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Socio-cultural determinants of infant and young child feeding practices in rural India

Priti Kogade [1], **Abhay Gaidhane**[2], **Sonali Choudhari**[2]✉, **Mahalaqua Nazli Khatib**[3], **Umesh Kawalkar**[4], **Shilpa Gaidhane**[5], **Quazi Syed Zahiruddin**[2]

[1]Master of Public Health, School of Epidemiology and Public Health, Datta Meghe Institute of Medical Sciences(DU), Wardha (Maharashtra)

[2]Professor, School of Epidemiology and Public Health; Department of Community Medicine, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (DU), Wardha (MS)

[3]Division of Evidence Synthesis, School of Epidemiology and Public Health; Professor, Department of Physiology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (DU), Wardha (MS)

[4]Associate Professor, Department of Community Medicine, Government Medical College, Akola

[5]Division of Clinical Epidemiology, School of Epidemiology and Public Health; Professor, Department of Internal Medicine, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (DU), Wardha (MS)

✉**Corresponding author**

Professor, Community Medicine

Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (DU), Wardha (Maharashtra)

Email: sonalic27@yahoo.com

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ABSTRACT

Background: In India, proportion of women initiating timely breastfeeding and practicing exclusive breastfeeding is relatively constant over last decade. There is paucity of information about possible reasons for practice of ideal and recommended IYCF practices not being universal across country, in spite of existence of policy, programme guidelines. To develop and implement contextual intervention for improving the IYCF practices especially in rural India, knowledge about the key determinants; especially sociocultural is essential. The present study is undertaken to assess IYCF practices and study its association with sociocultural factors. *Methodology:* In this cross-sectional study, 612 women were included. WHO recommended ten guiding principles for IYCF were considered for developing the data collection tool. Respondents were mothers with children in the age group 0 to 23 months. The key outcome variables were timely initiation of breastfeeding, exclusive breastfeeding, timely initiation of complementary feeding and the choice and diversity of food for complementary feeding. *Result:* Timely initiation of breastfeeding was seen significantly more for female child (62.5%) compared to male (37.5%) ($p<0.05$). 36.3% exclusively breast feed their babies for a period of six months. Higher schooling and socioeconomic status was significantly associated exclusive breastfeeding ($p<0.05$). The exclusive breastfeeding rates in male and female infants were 59.5% and 40.5% respectively. Nearly 96 (46.1%) women started complementary feeding at 7 months and of these 50.2% initiated with liquid food like cow milk, lentil soup, and rice water soup. Study also identified a good practice of giving *Sattu*, a powder prepared from locally available roasted pulses, cereals and groundnuts. *Conclusion:* The present study highlighted the inadequate practices around early initiation of breastfeeding and exclusive breastfeeding in rural area. It also showed that the feeding decisions are influenced by social and cultural factors and experiences within family and social networks. The current approach to educate women on IYCF practices has limitations, as decision makers related to IYCF at household level are elders in household. There is a need for more comprehensive IYCF promotion program that are socially and culturally acceptable to women from rural area.

Keywords: early initiation of breastfeeding, exclusive breastfeeding, complementary feeding

1. INTRODUCTION

Nearly, 2.7 million or fifty percent of child deaths globally are attributed to inadequate breastfeeding and complementary feeding practices leading to undernutrition. Globally, in order to accelerate the progress on child survival there is heightened interest in increasing rates of optimal infant and young child feeding (IYCF) practices (Puri S, 2017). Optimum IYCF practices include initiation of breastfeeding within one hour of birth and exclusive breastfeeding for the first six months; appropriate complementary feeding after 6 months of child's age along with continued breastfeeding till 2 years or beyond (WHO, 2001). IYCF practices are critical interventions to promote child growth and development, reduce the infant child mortality & morbidity (Bhutta ZA et al., 2008; Dadhich JP, 2009).

Global rate of exclusive breastfeeding at six months is around 35% and in India it is around 46%. The National Family Health Survey – 4 (NFHS) (2015-16) of India reported, in urban area nearly one third and in rural area around one fifth women initiate breastfeeding within one hour of birth (IIPS, 2017). At six to eight months nearly half of breastfed babies are initiated with complementary feeds. Complementary feeding is started early by working women. Complementary feeding diets are usually compromised due to poor knowledge resulting in inappropriate food choices, faulty preparation practices and limited variety of food available (Zahiruddin QS et al., 2016).

India shows improvement in rate of early initiation of breastfeeding and exclusive breastfeeding over the last decade as per the District Level Household survey (DLHS) (Checkley W, 2004; IIPS, 2015) and NFHS-IV (IIPS, 2017, 2015; Meshram, 2011). However, since then the proportion of women initiating breastfeeding within half hour, practicing exclusive breastfeeding is almost constant (Dadhich JP, 2009; Nair N, 2015; Meshram, 2011; Kumar D, 2006; Nayak Sunil, 2010; Sinhababu A, 2010). This static rate of IYCF may be attributable to social and/or cultural factors. Studies that examine association of IYCF with social and cultural determinants in rural India are needed to develop and implement contextual intervention for improving the IYCF practices especially in rural India. The present study is undertaken to find out the association of IYCF practices with sociocultural determinants.

2. METHODOLOGY

The cross-sectional study was conducted in the rural area of Wardha district, located in central India. Population of district is 1.2 million wherein 78% resides in a rural area (2011, census). By following multistage stratified sampling approach, one block / taluka

out of eight from the district was randomly selected. Three primary health centers out of six from the selected block were randomly selected and finally one sub-center from each of the three chosen centres was randomly chosen to include in the study.

Respondents were mothers with children in the age group 0 to 23 months. Women with child in the age group 0 to 23 months with HIV infection, Tuberculosis or other diseases (if any) were excluded. The study area had 624 children in the age group of 0 to 23 years and it was decided to include all eligible women in study. At the time of visit, 12 women were not available. Thus, the final sample size was 612.

Ten guiding principles for IYCF recommended by WHO (WHO, 2003) were considered for developing the data collection tool. These include timely initiation of breastfeeding, exclusive breastfeeding, practice of pre-lacteal feeds, maintenance of breastfeeding and initiation and pattern of complementary feeding. 'Exclusive breastfeeding' was defined as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for six months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines) (WHO Indicators IYCF, 2007; WHO Global strategy on IYCF, 2007).

Data collection tool included items/questions on socio-demographic and personal characteristics, questions on breastfeeding practices, complementary feeding practices, socio-cultural factors and other possible determinants influencing IYCF. House to house survey was conducted in selected villages for data collection. Data was collected by the trained interviewer in local *Marathi* language. The study protocol was approved by the Institutional Ethics Committee. Informed written consent was obtained from each participant prior to data collection. Respondents were assured of confidentiality of information and its intended use for research purpose only.

Data Analysis - The main outcome variables were timely initiation of breastfeeding, exclusive breastfeeding, timely initiation of complementary feeding and the choice of food for complementary feeding. The outcome variables were compared with women's social, demographic characteristics and other predictors. Chi square test and t test were used for statistical significance wherever appropriate.

3. RESULT

Demographic profile

Total 612 mothers participated in the study. The mean age of respondent mothers was 24.6 years (SD 1.7). 46% women were in paid employment and most of them were working as a farm laborer. All deliveries were institutional. Most of the women 73 (85.9%) had normal vaginal delivery for the index child, and 12 (14.1%) had delivered by caesarean. Out of 612 women, 51.8% had single, 40% had two, and 7.72% had three or more living children. The age of index child ranges from 0 to 23 months, and out of these 23.5% were infants. The mean age of child was 11 months (SD 6.0). 51% were females and 47.3% males (Table 1).

Table 1 Participant socio-demographic characteristics with timely initiation of breastfeeding and exclusive breastfeeding

Household characteristics		Total		Timely initiation of breast feeding		Exclusive breast feeding	
		612		255 (41.66%)		222 (36.27%)	
		No	%	No	%	No	%
Ae of mother (Years)	15 – 25	321	52.45	165	64.71	177	79.73
	25 – 30	279	44.86	84	32.94	45	20.27
	31 & above	12	1.93	6	2.35	0	0.00
Sex of a Child	Male	294	47.27	96	37.65	132	59.46
	Female	318	51.13	159*	62.35	90	40.54
Education of mother	Illiterate	36	5.79	6	2.35	0	0.00
	Primary	42	6.75	27	10.59	12	5.41
	Secondary School	396	63.67	159	62.35	123***	55.41
	Higher Secondary	102	16.40	51	20.00	66	29.73
	Graduate & above	36	5.79	12	4.71	21	9.46
Religion	Hindu	432	69.45	168**	65.88	138	62.16
	Buddhist	150	24.12	75	29.41	66	29.73

	Other	30	4.82	12	4.71	18	8.11
Socioeconomic status	Middle	84	13.50	33	12.94	45[#]	20.27
	Lower middle	324	52.09	159	62.35	141	63.51
	Lower	204	32.80	63	24.71	36	16.22
Family type	Joint	375	60.29	147	57.65	198	89.19
	Nuclear	237	38.10	108	42.35	24	10.81
Birth order	First	318	51.13	123	48.24	126	56.76
	Second	246	39.55	114	44.71	78	35.14
	Third & fourth	48	7.72	18	7.06	18	8.11
Antenatal visits	One	84	13.50	54	21.18	45	20.27
	Two	153	24.60	78	30.59	78	35.14
	Three and more	375	60.29	123	48.24	99	44.59

* p = 0.04, ** p= 0.03, ***p=0.001, [#]p=0.03

IYCF with sociodemographic factors

a) Timely initiation and exclusive breastfeeding

The association of social and demographic determinants with timely initiation and exclusive breast feeding is presented in Table 1. Overall 41.7% of women initiated breastfeeding early as recommended that is within one hour (normal delivery) and within 4 hours (delivery by caesarean section). Out of those who had normal vaginal delivered nearly 48% initiated breastfeeding within one hour. The timely initiation of breast-feeding was seen significantly more for female child (62.3%) compared to male child (37.6%) ($p<0.05$). Hindu religion was found to be significantly associated with timely initiation of breast-feeding compared to other religions ($p<0.05$). Exclusive breast feeding for four and six months was practiced by 268 (43.7%) and 74 (36.3%) women respectively. Higher schooling and socioeconomic status was found to be significantly associated exclusive breast-feeding ($p<0.05$). The exclusive breastfeeding rates in male and female infants were 59.5% and 40.5% respectively. Timely initiation of breastfeeding and exclusive breastfeeding rate increased with increase in number of antenatal care visits during pregnancy, however the difference was not statistically significant ($p>0.05$) (Table 1). Nearly half of newborns were given pre-lacteal feeds. Honey was the most commonly given pre-lacteal feed. Other pre-lacteal feeds given were sugar or jaggery dissolved in water.

b) Complementary feeding

Nearly 46% infants were started on complementary feeding at 7 months and of these 50.2% initiated with liquid food like cow's milk, lentil soup, and rice water soup. Choice of food for complementary feeding with their description and usual time of initiation is given in Table 2. Boiled water was started as early as two months. Other liquid foods are generally given from 5th month onwards. The semisolid, solid foods and fruits were introduced by 6 to 8 months. Banana was introduced as a complementary food quite late compared to other fruits. Only a fifth of mother gave eggs to their child.

With regards to food-groups for complementary feeding, overall it was observed that for infant between 6 months to 12 months, 89% were given 2 food groups, mostly milk and cereals, over 24 hours and 11% were given three food groups. For child between 13 to 24 months, 76% were given 3 food groups; mostly milk, cereals, vegetable and/or fruits in 24 hours and remaining 24% gave 4 or more food group in 24 hours. Study also identified a good practice of giving Sattu, a powder prepared from roasted pulses, cereals and groundnuts. These are locally available cereals. A couple of teaspoon of powder is added in approximately 200 ml of water or milk (one serving bowl) with one teaspoon of sugar or jaggery to prepare a semisolid paste, which is then feed to child. Such semisolid paste freshly prepared at each feed and given by spoon. Women informed that many households in the rural area prepare sattu for their babies.

In 66% of the 612 households, decision regarding the choice of complementary feeding was taken by elders, especially grandmother. None of the household interviewed were using the baby feeding bottle to feed the child.

Table 2 Choice of food for complementary feeding and usual time of initiation

Complementary feed		No	%	Time of initiation (months)*
Type	Description			
Liquid foods				
Ghutti	Herbal preparation, also available commercially	492	80.4	2 to 4 months
Plain water	Boiled water	372	60.8	2 to 6 months
Milk	Mostly cow's milk, but other milk, liked skimmed milk is also used	354	57.8	4 to 6 months
Dal water	Lentil / pulse soup	324	52.9	5 to 6 months
Rice water	Rice cooked and excess water, water is then separated and feed to infant	342	55.9	5 to 6 months
Semisolid food				
Khichadi	Pulse and rice cooked together with salt and oil	372	60.8	6 to 7 months
Dal and Rice	Pulses and rice cooked separately and them mixed together	354	57.8	6 to 7 months
Suji	Thick / coarse grounded wheat	264	43.1	6 to 7 months
Sattu	Powder made from roasted groundnut, pulses & cereals	258	42.2	6 to 8 months
Vegetables	Available seasonal vegetable is boiled then smashed and thick paste is prepared	228	37.3	6 to 8 months
Ghee	Clarified animal butter (added in other food)	198	32.4	6 to 8 months
Curd	Yoghurt	42	6.9	9 to 10 months
Solid food				
Biscuits	Glucose biscuits are commonly used	402	65.7	5 to 6 months
Bread	Milk bread, available commercially	330	53.9	5 to 6 months
Chapati	Indian assorted bread prepared from whole wheat	324	52.9	7 to 8 months
Potato	Boiled potato	288	47.1	7 to 8 months
Sweets	Either prepared at hope or purchased from shop	270	44.1	8 to 9 months
Eggs	Boiled eggs	126	20.6	12 to 13 months
Meat/Fish	Cooked meat and mostly fried fish	66	10.8	16 to 18months
Fruits				
Chicoo	Seasonal fruit	156	25.5	6 to 8 months
Apple	Available throughout the year	78	12.7	6 to 8 months
Banana	Available throughout the year	270	44.1	9 to 12 months
Commercial formula feeds				
Cerelac	Commercially available and expensive	84	13.7	5 to 6 months
Other snacks				
Wafers	Mostly salted potato wafers	306	50	8 to 12 months
Kurkure	Salty snacks sticks prepared from grain flour	48	7.8	16 to 18 months
Chocolates	Locally available sweet candies	222	36.3	17 to 19 months

* Usual time of initiation was considered when most of the women/participants mention about it.

4. DISCUSSION

The present study highlights the inadequate practices around early initiation of breastfeeding and exclusive breastfeeding in rural area. Overall prevalence for timely initiation of breastfeeding was 41.6 % (95% CI – 37.7 – 45.7%) and that of exclusive breast feeding for six months was 36.3% (95% CI 32.5 – 40.2).

Trends in the timely initiation of breastfeeding in rural area of Maharashtra state were almost stagnant over last decade (Nair N et al., 2015; Meshram, 2011). Several other studies reporting proportion of women with timely initiation of breastfeeding timely ranged from 55% to 60% (Kumar, 2006; Yadavannavar MC, 2011), which is more than the present study finding. However, couple of studies (Sinhababu A et al., 2010; , Choudhari S et al., 2012, Ramji S, 2009) conducted in India from 2009 to 2012 reported a very low proportion (13%, 25% and 30% respectively) for timely initiation of breastfeeding. The exclusive breastfeeding rate in rural Maharashtra is 56% (NFHS, IIPS, 2017) and as per the DLHS IV, was around 69.3% (IIPS, 2012), which was more than what observed in present study. Few of the studies (Nayak Sunil et al., 2010, Choudhari S et al., 2012, Sinhababu A et al., 2010) mentioned exclusive breastfeeding rate as 33%, 28.6% and 50% respectively. Infant feeding decisions are often influenced by social and cultural factors and experiences within family and social networks (Yadavannavar MC, 2011; Dar N et al., 2012, Kruger R, 2003; Laroia N, 2006). Cultural factors and experiences of women's vary widely across regions in India. This may be the reason for vide variations in rates of timely initiation of breastfeeding and exclusive breastfeeding in present study and in literature.

Practice of giving prelacteal feeds may delay initiation of breastfeeding and hampers the proper establishment and future success of breastfeeding (Yadavannavar MC, 2011; Laroia N, 2006). Alternative System of Medicine in India recommends giving some herbal preparations to newborn for variety of reasons. Since this system of medicine is socially and culturally accepted in India, it is challenging to motivate women from rural areas to follow exclusive breastfeeding during first six months (Yadavannavar MC, 2011; Laroia N, 2006) .

In the present study nearly 46% infants were started on complementary feeding at 7 months of age and for infant between 6 months to 12 months, 89% were given 2 food groups/day, mostly milk and cereals and 11% were given three food groups. Similarly a study from rural area of Marathwada region of Maharashtra (Choudhari SG et al.,) showed that out of 298 mothers having a child of 6 to 24 months age, 63.09% mothers started weaning between 6 to 9 months age duration and minimum dietary diversity came out to be 25%. Poor economic condition of families in rural area was considered to be an important barrier for providing the quality complementary feed. NFHS-III & NFHS-IV of India identify various determinants like low maternal education, lower maternal Body Mass Index (<18.5 kg/m^2), lower wealth index, less frequent antenatal clinic visits, lack of postnatal visits and poor exposure to media for not meeting minimum dietary diversity and minimum acceptable diet in complementary feeding (Patel A, 2012; IIPS, 2017; IIPS, 2007).

One of the barriers for practicing exclusive breastfeeding may be getting back to job as early as within two months of delivery. In India and few other countries like Nepal, Bangladesh there is policy support for workplace crèches, breastfeeding breaks and breastfeeding rooms but no detail on implementation (Thow Annie M, 2017). In Maharashtra state, the Rajmata Jijau Nutrition Mission has, as a best practice intervention, established 'Hirkani-kaksh' (feeding/baby care rooms) at work places and public bus stops and Milk Banks for employed women (Puri S, 2017). This is applicable and relevant more to women in urban area. In contrast, most of the women from rural area are from poor socioeconomic status and work in farms on daily wages for them, there is no option but to return to work as soon as possible. Many keep their baby at home and few carry new-born with them in farm. Working mothers find it extremely difficult to continue exclusive breastfeeding in such situation. It was also noted that babies are given pacifiers in the form of biscuits and other eatable when he/she cries, especially when mother are working women or when women are busy doing household work (Zahiruddin QS et al., 2016).

Regarding provision of correct information to mothers/caregivers, in India there is a strong and varied policy support. This includes public messaging and counselling supported by clear and consistent reference information regarding appropriate IYCF (Thow Annie M, 2017). However, the impact of educational interventions during pregnancy on breastfeeding duration has not well studied. Recently conducted systematic reviews stated that there is inconclusive evidence to antenatal breastfeeding education (Lumbiganon P, 2012). This study highlights the need for new context to deliver IYCF messages for behavior change. Traditional antenatal care clinic may not be good setting for most women from rural area. At such clinic focus is more on the pregnancy and delivery, and moreover women feel tired waiting at such busy clinic and want to go home as soon as possible. IYCF education may be effectively delivered at a place, probably their own home, where women are relaxed, receptive to new ideas and have the time and opportunity to hear something useful. Thus, there is a need to move the IYCF health education setting from the routine ANC clinic to home of the pregnant women. This study also suggests identifying IYCF messenger more intelligently. Such a person may be respectable, acceptable to women, someone who can connect them easily and who care for and love talking them. Such a person

may be a peer from the same locality / village who successfully followed IYCF practices or even a respectable elder woman from the village. Studies have documented that peer counseling or forming support groups of mothers who practiced exclusive breastfeeding as effective strategy for educating women for early initiation and exclusive breastfeeding (Bhutta ZA et al., 2008, Haider R, 2000; WHO-UNICEF, 2006; Sudfeld CR, 2012; Dyson L et al., 2005). However, messenger must be trained to deliver the message in most effective way and should also be provided with certain communication material like flip charts and counseling flash cards.

Limitations

One of the important limitations of this study is the small sample size. But favorable feature of the sampled study population was that the socio economic and cultural factors are almost similar to rural India in general. Thus findings may be generalizable to some extent. Another important limitation was that major decision makers in the family like husbands or mother-in-law of the study participants, were not interviewed. Additionally Recall bias could not be ruled out as some of the women were asked to recall events happened two year prior to data collection. However, we believe that motherhood and care of newborn is a significant happening in the life of women and therefore they are likely to remember the related events.

5. CONCLUSION

Overall study showed that the rate of exclusive breastfeeding did not change much across India over last decade despite considerable efforts by government to promote IYCF. Social and cultural factors do influence IYCF practices. The current approach to educate women on IYCF practices is also not well taken by mother and moreover the important decision makers related to IYCF at household level are left out. Therefore there is a need for more comprehensive IYCF promotion program that is socially and culturally acceptable to women from rural area. Such programs must focus on behavioural change and address issues at household level.

Conflicts of interest

Declared none

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Abbreviation

IYCF - Infant Young Child feeding, NFHS – National Family Health Survey, DLHS- District Level Heath Survey, IIPS- Indian Institute of Population sciences.

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