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## **Perception and practices of breastfeeding of infants 0-6 months in an urban and a semi-urban community in Pakistan: a cross-sectional study**

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### **Abstract**

**Objective:** To investigate mother's perception and practices about breastfeeding and their socio-demographic correlate in infants equal to or less than 6 months.

**Methods:** A cross-sectional study was carried out on 200 mother-infant pairs who visited the health care centers, Bilal Colony (semi-urban) and the Aga Khan University (urban), for their well baby follow-ups and vaccination using convenient sampling. Frequencies and percentages were computed and Chi-square was used to find associations between socio-demographics of mothers and their perception and practices about breastfeeding.

**Results:** Exclusive breastfeeding was reported by about 54% of the mothers. Thirty-five percent of the mothers gave prelacteal feed, 14% discarded colostrum and 43% woke up their infant to feed if time had exceeded 2 hours. Majority of the females were aware of the advantages (92%) and the disadvantages (85 %) of breastfeeding. However, the awareness of positive feedback relationship of milk production and sucking was lacking and breast feeding was considered to cause weakness in mothers.

**Conclusion:** Despite the efforts of health policy makers, the results show a situation that is not improving. Women were aware of the advantages and disadvantages of breast and bottle feeding but a disparity was observed between their perception and practices.

**Keywords:** Exclusive breastfeeding, demographic factors, prelacteal feeding, colostrums, supplemental feeding, Karachi, Pakistan (JPMA 61:99; 2011).

### **Introduction**

Breastfeeding reduces the risk of malnutrition and common infectious diseases in children, which are the leading causes of infant mortality in developing countries.<sup>1</sup> According to the UNICEF report (2006) the infant mortality of Pakistan stands at 78/1000 which is still one of the highest in the world.<sup>2</sup> The diseases that are contributing to such a high rate are mostly infectious diseases like pneumonia and diarrhoea. Breastfeed is known to contain antibodies and a variety of nonspecific defense factors that adds to its antimicrobial effect.<sup>3</sup> Increasing the prevalence of exclusive breastfeeding may be an important step toward reaching the Millennium Development Goal of reducing Infant Mortality to 52/1000 by the year 2015.

The World Health Organization (WHO) and UNICEF unanimously recommend feeding babies aged 0-6 months exclusively with breast milk, starting weaning only after the sixth month and breastfeeding until the baby is two years old. This fact is widely acknowledged in Pakistan but unfortunately practice seems to be limited as shown by the UNICEF report which states the rate to be at 16%.<sup>2</sup> Not only lack of Exclusive Breastfeeding (EBF), but certain other unsafe practices like prelacteal feeds and discarding

colostrum are deeply rooted in our culture.

Pakistan, being a developing country, is undergoing urbanization, giving rise to many semi-urban communities which are a subset of areas which have not attained the urban status and are in process of it. Their sociodemographics are a blend of both the urban and rural characteristics. Literacy rate and economic status are both on a rise as compared to rural but are significantly less as compared to an urbanized community. Therefore in order to predict future infant-feeding practices in rural communities undergoing the urbanization, research should focus on knowledge of infant-feeding practices in such semi-urbanized communities. Various studies have been done to assess the prevalence of EBF practices<sup>4-6</sup> but data comparing the EBF culture in semi-urban and urban settings is limited. Furthermore it is important to update ourselves on perception and practices of mothers since the "Baby Friendly Hospital" initiative was adopted in a number of hospitals in Karachi. The Baby Friendly Initiative is a joint programme of the WHO and UNICEF, established in 1992 to encourage maternity hospitals to implement the Ten Steps to Successful Breastfeeding.<sup>7</sup>

With this background, this cross sectional study was

undertaken to evaluate the perception and practices regarding breastfeeding in Karachi, Pakistan.

## Subjects and Methods

The design of the study was interview-based cross-sectional survey. Two hundred infant-mother pairs were included with the convenience sampling method. All the infant-mother pairs visiting the later mentioned centers were included in the study if they fulfilled the inclusion criteria. The minimum number of participants required for inclusion in the sample group was calculated as 200, based on the 16 % prevalence of Exclusive breast feeding (EBF) (our main outcome) in Pakistan according to UNICEF (2006) and a confidence interval of 95% ( $\alpha = 0.05$ ).

$$\text{Sample Size} = Z^2 \times p \times q / d^2$$

$$Z = \text{Confidence level (1.96)}$$

$$p = \text{Prevalence (0.16)}$$

$$q = 1 - p = (0.84)$$

$$d = \text{sample error (0.05)}$$

The study was conducted on mother and infant pairs who visited Mother and Child Centre (MCC), Bilal Colony (Semi urban area) and the Aga Khan University Hospital (AKU), (Urban area). Bilal Colony mainly comprises of population belonging to lower socio-economic status, while visitors to AKU belong to intermediate to higher socio-economic status. Official permission was obtained from the administration of both the centers to carry out the interviews. The participants were selected from mothers who visited the healthcare facility for well-baby follow-up and immunization of their infants. Sample of 200 was divided equally between the two centers.

Mothers having delivered a single, full-term and appropriate for gestational age baby were included in the study while neonates who were admitted to the hospital or intensive care units were excluded. The duration of the study was from 21st November, 2007 to 2nd February, 2008.

Interviews were conducted from mothers after taking verbal consent. Mothers could choose to be interviewed in either English or Urdu by study personnel who were trained in conducting interviews prior to the study. The questionnaire contained questions related to socio-demographic information on the women and the independent variables of the study. The independent variables were selected on the basis of literature review and clinical experience.

The questionnaire was divided into 3 parts.

The first part dealt with the socio-demographic profile of the participants. Second part consisted of the breastfeeding practices which included questions on exclusive breastfeeding, prelacteal feeding, early initiation, frequency and duration of breastfeeding, colostrum feeding, and

whether or not infant is woken up to be fed if time has exceeded 2 hours. Third part included questions on mother's perception on advantages and disadvantages of breastfeeding and bottle feeding and whether they understood the concept of positive feedback of suckling reflex. It also assessed views regarding the influence of diet on milk production and if breastfeeding leads to weakness in mothers.

## Variables included:

- ◆ **Prelacteal feeding:** Giving the infant feeds or fluids before initiating breastfeeding after birth.
- ◆ **Early initiation of breastfeeding:** Starting breastfeeding within 1 hour of infant's birth.
- ◆ **Exclusive breastfeeding:** No drinking water or herbal water or any other fluids/feeds having been given to the infant within the first 6 months since birth or the time limit noted.
- ◆ **Colostrum:** Thin, yellow milky fluid secreted by the mammary glands just before or after parturition.

Analysis was done using the Window's software SPSS version 11.00 (SPSS 2001). Frequencies were computed to describe demographic characteristics of the entire sample. The biodemographic data of the study consisted of the mother's education, employment status, number of children breast fed; the baby's age (in months), gender, place of delivery and whether delivery was carried out by a doctor, trained midwife or dai (local midwife). The variable of education was dichotomized into two groups, educated and uneducated. Mothers with no formal education were considered uneducated while mothers with primary schooling and above were grouped as educated.<sup>8</sup> The relationship between the dependent and independent variables was studied using the Chi-square test and the student's t-test. A probability of  $P < 0.05$  was considered statistically significant.

## Results

There were 200 interview-based questionnaires filled, of which 4 were excluded from the MCC data due to insufficient information, making the total sample of 196. Thirty five percent of the sample did not have any formal education and only nine percent of the females were employed. Most of the infants were under three months of age (61%), male (60%) and delivered in hospital (77%) under the supervision of a doctor (72%). Table-1 describes the socio-demographic characteristics and differences observed between the two groups. As expected the two groups differed significantly in sociodemographics.

Exclusive breastfeeding was practiced by 54% of the mothers in total. A significant difference was observed between the two groups in the practice of exclusive breastfeeding, which was more in MCC (61%) in comparison to AKU (47%) ( $P = 0.032$ ) (Table-2). Commonly observed

**Table-1: Socio-demographic characteristics of the study participants.**

		Total (n)	MCC n (%)	Area AKU n (%)
None		67	63(64.5)	-4
Class I-V		24	20(21.8)	-4
Education* Class VI-VII		5	5(5.3)	0
Class IX-X		28	6(6.4)	-22
Class XI-XII		8	0(0.0)	-8
Graduate		64	2(2.2)	-62
Employed*	Yes	21	5(5)	16(16)
	No	175	91(95)	84(84)
Number of children	0-1	64	19(19)	45(45)
	1-2	44	22(23)	22(22)
	2-3	35	16(17)	19(19)
Breast feed <sup>Ⓜ</sup>	3-4	20	15(16)	5(5)
	> 4	33	24(25)	9(9)
	0-1	43	24(25)	19(19)
Age of the Infants 3-4 (months)	1-2	38	14(14.6)	24(24)
	2-3	38	19(19.8)	19(19)
	4-5	28	13(13.5)	15(15)
	5-6	19	9(9.3)	10(10)
		30	17(17.7)	13(13)
Sex of the Infant	Male	119	61(63.5)	58(58)
	Female	77	35(36.5)	42(42)
Place of birth of the Infant*	Home	45	41(42.7)	4(4)
	Hospital	151	55(57.3)	96(96)
Delivery of the infant assisted by*	Dai	40	38(38.5)	2(2)
	Doctor	141	43(44.8)	98(98)
	T. Midwife	15	15(15.6)	0(0)

\*P-value < 0.001; <sup>Ⓜ</sup>P-value = 0.001.

supplemental feed was formula milk (88.2%) in AKU, while Cow/Goat milk (42%) and formula milk (35%), both were common in MCC. The most common reason given by mothers for giving supplemental feed was insufficient breast milk in both the groups (65%).

The practice of prelacteal feed was observed in 35% of the mothers and 85% fed colostrum to their infants. Sixty eight percent of the females gave breastfeed to their infants optimal times a day which is more than or equal to eight. Most of the women woke up their infants to feed if the time exceeded two hours as is recommended. On comparative analysis, significant differences were observed between the two groups. Prelacteal feed was more common in MCC (51%) as compared to AKU (20%) (P= <0.001). Commonly observed prelacteal feed was Honey (40%) in both MCC and AKU. The second most common was Ghutti (24%), which was only found in MCC. Out of the mothers who gave their babies prelacteal feed, 62% had delivered at home and 27% at the hospital. Another protective factor against prelacteal feed was delivery of the infant done by a doctor as compared to a trained midwife or a dai. Educated mothers were observed to give less prelacteal feed as compared to uneducated mothers. Colostrum was discarded mostly by mothers in MCC (25%) as compared to AKU (4%). Fifty-three percent of MCC and 34% of AKU mothers woke their children up to feed at night if the time exceeded 2 hours. There was no significant difference between the two groups in the early initiation of

**Table-2: Demographic factors affecting infant feeding practices.**

Demographic Factors	Colostrum Feed n (%)	Prelacteal Feed n (%)	Exclusive Breastfeeding n (%)	Initiated Breastfeeding Early n (%)	Optimal times Breastfeed in a day (≥ 8) n (%)	Infant is woken up if time has exceeded 2 hrs n (%)
Area Of Residence						
MCC (N = 96)	72 (75) ¥	49 (51) ¥	59 (61) Ⓜ	49 (51)	62 (71)	51 (53) €
AKU (N = 100)	96 (96)	20 (20)	47 (47)	57 (57)	70 (71)	34 (34)
Infant's Gender						
Male (N = 119)	102 (86)	36 (30)	64 (54)	63 (53)	85 (76)	52 (44)
Female (N = 77)	66 (86)	33 (43)	42 (55)	43 (56)	47 (64)	33 (43)
Place of Birth						
Home (N = 45)	34 (75)*	28 (62) ¥	27 (60)	24 (53)	24 (59) Ⓜ	24 (53)
Hospital (N = 151)	134 (89)	41 (27)	79 (52)	82 (55)	108 (72)	61 (40)
Birth Assisted By						
Dai (N = 39)	31 (79)	23 (59) €	24 (62)	21 (54)	18 (51) Ⓜ	22 (56)
TMidwife ((N = 15)	10 (67)	8 (53)	9 (60)	6 (40)	12 (86)	5 (33)
Doctor (142)	126 (90)	37 (26)	72 (51)	78 (35)	101 (75)	57 (40)
Education						
Uneducated (N = 66)	46 (70) ¥ 122 (94)	30 (45) Ⓜ	42 (64) €	32 (48) Ⓜ	41 (62)	35 (53) Ⓜ
Educated (N = 130)		39 (30)	64 (49)	74 (57)	91 (70)	50 (38)
Employed						
Yes (N = 17)	17 (100)	3 (18)	5 (29) Ⓜ	12 (71)	9 (53) Ⓜ	7 (41)
No (N = 179)	151 (84)	66 (37)	101 (56)	94 (53)	123 (69)	78 (44)

¥=P-Value < 0.001; €=P-Value < 0.01; Ⓜ=P-Value < 0.05; \*=P-Value < 0.1.

N = Total Number in that group. n = Number of people with positive finding within that group. % = Percentage of people with positive finding within that group.

**Table-3: Perceptions of breast feeding in mothers at MCC and AKU.**

Variable	Total (n)	Area	
		MCC (N=96) n (%)	AKU (N=100) n (%)
Number of mothers who thought breast feeding produce weakness:	70(36)	52 (54)	18¥ (18)
Relationship of the diet to milk production was understood by:	170(87)	86 (86)	84 (84)
Bottle feeding considered acceptable by:	70(36)	31 (32)	39 (39)
Number of mothers aware of the advantages of breast feeding:	180(92)	90 (94)	90 (90)
Number of mothers aware of the disadvantages of bottle feeding:	166(85)	77 (80)	89⊖ (89)
The concept of positive feedback of lactation was understood by:	144(73)	54 (56)	90¥ (90)

¥ P-Value < 0.001; € P-Value < 0.01; ⊖ P-Value < 0.05.

N = Total Number in that group. n = Number of people with positive finding within that group. % = Percentage of people with positive finding within that group.

breastfeeding and the appropriate frequency (> 8 times a day) or on demand, whichever was more. However, educated mothers initiated breastfeeding earlier (57%) than uneducated females (49%) (Table-2).

Most of the females were aware that breast feeding does not (64%) produce weakness in mothers while few thought that it does (36%). Relationship of the diet to milk production was understood by 87% of the sample. Only minority (36%) of the mothers thought bottle feeding is acceptable during the first 6 months of life. Majority of the mothers were aware of the advantages (92%) of breast feeding and disadvantages (85%) of bottle feeding. Seventy three percent understood the concept of positive feedback of lactation. Comparing the knowledge about breastfeeding, greater number of AKU mothers were aware of the fact that breastfeeding does not produce weakness in the mother in AKU as compared to MCC ( $p = <0.001$ ). There was more awareness of the concept of positive feedback of lactation amongst mothers in AKU as compared to MCC ( $p$ -value =  $<0.001$ ). Comparatively, more females were aware of the disadvantages of bottle feeding in AKU than in MCC ( $p$ -value = 0.036). Nearly all of the mothers in the two groups were aware of the advantages of breastfeeding. Most of the females in the two groups knew of the relationship of the diet to milk production and most of them considered bottle feeding as unacceptable (Table-3).

## Discussion

Exclusive breastfeeding should be the sole source of nutrition and energy for infants up to six months of age,<sup>9,10</sup> yet only 54% of the mothers were observed to practice it. The

difference observed between UNICEF data (16%) and our finding (54%) could be due to the difference in the study population. Ours was a regional study, comprising of urban and semi-urban while UNICEF's finding is that from a national survey, where the rural population is of approximately 70%.<sup>11</sup>

A study conducted in Bahawalpur, found the EBF rate to be 30%.<sup>12</sup> While another study conducted in a military hospital in Multan found EBF to be even lower (16%) at 6 months of age.<sup>13</sup> This may be because of the belief that there is not sufficient milk production to fulfill the requirement of the infant and therefore they have to start them on supplemental feed. This is a misconception which was observed, as milk production is dependent on the suckling reflex and does not decrease if mothers keep breastfeeding their infants.<sup>9</sup> The rate of supplemental feeding observed was similar to other studies done in this region of the world.<sup>14,15</sup> An interesting finding was that EBF was more at MCC than AKU, in spite of the education of mothers, in baby friendly hospitals like AKU. This may be because a greater number of women were employed from AKU and our study showed that significantly lower number of employed mothers continue EBF as compared to unemployed mothers. Another factor contributing to the difference observed could be the non-affordability of the prepared formula milk by the mothers in MCC. This fact is strengthened by the finding that mothers at MCC who practiced supplemental feeding gave Cow/Goat milk rather than formula milk, which is cheaper.

The fact that pre-lacteal feeding was more common at MCC signifies importance of common cultural values. It is a common cultural belief that the initial breast milk is dirty and not nutritious and therefore has to be supplemented with pre-lacteal feeds like honey and ghutti. Findings were consistent with that of Ashraf et al.<sup>16</sup> There is great potential for contamination with these practices and therefore are considered unsafe. Also early introduction of foods leads to various allergies in later life.<sup>17,18</sup> This implies that breastfeeding promotion programmes should be tailored to local cultural perspectives. The practice of pre-lacteal feeds was shown to be more common (79%) in another study conducted in Hyderabad Pakistan, by Memon et al in 2006.<sup>19</sup> The practice of pre-lacteal feeds is not only common in Pakistan but is frequently observed in many Asian countries.<sup>5,20,21</sup> WHO data shows that in rural India approximately 93% of the infants surveyed were given pre-lacteal feeds for the first two days of life. Infants in Bangladesh are reported to be fed honey or mustard oil for 3 days in combination with or followed by breastfeeding for a month.<sup>15</sup>

We found that 14% of total mothers discarded colostrum. In comparison to this, another study in Pakistan by Memon et al showed that 71% of (rural and urban) mothers discarded colostrums.<sup>19</sup> Almost six times more mothers from

MCC didn't feed colostrum compared to mothers from AKU. This shows the importance of early education to mothers who deliver at hospitals, regarding optimum breastfeeding by the hospital staff.

Difference between the two groups regarding other elements of optimum breastfeeding, like early initiation and frequency of breastfeeding, was not significant. However comparing our results with other local studies we found that there was a difference.<sup>15,19</sup> Fifty four percent of women in our study initiated breastfeeding within 1 hour of birth compared to 37% from the study by Memon et al.<sup>19</sup> Umme kulsoom et al showed that 28% initiated breastfeeding within 4 hours while we observed the rate to be 2.5 times more.<sup>15</sup>

The knowledge of mothers regarding different aspects of breastfeeding was found to be deficient in the rural center as compared to the urban center. This dissimilarity can be explained by the lower literacy rate and the passing down of misconceptions and rigid opinions of elderly women of the society. The results of our study showed differing awareness of mothers about the possibility of breastfeeding leading to weakness. Lactating mothers should be as healthy and active as non-lactating<sup>22</sup> but half of the mothers in MCC thought that feeding their infants leads to weakness.

Breastfeeding mother needs to understand the "supply and demand concept" of milk production. A positive feedback loop stimulates the breast to create more milk.<sup>23</sup> If this concept is understood by mothers, they may concentrate more on breastfeeding and stop the supplements.

Most of the females in both the groups were aware of the advantages of breast milk and disadvantages of bottle feeding; yet the practice was deficient. A mother's diet does not affect the concentrations of major nutrients in breast milk.<sup>24,25</sup> Although majority of the mothers in both the groups knew about it, yet we obtained responses like: 'having more salan is better'. Limitation of this work is that it is a cross-sectional study, conducted with convenient sampling; therefore the results cannot be generalized.

Health education programmes addressing optimum breastfeeding practices have been ongoing but looking at the declining rates of breastfeeding we recommend that the focus be shifted towards dais (local birth attendants) that are present at the time of birth and so can utilize the opportunity to initiate breastfeeding early and avoid the use of prelacteal feeds. Also peer groups should be formed headed by those mothers who have exclusively breastfed and have healthy babies; this could help remove misconceptions associated with breastfeeding and thereby improve upon the existing practices. Lower rates of breastfeeding at tertiary care hospitals, in spite of Baby Friendly Initiative may be due to decrease keenness of health professionals to keep mothers motivated about breastfeeding. Initiatives should be taken to encourage mothers to deliver at

hospitals as this was found to be a protective factor towards optimum breastfeeding practice.

## Conclusion

This study was able to show the status of breastfeeding in two socio-demographically different centers in Pakistan. The lower rates of EBF observed are influenced by factors like, education and employment status, affordability, etc. Despite of the "Baby Friendly Initiative" taken up by AKU, rates of EBF are lower as compared to MCC. Other unacceptable practices like prelacteal feed, discarding colostrum, lack of early initiation of breastfeeding were found to be prevalent in both the groups. Women were aware of the advantages and disadvantages of breast and bottle feeding but a disparity was observed between their knowledge and practice.

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