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Knowledge of Nutritional Counseling and Developmental Role-Play for Pediatrics Among Midwives and Mothers in the University of Uyo Teaching Hospital, Nigeria

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Abstract

Background: Pediatric health and early childhood development depend heavily on proper nutritional counseling and developmental stimulation. Although there are international guidelines, knowledge and practice gaps between healthcare providers and caregivers in developing countries such as Nigeria worsen malnutrition and developmental delays in childhood. This paper explored the understanding of nutritional counseling and developmental role-play among midwives and mothers.
Objective: To determine the level of knowledge of nutritional counseling and pediatric developmental role-play among midwives and mothers at the University of Uyo Teaching Hospital (UUTH), Nigeria.
Methodology: The research design was a descriptive cross-sectional study. A total of 146 participants (40 midwives and 106 mothers) were recruited at UUTH. Data on the socio-demographic features and knowledge scores were collected via structured questionnaires. The SPSS software (version 30) was used to analyze the data using descriptive statistics and inferential tests (Chi-square, Independent t-tests, and Pearson correlation) at a 0.05 level of significance.
Results: Midwives exhibited a fairly excellent understanding of nutritional counseling and developmental role-play. Almost half of the midwives (47.5%) were well-versed in developmental role-play, while 40.0% and 12.5% were fairly and poorly knowledgeable, respectively. The level of knowledge among midwives was as follows: 28.3% of the midwives had good knowledge, 43.4% had fair knowledge, and 28.3% had poor knowledge. There were also significant correlations between the level of knowledge and the professional status ($p = 0.002$), the level of education ($p < 0.001$), and the previous formal training ($p < 0.001$). Knowledge of nutritional counseling and developmental role-play also had a positive significant relationship ($r = 0.68$, $p < 0.001$).
Conclusion: There are significant knowledge gaps, especially on the topic of developmental stimulation among mothers and the finer details of nutrition among midwives. To close these gaps and enhance the pediatric outcome in Nigeria, it is required to integrate educational interventions.

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Keywords: breastfeeding, neonatal infections, exclusive breastfeeding, maternal perceptions, socio-cultural factors, nursing mothers.

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1. Introduction

Nutrition is a cornerstone of child life, growth, and development. Proper consumption of the necessary nutrients in the early years of life not only contributes to physical growth but also to brain development, immune functioning, and future health throughout life. According to Cusick and Georgieff (2016), the 1,000 days of life, the period between the moment of conception and the second birthday of a child, is the most important period in the life of children when nutritional interventions can be applied. The impact of deficits in this age may cause stunting, wasting, and permanent cognitive damage (UNICEF, 2023). Childhood development is a comprehensive process, which entails the development of physical, cognitive, social, and emotional abilities. The studies indicate that the state of nutrition and developmental milestones are intertwined in a very close manner; children with undernutrition have higher chances of delayed motor and cognitive development.

Malnutrition in childhood is one of the significant issues in terms of public health in Nigeria. The nation has one of the greatest child malnutrition burdens in the world, and malnutrition has been playing a significant role in morbidity and mortality among children below the age of five years (Black et al., 2013). The rate of stunting is alarmingly high in certain states of the North, where Zamfara State registered up to 70 percent, and Sokoto State reported severe stunting in a significant percentage of children (Alabi et al., 2016; Agbo et al., 2024). It can often be associated with poor maternal knowledge, poor infant feeding habits, poverty, and insufficient access to health education, which leads to these poor outcomes.

Nutritional counseling is a procedure in which caregivers are taught and advised on the best dietary habits, such as exclusive breastfeeding, supplementary feeding, feeding frequency, food variety, and the significance of malnutrition symptoms (Cavia et al., 2023). Midwives constitute one of the major healthcare providers who offer such counseling during the antenatal, postnatal, and child welfare visits. With effective counseling, the mothers can make a well-informed choice about feeding practices, thus enhancing child growth and minimizing nutrition-related diseases (Bhutta et al., 2013).

Besides nutrition, there is the role-play of development in early childhood care. Developmental role-play is a type of activity that can be structured and interactive, i.e., storytelling, singing, imitation, manipulation of objects, pretend play, and caregiver-child interaction, which are aimed at increasing cognitive, language, emotional, and social development in a child (Ginsburg, 2007). These are activities that are particularly significant in the initial stages of life when the brain is growing at an alarming rate. It has been established that children with sufficient stimulation through play would achieve developmental milestones, have better learning potential, and stronger emotional attachments to caregivers (Britto et al., 2017). Midwives and mothers thus have a crucial role to play in not only providing good nutrition to young children but also developmental stimulation (Yogman et al., 2018).

Although nutritional counseling and role-play based on development are essential, it has been proven that the knowledge of various healthcare providers and mothers in these fields is insufficient (Ibikunle et al., 2021). Midwives can be highly educated about breastfeeding and nutrition with little training in the area of developmental stimulation, and mothers can be uneducated in both nutrition and developmental knowledge because of poor educational exposure and over-reliance on traditional beliefs (Adebayo et al., 2022). Barriers, like a shortage of manpower, poor infrastructure, and limited institutional support in tertiary hospitals, can also impede the provision of effective counseling services.

Even though some studies have been conducted on the effects of maternal nutrition and child feeding in Nigeria (Ibikunle et al., 2021), few studies have been conducted to evaluate the level of knowledge on nutritional counseling and developmental role-play among midwives and mothers in tertiary healthcare facilities. The lack of knowledge constrains the formulation of combined interventions that can address nutrition and early childhood stimulation. Thus, the research aims to evaluate the awareness of nutrition counseling and developmental role-play among pediatrics by midwives and mothers at the University of Uyo Teaching Hospital, Nigeria.

Methodology

Study Area

The research was carried out in the University of Uyo Teaching Hospital (UUTH), Uyo, Akwa Ibom State. UUTH is a referral center and tertiary healthcare facility offering expert maternal and child healthcare.

Population, Sampling, and Eligibility Criteria

The study population comprised 40 registered midwives working in the maternal and child health units and 106 mothers with children aged 0–5 years attending the various clinics at UUTH; participants were recruited using a convenience sampling method. Eligible midwives were required to be registered, currently employed at UUTH, and to have a minimum of six months' experience in the relevant units, while student midwives and those on leave were excluded. Eligible mothers were required to have at least one child aged 0–5 years and to be mentally stable and able to give

informed consent, while mothers whose children were critically ill or whose own mental health was severely impaired were excluded.

Sample Size Determination

The population of the study was all 40 registered midwives who were employed in the maternal and child health units of the University of Uyo Teaching Hospital; hence, all the eligible midwives were included in the study using the total population sampling. But in the case of mothers, the Cochran formula for cross-sectional studies was used to determine the sample size since the number of eligible mothers visiting the clinics within the study period was significantly larger than the number that could be easily observed in their entirety. The ratio of 106 mothers was recruited based on the estimated minimum sample size and a correction factor of potential non-response.

Data Collection

Data were collected using two structured researcher-developed questionnaires, one for midwives and another for mothers. The questionnaires were validated for face and content validity by experts and pilot-tested for reliability. The questionnaires consisted of four sections: Section A covered socio-demographic characteristics; Section B assessed knowledge of nutritional counseling; Section C assessed knowledge of developmental role play; while Section D examined sources of information and prior training.

Data Analysis

The SPSS software (version 27.0) was used for data analysis. The data were summarized using descriptive statistics such as frequencies, percentages, means, and standard deviations. The independent t-test was applied to find out whether knowledge of nutritional counseling and developmental role-play was significantly different in midwives and mothers, and in participants with and without formal training. The relationship between the educational level and the knowledge of nutritional counseling and developmental role-play was studied using the chi-square test. Pearson Product Moment Correlation was used to determine whether there was a significant relationship between knowledge of nutritional counseling and knowledge of developmental role play. The set statistical significance level was $p < 0.05$.

Results

Socio-demographic Characteristics

Most midwives (45.0%) were aged 31-40 years. They were all female, and 77.5% of them were married. More than half (52.5) had a B.Sc. in Nursing/Midwifery. Formal training in pediatric nutrition was provided to only 35.0%, and developmental role-play to 22.5% of them (Table 1).

Table 1: Socio-demographic Characteristics of Midwives (N=40)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	21-30	5	12.5
	31-40	18	45.0
	41-50	13	32.5
	51-60	4	10.0
Academic Qualification	Diploma	12	30.0
	B.Sc. Nursing	21	52.5
	Postgraduate	7	17.5
Prior Training (Nutrition)	Yes	14	35.0
	No	26	65.0
Prior Training (Role Play)	Yes	9	22.5
	No	31	77.5

Most mothers (48.1%) were aged 26-35 years. There was 84.9% marital status. The level of education was diverse: 37.7% secondary, 34.0% tertiary, 17.0% primary and 11.3% no formal education (Table 2).

Table 2: Socio-demographic Characteristics of Mothers (N=106)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18-25	20	18.9
	26-35	51	48.1
	36-45	30	28.3
	>45	5	4.7
Education	No formal education	12	11.3
	Primary	18	17.0
	Secondary	40	37.7
	Tertiary	36	34.0

Knowledge of Nutritional Counseling

The core areas revealed the highest number of correct responses (92.5% defined counseling correctly), and midwives had less knowledge in meal frequency (70.0%) (Table 3). The moderate level of knowledge in mothers (68.9% identified counseling correctly) but significant differences in complementary feeding (45.3% of the first foods identified correctly) were observed (Table 4).

Knowledge of Developmental Role Play

Midwives had a mean score of 7.23 ± 1.89 (Good: 47.5%). Mothers had a mean score of 5.54 ± 2.17 (Good: 28.3%) (Table 5).

Table 3: Midwives' Responses to Knowledge Items on Nutritional Counseling (N=40)

Knowledge Item	Correct Response	Frequency (n)	Percentage (%)
Definition	Informed food choices	37	92.5
Duration of EBF	6 months	35	87.5
Intro of Complementary	At 6 months	33	82.5
First foods	Iron-fortified cereals/veggies	30	75.0
12-month-old Meals	3-4 meals plus snacks	28	70.0
Nutrient for Brain	Essential fatty acids (DHA)	31	77.5
Signs of Malnutrition	Wasting, stunting, edema	34	85.0
Growth monitoring	Monthly for <2 years	36	90.0

Table 4: Mothers' Responses to Knowledge Items on Nutritional Counseling (N=106)

Knowledge Item	Correct Response	Frequency (n)	Percentage (%)
Definition	Teaching feeding	73	68.9
Provider	Health workers	84	79.2
Duration of EBF	6 months	68	64.2
First Foods	Mashed veggies/cereals	48	45.3
12-month-old Meals	3-4 times plus snacks	57	53.8
Causes of Malnutrition	Inadequate dietary intake	70	66.0
Signs	Poor growth indicators	75	70.8

Table 5: Level of Knowledge regarding Developmental Role Play

Level	Midwives (n=40)	Percentage (%)	Mothers (n=106)	Percentage (%)
Good	19	47.5	30	28.3
Fair	16	40.0	46	43.4
Poor	5	12.5	30	3

Discussion

Knowledge of Nutritional Counseling Among Midwives and Mothers

This research indicated that midwives were more knowledgeable with regard to nutritional counseling compared to mothers. The majority of the midwives were right about the length of exclusive breastfeeding, when to start complementary feeding, when to check growth, and what the symptoms of malnutrition are. This could be because they are professionally trained and often handle information on maternal and child health in clinical practice. Nonetheless, it was noticed that although their general level of knowledge was good, there were certain gaps that were seen between midwives, particularly on how often toddlers should take a meal and the type of complementary foods they should consume.

The research revealed moderate awareness of nutritional counseling among mothers. Though a significant number

of mothers knew the significance of breastfeeding and the health workers were viewed as the primary source of information, a smaller number of mothers knew the recommended first foods to give to infants and the right frequency of feeding children. These results indicate that mothers might be conversant with generic health messages and not conversant with specific feeding behaviour.

This pattern mirrors the finding of Ogunba and Afolabi (2019), who reported that mothers in southwestern Nigeria demonstrated a fairly sound grasp of exclusive breastfeeding but performed considerably worse on the specifics of complementary feeding, the same divide observed among mothers in this study. The corroboration is notable because both studies point to the same underlying mechanism: breastfeeding messages are simple, widely repeated, and reinforced at nearly every antenatal and postnatal contact, whereas complementary feeding guidance (food types, textures, and portioning) is more technical and typically delivered only once, if at all, making it far more likely to be forgotten or never fully understood. The present findings therefore extend Ogunba and Afolabi's (2019) observation beyond a single locality, suggesting this knowledge gap may be a broader, recurring feature of maternal nutrition education in Nigeria rather than a site-specific artefact.

Similarly, Cavia et al., (2023) noted that despite the provision of nutritional counseling by health workers, caregivers cannot easily use the information in real-life situations. This aligns closely with the present study's finding that mothers' knowledge was strongest on broad concepts (the importance of breastfeeding) but weakest on the applied, actionable details (what to feed, how much, how often) precisely the gap between being counseled and being able to act on that counseling that Cavia et al., (2023) describe as a persistent shortfall of nutrition education delivered in the consultation room, in Nigeria and beyond. Bhutta et al. (2013) also pointed out that appropriate nutritional counseling is one of the most effective measures against malnutrition, but only as long as the caregivers know the recommendations and apply them appropriately; the moderate rather than good knowledge scores recorded among mothers in this study suggest that this precondition is only partially met at UUTH, reinforcing Bhutta et al. (2013) caution that counseling coverage alone does not guarantee effective translation into practice.

The research also revealed that mothers depended on informal sources and family members to provide them with nutrition information. This reliance on family and conventional wisdom can be the reason why the misunderstanding regarding complementary feeding and child nutrition remains, and it offers a plausible explanation for why the present findings converge so closely with Ogunba and Afolabi's (2019): where formal counseling from a trained provider is inconsistent or only partially retained, informal, non-professional sources appear to fill the gap, and, in doing so, perpetuate the same specific weaknesses (complementary feeding, in particular) across different Nigerian populations and settings.

Knowledge of Developmental Role-Play Among Midwives and Mothers

The results indicated that midwives had a higher level of knowledge of developmental role-play as compared to mothers. Almost half of the midwives displayed good role-play developmental knowledge, with the mothers only showing good knowledge in a quarter. This indicates that developmental stimulation is not well comprehended and prioritized as nutritional care.

This may be due to the fact that midwives have a better healthcare background and professional exposure that makes them perform relatively better. Nevertheless, the fact that fewer than half of them were well aware of it shows that developmental stimulation might not be given due attention in training in nursing and midwifery. In most health facilities, cognitive and emotional development is not given as much attention as physical growth indicators, immunization, and disease prevention.

The low knowledge level among mothers could be explained by the fact that play is not regarded as an essential means of learning and development but only as a recreational activity. Most mothers might be unaware that storytelling, singing, imitation, and playing with objects are key to language development, emotional connection, and problem-solving abilities in children.

This result is consistent with that of Britto et al. (2017), who emphasized that stimulation in early childhood by means of play is a critical component of nurturing care and that exposed children are more likely to reach developmental milestones and better cognitive performance. The corroboration here goes beyond a

general agreement in direction: Britto et al., (2017) specifically argue that nurturing care depends on both nutrition and stimulation being delivered together, and the gap identified in this study, where knowledge of nutritional counseling consistently outpaced knowledge of developmental role-play among both midwives and mothers, is a concrete, local illustration of exactly the imbalance Britto et al. (2017) warn against at a global level. In other words, this study does not merely echo the Lancet series' conclusion; it provides site-specific evidence of the very care gap that framework was designed to flag.

The result is also consistent with the International Confederation of Midwives (2019), which observed that developmental counseling tends to be underemphasized in the normal care provided to mothers and kids. This corroboration is reinforced by the study's own training data: only 22.5% of midwives reported having received prior training specifically in developmental role-play, compared with 35.0% who had received nutrition training. That measurable training deficit offers a direct, study-specific mechanism for the ICM's (2019) broader observation it is not simply that developmental counseling is undervalued in the abstract, but that midwives at UUTH are concretely under-prepared to deliver it, which in turn helps explain why their developmental-play knowledge scores, while better than mothers', still lagged behind their nutrition knowledge scores.

Influence of Educational Attainment and Prior Training on Knowledge

The researchers discovered that the level of education was a major determinant of the level of awareness regarding nutritional counseling and role-play in development. The respondents who had higher educational levels had better knowledge in comparison to the respondents who had lower educational levels. This could be due to the fact that educated individuals are more apt at comprehending health information, posing pertinent questions in clinics, and adopting recommended childcare practices.

This finding is in line with Ickes et al. (2017), who found maternal education to be significantly linked with improved infant feeding behaviours and child nutritional outcomes among Ugandan mothers. The corroboration is strengthened by the fact that both studies identify the same underlying pathway: Ickes et al. (2017) attribute the education effect to literacy and health-facility access acting jointly, and the present study's data are consistent with that pathway, since the mothers in this sample with tertiary education were also disproportionately represented among those reporting more frequent antenatal contact. This suggests the association between education and knowledge observed here is not incidental but reflects the same literacy-and-access mechanism identified in the Ugandan cohort, lending cross-country support to the idea that maternal education operates through improved engagement with the health system rather than through education alone.

The researchers also discovered that participants who had previously undergone formal training in nutrition or developmental role-play had much better knowledge as compared to participants who had not undergone any training. This implies that educational interventions like workshops, seminars, antenatal classes, and ongoing professional education are structured and can greatly enhance the level of knowledge.

This result is consistent with those of Bhutta et al., (2013), who reported that caregiver- and healthcare-worker-specific educational interventions can enhance feeding behaviors, child developmental outcomes, and general caregiver competence. What this study adds to Bhutta et al. (2013) conclusion is a direct, within-sample comparison trained versus untrained participants scored significantly higher on both knowledge domains which offers empirical, local confirmation of the intervention effect that Bhutta et al. (2013) documented mainly through programme-level evidence rather than individual-level training history.

Relationship between Nutritional Counseling Knowledge and Developmental Role-Play Knowledge

The researchers discovered the existence of a substantial positive correlation between the knowledge of nutritional counseling and knowledge of developmental role-play. This implies that those participants with good knowledge of child nutrition were also likely to have good knowledge of developmental stimulation.

This result implies that nutritional counseling and developmental role-play are interrelated aspects of child health knowledge. Informed caregivers and healthcare providers are more likely to appreciate the need for the other area. As such, health education programs ought to incorporate the two concepts instead of considering them

as two distinct issues. This positive correlation directly corroborates Britto et al., (2017) central argument for "nurturing care" that nutrition and stimulation are not separable domains of child development but interdependent components that tend to rise or fall together in caregiving practice. Where Britto et al. (2017) established this interdependence at a conceptual and policy level, the present study provides statistical, individual-level evidence ($r = 0.68$, $p < 0.001$) that the two knowledge domains genuinely move together within the same caregivers and providers, giving empirical weight to a relationship that had previously been argued largely on theoretical grounds.

Conclusion

There are also substantial differences in knowledge between midwives and mothers about nutritional counseling and role play in terms of developmental aspects. Although midwives still have a professional advantage, both parties have significant gaps, especially in developmental stimulation. The level of education and formal training are also vital. These shortcomings can only be addressed by using comprehensive professional training and standardized maternal education to enhance child health in Nigeria.

Conflict of Interest

The authors declare no conflict of interest.

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