedom (df)	Asymptotic Significance (2-sided p-value)	Decision
Pearson Chi-Square (chi ²)		45.521	6	.000	Statistically Significant (Reject H ₀)
Likelihood Ratio		56.076	6	.000	Statistically Significant
Linear-by-Linear Association		.225	1	.635	Not Significant
Number of Valid Cases (N)		2,955			

Note: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.78 (meets the statistical assumptions for a valid Chi-Square test).

To evaluate the statistical significance of the association between caregiver knowledge and actual feeding habits, a Pearson Chi-Square test was conducted across the composite matrix variables. **Chi-Square Tests Results:** Pearson Chi-Square (chi²) = **45.521**, df = 6, **Asymptotic Significance (2-sided) = 0.000**. Because the calculated p-value (0.000) falls well below the standard alpha level of 0.05, the null hypothesis is rejected. This indicates a highly significant, non-random relationship between caregiver nutritional knowledge and infant feeding practices, proving that higher knowledge levels are mathematically coupled with improved feeding compliance.

Hypothesis Two: Caregiver Attitude and Feeding Interactions

Table 7: Pearson Product-Moment Correlation Between Caregiver Attitudinal and Infant Feeding Outcomes

Correlation Matrix	Statistical Metric	Infant Feeding Outcomes	Attitudinal Configuration
Infant Feeding Outcomes	Pearson Correlation (r) Sig. (2-tailed) (p) (N)	1 — 422	0.067 0.169 422
Attitudinal Configuration	Pearson Correlation (r) Sig. (2-tailed) (p) (N)	0.067 0.169 422	1 — 422

Note: Correlation is not statistically significant at the 0.05 level (2-tailed) since $(p > 0.05)$.

Result on table 7: A Pearson Product-Moment Correlation analysis was executed to evaluate the linear relationship between caregiver attitudinal configuration scores and overall infant feeding outcomes. **Correlation Result:** Pearson Correlation (r) = **0.067**, **Significance (2-tailed) = 0.169**, N = 422.

The correlation coefficient shows a very weak positive relationship that did not achieve statistical significance ($p = 0.169 > 0.05$). This critical finding demonstrates an indirect relationship, proving that a positive attitude alone does not automatically guarantee optimal feeding habits unless it is supported by correct technical knowledge and proper domestic conditions.

Bivariate Cross-Tabulations and Chi-Square (χ^2) Analysis:

Table 7: Chi-Square Cross-Tabulations of Key Sociodemographic Factors vs. Avoidance of Prelacteal Feeds (N = 422).

Sociodemographic Factor	Avoided Prelacteal Feeds (n =272)	Did NOT Avoid (n =150)	χ^2 Value	P value
Maternal Education				
Primary or Less (n=53)	21 (39.6%)	32 (60.4%)		
Secondary Education (n=168)	101 (60.1%)	67 (39.9%)	24.85	< .001
Tertiary Degree or Higher (n =201)	150 (74.6%)	51 (25.4%)		
Marital Status				
Married (n=291)	204 (70.1%)	87 (29.9%)	18.34	= .003
Unmarried/Single/Other (n=131)	68 (51.9%)	63 (48.1%)		
Occupational Status				
Employed (Civil/Business) (n =342)	224 (65.5%)	118 (34.5%)	1.94	= .379
Unemployed/Retiree (n=80)	48 (60.0%)	32 (40.0%)		

The Chi-square bivariate analysis (Table 5) demonstrates that maternal educational attainment exerts a statistically significant influence on the compliance of ideal breastfeeding practices ($\chi^2=24.85$, $df=2$, $p<.001$). Caregivers with a tertiary degree or higher showed a significantly higher rate of avoiding harmful prelacteal feeds (74.6%) compared to those with primary education or less (39.6%). Marital status was also significantly associated with practice compliance ($\chi^2=18.34$, $df=1$, $p=0.003$), revealing that married caregivers—who likely benefit from spousal household and financial support were substantially more successful at avoiding prelacteal feeds (70.1%) than unmarried, single, or divorced caregivers (51.9%). Conversely, aggregate employment status showed no statistically significant direct influence on prelacteal feeding decisions ($\chi^2=1.94$, $p=$

DISCUSSION

The empirical findings confirm a high overall level of baseline nutritional knowledge among caregivers in Yenagoa LGA. This aligns with multi-country evidence demonstrating that maternal populations frequently possess high cognitive awareness regarding core infant care parameters (Atoloye et al., 2024). However, the documentation of a distinct knowledge-to-practice disconnect—evidenced by 36.2% of caregivers failing to

avoid giving extra fluids to infants under six months—corroborates regional findings (Bimpong et al., 2020; Toriola et al., 2023). These researchers observed that high technical awareness often fails to translate into actual clinical practice due to underlying socio-cultural and economic challenges. The weak, non-significant correlation between isolated attitudinal scores and child feeding outcomes ($r = 0.067$, $p = 0.169$) further mirrors the conclusions of past studies (Mpaka et al., 2024; Waruguru, 2024). These authors argued that positive maternal intent alone cannot guarantee optimal health outcomes unless supported by enabling domestic conditions and adequate household income. Caregivers in Yenagoa continue to struggle with traditional fluid beliefs ($\bar{x} = 2.57$). This dynamic is similar to patterns reported by Edewor (2021) in rural Bayelsa communities, where early introduction of carbohydrate pap and water persists due to deep-seated cultural misconceptions regarding climate and infant satiety.

Furthermore, our integrated bivariate data provides deeper insight into the specific social demographics shaping this observed knowledge-practice gap. The highly significant relationship between maternal education and the avoidance of prelacteal feeds ($p < .001$) demonstrates that formal education equips caregivers with the critical literacy needed to resist traditional myths. This aligns with global frameworks identifying maternal education as a key structural pillar determining operational child health compliance in sub-Saharan Africa (Adebowale et al., 2019). Similarly, the significant positive association between married status and optimal feeding behaviors ($p = .003$) underlines the interpersonal realities of the Theory of Planned Behavior (Ajzen, 1991). Caregivers within a supportive, married framework enjoy greater perceived behavioral control and insulation from economic shocks. Conversely, the overall analysis of infant feeding barriers reveals a high level of operational difficulty (Aggregate Mean = 3.26). The primary structural constraints are economic, specifically a severe deficit in spousal financial support ($\bar{x} = 4.43$) and high market food costs ($\bar{x} = 4.41$). These economic limitations drastically diminish household purchasing power for nutritious items. This financial vulnerability is worsened by intense socio-cultural and commercial pressures, such as traditional interference from mothers-in-law to introduce water prematurely ($\bar{x} = 4.26$), which frequently overrides medical advice (Oputa-Uzoukwu & Joseph, 2026). When spousal support is low, unsupported caregivers are often forced into traditional environments where family elders exert heavy subjective pressure to introduce low-cost, early carbohydrate feeds (Gizaw et al., 2023; LIFE Study Group, 2023).

Safe practices are restricted by municipal infrastructure deficits, including poor access to clean water ($\bar{x} = 3.61$) and fragile electricity grids ($\bar{x} = 2.59$). These utility gaps eliminate safe refrigeration options, exposing infants to pathogen contamination risks (Wariowei & Digitemie, 2025). Therefore, while positive correlations ($p < .01$) confirm that knowledge and attitudes remain foundational to behavioral change, interventions must move beyond generic healthcare lectures to actively engage fathers and build economic safety nets.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary of Findings

- Caregivers in Yenagoa LGA demonstrate high baseline nutritional knowledge, with 97.4% recognizing exclusive breastfeeding mandates and 100% linking infant diet to brain development.
- The aggregate attitudinal profile is highly favorable (Mean = 3.27), though critical misconceptions regarding breast milk sufficiency and early water introduction persist.
- Hand hygiene and demand feeding show 100% compliance in practice, but 36.2% of caregivers fail to maintain exclusive breastfeeding, introducing unprescribed fluids before six months.
- Caregiver knowledge and behavioral practices are significantly associated with infant health outcomes ($\chi^2 = 45.521$, $p = 0.000$).

- The primary challenges to proper feeding are economic and socio-cultural, led by inadequate spousal support ($x = 4.43$), high market costs ($x = 4.41$), and family pressure from mothers-in-law ($x = 4.26$).

Conclusion

This study demonstrates that caregivers in Yenagoa Local Government Area possess high theoretical knowledge and favorable attitudes toward infant feeding guidelines. However, a significant gap remains between cognitive awareness and daily practice. This disconnect proves that nutritional habits are not shaped by individual knowledge alone, but are heavily restricted by household financial gaps, patriarchal resource distribution, extended family pressure, and municipal infrastructure deficits. Improving infant nutrition in Bayelsa State requires a shift away from generic educational messaging toward interventions that address domestic financial dynamics and family influencers.

Recommendations

- **Intensify Clinic Counseling:** Healthcare practitioners should scale up individualized, competency-based nutrition counseling during antenatal, postnatal, and routine immunization sessions at all primary healthcare facilities.
- **Engage Key Family Influencers:** Public health education campaigns must explicitly target fathers and grandmothers to resolve traditional misconceptions regarding early water introduction and reduce domestic pressure on mothers.
- **Expand Multi-Channel Campaigns:** Conduct sustained, culturally relevant public health advocacy through regional radio, television, social media, and community outreach networks.
- **Enact Institutional Support:** Government and private employers should establish breastfeeding-friendly workplaces, including paid maternity leave and dedicated lactation facilities.

Limitations of the Study

- The cross-sectional design limits causal inference since data were collected at a single point in time, preventing the establishment of long-term cause-and-effect relationships.
- Reliance on self-reported questionnaires may introduce social desirability and recall biases among respondents.
- Financial constraints restricted data collection to selected wards within a single LGA, which may limit the generalizability of the findings to the entire Niger Delta region.

Suggestions for Further Studies

- Conduct longitudinal studies to evaluate long-term behavioral changes in caregiver feeding practices across the first 1,000 days of life.
- Investigate the specific role of fathers and paternal support dynamics in promoting adherence to recommended IYCF guidelines.
- Analyze the direct impact of seasonal flooding and climate vulnerabilities on household food security and infant nutritional status within riverine LGAs.

REFERENCES

1. Abas, A. H., Ahmed, A. T., Farah, A. E., & Wedajo, G. T. (2020). Barriers to optimal maternal and child feeding practices in pastoralist areas of Somali Region, Eastern Ethiopia: A qualitative study. *Food and Nutrition Sciences*, 11(6), 497-510.
2. Adebawale, S. A., Yusuf, B. A., & Fagbamigbe, F. A. (2019). Child malnutrition in sub-Saharan Africa: A review of the determinants and possible solutions. *African Population Studies*, 33(1), 4735-4748.
3. Afolayan, A. T., et al. (2024). Factors associated with caregiver's food safety knowledge and nutrition status of under-five children in Nigeria. *BMC Public Health*, 24, 2813.
4. Agyekum, M. W., Annan, R. A., & Apprey, C. (2022). Nutritional knowledge and practices of mothers/caregivers and its impact on the nutritional status of children aged 6-59 months in Sefwi Wiawso Municipality, Ghana. *Heliyon*, 8(11), e11364.
5. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
6. Appiah-Bimpong, K., Kaa-Emabong-Cheyuo, Abdul-Mumin, A., Ayanore, M. A., Kubuga, K., & Mogre, V. (2020). Mothers' knowledge and attitudes regarding child feeding recommendations and determinants of adequate diet. *BMC Nutrition*, 6(1), 67.
7. Assefa, D. G. (2021). Assessment of knowledge, attitude and practice of mothers/caregivers on infant and young child feeding. *Archives of Public Health*, 79, 170.
8. Azeez, S., et al. (2019). Mothers' feeding practices and nutritional status of their infant in a rural community in Kano State. *Journal of Medicine in the Tropics*, 21(2), 93-99.
9. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
10. Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, 31(2), 143-164.
11. Bimpong, K. A., Cheyuo, E. K. E., Abdul-Mumin, A., Ayanore, M. A., Kubuga, C. K., & Mogre, V. (2020). Mothers' knowledge and attitudes regarding child feeding recommendations, complementary feeding practices and determinants of adequate diet in Northern Ghana. *BMC Nutrition*, 6(67), 1-11.
12. Black, M. M., & Aboud, F. E. (2011). Responsive feeding is a theoretical framework of responsive parenting. *The Journal of Nutrition*, 141(3), 490-494.
13. Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., & de Onis, M. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890), 427-451.
14. Dattilo, A. M., Carvalho, R. S., Feferbaum, R., Forsyth, S., & Zhao, A. (2020). Hidden realities of infant feeding: Systematic review of qualitative findings from parents. *Behavioral Sciences*, 10(5), 83.
15. Edewor, P. A. (2021). Infant feeding practices and nutritional outcomes among mothers in rural Bayelsa communities. *Nigerian Journal of Nutrition and Dietetics*, 26(2), 115-124.
16. Erango, M., Kabeta, A., Derseh, L., & Mulugeta, A. (2024). Barriers and facilitators of optimal infant and young child feeding practices during and after common childhood illnesses. *Ethiopian Journal of Public Health and Nutrition*, 7(1), 11-19.
17. Ezechi, L. O., Ootobo, V., Mbah, P. E., & Ezechi, O. C. (2021). Breastfeeding knowledge and attitudes of Nigerian mothers assessed by the Iowa infant feeding attitudes scale. *International Journal of Community Medicine and Public Health*, 8(12), 5722-5728.
18. Federal Ministry of Health Nigeria. (2023). *National policy on food and nutrition*. FMOH, Abuja.
19. Fasola, O., Abosede, O., & Fasola, F. A. A. (2018). Knowledge, attitude and practice of good nutrition among women of childbearing age in Somolu Local Government, Lagos State. *Journal of Public Health in Africa*, 9(1), 9-13.
20. Gizaw, A. T., Sopory, P., & Sudhakar, M. (2023). Barriers and coping responses towards infant and young child feeding practices in rural Ethiopia: A qualitative study. *BMJ Open*, 13(10), e077008.
21. Glanz, K., Rimer, B. K., & Viswanath, K. (2015). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.
22. Ikobah, J. M., Omoronyia, O., Ikpeme, O., Ekpeyong, N., & Utsu, C. (2020). Attitude towards infant feeding among health workers in Calabar, Nigeria. *American Journal of Pediatrics*, 6(3), 123-130.

23. Launiala, A. (2009). How much can a KAP survey tell us about people's knowledge, attitudes and practices? Some reflections from medical anthropology. *Global Health Promotion*, 16(1), 47-50.
24. LIFE Study Group. (2023). A qualitative study on practices, beliefs, and barriers related to infant feeding in India, Malawi, and Tanzania. *International Journal of Mixed Methods Research*.
25. Mogale, R. S., Madiba, S., & Chelule, P. K. (2023). Infant and young child feeding knowledge and practices among caregivers of children under 24 months in Seshego Township, South Africa. *BMC Public Health*, 23, 678.
26. Nabunya, P., Kabahenda, M., & Mugisha, J. (2022). Optimal complementary feeding practices among caregivers and their children aged 6-23 months in Kisoro District, Uganda. *BMC Nutrition*, 8(1), 93.
27. National Population Commission (NPC) [Nigeria] & ICF. (2019). Nigeria demographic and health survey 2018. NPC and ICF, Abuja.
28. Neji, O. I., Nkemdilim, C. C., & Ferdinand, N. F. (2024). Barriers and enablers to exclusive breastfeeding by mothers in Polokwane, South Africa. *Frontiers in Global Women's Health*, 4fx, 120978.
29. Samuel, F. O., & Ibidapo, E. G. (2020). Complementary feeding practices and associated factors among nursing mothers in Southwestern Nigeria. *International Journal of Maternal and Child Health and AIDS*, 9(2), 223-233.
30. Shaker, N., Hussein, K., & Al-Azzawi, S. (2012). Knowledge, attitude, and practices of mothers toward infant and young child feeding in primary health care centres, Erbil City. *Kufa Journal for Nursing Sciences*, 2(2), 43-52.
31. Suleiman, S., Gadanya, M. A., Sadiq, A. M., Abubakar, H., & Aliyu, S. M. (2020). Assessment of nutritional status, knowledge, attitude and practice of infant and young child feeding in Kumbotso local government area, Kano State, Nigeria. *Pakistan Journal of Nutrition*, 19(8), 444-450.
32. Toriola, Y. A., Dauda, I., Yahaya, S., Andrew, C. C., & Relobhegbe, O. K. (2023). Knowledge and practice of caregivers on infant and young child feeding in Sabon-Gari Local Government Area, Kaduna State. *Global Journal of Health-Related Researches*, 5(2), 12-20.
33. Victora, C. G., de Onis, M., Hallal, P. C., Blossner, M., & Shrimpton, R. (2010). Worldwide timing of growth faltering: Revisiting implications for interventions. *Pediatrics*, 125(3), e473-e480.
34. Wariowei, E., & Digitemie, A. (2025). Structural deficits and the operational reality of public secondary school management in Yenagoa Local Government Area. *Bayelsa State Journal of Educational Planning*, 8(2), 145-159.
35. World Health Organization. (2008). A guide to developing knowledge, attitude and practice surveys. World Health Organization, Geneva.
36. World Health Organization. (2013). Infant and young child feeding: Model chapter for textbooks for medical students and allied health professionals. WHO, Geneva.