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Knowledge, Attitude and Perception on Factors Influencing Infant's Development Among Nursing Mothers Attending Primary Health Clinic (PHC) in Egor LGA, Edo State, Nigeria

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Authors' contribution

Both authors contributed to this research (1st Author – Literature review, Data/ statistical analysis, manuscript preparation, manuscript editing and manuscript review; 2nd Author - study concept formulation and design, and acquisition of data)

Abstract - Background: *Optimum growth and development during the early stage of life are dependent on several factors that have an intense impact on health throughout the life span. Aims: The study aimed at assessing knowledge of factors influencing infants' development and practice among nursing mothers attending the Primary Health Centre in Benin City.* ***Method:*** *This cross-sectional descriptive study was carried out among nursing mothers whose children were from 0 to 12 months old attending PHC in Egor LGA, Edo State.* ***Result:*** *The study involved 150 breastfeeding mothers, and the instrument for data collection was a structured questionnaire with a reliability of 0.775. Data analysis was done using SPSS version 22. Results: The overall mean knowledge score was 88.8%, with the highest mean knowledge score on environmental factors (91.3%), followed by parents' behavioral and parenting factors (89.5%), social culture factors (86.0%), and nutritional factors (88.3%). 131 (87.3%) demonstrated a high level of practice regarding factors influencing infants' development, while 19 (12.7%) demonstrated a low level of practice*. ***Conclusion:*** *There is adequate knowledge, good perception, and practice but poor attitude regarding factors influencing infant development among nursing mothers. Parents commonly approach nurses when seeking medical assistance. This presents an ample opportunity for community education and discussion of food taboos, especially during conception and in early childhood care.*

Keywords: Factors, Infant Development, Knowledge, Practice

1. INTRODUCTION

The foundation of a child's survival, health, and development is adequate nutrition. [1] Children who eat well are more likely to develop and learn, take part in and contribute to their communities, and be resilient in the face of illness, natural disasters, and other international crises. [2] However, optimum growth and development during the early stage of life depend on several factors that have an intense impact on health throughout the life span. [3] Nigeria ranks second in the global burden of stunted under-5 children, with a prevalence rate of 32%. [4] Young children are dependent on the care they receive, and their growth depends on the capacity of the caregivers. Parent behaviors, such as smoking or heavy alcohol intake during pregnancy and exposure to environmental tobacco smoke, have serious health consequences for both the mother and the baby. [5] Environmental factors fetuses are exposed to before birth may lead to preterm birth or underweight and thus compromise child development. [6, 7] Social culture factors such as feeding practices and care have also been shown to affect child development. [8, 9] In developing countries, more than 200 million children under five years fail to reach their potential in cognitive and social development due to poverty, poor health, nutrition, and deficient care. [10, 11] The main factors identified as contributing to growth and development in early childhood are nutrition, parents' behaviors, parenting, social and cultural practices, and environment. [12, 13]

Early initiation of breastfeeding and exclusive breastfeeding help in child survival, account for healthy brain development, promote cognitive and sensory performance, and are noted for enhancing intelligence and academic performance in children. [14] Feeding an infant with only breast milk is advocated by stakeholders in health, is one of the most important practices in an infant's life, and is the best way a mother can invest in the well-being of her child. Among the numerous benefits of breastfeeding, UNICEF, in a breastfeeding campaign in 2013, termed the essence of breastfeeding as a "first immunization and an inexpensive life saver." [14, 15] Malnutrition prevalence remains alarming; stunting is declining too slowly, while wasting still impacts the lives of far too many young children. [16] Exclusive breastfeeding rates have not improved significantly over the past decade, with only 17 percent of babies being exclusively breastfed during their first six months of life. [17] Just 18 percent of children aged 6-23 months are fed the

minimum acceptable diet. More than one in five—144 million children under 5—were stunted in 2019, and 47 million suffered from wasting. [17]

Every nation on the planet experiences malnutrition in one way or another. The fight against malnutrition in all of its forms is one of the largest issues in global health. Children benefit from early nutrition optimization's best start in life, and it has long-term benefits, including during the 1000 days between conception and their second birthday. [18, 19, 20] By reducing productivity, increasing healthcare costs, and decreasing economic growth, malnutrition can contribute to a vicious cycle of poverty and illness. [21, 22] However, there is a dearth of studies regarding knowledge and practice on factors influencing infant growth and development among nursing mothers attending the Primary Health Clinic in Egor LGA, Edo State. It was against this background that the researcher embarked on this study.

2.

2. MATERIALS AND METHODS

2.1 Study Design

A descriptive cross-sectional survey was conducted in the Egua-Edaiken Primary Health Centre (PHC) in Egor LGA of the Edo State, Nigeria, in 2021, which enabled the researcher to survey hundred and fifty mothers drawn from a population of two hundred and five whose children were from 0-12months old attending the Egor Primary Health Centre (PHC) for post natal clinic and get private information during the survey with intention to drawn inference on the population. [22].

2.2 Sampling Method

Convenience (accidental) sampling method was used. This sampling method was preferred since all of the mothers do not attend the PHC same day or at same time. The selection criterion for participants' inclusion for this study included - breastfeeding mothers with babies between 0-12 months old, who were present during the period of data collection, and who expressed willingness to participate in the study whereas mothers who could not speak English language and those not willing to participate in the study were excluded.

2.3 Instrument for Data Collection

Data collection instrument was a structured questionnaire (close-ended) which covered the objectives of the study. The instrument allowed the researcher to ask the same question, in the same way, in a sequence and an order, to different people and in different places, thus enabling the researcher to reach more participants with divergent opinion at the same time. The questionnaire was prepared with the input of an expert in the field and a statistician to enhance the validity of the instrument. Cronbach's alpha was used to test the reliability of the instrument, and the reliability coefficient in this study was 0.775. The questionnaire consisted of 32 items divided into three sections – A, B, & C. Section A: contained 7 items which deal with socio-demographic characteristics of the respondents; Section B contained 17 items which elicited response on questions on knowledge of factors influencing infant's development while Section C contained 8 questions which assessed practice of factors influencing infant's development.

2.4 Ethical Clearance

Ethical clearance with approval number: ELG/C/2450/006 was obtained on the 19th April, 2021 from the Egor Local Government Secretariat which oversees the PHC. The participants were given details explanation of the purpose of the study and were made to sign a consent form before they were enlisted to participate in the study. Ethical principles guiding human research as stipulated by the Belmont report was strictly adhered to. Their time of consultation was not encroached into as data collection took place after consultation..

2.5 Data Analysis

It was also analyzed using percentage answers. A score of < 50% was rated poor knowledge of factors influencing infant's development, 50%-80% was categorized as moderate knowledge score while > 80% as excellent knowledge score (section B) and ≤ 70% = poor practice of factors influencing infant's development while > 70% = good practice (section C). The data obtained were coded and analyzed using SPSS statistical software version 22.00 (IBM corp. released 2012. Armonk, NY: IBM Corp). Variables and research questions were analyzed using descriptive statistics such frequency, and percent score

3. RESULT

The mean age of the respondents is 34.31 ± 7.687 years. Respondents with tertiary educational qualifications were more numerous at 72 (48.0%), followed by those with secondary qualifications at 33 (22.0%) and those with primary qualifications at 30 (20.0%), while only 15 (10.0%) of them did not have any form of formal education. Half of the respondents, 75 (50.0%), have an estimated monthly income within #30,000-#50,000; 42 (28.0%) have less than #30,000, while 33 (22.0%) have above #50,000 (Table 1). The

general knowledge of the participants regarding knowledge of factors influencing infant development is good (overall mean knowledge score = 88.8%), with the highest mean knowledge score on environmental factors (91.3%), followed by parents' behavioral and parenting factors (89.5%), social culture factors (86.0%), and nutritional factors (88.3%). In composite, it shows 132 (88.0%) of the respondents had excellent knowledge (score >80.0%) of factors influencing infant development, while 18 (12.0%) had moderate knowledge (score 50-80.0%). None of the respondents had low knowledge (Table 2). The composite shows 131 (87.3%) of the respondents demonstrated a high level of practice (score >70.0%) regarding factors influencing infant development among the respondents, while 19 (12.7%) showed a low level of practice (score ≤70.0%). (Table 3)

Table 1: Social-demographic characteristics of the respondents (n = 150)

Variables	Categories	Frequency	Percent
Age	18-27years	27	18.0
	28-37 years	69	46.0
	38-47 years	42	28.0
	>47 years	12	8.0
	Mean±SD = 34.31± 7.687		
Level of education	Primary	30	20.0
	Secondary	33	22.0
	Tertiary	72	48.0
	No formal education	15	10.0
Family setting	Monogamy	111	74.0
	Polygamy	39	26.0
Number of children	1-2	48	32.0
	3-4	78	52.0
	More	24	16.0
Employment status	Civil servant	15	10.0
	Student	15	10.0
	Self-employed	84	56.0
	Employed in private setting	12	8.0
	Full time house wife	24	16.0
Partners' employment status	Self-employed	75	50.0
	Student	42	28.0
	Civil servant	18	12.0
	Employed in private setting	9	6.0
	No paid	6	4.0
Estimated monthly income	<#30,000	42	28.0
	#30,000-#50,000	75	50.0
	> #50,000	33	22.0

Table 2: Knowledge of factors influencing infant's development (n = 150)

S/N	Statement	Responses	
		True(%)	False(%)
Nutritional Factor			
1.	Babies should be breastfed on demand (≥8 times/day during the first month)	117(78.0)	33(22.0)
2.	Breastfeeding duration ≥15 min from each breast during the first six month	123(82.0)	27(18.0)
3.	Breastfeeding is beneficial for both the mother and the child	141(94.0)	9(6.0)
4.	Children should receive breast milk until 2years old	132(88.0)	18(12.0)
5.	Complementary food should be introduced at 6 months of age	138(92.0)	12(8.0)
6.	Breast milk is superior to formula milk in fulfilling child's necessary dietary requirements	141(94.0)	9(6.0)
7.	Breast milk is sufficient for child in the first 6 months of life	138(92.0)	12(8.0)

8.	Breast milk does not lose its benefits when it is pumped out or stored	129(86.0)	21(14.0)
	Mean knowledge score = 88.3%		
Parents Behavioural and Parenting Factors			
9.	Smoking during pregnancy and exposure to environmental tobacco affect child development	138(92.0)	12(8.0)
10.	Consumption of alcohol has adverse effect on the development of the foetus during pregnancy and after birth	126(84.0)	24(16.0)
11.	Lack of personalized care during the early years of life has a devastating effect on the baby development	132(88.0)	18(12.0)
12.	When children spend their early years in a less stimulating environment, brain development is affected and leads to cognitive, social and behavioural delay	141(94.0)	9(6.0)
	Mean knowledge score = 89.5%		
Social-Culture Factors			
13.	Avoiding some nutritious food during breastfeeding can make the child not get enough breast milk	120(80.0)	30(20.0)
14.	The breast milk has enough water needed by the child, so no need to give the child any water by mouth.	138(92.0)	12(8.0)
	Mean knowledge score = 86.0%		
Environmental Factors			
15.	Poor sanitation and deficient hygienic environment can affect child's development	135(90.0)	15(10.0)
16.	Food product contamination can cause a child to be sick	138(92.0)	12(8.0)
17.	Malaria infection can affect child development	138(92.0)	12(8.0)
	Mean knowledge score = 91.3%		
	Overall mean knowledge score = 88.8%		

Table 3: Showing practice of factors influencing infant's development among the respondents (n = 150)

S/N	Statement	Response	
		Yes(%)	No(%)
1.	Did you breastfeed your child within the first 1hour after delivery?	129(86.0)	21(14.0)
2.	Are you practicing exclusive breast feeding?	132(88.0)	18(12.0)
3.	Is your child being exposed to cigarette smoking environment	42(28.0)	108(72.0)*
4.	Are you taking care of your child in a good sanitation and hygienic environment	141(94.0)	9(6.0)
5.	Do you always wash your hands and your breast nipples before breastfeeding your baby?	135(90.0)	15(10.0)
6.	Do you spend quality time in talking to and playing with your child?	114(76.0)	36(24.0)
7.	Do you deprive your child of any motherly care as a result of cultural beliefs?	30(20.0)	120(80.0)*
8.	Do you and your family sleep under insecticide treated mosquito nets?	54(36.0)	96(64.0)
	Mean score value = 77.8%		

4. DISCUSSION

Building a solid foundation for children in their early years improves their communication, physical coordination, learning, emotional connection, and resilience, which helps them perform better in school, build positive social relationships, and mature into healthy individuals. Healthy growth and development throughout infancy have a significant impact on health throughout life.

Over two-thirds of the participants in the present study are above 27 years of age, with many of them within 28-37 years. This revealed that most of the mothers were mature women and implied that child marriages were uncommon in the study area. Almost all respondents had one form of education or another, with tertiary-level education more represented, which could have accounted for the increased age of the respondents. This finding is consistent with the finding reported from Southwest Nigeria in 2016. [23] Any public health initiatives aimed at encouraging the adoption of good lifestyle habits that protect the wellness of newborns must take knowledge into account. The participants in the current study generally had adequate knowledge of factors affecting infant growth and development (overall mean knowledge score = 88.8%). This level of knowledge may be related to the respondents' educational backgrounds, given how many of them held tertiary degrees. Again, it is thought that in an urban situation where individuals have easy access to information via various media sources, such a level of understanding is achievable. The standard of

health instruction provided to nursing mothers by the PHC nurses during prenatal and postnatal clinic visits may also be reflected in this. The level of excellent knowledge score recorded in the present study is higher compared with the level of good knowledge (43.3%) recorded in the Island of Abu Dhabi, United Arab Emirates, in 2018 [24] and (64.6%) reported from Osun State, Nigeria. [25] Despite both studies being conducted in similar settings (PHC in urban cities), respondents in the current study demonstrated better knowledge, giving credence to the role of health care providers (nurses) in providing quality and adequate health information to their clients in the present study. On nutritional factors that influence infants' growth and development, the present study had a mean knowledge score of 88.3%, which is higher compared to 62.9% recorded among participants in the United Arab Emirates study [24] and 77.4% recorded among participants in Lagos, Nigeria. [25] The differences may be a reflection of the variability of participants in both studies. Furthermore, unlike the extant study, which is institutional-based (PHC), the Lagos study was a community-based, which involved both urban and rural dwellers and fewer numbers of participants with tertiary academic qualifications. These could have had influence on the mean knowledge score by the participants.

Almost all the respondents (92.0%) in the present study knew the right time to start complementary feeding. This finding is at variance with the 59.2% reported in the Osun State, Nigeria, study [23] and the 41.5% of children reported from Rwanda in 2021. [26] However, the proportion (92.0%) of the respondents in our study who knew that breast milk is sufficient for a child in the first 6 months of life is comparable to the proportion (91.5%) reported in the Rwanda study. [26] Similarly, the proportion (94.0%) of the respondents that favored the superiority of breast milk over formula milk in fulfilling a child's necessary dietary requirements is comparable to the 96.1% reported in the United Arab Emirates study. [24]

The majority of survey respondents (92.0%) acknowledge the detrimental effect of tobacco usage complications before and during conception. Detrimental effects of environmental tobacco smoke (ETS) on mothers and newborns are well-known. Fazel et al. [27] had reported pregnancy-related complications such as low birth weights, low one- and five-minute airway clearance rates, worse APGAR ratings, and newborn hospitalization following exposure to ETS. Furthermore, over two-thirds of the participants in our study believed that consumption of alcohol has an adverse effect on the development of the fetus during pregnancy and after birth. In a previous study [28] that investigated maternal alcohol intakes before and during pregnancy and its impact on mothers and infants up to 18 months, a negative effect of maternal alcohol intake pre-pregnancy on infant verbal development and growth was reported. In contrast to the findings (68.0%) reported from Sikkim [28], a higher percentage of participants in this study had accurate awareness of the impact of alcohol on newborn development. Parental care during early life is a crucial element for fostering children's cognitive and non-cognitive talents. [30] Numerous studies have demonstrated how early parental neglect has a negative impact on children's health status, daily behaviors, and academic performance. [31, 32, 33] The majority of the participants in this present study knew that lack of personalized care during the early years of life impacts a child's development negatively and exposure to a stimulating environment affects brain development, which could lead to cognitive, social, and behavioral delay. With respect to the effect of environmental factors, the majority of the participants acknowledged that poor sanitation and deficient hygienic environments can affect a child's development and that food product contamination can cause a child to be sick. Poor sanitation and unsafe drinking water have been linked to cases of diarrheal disease and environmental enteropathy in under-5 children. These inhibit nutrient absorption, which can lead to undernutrition and stunting. [14] There is a widely held belief in the present study that avoiding some nutritious food during breastfeeding can make the child not get enough breast milk. This belief is consistent with the findings reported from Southeastern Nigeria. [34], which held that poor nutritional practices, especially in pregnancy and early childhood, can result in dire consequences in the growth and development of a child. Additionally, almost all of the participants were aware that malaria infection can impact a child's ability to develop, which is consistent with the World Health Organization's position that newborns and babies under the age of 12 months are among the most vulnerable populations to malaria. [35] Similarly, a mother's malaria infection during pregnancy has been linked to low birth weight and infant mortality. [35]

Initiation of breastfeeding within the first hour of life has been described as important for both the mother and the child. This affords the child the opportunity to access the colostrum (first breast milk), which is highly nutritious and has antibodies that protect the newborn from diseases. Early initiation of breastfeeding also encourages bonding between the mother and her newborn and ensures regular production of breast milk. [36] The proportion of the women (86.0%) who initiated breastfeeding within the first hours after delivery in this study is higher than the national prevalence rate of 42% [37] but lower compared to the 95.4% reported from Malawi in 2020 [38].

The level of exclusive breastfeeding practice (88.0%) in the present study is at variance with several previous findings. For instance, 33.3% was reported among women from Italy by Cascone et al. [39], (29.0%), was reported from Lagos, Nigeria [25], while (92.0%) was reported from Accra, Ghana. [36] The high level of practice may be connected to the level of knowledge of the respondents. Proper infant feeding practices and improved sanitation are two important strategies to reduce diarrheal morbidity among infants. A greater proportion of the respondents affirmed that they take care of their infants in a good sanitation and hygienic environment and always wash their hands and their breast nipples before breastfeeding their babies. Although use of ITNs has been shown to reduce malarial morbidity and mortality, it was suggested that the measure needs to be supported by an adequate healthcare system providing ITNs, possibly at the household level. [40] Only less than one-third of the participants sleep with their family under insecticide-treated mosquito nets. The proportion of ITN users being high in the present study is at variance with the finding (66.1%) reported from rural Southwestern Uganda in 2017 [41] and (41.7%) reported from Ho Municipality. [42] This implies that there is a high risk

of malaria fever among the respondents and their babies. This can be addressed through continual and consistent education on the importance of ITN utilization, especially during antenatal care.

4.1 CONCLUSION

There is adequate knowledge and practice regarding factors influencing infant development among nursing mothers. Nevertheless, the results indicated a need for continuing and persistent education regarding the advantages of using ITNs, particularly during prenatal care. Nurses who care for sick children need to understand how children differ from adults and from one another at different ages. To be able to establish developmentally appropriate care plans to address the requirements of their young patients, nurses must have this insight. There is adequate knowledge and practice regarding factors influencing infant development among nursing mothers. Nevertheless, the results indicated a need for continuing and persistent education regarding the advantages of using ITNs, particularly during prenatal care. Nurses who care for sick children need to understand how children differ from adults and from one another at different ages. To be able to establish developmentally appropriate care plans to address the requirements of their young patients, nurses must have this insight.

Conflicts of Interest

There are no conflicts of interest.

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Data Availability

The data that support the findings of this study are available from the corresponding author, [Akpobasa, O. B], upon reasonable request

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