
Influence of Socio-Demographic Factors on Nutritional Practices Among Mothers of Under-Five Children in Okelele, Ilorin, Kwara State, Nigeria

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Abstract: *Optimal nutrition in the first five years of life is critical for growth, cognition, immunity, and survival; yet, undernutrition remains a leading public-health problem in Nigeria, where it contributes substantially to under-five morbidity and mortality. Mothers are the primary decision-makers regarding child feeding, so their sociodemographic characteristics are expected to shape child-nutrition outcomes. This study examined the influence of socio-demographic factors on the nutritional practices of mothers of under-five children in Okelele, Ilorin, Kwara State, Nigeria. A descriptive cross-sectional survey was conducted among 231 mothers of under-five children selected through purposive and simple random sampling. Data were collected with a pre-tested, structured, closed-ended questionnaire (Cronbach's $\alpha = 0.72$) and analysed using descriptive statistics and the chi-square test of association in SPSS version 25, with significance set at $p < 0.05$. Most respondents were aged 20–30 years (61.0%), married (94.8%), had at least secondary education (72.7%), were self-employed (91.3%), and earned ₦20,000–50,000 monthly (82.7%). Overall, 98.7% demonstrated good child-nutrition practices. Maternal education was significantly associated with nutritional practice (Fisher's exact $p = 0.003$), whereas maternal income ($\chi^2 = 0.64$, $p = 0.73$) and maternal age ($\chi^2 = 1.94$, $p = 0.59$) were not. Income and employment nevertheless improved access to nutritious foods, medicines, and immunisation, while rising food costs reduced meal portions and low-income mothers often prioritised their children's nutrition over their own. Maternal education was the strongest determinant of appropriate child-feeding practices, and most mothers exhibited good practices despite economic constraints, reflecting the buffering effect of health-facility-based nutrition education. Strengthening female education, nutrition awareness, economic empowerment, food affordability, and access to child-health services is essential to sustain and improve maternal–child nutrition outcomes.*

Keywords: maternal education, child nutrition, sociodemographic factors, feeding practices, under-five children

INTRODUCTION

The nutrition of the first 5 years of childhood is key to the child's survival, immunity, cognitive development, and growth. Good nutrition in this window helps to ensure optimal physical, mental growth and development, and reduces the risk of morbidity and mortality; while poor nutrition has often irreparable consequences. Child under-nutrition is a significant public-health problem worldwide, with 150.2 million children under 5 years old stunted and 42.8 million wasted, and 98% of this burden falling on Africa and Asia (United Nations Children's Fund [UNICEF], World Health Organization [WHO], & World Bank Group, 2025). Feeding practices of infants and young children, including early initiation of breastfeeding, exclusive breastfeeding for 6 months and timely, adequate, and safe complementary feeding, are key factors for healthy growth and development (WHO, 2023).

Poor complementary feeding practices are a major contributor to malnutrition in the first 2 years of life and a multi-country analysis of the DHS showed that appropriate complementary feeding

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was among the lowest in sub-Saharan Africa and was highly correlated with maternal education and household characteristics (Mekonen et al., 2024). Under-nutrition also plays a significant role in the mortality rates of children under the age of five in Nigeria, which is further complicated by the pervasive poverty, food insecurity, and food-safety knowledge and practices among caregivers (Atoloye et al., 2024). Since mothers are mainly responsible for caring for children and making major decisions about food intake in most households, their characteristics have a critical impact on child-nutrition outcomes (Gentry et al., 2025; Gbenga-Epebinu et al., 2023).

Multiple factors of socio-demographic nature have been found as determinants of maternal nutrition practices. Maternal education is one of the most consistently reported: educated mothers have better health knowledge transfer to their newborns, better literacy and numeracy skills for understanding health information, and higher receptiveness to modern health practices, which in turn leads to better health services utilization (Edwards et al., 2012; Santosa et al., 2022). Households' purchasing power is influenced by the income of the mothers, including the type of work they undertake, which indirectly impacts their access to nutritious food, medicines, and immunisation; low-income households tend to be food insecure and have restricted diet diversity (Yunitasari et al., 2021). Other potential factors influencing feeding practices are maternal age and parity, as feeding competence may sometimes be affected by previous pregnancy experience; cultural beliefs and food taboos still influence infant feeding in many African contexts (Ramulondi et al., 2021).

Although there is a substantial number of governmental and non-governmental interventions, the malnutrition situation is still prevalent among under-five children in Nigeria and the relative contribution of individual maternal socio-demographic factors to feeding practices among local urban populations (in Okelele, for instance) is not well described. Understanding these relationships is crucial for developing nutrition-education programmes that are designed and evidence-based policies. This study therefore examined the influence of socio-demographic factors on the nutritional practices of mothers of under-five children in Okelele, Ilorin, Kwara State. The specific objectives were to evaluate the influence of maternal education, age, and parity on feeding practices, and to assess the effect of maternal income and employment on child nutrition. Three null hypotheses were tested: that there is no significant association between maternal education and nutritional practice (H1); between maternal income and nutritional practice (H2); and between maternal age and nutritional practice (H3).

MATERIALS AND METHODS

Study design

A descriptive cross-sectional survey design was adopted. This design was appropriate because it permits the systematic description of, and examination of associations between, maternal socio-demographic characteristics and child-nutrition practices at a single point in time, without manipulation of the study environment or long-term follow-up.

Study setting and population

The study was conducted in Okelele, a community within Ilorin, the capital of Kwara State in north-central Nigeria. The target population comprised mothers of children aged under five years resident in the Okelele area of Ilorin metropolis.

Eligibility criteria

Nursing mothers aged 18–45 years who had a child under five years of age and who provided written informed consent were eligible, irrespective of marital status. Mothers who were seriously ill or hospitalised, those who declined to provide informed consent, and those who were mentally unstable were excluded.

Sample size determination

The minimum sample size was estimated using Yamane's (1967) formula, $n = N / [1 + N(e)^2]$, where n is the desired sample size, N is the estimated population (500), and e is the margin of error (0.05). This yielded $n = 500 / [1 + 500(0.0025)] = 500 / 2.25 \approx 222$. Allowing for a 10% non-response rate, a total of 244 questionnaires were distributed, of which 231 were correctly completed and returned (a response rate of 94.7%) and analysed.

Sampling technique

A combination of purposive and simple random sampling was used. Purposive sampling was used to select the study community, and eligible, consenting mothers were then recruited by simple random sampling and administered the questionnaire.

Instrument and its psychometric properties

Data were collected with a structured, closed-ended, self-administered questionnaire covering socio-demographic characteristics, the influence of maternal education, age, and parity on feeding practices, and the effect of income and employment on feeding practices. Face and content validity were established by the research supervisor and other experts in the field. Reliability was assessed through a pilot study conducted at Oja-Gboro, a community outside the study area, in which 25 questionnaires (10% of the sample) were administered and re-administered after a two-week

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interval; the instrument yielded a Cronbach's alpha of 0.72, indicating acceptable internal consistency.

Data collection

Questionnaires were administered to consenting mothers in the community with the assistance of trained research assistants, who were health workers and who guided respondents on completion. Completed questionnaires were checked for completeness and retrieved on the same day.

Data analysis

Data were cleaned, coded, and analysed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarised respondents' characteristics and the study variables. The chi-square test of association (with Fisher's exact test where cell frequencies were small) was used to test the study hypotheses, with statistical significance set at $p < 0.05$. Composite influence scores for maternal education, age, and parity were derived from thirteen five-point Likert items (maximum obtainable score = 65) and classified a priori as negative (≤ 20), average (21–40), or positive (> 40) influence.

RESULTS

Socio-demographic characteristics of respondents

The age of respondents ranged from under 20 to over 41 years, with most aged 20–30 years (61.0%), followed by 31–40 years (24.7%), under 20 years (8.2%), and 41 years and above (6.1%). The majority were Muslim (97.8%) and married (94.8%). Most respondents (87.9%) had their first child between 20 and 30 years of age. Regarding education, 40.7% had secondary and 32.0% tertiary education, while 17.7% had primary and 9.5% no formal education. Most mothers were self-employed (91.3%), earned ₦20,000–50,000 monthly (82.7%), and had two to three children (56.3%) (Table 1).

Table 1: Socio-demographic characteristics of respondents (N = 231)

Characteristic	Frequency (n)	Percent (%)
Age (years)		
Less than 20	19	8.2
20–30	141	61.0
31–40	57	24.7
41 and above	14	6.1
Religion		
Islam	226	97.8
Christianity	5	2.2
Marital status		
Single	12	5.2
Married	219	94.8
Age at first child (years)		
Less than 20	24	10.4
20–30	203	87.9
31 and above	4	1.7
Educational level		
No formal education	22	9.5
Primary	41	17.7
Secondary	94	40.7
Tertiary	74	32.0
Employment status		
Employed	12	5.2
Unemployed	8	3.5
Self-employed	211	91.3
Monthly income (₦)		
Below 20,000	36	15.6
20,000–50,000	191	82.7
50,000–100,000	4	1.7
Number of children		
1	24	10.4
2–3	130	56.3
4–5	75	32.5
Above 5	2	0.9

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Influence of maternal education, age, and parity on feeding practices

Across the thirteen items assessing the influence of maternal education, age, and parity, respondents most strongly endorsed that exclusive breastfeeding protects the child (mean = 4.25 ± 0.78), that adequate nutrition promotes good growth (4.19 ± 0.60), that experience from previous pregnancies improved their feeding practices (4.10 ± 0.89), and that nutritional information guides improvement in the child's nutritional status (4.01 ± 0.85). Items relating to maternal age were more equivocal, with lower agreement that older mothers offer better feeding advice (2.74 ± 1.44) and that young mothers lack access to nutrition information (2.88 ± 1.27) (Table 2).

Table 2: Influence of maternal education, age, and parity on feeding practices (N = 231)

Item	SD %	D %	N %	A %	SA %	Mean $\pm$ SD
Level of education helps make better nutrition decisions for the child	5.2	15.2	9.1	16.5	54.1	3.99 ± 1.31
Adequate nutrition provides good growth for the child	0.0	2.2	3.5	67.5	26.8	4.19 ± 0.60
Iron- and protein-rich foods contribute to healthy growth	0.0	8.2	29.9	36.4	25.5	3.79 ± 0.92
Exclusive breastfeeding provides protection for the child	0.0	4.3	9.5	43.3	42.9	4.25 ± 0.78
Nutritional information guides improvement in nutritional status	0.4	10.4	1.7	62.8	24.7	4.01 ± 0.85
Older mothers in the community offer better feeding advice	30.4	16.0	13.4	28.6	11.3	2.74 ± 1.44
Younger mothers should be taught about child nutrition	1.3	34.6	2.6	39.4	22.1	3.46 ± 1.21
Teenage mothers (below 20) are less confident in feeding decisions	2.2	27.3	20.3	25.1	25.1	3.44 ± 1.20
Young mothers lack access to nutrition-related information	21.6	16.9	17.7	39.0	4.8	2.88 ± 1.27
I plan meals better than when I had my first child	0.0	12.1	24.7	44.6	18.6	3.70 ± 0.91
High parity stretches financial resources, affecting child nutrition	12.1	3.9	19.9	18.6	45.5	3.81 ± 1.37
I learnt better feeding practices from previous pregnancies	3.9	0.9	8.7	54.5	32.0	4.10 ± 0.89
Having fewer children helped me focus more on feeding quality	22.1	8.7	25.5	32.9	10.8	3.02 ± 1.32

SD = strongly disagree; D = disagree; N = neutral; A = agree; SA = strongly agree. Values are percentages of respondents.

On the composite influence score, no respondent recorded a negative influence; 18 mothers (7.8%) recorded an average influence and 213 (92.2%) a positive influence of maternal education, age, and parity on feeding practices (Table 3).

Table 3: Overall influence of maternal education, age, and parity on feeding practices (N = 231)

Category of influence	Frequency (n)	Percentage (%)
Average influence	18	7.8
Positive influence	213	92.2
Total	231	100.0

Effect of income and employment on feeding practices

Mothers reported that their income enabled them to buy good food for the child (mean = 4.74 ± 0.57), afford medicines (4.60 ± 0.54), take the child for immunisation (4.55 ± 0.94), and purchase fruits and vegetables (4.50 ± 0.78). At the same time, indicators of financial strain were evident: mothers reported reducing meal portions because of rising food costs (3.01 ± 1.03) and prioritising the child's food over their own owing to low income (4.03 ± 1.34), although skipping the child's meals (1.81 ± 1.13) and buying cheaper, less nutritious substitutes (2.14 ± 0.73) were uncommon (Table 4).

Table 4: Effect of income and employment on feeding practices (N = 231)

Item	Never %	Rarely %	Sometimes %	Often %	Always %	Mean $\pm$ SD
Skip meals for the child due to financial constraints ^a	57.9	16.9	16.5	5.2	3.9	1.81 ± 1.13
Buy cheaper but less nutritious foods due to low income ^a	11.3	70.1	13.9	2.6	2.2	2.14 ± 0.73
Income allows the purchase of fruits and vegetables	0.0	0.4	16.5	15.6	67.5	4.50 ± 0.78
Can afford medicine for the child from income	0.0	0.0	2.6	35.1	62.3	4.60 ± 0.54
Income helps buy good food for the child	0.9	0.4	0.4	19.9	78.4	4.74 ± 0.57
Can afford to take the child for immunisation from income	0.0	7.8	7.8	6.5	77.9	4.55 ± 0.94
Can afford to give animal protein weekly to the child	0.0	7.4	22.9	54.1	15.6	3.78 ± 0.80
Reduced meal portions due to rising food costs	6.5	25.5	35.1	26.0	6.9	3.01 ± 1.03
Prioritise the child's food over the mother's due to low income	9.5	6.1	13.0	14.7	56.7	4.03 ± 1.34
Inadequate income affects regular feeding of the child ^a	35.9	28.1	13.4	9.1	13.4	2.36 ± 1.39

Benchmark mean = 3.0. ^a Reverse-scored item; a lower mean indicates a more favourable feeding practice.

Test of hypotheses

Of the 231 mothers, 228 (98.7%) were classified as having good overall nutritional practice and 3 (1.3%) as having poor practice. The association between maternal education and nutritional practice was statistically significant ($\chi^2 = 14.08$, Fisher's exact $p = 0.003$); the null hypothesis (H1) was therefore rejected (Table 5).

Table 5: Association between maternal education and overall nutritional practice

Level of education	Poor practice n (%)	Good practice n (%)	χ^2	p
No formal education	0 (0.0)	22 (9.5)		
Primary	3 (1.3)	38 (16.5)		
Secondary	0 (0.0)	94 (40.7)	14.08	0.003 ^b
Tertiary	0 (0.0)	74 (32.0)		
Total	3 (1.3)	228 (98.7)		

Percentages are of the total sample ($N = 231$). ^b Fisher's exact test; $p < 0.05$ considered significant.

Maternal income was not significantly associated with nutritional practice ($\chi^2 = 0.64$, $p = 0.73$); the null hypothesis (H2) was retained (Table 6).

Table 6: Association between maternal income and overall nutritional practice

Monthly income (₦)	Poor practice n (%)	Good practice n (%)	χ^2	p
Below 20,000	0 (0.0)	36 (15.6)		
20,000–50,000	3 (1.3)	188 (81.4)	0.64	0.73
51,000–100,000	0 (0.0)	4 (1.7)		
Total	3 (1.3)	228 (98.7)		

Percentages are of the total sample ($N = 231$); $p < 0.05$ considered significant.

Maternal age was likewise not significantly associated with nutritional practice ($\chi^2 = 1.94$, $p = 0.59$); the null hypothesis (H3) was retained (Table 7).

Table 7: Association between maternal age and overall nutritional practice

Age (years)	Poor practice n (%)	Good practice n (%)	χ^2	p
Less than 20	0 (0.0)	19 (8.2)		
20–30	3 (1.3)	138 (59.7)		
31–40	0 (0.0)	57 (24.7)	1.94	0.59
41 and above	0 (0.0)	14 (6.1)		
Total	3 (1.3)	228 (98.7)		

Percentages are of the total sample ($N = 231$); $p < 0.05$ considered significant.

DISCUSSION

Maternal education had a statistically significant effect on the child-nutrient practice (Fisher's exact $p = 0.003$), while the maternal age was not significant, and parity had a positive descriptive trend which was not statistically tested. This trend aligns with an overwhelming body of evidence that shows maternal education is a key factor in shaping child nutrition outcomes, whereby highly educated maternal nutritionists are more likely to engage in exclusive breastfeeding, timely complementary feeding and take nutrition advice from health workers (Mekonen et al., 2024; Santosa et al., 2022). The finding also corroborates the health-literacy pathway model which connects education to positive health practices by increasing health knowledge, developing health literacy and numeracy skills to process health information, and increasing receptivity to new health practices (Edwards et al., 2012).

Maternal age was not statistically significant, but mothers aged 20-30 years were predominantly (61.0%) and had the most consistent feeding behaviour and older mothers were too small (6.1%) to show any age disadvantage. This is in line with the general findings that education and experience along with maternal age tends to affect feeding practices (Santosa et al., 2022). The positive trend observed with higher parity could be attributed to accumulated experience of mothers: previous studies have shown that experience gained from previous pregnancies contributes to improved feeding skills, but also noted that in the absence of formal education, feeding skills may be outdated and carried over to the next pregnancy from previous cultural beliefs and taboos (Ramulondi et al., 2021; Santosa et al., 2022). The results indicate that maternal education has the highest impact when taken together with the other characteristics examined, as age and parity have an impact mainly through the fact of having been used to giving birth, and most significantly when added with maternal education and use of health services.

Interestingly, an unexpected finding, maternal income and employment status were not statistically significant predictors of feeding practice ($p = 0.73$). While it is expected that increasing income would have a positive effect on child nutrition, the mean scores showed that the nutrition of children was well managed by their mothers, regardless of their income level, and that low income mothers cared more about the nutrition of their children than their own. This finding is consistent with studies which report that household income is not always strong and significant in predicting feeding outcomes as nutritional awareness and community support are considered (Ramulondi et al., 2021; Shaker-Berbari et al., 2021). Where income does play a role, it is indirect, with good income being associated with purchasing complementary foods and medicines and immunisation (Yunitasari et al., 2021; Gichuki et al., 2025), as indicated by the high mean scores for affording good food, medicines and immunisation.

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However, some signs of financial strain existed, such as feeding smaller amounts of food due to increased food prices, and sometimes replacing nutritious food with less nutritious and less expensive alternatives. These findings are consistent with warnings that income does not necessarily support good nutrition practices unless it is accompanied by sufficient nutrition knowledge and community support, and with how the economic pressure can affect dietary quality (Shaker-Berbari et al., 2021; Mekonen et al., 2024). The most likely explanation is that, within this community, mothers' application of nutritional knowledge was facilitated by the effective nutrition education provided in a health facility, which was effective in buffering the effects of low income. This buffering is not assumed to be permanent, however, as economic difficulties and food price inflation may eventually exceed it, thus reinforcing the importance of tackling subtle food insecurity at the household level as well as through education.

CONCLUSION

The most important factor determining appropriate child-nutrition practice in the Okelele community was maternal education, with no significant differences between maternal age and income. Despite the economic constraints, most mothers had good feeding behaviours, as mothers were more concerned about their children's nutrition and health facilities-based nutrition education had played a significant role. High levels of nutritional awareness and practice suggest that the health-education initiatives already being implemented have succeeded in certain aspects, but there are shortcomings, such as dietary diversity and the cost of animal-source protein. This thus makes it important to strengthen the education of women, awareness about nutrition, economic empowerment, food affordability, social support, and child-health services to sustain and improve maternal–child nutrition outcomes.

Limitations

The study was limited to the Okelele community in Ilorin, Kwara State though the findings may be applicable to other low-income urban communities but cannot be extrapolated to other disadvantaged communities in Nigeria. These data were self-reported and were collected over a brief timeframe, and the study did not account for any longer-term food trends or seasonal availability of food and could be affected by social-desirability bias in self-reports. The percentage of mothers with poor practice was extremely small, which reduced the statistical power in detecting associations. It is recommended that future multi-site and/or longitudinal studies be conducted with anthropometric measurements of children.

Recommendations

Based on these results, nutrition education campaigns need to be targeted and continuous, which should be provided in antenatal and postnatal clinics, with an emphasis on balanced diets,

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exclusive breastfeeding and appropriate complementary feeding, and the less-educated mothers should be targeted. Nutrition counselling should be part of standard practice within maternal and child-health services. Adolescent and young mothers should be targeted in outreach and mentorship programmes to build their confidence, nutrition knowledge and reduce risks of early motherhood. Finally, community health volunteers and/or peer educators need to be trained in reinforcing these messages at the grassroot level and policy focus needs to be shifted towards more subtle forms of food insecurity at the household level where positive feeding behaviours can continue to be maintained within economically vulnerable households.

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