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RESEARCH ARTICLE

BREAST FEEDING PRACTICES AND ASSOCIATED VARIABLES IN CHANDIGARH TRICITY, INDIA

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ABSTRACT

Exclusive breastfeeding is a well-established and recommended intervention for the improvement of child nutrition but still there exist many discrepancies. The present study was conducted with objectives to identify prevalence of breastfeeding practices and to study various socio-demographic factors influencing breastfeeding. A sample of 580 mothers accompanying under- five children were selected randomly at health centres in the Tricity of Chandigarh, India between April 2012 and September 2013.Stratified multistage sampling technique was used to select six community health centres, four primary health centres and eight sub centres from Chandigarh Tricity namely Chandigarh, Panchkula, and Mohali. Discrete data was analyzed using frequency, percentages and Chi- square test. Logistic regression was done to find the risk factors associated with breastfeeding. It was found that prevalence of exclusive breast feeding was 61.0%.Maximum children (72.6%) received breastfeed within one hour of birth. Among participants of low socio-economic status, exclusive breast feeding was found to be significantly higher (p=0.00). Exclusive breast feeding was significantly more among children those delivered in institutions as compared to home delivery (84.2%vs.15.8%, p=0.04). Practice of giving pre-lacteal feed was found among 35.3% participants. It was concluded that although exclusive breast feeding was found to be high in tricity but still pre-lacteal feeding practices were prevalent in society. Hence, focus on factors associated with exclusive breast feeding needs to be addressed for promotion of exclusive breast feeding and avoidance of pre-lacteal feed.

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INTRODUCTION

Exclusive breastfeeding is a well-established and recommended intervention for the improvement of child nutrition. Appropriate Infant and Young Child Feeding (IYCF) practices are essential for optimal growth, cognitive development, and overall well-being of the child in their early years of life. Under-five deaths can be prevented by19% if appropriate breastfeeding and complementary feeding practices are adopted (Jones *et al*., 2003). The World Health Organization (WHO) recommends exclusive breastfeeding (EBF) for the first six months of life and the addition of complementary feeds from six months onwards, with breastfeeding to be continued at least up to two years of age (WHO, 2003a, 2003b). EBF means that the infant receives only breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration salt solution, or drops/syrups of vitamins, minerals or medicines (Mbuka *et al*., 2016). Complementary feed should not be introduced early, before the age of six months as it can lead to displacement of breast milk and increased risk of infections. Similarly, inadequate and inappropriate complementary feeding with unhygienicpracticesleadstorecurrentandpersistentinfectionsand malnutritionwhichisfollowedbygrowthretardation, immune-deficiency, and eventually fatal outcomes. This is a concern for Indian scenario, where previous studies have suggested inability to maintain exclusive breastfeeding and late introduction of complementary feeds (Aggarwal *et al*., 2008; Sethi *et al*., 2003; Engle, 2002). Breastfeeding though is a natural act, it is a behaviour that needs to be learned. Appropriate breastfeeding and complementary feeding practices depend on accurate information and support from the family, community, and healthcare system. However, despite of all the efforts deployed as information, education, or training campaigns, the prevalence of appropriate feeding practices remains low. Only 25% of newborns were put to the breast within one hour of birth and 46% were exclusively breastfed (UNICEF 2014). While according to fourth round of

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District Level Household Survey (DLHS-4)findings for Chandigarh, proportion of children aged 6-35 months exclusively breastfed for at least 6 months were 28.8% and children under 3 years breastfed within one hour of birth were 34.8%(IIPS, 2012-13a). There have been global movements towards protecting, promoting and supporting breast milk as a part of optimal feeding practices among newborn babies, still there exist many discrepancies between what has been recommended and what is being practiced in reality (Edmond and Bahl, 2006). Therefore, the present study was undertaken with objectives: (i) to identify prevalence of breastfeeding practices among women in Chandigarh Tricity and (ii) to study various socio-demographic factors influencing breastfeeding among the study population in Chandigarh Tricity.

MATERIALS AND METHODS

Study area, Study Design and Study period

The cross-sectional study was conducted at health centres in the Chandigarh Tricity, India during April 2012 to September 2013. Chandigarh is a city and a Union Territory in the northern part of India that serves as the capital of the states of Punjab and Haryana. Chandigarh along with two satellite cities viz. Panchkula in state of Haryana and Mohali (also called SAS Nagar) in state of Punjab collectively constitute the Chandigarh Tricity.

Sampling Technique

Stratified multistage sampling technique was used to select health centres. The whole population of Tricity was divided into 3 strata namely Chandigarh, Panchkula, and Mohali. Two available Community Health Centres (CHCs) and four Sub centres (SCs) at random were selected in Chandigarh. No Primary Health Centre (PHC) is available under Chandigarh health care delivery system. Mohali district is divided into three blocks. Two out of three CHCs, two out of 12 PHCs and two out of total 78 SCs were selected at random. Panchkula is divided into four blocks and two CHCs that came under Panchkula district along with one PHC under each CHC and one SC under each PHC were taken. So, total number of six CHCs, four PHCs and eight SCs were selected.

Sample size

A sample of 580 mothers accompanying under- five children at selected health centres were included in the study after taking written informed consent. Sample calculated was 464 participants taking into consideration 90% confidence co-efficient and 5% permissible error and based up on several parameters of child health status like nutritional status, immunization, supplementary nutrition etc.

Data collection

The data was collected by author herself by visiting all the selected health centers and using the pre-designed, structured and pre-tested questionnaire. The information comprising socio-demographic profile along with practices towards breast feeding was collected from the mothers.

Statistical Analysis and ethical approval

Data was entered into SPSS version 19. Discrete data was analyzed using frequency, percentages and Chi- square test. Logistic regression was done to find the risk factors associated with breastfeeding. The study was conducted after obtaining approval from the Faculty of Medical Sciences, Panjab University, Chandigarh. The privacy and confidentiality of information obtained was assured.

RESULTS

A total of 580 mothers accompanying under-5 children were included in the study that attended various health facilities and availed Under-5 care. Among them 113 (19.5%) were from Chandigarh, 211 (36.4%) from Panchkula and 256 (44.1%) from Mohali. Health facility wise maximum number of respondents 320 (55.2%) were from CHCs, 156(26.9%) from SCs and 104 (17.9%) from PHCs. The background characteristics of the respondents are presented in Table 1.Majority of the children were below six months (41.4%) and majority were male (55%). Maximum mothers were from rural areas (62.1%) and belong to Hindu by religion (71.2%).Majority of the children had birth weight more than 2.5kg while birth weight of 13.1% children was not known. Mostly children (69.7%) were delivered in government hospitals while 13.4% were delivered at home. Maximum mothers did not get post-natal visits (79.0%). Prevalence of exclusive breast feeding was found to be 61.0%.Maximum children received breastfeed within one hour of birth (72.6%). EBF was given to almost similar proportion of children in Tricity as Panchkula (61.6%, 130/211) followed by Mohali (60.9%, 156/256) and Chandigarh (60.1%, 68/113) (p=0.93). EBF prevalence was more among males (56.5%) than females (43.5%) but the difference was not found to be statistically significant. Children having birth weight more than 2.5kg were mostly exclusive breast fed (49.7%) and the association was found to be significant (p=0.03). Among participants of low socio-economic status exclusive breast feeding was found to be significantly higher (57.9%, p=0.00). Exclusive breast feeding was more among children those delivered in institutions as compared to home delivery (84.2%vs.15.8%) and difference was found to be significant (p=0.04) (Table 2)

Pre-lacteal feed was given to 35.3% children. Most commonly given pre-lacteal feed was cow's/ buffalo's milk (43.0%) followed by powered milk (31.7%) and honey (21.0%). Relationship between pre-lacteal feed with other components is shown in Table 3. Pre-lacteal feed was significantly more given to children having birth weight more than 2.5kg (44.4%, p=0.00). Pre-lacteal feed was given maximum to children from Chandigarh (39.8%, 45/113) followed by Mohali (37.1%, 95/256) and Panchkula (30.8%, 65/211). The difference was not found to be significant (p=0.20). Children residing in rural areas had received significantly more pre-lacteal feeds (55.6%, p=0.05). Overall pre-lacteal feed was given higher to children among institutional deliveries (74.1%) as compared to home deliveries, and difference was found to be significant (p=0.00). On further analysis, it was found that pre-lacteal feed was given in 67.9% (53/78) deliveries at home, 38.8 % (38/98) deliveries in private institution and only 28.2% (114/404)

deliveries in public institution. According to birth order, pre-lacteal feed was given in 26.8%, 42.9% and 30.3% children of birth order one, two, and three and above, respectively. Logistic regression analysis of risk factors of no exclusive feeding found that none of the variable was found to be significantly associated with non-adoption of EBF, meaning thereby mothers were at higher risk of not adopting EBF practice irrespective of their socio-demographic and other characteristics included in the analysis.

Table 1. Background characteristics of participants (N=580)

Characteristics	N=580	Percentage (%)
Age of child		
6 months & below	240	41.4
6-24 months	229	39.5
24– 60 months	111	19.1
Gender of child		
Male	317	55.0
Female	263	45.0
Type of family		
Joint /Extended	320	55.2
Nuclear	260	44.8
Place of residence		
Urban	175	30.2
Rural	360	62.1
Slum	45	07.8
Birth weight of child		
More than 2.5 kg	299	51.6
2.5 kg& below	205	35.3
Not known	76	13.1
Place of delivery		
Government institution	404	69.7
Private institution	98	16.9
Home	78	13.4
Birth order of Child		
1	192	33.1
2	231	39.8
3& above	157	27.1

Table 2. Relationship between Exclusive Breast Feeding & other Components (N=580)

Components	Exclusive Breast Feeding (N=580)		Chi Square	P
	Yes N=354 (%)	No N=226 (%)		
Gender of Child			1.24	0.26
Female	154 (43.5)	109 (48.2)		
Male	200 (56.5)	117 (51.8)		
Birth Weight			7.17	0.03*
More than 2.5 kg	176 (49.7)	123 (54.4)		
2.5 kg& below	121 (34.2)	84 (37.2)		
Not known	57 (16.1)	19 (08.4)		
Place of residence			4.86	0.09
Rural	231 (65.3)	129 (57.1)		
Slum	28 (07.9)	17 (07.5)		
Urban	95 (26.8)	80 (35.4)		
Type of Family			0.01	0.91
Joint	196 (55.4)	124 (54.9)		
Nuclear	158 (44.6)	102 (45.1)		
Socio-economic Status			94.05	0.00*
Low	205 (57.9)	124 (54.9)		
Middle	144 (40.7)	44 (19.5)		
High	05 (01.4)	58 (25.6)		
Place of Delivery			4.39	0.04*
Home	56 (15.8)	22 (9.7)		
Institutional	298 (84.2)	204 (90.3)		
Education of Mother			1.42	0.23
Illiterate/ Just Literate	113 (31.9)	83 (36.7)		
Literate	241 (68.1)	143 (63.3)		
Occupation of Mother			2.02	0.15
House wife	328 (92.7)	216 (95.6)		
Working	26 (7.3)	10 (4.4)		

***Significant**

Table 3. Relationship of Pre-lacteal feed with other Components (N=580)

Components	Was Pre lacteal Feed given		Chi square	P
	Yes N=205(%)	**No N= 375 (%)**		
Gender of Child			0.27	0.66
Male	115 (56.1)	202 (53.9)		
Female	90 (43.9)	173 (46.1)		
Birth weight			20.19	**0.00***
More than 2.5 kg	91 (44.4)	208 (55.5)		
2.5 kg & below	70 (34.1)	135 (36.0)		
Not known	44 (21.5)	32 (8.5)		
Place of Residence			5.67	**0.05***
Urban	73 (35.6)	102 (27.2)		
Rural	114 (55.6)	246 (65.6)		
Slum	18 (8.8)	27 (13.2)		
Place of Delivery			41.92	**0.00***
Home	53 (25.9)	25 (06.7)		
Institutional	152 (74.1)	350 (93.3)		
Type of family			0.00	0.98
Joint	113 (55.1)	207(55.2)		
Nuclear	92 (44.9)	168 (44.8)		
Education of Mother			0.18	0.68
Illiterate	67 (32.7)	129 (34.4)		
Literate	138 (67.3)	246 (65.6)		
Occupation of Mother			0.67	0.47
House wife	190 (92.7)	354 (94.4)		
Working	15 (07.3)	21 (05.6)		
Gravida status			5.64	**0.02***
Primi	55 (26.8)	137 (36.5)		
Multi	150 (73.2)	238 (63.5)		

***Significant**

Table 4. Logistic Regression analysis of Risk factors of no Exclusive Breast feeding and given pre-lacteal feed

Risk factor	No Exclusive Breast feeding			Given Pre-lacteal feed		
	OR	95% C.I.	P	OR	95% C.I.	P
Low SES	1.26	0.78- 2.03	0.33	1.05	0.70 - 1.56	0.81
Primigravida	0.74	0.47 - 1.17	0.20	0.60	0.40 - 0.89	0.01*
Housewife	1.07	0.44 - 2.59	0.86	0.75	0.37 - 1.53	0.43
Illiterate	0.62	0.37 - 1.03	0.06	0.87	0.58 - 1.31	0.51
Residents of Chandigarh	1.03	0.60 - 1.78	0.89	0.48	0.31- 0.75	0.00*
Urban area	0.62	0.39 - 1.09	0.05	0.70	0.47 - 1.04	0.08
Joint family	1.02	0.66 - 1.57	0.90	0.87	0.60 - 1.24	0.44
Hindu	0.67	0.41 - 1.11	0.12	0.83	0.56 - 1.24	0.38

***Significant**

However, on logistic regression analysis of risk factors of giving pre-lacteal feed, it was observed that primi mothers (OR= 0.60, C.I.=0.40-0.89, P value= 0.01) and those who were residents of Chandigarh (OR= 0.48, C.I.= 0.31 - 0.75, P value= 0.001) were at significantly at lower risk of giving pre lacteal feed.(Table 4)

DISCUSSION

EBF is the best recommended method of infant feeding for the first six months of life which has a protective effect against child morbidity and mortality but yet it has not been universally practiced. All over the India, breast feeding is practiced, despite this, the practice of exclusive breast feeding is 46.6% (NFHS, 2005-06) and prevalence of initiation of breast feeding is 40.5% (UNICEF, 2013). The present study was conducted in Chandigarh Tricity to find out the prevalence of exclusive breast feeding and factors associated with it. In our study majority of the children were below six months

(41.4%) and majority were male (55%).Similar findings were seen by studies conducted in South Gujarat (Chudasama *et al*., 2008) where 55% infants were male and 45% were female, and in Bangladesh(Joshi *et al*., 2014) found 51% male and 49% female children. In our study 33.1% children were first born and 55.2% were from joint family as also observed in a study in Bangladesh (Joshi *et al*., 2014) where 36% were first born and 56% belonged to joint family. In present study 86.9% were institutional deliveries whereas in a study (Joshi *et al*., 2014) 57% of the mothers had delivered in a health institution. In the present study maximum children received breastfeed within one hour of birth (72.6%) while in study in Akola, Maharashtra (Wagh *et al*., 2013) found that 80.48% infant received breast feeding within one hour after the birth. According to DLHS-3 and DLHS-4, it was reported that percentages of children under three years breastfed within one hour of birth reduced from 50.0% to 34.8% in Chandigarh and 42.9% to 40.0% in Mohali whereas it increased to three times (from 19.7% to 58.1%) in Panchkula (IIPS, 2012-13a, 2012-13b, 2012-13c). Lower percentage regarding initiation of breast feeding within one hour was reported in other studies in Aligarh (Khan *et al*., 2013), in Tamil Nadu (Radhakrishnan and Balamuruga, 2012), in Vadodara city (Bhatt *et al*., 2012), in Himachal Pradesh (Parashar *et al*., 2015) and in Bhavnagar city, Gujarat (Raval *et al*., 2011) (63%, 60.5%, 57.9%, 50.5% and 32.6%, respectively). However higher rate of initiation of breast feeding within one hour were found in Bangalore (Madhu *et al*., 2009) and in Puducherry (Ekambaram *et al*., 2010) (92% and 97%, respectively).This difference may be due to local culture beliefs and practices that existed in particular regions. Patel *et al* (2015) in Gujarat in found more than half of the mothers (57.5%) started breastfeeding within one hour of child's birth, gave exclusive breastfeeding for recommended six months (55.9%), and continued to breastfeed in the second year of life (50.7%). Study done by Haggerty *et al* (1999) revealed that 11.6% infants in urban area and 09.4% infants in rural area were put to breast within the first hour, and 33.3% infants in urban area and 25.6% infants in rural area were breastfed within the first day whereas in our study 65.3% exclusive breast fed their babies in rural areas followed by 26.8% in urban areas and least in slums 7.9%.

In our study prevalence of exclusive breast feeding for six months was found to be 61.0% with almost similar proportion in Tricity (Panchkula, Mohali and Chandigarh as 61.6%, 60.9% and 60.1%, respectively). As per DLHS-4, percentages of children (aged 0-5 months) exclusively breastfed was found to be 48.3% in Panchkula (IIPH, 2012-13c), 69.2% in Mohali (IIPH, 2012-13b) and 76.2% in Chandigarh (IIPH, 2012-13a). However, this percentage dropped for children (aged 6-35 months) exclusively breastfed for six months as found to be 36.7% in Panchkula, 20.9% in Mohali and 28.8% in Chandigarh. Maiti *et al* (2015) also found EBF was given to 61.0% children in study at Odhisha. In a study in Gujarat (Chudasama *et al*., 2008)found 85% newborns have received exclusive breast milk whereas in Kolkota (Roy *et al*., 2009)found that only 28.33% children received exclusive breast feeding for 6 months. EBF prevalence was more among males (56.5%) than females (43.5%) in our study but the difference was not found to be statistically significant. Exclusive breast feeding was found to be significantly higher among low socio-economic status (57.9%, p=0.00), and among children who delivered in institutions as compared to home delivery (84.2%*vs.*15.8%, p=0.04).In Gujarat Chudasama *et al*. (2008) found that socio-demographic variables like maternal education, paternal education & socioeconomic status had positive association for influencing decision on exclusive breastfeeding. Similar findings were observed in Sri Lanka (Agampodi *et al*., 2007). Number of antenatal visits taken, older maternal age, and low birth weight reported positive impact on breastfeeding initiation. No significant associations between maternal education and occupation was found with duration and initiation of breastfeeding in our study despite housewives supposedly having more time available to feed their infants. On logistic regression analysis of risk factors of no exclusive feeding, none of the variable was found to be significantly associated with non-adoption of EBF. The use of colostrum and avoidance of pre lacteal food is the cornerstone in early infant nutrition and may be prerequisite for the establishment of future of breast feeding. In our study, pre-lacteal feed was given to 35.3% children. Most commonly given pre-lacteal feed was cow's/ buffalo's milk (43.0%) followed by powered milk (31.7%) and honey (21.0%). In Maharastra (Wagh *et al*., 2013), Kolkata (Roy *et al*., 2009) and Tamil Nadu (Jennifer and Muthukumar, 2012), prevalence of pre lacteal feed was found to be lower (15.8%,29.2% and 29.3%, respectively) whereas higher prevalence of giving pre-lacteal feed ranging from 47.0% to92.25%was found by Yadavannavar and Patil (2011), Khan *et al*.(2013), Parashar *et al*. (2015) and Singh *et al*. (2012).Certain social customs prevalent among the lower socioeconomic group were also found to be responsible for giving pre lacteal feed as majority of women still use *Ghutti*, honey and sugar water. Study done by Wagh *et al.* (2013) found commonest pre-lacteal feed given was honey (61.53%) and similar finding was also reported by in Andhra Pradesh (Meshram *et al*., 2004). In contrast in Nigeria (Umar and Oche, 2013) reported that mothers awaited for establishment of clean and safe milk, so during this period they give animal milk, boiled water, boiled leaf extract, and sometime honey instead of colostrum. Chudasama *et al.* (2008) found that 15% newborn infants had received either formula milk (8.5%), or water (2.5%) or honey (4.0%). According to Joshi *et al* (2014), 19% of the children had received pre-lacteal feeds, mostly sugar/glucose water. In the present study significant association was found between pre-lacteal feed and birth weight, place of residence, place of delivery and gravida status. On logistic regression it was found that primi mothers and those who were residents of Chandigarh were significantly at lower risk of giving pre lacteal feed.

Conclusion

The prevalence of exclusive breast feeding in Chandigarh tricity came out to be 61.0% and practice of giving pre-lacteal feed was not uncommon (35.3%). Although the breast feeding is the norm, giving pre-lacteal feeds is a deep routed custom in India. Ante natal care clinics and immunization clinics may be used as an opportunity to educate mother regarding benefits of breastfeeding with greater emphasis on exclusive breast feeding. Hence, focus on factors associated with exclusive breast feeding needs to be addressed for promotion of exclusive breast feeding and avoidance of pre-lacteal feed with the help of special health education strategies.

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