ORIGINAL ARTICLE

ASSESSMENT OF DETERMINANTS OF COMPLEMENTARY FEEDING PRACTICES IN MOTHERS OF LESS THAN 2 YEARS CHILDREN IN RURAL SETTING OF ISLAMABAD

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Background: Complementary feeding plays a significant role in determining child health up to 2 years of age. This study aimed to determine awareness among mothers about the timely initiation, nutritional adequacy and risks associated with early initiation of CF. **Methods**: A cross sectional study was conducted on 110 mothers living in Farash town Islamabad.List of women having index child less than 2 years was taken from LHW of that area.Subjects were chosen by simple random sampling.Mothers of children less than 2 years were included and children with any congenital abnormalities and mothers who didn't give consent were excluded. Structured questionnaire was used for data collection. Descriptive statistic was used to categorize the study population. Summary statistics was used for continuous variable. **Results**: Ninety-six (87.3%) mothers had knowledge about CF and 88.2% practiced it. Thirty-three (30%) of the respondents had knowledge about correct age of CF and 35 (32%) mothers got CF information from the family members. The risks were known by only 46 (41.8%). Forty (36.4%) had introduced CF at 6 months. Sixty-one (55.5%) faced difficulties while introducing CF. Twenty-eight (45.90%) of children only accepted certain solid foods. Twenty-one (35%) children experienced vomiting. Association was seen between age appropriate CF practice with mother's education (p=0.034), type of family (p=0.002), father's profession (p=0.019) and total number of children (p=0.020). **Conclusion**: Improper feeding practices and inadequate knowledge regarding initiation of CF among mothers was observed. One third mothers initiated CF to their child at the age of 6 months.Same numbers of mothers were giving their child homemade food.Slightly less than half of the mothers knew about risks associated with early introduction of CF.

Keywords: Mothers**;** Complementary feeding practices; Determinants

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INTRODUCTION

An individual's entire life is affected by the feeding practices from birth up to the first few years of life. During the first six months of life, breast milk alone can be used for feeding babies, but after this age complementary feeding is necessary. The timely initiation and appropriateness of nutritional adequacy of complementary food is very essential for the prevention of infant mortality and morbidity such as malnutrition and overweight.[1]

Globally, it is recommended to carry out exclusive breastfeeding up to six months of age both in developed and under developed countries. Later on, safe, appropriate and adequate complementary feeding should be given to the child along with continued breastfeeding.[2]

From birth to 2 years of age, poor feeding practices along with high rates of infectious diseases are one of the most common causes of malnutrition.[3]

Appropriate and timely initiation of complementary feeding practices result in social and behavioural development of child as well as several other health benefits both for the child and mother.[4]

The early initiation of complementary foods before the infant reaches six months of age may cause either replacement of breast milk or discontinuation of breastfeeding or both at a very early stage.[5,6] As a result of this, lower rate of breast feeding along with intake of contaminated foods may cause infection which could also result in malnourishment in children and poor growth and development of baby.[7]

Complementary feeding is affected by different cultural factors, beliefs of the society, and parents on appropriate feeding practices.[8] Similarly, other important determinants of complementary feeding include psychosocial care, hygienic preparation and proper storage of the foods.

Hence, improvement in infant and young child feeding practices specifically complementary feeding is an important means used by the World Health Organization to improve child health status not only in Pakistan but also in other developing countries. Pakistan stunting and wasting indicators were worsening during last 10 years, 43.7% children were stunted 15.1% children were suffering from wasting and 31.5% were underweight and the rate of stunting in Pakistan is second highest, i.e., 43.7% subsequently since many years.[9]

MATERIAL AND METHODS

A cross sectional study was conducted from May to July 2017 at Alipur Farash town Islamabad. Subjects were chosen by using simple random sampling technique. A list of women having index child less than 24 months was taken from LHW of that area. Table of random numbers was plotted. Sample size, was estimated on the basis of the expected 50% prevalence of knowledge of CF (P) and 10% margin of error. (For an exploratory study, for example, a margin of error of ±10% is perfectly acceptable).[10] By using the formula for one proportion and adding 10% inflation, final sample size was 106. Mothers of children with any major co –morbidity, congenital abnormalities and who didn't give consent were excluded from the study. The questionnaire was adapted from the study done in Pakistan and KSA.[11,12] Some modifications were done in questionnaire after extensive literature review of the local culture and environment and pre testing was done on 10% of sample in OPD of Fauji Foundation Hospital on mothers fulfilling the criteria. For statistical analysis, SPSS version 20 was used. Frequency tables, percentages and summary statistics were used for descriptive statistics. Chi- Square was applied for association between knowledge of Complementary feeding with the socio demographic variables.

Ethical approval was taken from the Institutional review board (IRB) of Health Services Academy, Islamabad. Informed consent was taken from the participants before the data collection. The names and personal information of the participants was kept strictly confidential. Data was used solely for the purpose of the study.

RESULTS

A total no of one hundred and ten (110) mothers with infants less than 2 years of age were included in this study. Majority 58 (52.7%) of the respondents belonged to age group of 20–35 years. Out of 110 babies, 9 (8.2%) belonged to age group of 0–5 months and 101 (91.8%) were above 06 months. Regarding gender of the infants, 68 (61.8%) were females. About 53 (48.2%) of the participants had their monthly income ranging between 10,000–20,000. Half of the participants 51 (46.4%) had 3–5 living children. Nuclear family system was found in 32 (29.1%) of the families. Out of 110, 33 (30%) of the mothers were illiterate, 41 (37.3%) had primary education and 28 (25.5%) were middle pass. About 68 (61.8%) babies were born through normal vaginal delivery. (Table-1)

Most of 96 (87.3%) respondents had knowledge about introduction of complementary feeding and 97 (88.2%) of the respondents had started giving complementary feeding to their child. The knowledge about right age of commencing CF was known by 33 (30%) of the respondents and out of these 35 (32%) had got this information by family members. The risks associated with early introduction of CF were known by only 46 (41.8%) and the source of this knowledge was by hospital staff and family members. (Table-2)

The knowledge about right age of initiation of CF was significantly associated with the level of education of mother (p=0.034) and the type of family she belonged (p=0.002). The mothers with primary education had more knowledge regarding right age of introducing CF then the mothers who were illiterate. Moreover, the mothers living in joint family had knowledge about the right age of initiation of CF then those living in a nuclear family.

Socio demographic variables significantly associated with initiation of complementary feeding after 6 months of age were mothers with 3-5 living children (p=0.02) and also fathers who were laborers by profession (p=0.019). (Table-3)

Out of 110 participants, only 40 (36.4%) mothers introduced complementary feeding to their child at the age of 6 months. Sixty-one (55.5%) mothers stated that they faced difficulty while introducing semisolid food to their child. Twenty-eight (46%) children accepted certain types of solid foods and did not eat everything given to them and twenty-one (34%) children experienced chocking or vomiting if they were given semi solid food.

Table-1: Socio demographic characteristics of the respondents

Variables	Percentages (n)	Variables	Percentages (n)
Mother's Education		**Monthly Income**	
Illiterate	30.0 (33)	Below 10,000	22.7 (25)
Primary	37.3 (41)	11,000–20,000	48.2 (53)
Middle	25.5 (28)	21,000–30,000	27.3 (30)
Intermediate	6.4 (07)	Above 30,000	1.8 (02)
Graduate	0.9 (01)	**No of living children**	
Age of mother		1–2	38.2 (42)
Below 20 years	20.9 (23)	3–5	46.4 (51)
20–35 years	52.7 (58)	>5	15.5 (17)
Above 35 years	26.4 (29)	**Type of Family**	
Father's profession		Nuclear	29.1 (32)
Self-employed	30.9 (34)	Joint	70.9 (78)
Labourer	52.7 (58)		
Other	16.4 (18)		

Table-2: Complementary feeding knowledge and practices by mothers

Variables	Percentages (n)
Knowledge about importance of CF	
Yes	50.9 (56)
No	49.1 (54)
Knowledge about risks associated with early initiation of CF	
Yes	41.8 (46)
No	58.2 (64)
Knowledge about when CF should be started	
At 04 months	23.6 (26)
Between 4–6 months	40.9 (45)
At 6 months	30.0 (33)
Others	5.5 (06)
Initiation of CF	
Yes	88.2 (97)
No	11.8 (13)
Age of initiation of CF	
04 Months	29.1 (32)
05 Months	22.7 (25)
06 Months	36.4 (40)
Difficulty in introduction of complementary food	
Yes	55.5 (61)
No	32.7 (36)
Type of CF given	
Home made	33.6 (37)
Commercially prepared	0.9 (1)
Combination of both	53.5 (59)

Association of different variables regarding Complementary Feeding

Table-3: Association between socio demographic variable and knowledge about age of initiation of complementary feeding

Socio demographic Variable	Knowledge about when complementary feeding should be started					
	At 4 months	Between 4–6 months	After 6 months	Others	Total	*p*-value
Age of mother						
Below 20 years	8	6	7	2	23	
20–35 years	13	27	14	4	58	
Above 35 years	5	12	12	0	29	0.269
No of children						
1–2	9	20	9	4	42	
3–4	11	20	19	1	51	0.364
>5	6	5	5	1	17	
Age of child						
0–5 months	2	6	1	0	9	
6 months and above	24	39	32	6	101	0.348
Mother's Education						
Illiterate	15	11	5	2	33	
Primary	8	16	15	2	41	
Middle	0	15	11	2	28	**0.034***
Intermediate	3	2	2	0	7	
Graduate	0	1	0	0	1	
Type of family						
Nuclear	10	10	9	3	32	
Joint	16	35	24	3	78	**.002***

Table-4: Association between socio demographic variable and age of initiation of complementary feeding

Socio demographic Variable	Age of Initiation of complementary feeding				
	At 4 months	Between 4–6 months	After 6 months	Total	*p*-value
Age of mother					
Below 20 years	7	5	7	19	
20–35 years	13	14	23	50	
Above 35 years	12	6	10	28	0.640
No of children					
1–2	12	9	14	35	
3–4	11	10	25	46	**0.020***
>5	9	6	1	15	
Father's profession					
Self- employed	15	8	8	31	
Labourer	17	13	22	52	**0.019***
Other	0	4	10	14	
Mother's Education					
Illiterate	14	8	8	30	
Primary	10	6	15	31	
Middle	5	8	15	28	0.227
Intermediate	3	2	2	7	
Graduate	0	1	0	1	
Type of family					
Nuclear	12	6	9	27	
Joint	10	19	31	70	0.093

DISCUSSION

Introduction of inappropriate and unsafe food supplementation before the age of 6 months was a common practice among the study participants. In this study majority 52.7% of the mothers belong to the age group of 20–35 years of age which is similar to another study held in United Arab Emirates in which about 52.8% of the mothers belongs to the same age group.[12] Similar age groups of mothers (40%) were included in a study carried out by Kimani-Murage *et al*. in Nairobi Kenya.[13] About 37.3% of the mothers have primary level of education while another study held in Zimbabwe majority of the mothers 62.1% belongs to secondary level of education.[14] The current research does not show any association between age of mothers and early introduction of complementary feeding. This finding is in line with a couple of recent studies carried out in Middle Eastern countries which found no association with OR=0.28 (C.I;0.06-1.27) between mother's age and early complementary feeding.[15] In the present study, 51.8% of the mothers had started giving complementary food to their child before six months of age. This is considered to be too early as the digestive system of the infants is not prepared to process the adult diet given by most of the mothers in developing countries like Pakistan.[16] This finding is similar to a study held in Karachi which revealed that only 21.8% of mothers has started complementary feeding before seven months of age.[17] Age of introduction of complementary food was found to be earlier in this study as in the other study findings. A study held in Kuwait shows 30.4% of infants receiving solid foods by the age of 17 weeks.[18] Another study conducted by Sibeko *et al* in preurban South Africa, reported that 33.3% mothers introduced complementary feeding before the age of 6 months.[19]

About 33% of the mothers gave the reason for early introduction of complementary food as the perception of poor baby weight gain or baby being hungry. A study in Australia shows the main reason given for the early introduction of CF before 6 months was the infant's hunger.[21] 52.7% of mothers were between the ages of 20–35 years, about 30% of the mothers were illiterate and 78% of mothers belonged to joint family. No definite association of socio demographic conditions of families with their knowledge about the right age of initiation of complementary feeding was observed except maternal education (primary) and type of family (joint). Analysis of another study done by Al Awad AME, Sonuga revealed that children living in nuclear family have started weaning later as compared to the children living in joint family.[21] In present study, maternal education and knowledge about right age of introducing CF were significantly associated. A study conducted in Lahore by Seema Hasnain showed no statistically significant association of knowledge about CF with the education of the parents.[22] Whereas, a study carried out in Bangladesh reported statistically significant association between maternal education and knowledge about complementary feeding ($p<0.001$).[23] Another study carried out in Islamabad showed similar association between knowledge about right age of introducing complementary feeding practice and maternal education.[24]

In present study, significant association was found between father's profession and age of initiation of CF. It was observed that about 30% of the fathers with children, who started early complementary feeding, were laborers belonging to poor socio-economic strata. In a similar study in a West African country (Liberia), significant association was found between father's profession and early introduction of CF. In that study, infants whose fathers worked in an agricultural industry were predictors of early introduction of CF.[25]

The advice regarding complementary feeding was given by family members to 32% of mothers and by doctors to about 30% of mothers. The result of this source of information is comparable with another study held in Lahore showing that 78% of mothers received advice regarding CF by family members and 23% by doctors.[26] According to this study, the role of health care system in imparting the knowledge about complementary feeding is very important but it appears to be very weak, leading to inaccurate practices among the mothers.[27]

Homemade food was given to the children by only 33% of the mothers while majority of them preferred giving combination of homemade and commercially prepared food to their children. In Nigeria, about 76.0 % of the respondents had preference for home – prepared weaning foods, while 9.0% and 15.0% of them had preference for commercially – prepared weaning foods and combination of home-prepared and commercially – prepared weaning foods respectively.[28] Similarly in another study in Lahore, 44% mothers were using home – made food items, 30% used mixture of home- made and commercially prepared diets, while 16% used only commercially prepared diets.[29]

CONCLUSION

In the present study, improper infant feeding practices and inadequate knowledge regarding complementary feeding among mothers was observed. Specific knowledge about the type of food and right time for initiation of complementary feeding remained poor. About one third mothers initiated complementary feeding to their child at the age of 6 months. Same numbers of mothers were giving their child homemade food. Slightly less than half of the mothers knew about risks associated with early introduction of complementary feeding.

Limitations: Key limitation of the study is the recall bias as it was self-reporting retrospective study. A further limitation is that present study was conducted in Alipur Farash town Islamabad (a rural area in Islamabad) so its results cannot therefore be extrapolated on general population.

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Conflict of interest: The authors declare no conflict of interest

AUTHORS' CONTRIBUTION

RA: Introduction, Literature Review, Methodology, Data collection, Data Analysis. RK: Introduction, Literature Review Discussion, Conclusion. NFB: Literature review, Rationale, Methodology, Conclusion

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