



International Journal of Advanced Community Medicine

E-ISSN: 2616-3594

P-ISSN: 2616-3586

www.comedjournal.com

IJACM 2022; 5(1): 13-21

Received: 04-11-2021

Accepted: 10-12-2021

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Knowledge and practice of weaning among mothers attending the paediatric outpatient clinic in a tertiary hospital in southern Nigeria

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DOI: <https://doi.org/10.33545/comed.2022.v5.i1a.220>

Abstract

Background: Adequate weaning confers both short and long-term benefits on a child's health and well-being. Weaning practice is determined by a mother's knowledge amongst other factors.

Methods: This was a cross-sectional questionnaire-based study carried out from 1st of June - 31st of May 2021. Assessments were graded as good, fair and poor knowledge or practice. Data was analysed using SPSS version 23. Fishers' Exact test was used to test for statistical significance, with P value set at <0.05.

Results: Most mothers were aged 30-35years 67(38.7%), married 171(98.8%), resided in the urban area 146(84.4%), were traders/businesswomen 73(42.2%), had tertiary education 136(78.6%) and had a parity of 2, 61(35.3%). Majority 110(63.6%) had heard of the word 'weaning' but only 72(43.9%) could correctly define it. Majority 145(83.8%) had good knowledge while 5(2.9%) had poor knowledge. Majority 106(61.3%) had good practice while 2(1.1%) had poor practice. Majority 121(69.9%) of mothers who weaned their babies before 6 months did so because they felt the breast milk was not enough 21(42.6%). Others felt they were stressed 7(14.9%) and because of resumption at work 7(14.9%). Most mothers who stopped breastfeeding before 2 years of age did so mainly because the babies stopped on their own 21(25.6%), ate more of complimentary foods 20(24.4%) and because of work pressure 9(11.1%). There was significant association between the mother's occupation (P value=0.003), and level of education (P value < 0.001) with the level of weaning knowledge. There was a significant association between the level of practice of weaning and male sex (P value=0.016).

Conclusion: There was good knowledge and good practice of weaning among mothers attending the paediatric outpatient clinic. There is however still room for improvement of weaning practices by mothers by further education on weaning as well as provision of support by community support groups.

Keywords: Weaning, knowledge, practice, Mothers, Nigeria

Introduction

Adequate nutrition especially in the first two years of a child's life is critical for optimal growth and development [1, 2]. World Health Organisation (WHO) recommends exclusive breastfeeding for the first 6 months followed by breastfeeding along with complementary foods for up to two years of age or beyond [3, 4]. From the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk and complementary feeding becomes necessary to meet these requirements [4]. If weaning is delayed or inappropriate, it may lead to growth faltering, micronutrient deficiency and infectious illnesses [4].

Weaning is the process by which foods other than breastmilk are gradually introduced after the first six months of life initially to complement and then eventually to totally wean off breast milk [5]. Adequate weaning practice confers both short term and long-term benefits on a child's health and well-being such as adequate cognitive, motor and sensory development as well as reduction in infections, morbidity and mortality [1, 6]. Poor weaning practice could predispose to diarrhoea, allergy and choking [7, 8]. It may also cause protein energy malnutrition and micronutrient deficiency [7-9].

Weaning practice is often determined by mothers' socio-demographic characteristics, knowledge, perceptions about her child's health and cultural beliefs. [7] It also depends on accurate information and skilled support from family, health care system and community at large [7, 10].

Poor knowledge about appropriate foods and feeding practices is often a more significant determinant of malnutrition than actual lack of food^[7]. Studies have shown that a significant proportion of mothers still have suboptimal knowledge and practice about proper weaning both in this country and some other parts of the world^[1-6, 9, 10].

This study is therefore being carried out to ascertain the knowledge and practice of weaning among mothers attending the Paediatric out-patient clinic of the Rivers State University Teaching Hospital, a tertiary hospital in Southern Nigeria.

Materials and Methods

This was a cross-sectional questionnaire-based study carried out in the Paediatric out-patient clinic of the Rivers State University Teaching Hospital (RSUTH), Nigeria over a one-year period from 1st June to 31st May 2021.

The Paediatric outpatient clinic consist of specialist clinic(s) and general paediatric clinic run from Mondays to Fridays by consultants, resident doctors and house officers with an average attendance of about 60 patients per clinic day.

The Rivers State University Teaching Hospital is owned by the Rivers State Government, and it is situated in the downtown area of the state. It is a 375 bedded hospital and serve as a referral centre to all the Primary Healthcare Centres in the 23 Local Government areas of the state as well as general hospitals and neighbouring states.

A convenient sampling size of 173 mother-baby pair attending the Paediatric outpatient clinic were consecutively recruited into the study. The inclusion criteria were all mothers whose index child was aged 6 months to 24 months and who gave consent to participate in the study. Mothers who did not give consent to participate in the study or whose index child was less than 6 months or greater than 24 months were excluded from the study to minimize recall bias. Caregivers other than the mothers as well as fathers were also excluded from the study.

A research assistant was trained on the proper administration of the pre-tested and validated questionnaire before commencement of the study.

The study was thoroughly explained to the mothers thereafter verbal informed consent was obtained. An average of 7-8 mother-baby pairs were recruited in two out of the five clinic days weekly during the period of study.

Information obtained were socio-demographic characteristics of the mothers and index children, questions to assess the knowledge and practice of weaning among the participants as well as the reasons why babies were weaned before 6 months and breastfeeding stopped before babies were 24 months of age. A total of 10 items were used to assess knowledge of weaning among the mothers. Correct answers were scored 1 each and wrong answers were scored 0 giving a total of 10. All items were summed and converted to percentages with a total of 100%. Assessments were then graded good knowledge (70-100%), fair knowledge (50-69.9%) and poor knowledge (0-49.9%). A total of 9 items were used to assess the practice of weaning. A correct answer was scored 1 while wrong answer 0. All items were summed and converted to a total of 100%. Assessments were graded as good practice (70-100%), fair practice (50-69.9%) and poor practice (0-49.9%).

The information obtained were entered into an excel spreadsheet and data analysed using SPSS version 23. Descriptive analysis of the socio-demographic

characteristics and variables testing the knowledge and practice of weaning were presented in frequency and percentages. Means and standard deviations were used for continuous variables. Other results were presented as bar and Pie charts. Fischers' Exact test was employed to test for statistical significance in the association between the level of knowledge and practice with the socio-demographic variables. P value was set at < 0.05.

Result

Sociodemographic Characteristics of the Study Population

Of 173 mother-baby pair studied, majority was within the age group 6-11 months 71(41.0%). There were more males 110(63.6%) with a M:F ratio of 1.75:1. Most mothers were aged 30-35years 67(38.7%) with mean age of 33.56 ± 4.95years, married 171(98.8%) and were from South-South region 107(61.8%). They mostly resided in the urban area 146(84.4%) and engaged in trading and other businesses 73(42.2%). Majority had tertiary level of education 136(78.6%) and had at least two children previously (Parity) 61(35.3%) with a mean parity of 2.18 ± 1.2, Table I.

Knowledge of Weaning

Of 173 respondents, 110(63.6%) had heard of the word 'weaning' while only 72(43.9%) could correctly define it. One hundred and fifty-one (92.6%) respondents knew the recommended time to wean a baby, recommended foods 151(92.6%) and the recommended number of feeds per day 150(86.7%). The appropriate utensils recommended for weaning was known by 164(94.8%). One hundred and fifty-seven (90.8%) respondents knew there were health hazards associated with poor weaning whereas 137(87.3%) could mention at least one health hazard. One hundred and seventy (98.3%) respondents knew breastfeeding should continue alongside weaning while 113(65.3%) knew the correct time to stop breastfeeding (at least 24 months). One hundred and forty-five (83.8%) were assessed to have good knowledge of weaning whereas 23(13.3%) had fair knowledge and 5(2.9%) had poor knowledge of weaning, Table II.

Weaning practice

Majority of the index children were weaned at 6 months of age 121(69.9%) and were fed with pap majorly 114(65.9%). Most were fed 3-5x daily 129(74.6%) and fed at scheduled times 112(64.7%). Majority tolerated the complementary feeds given to them 132(76.3%) and were fed with plates/cup/spoon 161(93.1%). Most mothers always washed their hands before feeding their babies 166(96.0%). Breastfeeding was continued alongside weaning in most of the babies 168(97.1%) and breastfeeding stopped for most babies at ages ≤ 12 months 43 (50.6%). One hundred and six (61.3%) respondents had good weaning practice while 65(37.6%) and 2(1.1%) had fair and poor weaning practices respectively, Table III.

Reasons why mothers weaned babies before age 6 months

The commonest reason why mothers weaned their babies before age 6 months was breast milk not being enough 21(42.6%) followed by resumption at work 7(14.9%) and mother felt stressed up 7(14.9%) while the least reason was mother's illness/being HIV positive 2(4.2%), Figure 1.

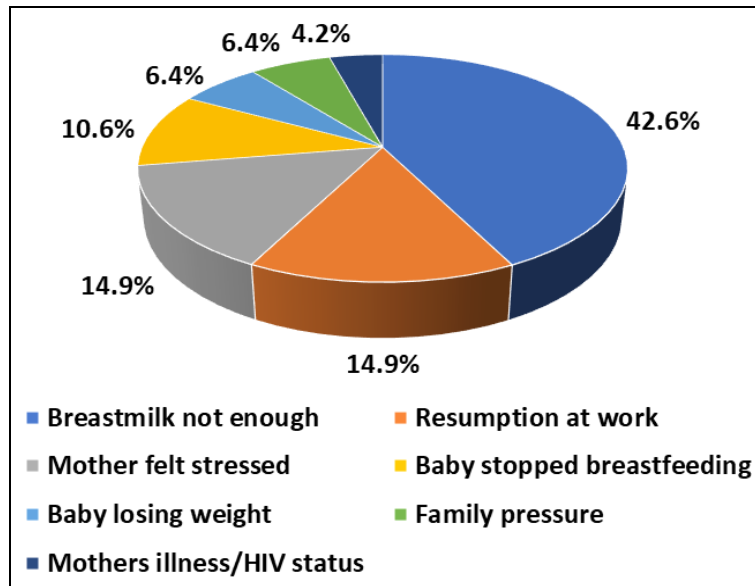


Fig 1: Reasons why mothers weaned babies before age 6 months

Reasons why mothers stopped breastfeeding before age 24 months

The commonest reason why mothers stopped breast feeding before 24 months was baby stopping breastfeeding on their

own 21(25.6%) followed by babies eating more of complementary feeds 20(24.4%) and work pressure 9(11.1%) while the least reason was sores on the breast 1(1.3%), Figure 2.

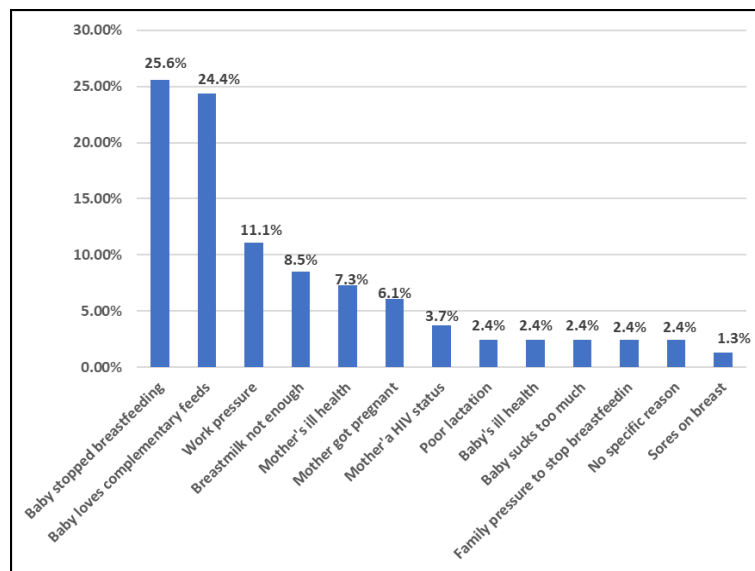


Fig 2: Reasons why mothers stopped breastfeeding before age 24 months

Association of sociodemographic characteristics and knowledge of weaning

There was significant association of the mother's occupation (P value = 0.003) and their level of education (P value < 0.001) with the level of knowledge of the mothers whereas mothers age, marital status and place of residence were not significantly associated with the level of knowledge of the mothers (P value > 0.05), Table IV.

Association of sociodemographic characteristics and the practice of weaning

There was significant association of sex of the index child (P value = 0.016) with the practice of weaning while mother's age, marital status, place of residence, mother's occupation and level of education were not significantly

associated with the level of practice of weaning (P value > 0.05), Table V.

Association between level of knowledge and the level of practice of weaning

There was no significant association between the level of knowledge and the level of practice of weaning (P value > 0.182), Table VI.

Discussion

About 63% of the participants in this study had heard of the word weaning as opposed to 100% of mothers in a study in Nepal [11] who had heard of weaning. Similarly, a lower percentage of mothers (43.9%) in our study, compared to 54.4% of mothers in the Nepal [11] study and 74% of

mothers in a Lagos study ^[12] defined weaning correctly. The reason for this disparity is not apparent, as most mothers in our study had attained tertiary level of education as observed in the other studies.

The World Health Organization infant and young child feeding (IYCF) policy ^[13] recommends that children should be weaned at 6-9 months. Mothers' knowledge of when weaning should be started is quite variable in different locations. While 92.6% of mothers in our study knew the appropriate age to commence weaning, it was quite lower among mothers in Lagos, Nigeria, (61.1%) ^[12] 59.8% in India, ^[14] 57.6% in Nepal ^[11] and only 23.7% among mothers in a Pakistan study. ^[15] Appropriate knowledge of the age at which weaning should be started is important as too early weaning and late weaning of babies results in malnutrition ^[3, 4].

The WHO IYCF policy also recommends the use of readily available home cereals and local foods for weaning as opposed to the use of commercially produced weaning foods ^[13]. The proportion of mothers who had this knowledge was comparable to the 94% reported among mothers by Khaliq *et al.* in Pakistan ^[15]. Other important factors to weaning is the knowledge of the appropriate recommended number of feeds per day needed for optimal growth and development of a child, in addition to the appropriate utensils needed for feeds ^[3, 4, 13]. While the recommended is the use of cup and spoons, some mothers use bottle feeding. This should not be encouraged as bottle feeding is associated with higher prevalence of diarrhoeal illnesses that could sometimes be fatal and also cause malnutrition ^[16, 17]. The knowledge of the appropriate utensils to be used in feeding babies observed in our study was comparable to that obtained in the Lagos study (82.5%) by Olatona *et al.* ^[12]

Maiti *et al.* ^[14] in India reported that 59.8% of mothers in their study knew that breastfeeding should be continued alongside weaning, a finding that is lower than the 90.1% reported by Saeed *et al.* in Egypt ^[1] and 98.3% observed in the present study. The observed difference in this awareness could be as a result of the fact that the studies were conducted in different geographical locations with different levels of exposure of the mothers to right sources of information.

In all, 83.8% of mothers in this study had good knowledge of weaning, which is comparable to 73% reported in Nepal ^[11] but much higher than 42% reported by Aina *et al.* ^[5] in Ogun State, Nigeria, 14.9% in Lagos, ^[12] and 20% reported by Ibrahim *et al.* ^[18] in Egypt. The differences observed in how knowledgeable mothers are about weaning in the different geographical areas is not surprising because the mothers are exposed to different kinds and amount of information in the different localities. It is also important to note that the questions used to assess knowledge of weaning in the different studies were not the same as researchers in the different studies asked questions that they deemed important to conclude that mothers were knowledgeable about weaning.

The timing of the initiation of the weaning process is quite variable in different climes and geographical distribution and is subject to the mother's knowledge, source of knowledge, educational status, and cultural beliefs among others ^[1-3]. About 54.6% of mothers in Pakistan ^[15] and 58.6% of those in India ^[19] initiated weaning at 6 months. They are however lower than the 69.9% of the babies who

were weaned at 6 months in our study. On the other hand, in other studies in Jodhpur, India ^[20] and Pakistan ^[21] 84.28% and 86% of mothers started weaning their babies at the age of 6 months respectively. Early and late initiation of the weaning processes has been associated with different forms of malnutrition and diarrhoea and as such should be discouraged ^[17, 22]. Adequate education and instructions given to mothers can change the story. In Cairo, Egypt, the proportion of mothers who could define weaning and the age at which a child should be weaned improved from 6% to 90% and 7% to 90% after they were educated by health care workers ^[18].

In our study, about 65.9% of babies received home-made pap, a semi solid corn gruel as their weaning food in contrast to 94% of babies that received home-made foods as reported by Khaliq *et al.* in Pakistan ^[15] In India, Maiti *et al.* ^[14] reported that commercial cereal (76.8%) was more commonly used as weaning food in contrast to 28.3% of babies in our study and 6% of babies in Pakistan ^[15] that received commercially made canned cereals. The use of commercially made canned cereals bothers on affordability in quantities required to supply the nutritional requirements necessary to achieve growth and development of the child. When this is lacking, as they are more expensive than home-made foods, malnutrition is inevitable.

Alongside the weaning process, it is imperative for mothers to continue to breastfeed their babies as the additional semi solid foods being given are not enough to meet the nutritional requirements of the babies ^[13]. In the study on complementary food practices among mothers in Lagos, Nigeria, Olatona *et al.* ^[12] noted that 75.3% of mothers continued breastfeeding alongside the weaning process, much lower than the 97.1% of the mothers that did so in our study. On the other hand, a lower proportion of women as reported by Maiti *et al.* ^[14] and Deepa *et al.* ^[20] in different studies in India, reported that 18.5% and 55.7% of mothers continued breastfeeding respectively while weaning their children. What the mothers practiced was a reflection of their knowledge. While in the Lagos study, about 72% of the mothers knew that breastfeeding should be continued while weaning their children, 98% of the mothers in our study were equipped with that information.

Equally important in the weaning process is food preparation, use of appropriate clean utensils and hand washing before and after food handling and feeding. It prevents food contamination and the associated diarrhoeal illnesses that comes with it. ^[23] While 96% of mothers washed their hands before feeding their children in our study, Khaliq *et al.* ^[15] reported that only 58% of the mothers in their study washed their hands before food preparation and feeding. This practice is not just dependent on knowledge but also dependent on the availability of clean water for hand washing in the household. Feeding children with plate and spoons is encouraged as these feeding utensils are easy to wash and less likely to be contaminated with infective organisms that can cause childhood illnesses. The use of feeding bottles on the other hand are discouraged because they are more difficult to wash and sterilize and their use has been associated with recurrent diarrhoeal disease in children that results in growth faltering and malnutrition ^[24]. A good percentage of children in our study were fed with cup and spoon which is comparative with similar practice by mothers in India ^[20].

The commonest reason attributed to weaning babies before

6 months of age was the mother's perception that their breast milk was insufficient for their babies and the need to return to work and the stress on the mother while exclusively breastfeeding the baby. These were also the common reasons given in other studies in Nigeria, [5,12] Brussels [25] and Brazil [26] These factors can be overcome by using members of breastfeeding support groups to assure mothers that their breast milk production is adequate for their babies, in addition to providing adequate family support system to enable mothers breastfeed. In addition, mothers can be encouraged to express their breast milk for their babies when they return to work [27].

In all, the proportion of mothers assessed to have good weaning practice in our study was higher than the 3% and 47% reported by Aina *et al.* [5] and Olatona *et al.* [12] in Nigeria, and 52% good practice in Nepal. [11] However, it is

pertinent to note that the criteria used to assess the weaning practice in different studies were not the same. While our study used 9 variables for assessment, Olatona *et al.* [12] used 11 variables and Bhujel *et al.* [11] in Nepal used 4 variables. Similar to our study, Olatona *et al.* [12] also reported that mothers with tertiary education significantly had better knowledge of weaning than those with primary and secondary levels of education. In contrast however, while their study also identified tertiary education as significantly associated with good practice, it wasn't so with our study. Rather the sex of the child was, as mothers with male babies significantly had good weaning practices compared to mothers with female babies. While the study didn't explore the reason for this practice, it may not be unrelated to gender preferences in the society.

Table 1: Socio demographic Characteristics of the Study Population

Variables	Frequency, n=173(%)
Age of index child (months)	
6-11	71 (41.0)
12-17	36 (20.8)
18-24	66 (38.2)
Sex of index child	
Male	110 (63.6)
Female	63 (36.4)
Mother's age (years)	
< 30	42 (24.3)
30-35	67 (38.7)
≥ 35	64 (37.0)
Marital status	
Married	171 (98.8)
Un-married	2 (1.2)
Region	
South-south	107 (61.8)
South-east	53 (30.6)
South-west	7 (4.1)
North	6 (3.5)
Place of residence	
Urban	146 (84.4)
Rural	27 (15.6)
Mother's occupation	
Civil/public	45 (26.0)
Trading/Business	73 (42.2)
Artisan	10 (5.8)
Professionals	12 (6.9)
Unemployed	33 (19.1)
Mother's level of education	
Primary	2 (1.2)
Secondary	35 (20.2)
Tertiary	136 (78.6)
Parity	
One	58 (33.5)
Two	61 (35.3)
≥ Three	54 (31.2)

Table 2: Knowledge of Weaning

Variables	Frequency, n=173 (%)
Has heard the word 'weaning'	
Yes (63.6)	110
No	63 (36.4)
Definition of weaning	
Correctly defined	72 (43.9)
Wrongly defined/No idea	92 (56.1)
Recommended time to wean	
Correct answer	151 (92.6)
Wrong answer/No idea	22 (7.4)
Recommended foods	
Correct answer	151 (92.6)
Wrong answer/No idea	22 (7.4)
Recommended number of feeds/day	
Correct answer.	150 (86.7)
Wrong answer/No idea	23 (13.3)
Utensils for weaning	
Correct answer.	164 (94.8)
Wrong answer	9 (9.2)
Any health hazards associated with poor weaning?	
Yes (90.8)	157
No	16 (9.2)
Health hazards associated with poor weaning, n=157	
At least 1 correct answer	137 (87.3)
Wrong answer	20 (12.7)
Knowledge of continuing breastfeeding alongside weaning	
Yes	170 (98.3)
No	3 (1.7)
Right time to stop breastfeeding	
Correct answer (24months or more)	113 (65.3)
Wrong answer/No idea	60 (34.7)

Table 3: Weaning practice

Variables	Frequency, n=173 (%)
Age index child was weaned (months)	
< 6	47 (27.2)
6	121 (69.9)
> 6	5 (2.9)
Type of food used for weaning	
Pap (fortified)	114 (65.9)
Canned cereals	49 (28.3)
Adult feeds (mashed/puree)	10 (5.8)
Number of times baby is fed/day	
< 3	10 (5.8)
3-5	129 (74.6)
≥ 6	34 (19.6)
How child is fed	
At scheduled time	112 (64.7)
On demand	61 (35.3)
Child tolerated complementary feeds	
Yes	132 (76.3)
No	41 (23.7)
Utensils used for feeding	
Plates/cup/spoon	161 (93.1)
Feeding bottles	10 (5.8)
Both	2 (1.1)
Always washed hands before feeding	
Yes	166 (96.0)
No	7 (4.0)
Continued breastfeeding alongside weaning	
Yes	168 (97.1)
No	5 (2.9)
When breastfeeding was stopped (months), n=85	
≤ 12	43 (50.6)
13-23	38 (44.7)
≥ 24	4 (4.7)

Table 4: Association of sociodemographic characteristics and knowledge of weaning

Variables	Knowledge level		P value
	Good, n=145 (%)	Fair/Poor, n=28 (%)	
Mother's age group (years)			
< 30	35 (24.1)	7 (25.0)	
30-35	55 (37.9)	12 (42.9)	0.867
> 35	55 (37.9)	9 (32.1)	
Marital status			
Married	143 (98.6)	28 (100.0)	1.000
Unmarried	2 (1.4)	0	
Place of residence			
Urban	123 (84.8)	23 (82.1)	0.776
Rural	22 (15.2)	5 (17.9)	
Mother's occupation			
Civil/Public servants	44 (30.4)	1 (3.6)	
Trading/Business	58 (40.0)	15 (53.6)	0.003*
Artisan	6 (4.1)	4 (14.3)	
Professionals	12 (8.3)	0	
Unemployed	25 (17.2)	8 (28.6)	
Mother's level of education			
Primary	0	2 (7.1)	
Secondary < 0.001*	24 (16.6)	11 (39.3)	
Tertiary	121 (83.4)	15 (53.6)	
Sex of index child			
Male	94 (64.8)	16 (57.1)	0.521
Female	51 (35.2)	12 (42.9)	

*Statistically significant

Table 5: Association of sociodemographic characteristics and the practice of weaning

Variables	Practice level		P value
	Good, n=106 (%)	Fair/Poor, n=67 (%)	
Mother's age (years)			
< 30	24 (22.6)	18 (26.9)	
30-35	40 (37.7)	27 (40.3)	0.663
> 35	42 (39.6)	22 (32.8)	
Marital status			
Married	106 (100.0)	65 (97.0)	0.149
Unmarried	0	2 (3.0)	
Place of residence			
Urban	90 (84.9)	56 (83.6)	0.832
Rural	16 (15.1)	11 (16.4)	
Mother's occupation			
Civil/Public servant	23 (21.7)	22 (32.9)	
Trading/Business	50 (47.2)	23 (34.3)	
Artisan	8 (7.5)	4 (6.0)	0.399
Unemployed	20 (18.9)	13 (19.4)	
Mother's level of education			
Primary	0	2 (3.0)	
Secondary	20 (18.9)	15 (22.4)	0.185
Tertiary	86 (81.1)	50 (74.6)	
Sex of index child			
Male	75 (70.8)	35 (52.2)	0.016*
Female	31 (29.2)	32 (47.8)	

*Statistically significant

Table 6: Association between level of knowledge and the level of practice of weaning

Variables	Level of practice			P value
	Good, n=106(%)	Fair, n=65(%)	Poor, n=2(%)	
Level of knowledge				
Good	93 (87.7)	50 (76.9)	2 (100.0)	
Fair	12 (11.3)	11 (16.9)	0	0.182
Poor	1 (0.9)	4 (6.2)	0	

Conclusion

The level of awareness of weaning by the mothers attending the pediatric outpatient clinic of the Rivers State University

Teaching Hospital was good but still leaves room for improvement especially in the definition of weaning. This study also found that good weaning practice among the

participants was sub optimal when compared to their level of knowledge. About a third of the mothers weaned their babies before six months and many stopped breastfeeding too soon. These hindrances to optimal weaning practices can be mitigated by providing appropriate weaning education to mothers and the public. In addition, the contribution of community support groups in providing complementary support systems to mothers at home will go a long way in improving weaning practices.

Acknowledgement

We acknowledge the research assistant, nurses in the pediatric outpatient clinic, non-clinical staff and the mothers who gave consent to participate in the study.

Conflict of interest

We declare no conflict of interest.

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