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Breastfeeding and Weaning Practices in an Urban Slum, North Western Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author MOO designed the study, wrote the protocol, and field tested the data collection tools. Author ASU managed the literature searches, performed the statistical analysis, and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

Research Article

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ABSTRACT

Aims: The aim of the study was to determine the pattern and factors influencing exclusivebreast feeding and weaning practices in a homogenous urban slum.
Study Methods: The study was a descriptive cross-sectional among 143 mother-child pairsusing a combination of simple and systematic sampling methods. Interviewer administered questionnaire was used to obtain information on pattern of breastfeeding, weaning and weaning foods.
Results: The ages of the mothers ranged from 13-41 years while the infants were aged 0-26 months. Breastfeeding was initiated by 83 mothers within 30 minutes of delivery and the main reason for delayed initiation of breastfeeding was the belief that colostrum was dirty 99(69.2%). only 32 (22.3%) of the mothers commenced weaning before the age of 4 months mainly on pap made from corn or millet.Out of the 143 respondents, only 46 (32.2%) practiced exclusivebreast feeding. There was a statistically significant relationship (P=0.006) between the age ofthe respondents' and the practice of EBF as the mothers who were more than 30 years of agewere more likely to practice EBF compared to those younger than 30 years. However, the level of education andoccupation of the mothers had no significant bearing on the practice of EBF.
Conclusion: The practice of exclusive breast feeding is low and is influenced by socialdeterminants that need to be addressed by policy makers. Risk factors for early

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weaning should be identified and appropriate interventions put in place.

Keywords: Breast feeding; weaning; practices; urban slums.

1. INTRODUCTION

For almost all infants, breastfeeding remains the simplest, healthiest and least expensive feeding method that fulfils the infants' needs [1]. The health benefits of breastfeeding to both mother and infant have been well documented. It has been observed that infants aged 0–5 months who are not breastfed have seven-fold and five-fold increased risks of death from diarrhoea and pneumonia, respectively, compared with infants who are exclusively breastfed [2].

At the same age, non-exclusive rather than exclusive breastfeeding results in more than two-fold increased risks of dying from diarrhoea or pneumonia with higher risk among 6–11-month-old infants [3].

The United Nations Children's Fund (UNICEF) has estimated that exclusive breastfeeding in the first six months of life can reduce under-five mortality rates in developing countries by 13% [4].Despite the strong evidences in support of exclusive breast feeding (EBF) for the first six months of life, its prevalence has remained low [5] due to large variety of beliefs and traditions related to breastfeeding in many parts of the world [6,7,8,9,10]. According to the WHO, exclusive breastfeeding for the first 6 months of life and continued breastfeeding with the addition of complementary feeding for up to 2 years of age and beyond is sufficient form aintaining a child's health status [3].The transitional period from breastfeeding to adult diet (weaning period) is usually associated with a number of concerns and problems in developing countries. The major concerns are what foods should be given to the child, how and when they should be given [11]. In developing countries, the age at introduction of weaning foods is of public health importance because of the risk of diseases, particularly diarrhoeal diseases from contaminated weaning foods and the risk of growth faltering and malnutrition from delayed weaning [12]. In the study area, although several studies have been carried on the pattern of breast feeding amongst mothers, [13,14] no study had addressed the problems associated with weaning. The age at introduction of weaning foods varies and is influenced by traditions of different ethnic populations, urbanization and the socio-economic status of households. The objective of this study is to determine the pattern and factors influencing EBF and weaning practices in a homogenous urban slum of Sokoto. It is therefore hoped that the results of this study will add to existing knowledge on breastfeeding and appropriate weaning practices in our communities.

2. METHODOLOGY

This was a descriptive cross-sectional study carried out in Helele settlement – a homogenous local population in Magajin Gari ward of Sokoto town, Nigeria. The study population comprised of women who were currently breastfeeding or had stopped breastfeeding not later than one year ago (inclusion criterion) and has estimated women of child bearing age of 1, 694 [15]. The main indigenous tribe in the area is Hausa with Islam as the main religion. Farming and petty trading are the main pre-occupation of the inhabitants. Using the formula for cross-sectional studies [16] and EBF prevalence of 13% [17], a sample

size of 143 was determined. Six Research assistants (RAs) were trained on the objectives and instruments of the study.

House numbering was done by the RAs. Using a combination of simple and systematic sampling methods, 143 mother-child pairs were selected after a random selection of the first house. All the respondents agreed and participated in the study. In a house without eligible women, the next house was chosen and where there are 2 or more eligible mother-child pairs in a selected house, a pair was selected by simple random sampling using the balloting technique. Each respondent in a house was given a tag carrying the house number for easy identification in case of missing information on the questionnaire. Data was collected using a set of pre-tested interviewer administered questionnaire which had both open and closed ended questions. The questionnaire sought information on socio-demographic characteristics such as age, occupation and educational status; pattern of breast feeding, weaning and weaning foods amongst others. RAs made concerted efforts in getting reliable information from respondents including equating dates with annual or special events such as local festivities. Data was entered into and analysed using EPI-Info version 3.4.1 computer software program and Microsoft office Excel 2010. There was cross tabulation of variables with level of statistical significance set at 95% confidence interval.

3. OPERATIONAL DEFINITIONS

3.1 Exclusive Breast Feeding (EBF)

The practice of feeding only breast milk, including expressed breast milk to infants and excluding water, other liquids, breast milk substitutes, ORS and medicines may be given.

3.2 Prelacteal Feeds

Feedings that are given to the infant before they are put to the breast for the first time.

3.3 Weaning

Transition from breastfeeding to adult diet.

3.4 Weaning Food

Any food items including water given at the age of six months.

3.5 Correct Weaning

Additional food given at 6 months.

3.6 Early Weaning

Foods given in addition to breastfeeding before the age of 6 months.

3.7 Delayed Weaning

Additional food given after 7 months.

3.8 Formal Education

Ability to read and write in English under a conventional school system.

3.9 Ethical Considerations

The study was approved by the Ethical committee of the Usmanu Danfodiyo University Teaching Hospital, Sokoto and verbal informed consent obtained from respondents after78 explaining the purpose of the study to them and could opt out if they so wished.

4. RESULTS

One hundred and forty three questionnaires were correctly filled and returned (100% response rate). Findings from this study showed that the ages of the respondents ranged from 13 – 41 years, majority 71(49.7%) between 23-32 years with a mean age of 28.6±4 years. A total of 48 (33.6%) of the respondents had formal education. Majority, 90 (62.9%) were full time housewives and were all of the Islamic faith. The ages of the infants ranged from 0-26months (Table 1).

Table 1. Socio-demographic characteristics

Variable	No (%)
Maternal age (yrs)	
13-22	28 (19.6)
23-32	71 (49.7)
≥33	44 (30.8)
Educational status Formal	
Primary	29 (20.3)
Secondary	15 (10.5)
Tertiary	4 (2.8)
Non-formal	
None	51 (35.7)
Arabic only	44 (30.8)
Occupation	
Full time house wife	90 (62.9)
Civil servant	15 (10.5)
Business	38 (26.6)
Age of index child (months)	
0-6	66 (46.2)
7-12	40 (28.0)
13-18	18 (12.6)
19-24	8 (5.6)
≥24	11 (7.7)

On the breastfeeding practices of the mothers, a total of 83 (58.0%) initiated breastfeeding less than 30 minutes after delivery while 60 (42.0%) did so after 30 minutes (Table 2). The main reason for delayed initiation of breastfeeding was the belief that colostrum was dirty (Table 3). Out of the 143 respondents, only 46 (32.2%) practiced EBF (Table 2). There was a statistically significant relationship (P=0.006) between the age of the respondents' and the practice of EBF as the mothers who were more than 30 years of age were more likely to

practice EBF compared to those younger than 30 years (Table 6). However, the level of education and occupation of the mothers had no significant bearing on the practice of EBF (Table 6). Concerning their main source of information about breastfeeding, 61% of the mothers mentioned friends and relatives, 30% cited health workers, while only 9% of them named the media including radio and television. Almost all the mothers 141(98.6%) used different forms of galactologues including spicy foods, leaf extracts and pap mixed with potash to enhance milk production and out flow. Only 28 (19.6%) of the mothers who were mainly civil servants or doing business timed their babies' feeding, 115 (80.4%) breastfed on demand, while 123 (86%) breastfed at least eight times in 24 hours. All the mothers in our study slept in the same room (Rooming in) with their babies, however, only sixty one (42.7%) of the mothers slept on the same bed with their babies.

Table 2. Feeding practices

Variable	No (%)
Initiation of breastfeeding	
<30minutes	83 (58.0)
30min-6hours	24 (16.8)
>6hours-24hours	10 (7.0)
>24hours	26 (18.2)
Exclusive breastfeeding	46 (32.2)
Age stopped breastfeeding infants (months)	
0-5	1 (0.7)
6-10	2 (1.4)
11-15	5 (3.5)
16-24	33 (23.1)
>24	102(71.3)
Age at weaning (months)	
<4	32 (22.4)
4-6	65 (45.5)
≥7	46 (32.2)

Table 3.Reasons for late initiation of breastfeeding

Reasons	No **(%)**
Colostrum dirty	60 (42.0)
Insufficient breast milk	36 (25.2)
Mother's illness	25 (17.5)
Child's illness	12 (8.4)
No reasons	6 (4.2)
No response	4(2.8)

Out of the 143 study subjects, only 32 (22.3%) commenced weaning before the age of 4 months, 65 (45.5%) between 4-6 months with only 28 (19.6%) practicing weaning at 6 months (Table 2). Among the reasons adduced for weaning are breast milk not sufficient (42.0%), child refused to suck (10.5%) and child old enough to eat family diet (34.3%) (Table 4).Weaning diets given to babies included pap made from corn or millet, pap mixed with formula milk or animal milk, animal milk alone, formula milk and family diet (Table 5). Majority, (75%) used forced feeding while administering the weaning diets to the babies while only a few, (25%) used cup and spoon. Most, 35.4% of the mothers with formal education practiced early weaning followed by 31.3% who practiced late weaning. On the

other hand, more than half, 51.6% of the mothers with no western education practiced normal weaning while 32.6% practiced late weaning. The relationship between the educational status of the mothers and their weaning practices was not statistically significant (P=0.198) (Table 7). A total of 26.5% of the mothers, who initiated breast feeding less than 30 minutes after delivery, practiced early weaning compared with 16.7% mothers who initiated breastfeeding later than 30 minutes. Similarly more than half, 55% of the mothers who initiated breastfeeding more than 30 minutes after delivery practiced normal weaning compared with 38.6% who initiated breastfeeding less than 30 minutes. The relationship between time of initiation of breast feeding and weaning practices was found not to be statistically significant (P=0.132) (Table 8). Only one child stopped breastfeeding before the age of six months as a result of onset of a new pregnancy, 33 (23.1%) stopped between 16-24 months while majority, 102 (71.3%) did so after 24 months. Majority, (61%) of the mothers stopped breast feeding on their own initiative, 15% based on advice from other people and in only11% that the babies stopped on their own. For most mothers (51%) when breastfeeding was to be discontinued, the babies were usually taken either to a co-wife, mother, grandmother or a close relation of the mother of the baby. The use of feeding bottles was not popular among the mothers in the studied community and none of the mothers used pacifiers for their babies.

Table 4. Reasons for weaning

Reasons	No **(%)**
Breast milk not sufficient	60 (42.0)
Mother feels like doing so	41 (28.7)
Mother sick	17 (11.9)
Mother's work	28 (19.6)
Child refused to suck	15 (10.5)
Advice from the hospital	6 (4.2)
Child old enough.	49 (34. 3)

**multiple answers allowed*

Table 5. Weaning diets

Diets	**No (%)**
Plain pap	38 (26.6)
Pap with milk	15 (10.5)
Animal milk	42 (29.4)
Formula milk	21 (14.7)
Family diet	23 (16.1)
Others	4 (2.8)

Table 6. Socio-demographic characteristics of mothers influencing the practice of EBF

Variable	Practice of EBF		Test statistic
	yes	No	
Level of education			
Formal	14	34	X^2=0.127; df=1; P=0.72
Non formal	32	63	
Age (years)			
<30	20	67	X^2=7.54; df=1;P=0.01
≥30	26	30	
Occupation			
Full time house wife	30	60	X^2=0.041;df=1;P=0.89
Civil servant/Business	16	37	

Table 7. Educational status of mothers and weaning practices

Educational status	Weaning practices			
	Early	Late	Normal	Total
Formal	17	15	16	48
Informal	15	31	49	95
Total	32	46	65	143

X^2=7.84; df=2; P=0.0198(significant)

Table 8. Time of Initiation of breastfeeding and weaning practices by mothers

Initiation of breast feeding	weaning practices (n)			
	Early	Late	Normal	Total
<30min	22	29	32	83
≥30min	10	17	33	60
Total	32	46	65	143

X^2 =4.05; df=2; P=0.12

5. DISCUSSION

The Baby friendly Hospital Initiative (BFHI) was designed to promote early initiation of breast feeding, preferably immediately after birth. In this study, more than half (58%) of the mothers initiated breastfeeding immediately after birth. The proportion of mothers who initiated breastfeeding after birth in our study was higher than the observed figure among Japanese women [18], but lower than 88.6% observed in the study from North Jordan [19,20]. This might not be unrelated to the differences in the local cultural beliefs and practices that exist in these countries and is unlikely due to religious beliefs since in both studies the participants are Muslims. Early contact with the baby immediately after birth promotes a closer relationship between a mother and her baby and has been found to give the mother a strong sense of satisfaction [18]. Moreover, previous studies have emphasised the risk of delayed initiation of breastfeeding on neonates in sub-Saharan Africa and showed that neonatal mortality could be significantly reduced by 16% if the mothers started breastfeeding on day one and by 22% when breastfeeding was initiated within the first hour [21,22]. For the

mothers who initiated breastfeeding later than 30 minutes, the commonest reason for late initiation was the perception that colostrum was dirty and therefore harmful to the new born (69.2%). Although, breast feeding is a universal practice, there are cultural aspects that vary considerably about Colostrum which is secreted for the first 2 days. . Most mothers, who cannot wait for the few days that the 'clean and safe milk' is expected, resort to expressing the milk and discarding same. These practices are often upheld and enforced by aunts, mother's in-laws and other elderly women or relatives in the family. These beliefs and practices are also reported among the Yoruba's of South western Nigeria [23,24], different parts of India [25,26] and in Turkey [9,10]. Whereas, current evidence shows that colostrum contains immunoglobulin's, lactoferrin and lysozymes which may help reduce and protect against neonatal septicaemia, diarrhoea, and acute respiratory infections, thus reducing infant mortality rates [27].

In contrast to the findings in our study, Bhardwaj, et al., [28] observed that the commonest reason for not giving colostrum was religious belief (63.6%) followed by reasons that it was thick (12.8%). This wrong belief about the use of colostrum in our communities' underscores the need for continuous awareness creation among mothers as their unwillingness to use it will deny their children the immunological constituents of colostrums. The mothers in our study while awaiting the establishment of "clean and safe milk" gave such prelacteals in the form of animal milk, boiled water, boiled leaf extracts, washings from Quranic inscriptions on a slate and sometimes honey. The leaf extracts and washings from Quranic inscriptions on the slate are believed to be medicinal as they cleanse the abdomen of dirt associated with meconium. However, there is the need for studies to assess the health implication of these practices. The processes of collection and storage of these prelacteals might lead to contamination of the animal milk with pathogenic organisms resulting in diarrhoea and eventual malnutrition. Although breastfeeding is universal among Hausa women, the exclusive breastfeeding (EBF) rate at 6 months was practised by a third of the respondents. The low EBF rate observed in this study may not be unrelated to the fact that most of the mothers delayed initiating breastfeeding immediately after birth and resorted to the use of prelacteal feeds. The EBF rate obtained in this study was high compared to the Nigerian national average of 17% [17], 22.2% in rural Jamaica [29], 1.5% in North east Brazil [30]. In rural communities of south western Nigeria, exclusive breastfeeding is considered dangerous to the infant who is thought to require water to quench thirst and promote normal development [31] and in a related study from the slums of Diyarbakir, Turkey, it was observed that none of the mothers exclusively breastfed her infants [10]. There was a statistically significant relationship between the age of respondents and those younger than 30 years of age (P=0.01). Female education has severally been described as one of the strongest determinants of the practice of EBF [32], however, our findings indicated that the level of education and occupation of the mothers had no significant bearing on the practice of EBF.

Almost all the mothers (98.6%) in this study agreed to the consumption of certain preparations to enhance milk production and flow. These "galactologues" which have a long and respected history amongst Hausa women includes gruel made with potash (*kununkanwa*), bitter leaf soup (*miyanshuwaka*) which is an extract of "*vernoniaamygdalina*" and sometimes spicy foods. However, these substances have not been subjected to any scientific evaluation and therefore raise the need for future studies. Our findings revealed that feeding on demand was highly practiced 247 (80.4%). In a related study from another community similar to the study area, [13] observed that all the women in their study practiced on demand feeding as observed in another study [33]. This practice of on demand feeding is

equally common among the Yorubas of South western Nigeria [23,24], Idoma and Tiv women of north Central Nigeria [33,34] and Yemen [35].

Breastfeeding alone is sufficient for the growth and nourishment of the child for the first six months of life and WHO has recommended that other foods and fluids before the age of six months is not necessary [36]. Findings from our study revealed that only 22.4% of the mothers commenced weaning before the age of four months (early weaning). Early weaning has been reported from several studies [9,21,35]. Weaning early in age is harmful in many ways as food and water if not well processed could harbour pathogenic microorganisms resulting in diarrhoea. Studies have found poor nutritional status to be significantly associated with earlier complimentary feeding and early weaning has been reported to be a cause of anaemia in the first year of life [11]. Among the reasons given by mothers for practicing early weaning was insufficient breast milk. This is consistent with findings from Tehran [7]. Among the Hausa women of the study area, there is a strong and widely held belief about insufficient milk and hence the need to commence complimentary feeding. In this study, 19.6% of the mothers practiced normal weaning only commencing weaning diets at 6 months of age. Cereal Pap (*kunu*) made from corn (maize, *zea mays), guinea corn (sorghum) or* millet (*pennisetumtyphoides*) usually prepared by the mothers themselves was the most common weaning food given to the infants. Majority gave it plain while a few others mixed it with animal or formula milk. This finding is similarly observed across different regions of Nigeria [11,33,34]. The commonest mode of administering the pap was by forced feeding which exposes the infant to aspiration of the food into the respiratory tract.

In our study only one child stopped breastfeeding before the age of six months as a result of onset of new pregnancy. It is the general belief of the Hausa women in the study area that when a breastfeeding woman becomes pregnant, she has to discontinue breastfeeding as the “new milk” will cause diarrhoea and thus growth faltering (*shanciki*). Similar belief was reported among the Yoruba’s of South western Nigeria that pregnant women were not expected to breastfeed [31]. The use of feeding bottles by the mothers in our study was not common as only a few who were either civil servants or business women used the bottles. This practice was also found among Idoma and Tiv women in north central Nigeria [33,34],Yemen [35] and Ethiopia [21]. The use of such bottles could be vehicles for the transmission of pathogenic micro-organisms and should as much as possible be discouraged in our environment.

6. CONCLUSION

Strategies that are aimed at promoting EBF and weaning practices must be developed based on social determinants that influence the observed practices and periodic surveys to assess these determinants for reprogramming.

CONSENT

Authors declare that all the respondents agreed and participated in the study.

ETHICAL APPROVAL

Permission was soughed from the State Ministry of Health. The participants were adequately informed on the objectives of the study and their informed consent was sought.

LIMITATIONS OF THE STUDY

One of the challenges faced by the RA's was the possibility of inadvertent withholding of information by some mothers.

COMPETING INTEREST

Authors have declared that no competing interests exist.

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