

Association of mothers' socio-demographic characteristics with their knowledge and practices about complementary feeding

Rameeza Kaleem¹, Muhammad Adnan², Summaira Naveed³, Tayyaba Rahat²

¹Department of Preventive Pediatrics, Sir Ganga Ram Hospital, Lahore, Pakistan, ²PHRC Research Centre, Fatima Jinnah Medical University Lahore, Pakistan, ³Department of Pediatrics, Sir Ganga Ram Hospital, Lahore, Pakistan.

Correspondence to: Dr. Rameeza Kaleem, E-mail: drrameezakaleem@gmail.com

ABSTRACT

Background: Early under-nutrition not only hampers physical growth but also adversely affects cognitive growth of children. Hence, appropriate complementary feeding practices are crucial for the proper growth of children. The study was aimed to find the association of mothers' sociodemographic characteristics with their knowledge and practices about complementary feeding.

Subjects and methods: The cross sectional analytical study was carried out at preventive pediatric department of Sir Ganga Ram Hospital Lahore from November to December 2016. Interviews of 148 mothers were conducted to collect data. Data was analyzed by using Statistical Package for Social Sciences version 20.

Results: The mean age of mothers was 27±5 years; average family income was 21,000 PKR/month; 81% received formal school education; and 7% were doing job. Only 47% mothers had adequate knowledge of complementary feeding; and only 23% mothers had appropriate feeding practices. The mothers who received antenatal care and counseling (OR=2.906); and those who were doing job (OR=4.903) had higher odds and showed significant association with appropriate knowledge (p<0.05). The mothers who were literate (OR=3.231) or who had age ≥35 years (OR=2.400) had higher odds for appropriate practices. Mothers who received antenatal care; delivered within hospital; and those who were literate showed significant association with appropriate practices (p<0.05).

Conclusion: Both, knowledge and practices regarding complementary feeding were inappropriate. Seeking antenatal care and counseling, and delivery within a hospital had significant association with appropriate knowledge and practices. Proper counseling and awareness of mothers to adhere with appropriate child feeding practices is highly recommended.

Keywords:

Undernutrition, infant feeding, maternal education, complementary feeding practices, hospital delivery.

INTRODUCTION

Exclusive breastfeeding practice plays vital role in proper growth of children aged up to 6 months.¹ But breastfeeding alone falls short of providing the full nutritional requirements of a child aged more than 6 months. Therefore, introducing complementary feeding at this age plays a critical role in filling these gaps.² First two years of age are “window of opportunity” to promote the optimal growth, behavioral development, and excellent health of children; and to prevent malnutrition.^{3,4} Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The target age range for complementary

nutrition is quite common in developing countries where child feeding practices are suboptimal.⁶ It accounts for poor growth, disease and disability and large number of child deaths.^{7,8} Nearly 20% of total under-five mortality can be prevented by 90% coverage of optimal child feeding practices.⁵ In developing countries, complementary feeding face challenges of poor feeding practices characterized by poor timing for introduction of complementary foods, infrequent feeding, inadequate amount, too little variety and poor feeding methods.^{9,10} Poor quality of food and lack of diversity has adverse effects on growth and nutritional status of children.¹¹ The child care practices depend upon and get modified by different factors such as knowledge and beliefs of care provider, health of care provider, control of resources, decision making role, income, workload, time constraints and family support.² The mothers' knowledge and competence as care provider have a key role in the nutritional outcome and growth of children.⁹ Lack of mothers' knowledge may be the reason of poor feeding practices. Assistance and guidance of mothers can benefit them in the better utilization of available resources for the health of their children.¹² Taking this into consideration, the aims of this study were to evaluate the mothers' knowledge and practices about complementary feeding;

Competing interest: The authors have declared no competing interests exist.

Citation: Kaleem R, Adnan M, Naveed S, Rahat T. Association of mothers' socio-demographic characteristics with their knowledge and practices about complementary feeding. J Fatima Jinnah Med Univ. 2018; 12(2): 76-80.

feeding is 6 to 24 months of age, even though breastfeeding may continue beyond two years.¹ Inappropriate feeding practices lead to morbidity and mortality in infants either directly or indirectly.⁵ Compliance with infant and young child feeding (IYCF) practices is obligatory for better health of children. Under

and to find its association with their sociodemographic characteristics.

SUBJECTS AND METHODS

The cross-sectional analytical study was carried out at preventive pediatric department of Sir Ganga Ram Hospital Lahore from November to December 2016. Bioethical clearance [No.06/IERB dated 22.02.2016] was obtained from Institutional Ethical Reviewer Board of Fatima Jinnah Medical University/ Sir Ganga Ram Hospital, Lahore. Informed consents were taken from all participating mothers. Total 148 mothers of children aged 6-24 months were selected by non-probability consecutive sampling technique. Interviewer administered questionnaire was used to collect the data from mothers. The knowledge and practices of mothers were compared with optimal child feeding practices endorsed by the World Health Organization (WHO).¹ Complementary feeding means giving other foods in addition to breast milk starting at age of six months. The feeding practices of mothers as per WHO recommendation were considered as appropriate otherwise inappropriate feeding practices. Data was entered and analyzed by using Statistical Package for Social Sciences version 20. Numerical variables e.g. age, income etc. were presented using mean $\pm$ standard deviation; whereas categorical variables e.g. education, occupation etc. as number (percentage). Chi square were used to find the associations between mothers' characteristics and their knowledge and practices. Odds for sociodemographic characteristics were calculated to measure the chances of appropriate knowledge and practices about complementary feeding. The significant p-value was ≤ 0.05 .

RESULTS

The mean age of 148 mothers was 27 ± 5 years; and average family income was Pakistani Rupee (PKR) 21,000/per month. Total 93% mothers were residing in the urban Lahore; 81% mothers had received formal school education; and 7% were doing job. The mothers who visited some healthcare facility at least once to seek antenatal care were 92%; and those who delivered baby in the hospital were 93%. The mean age of 148 children was 13 ± 5 months. Gender wise frequency of children being

60.8% boys and 39.2% girls. The assessment of mothers' knowledge about child feeding showed that 73% mothers had knowledge about six months duration of exclusive breastfeeding; 5.4% responded that it should be up to the age of four months; and 21.6% said that they do not know. Similarly, 81% mothers were well informed about the continuation of breastfeeding up to the age of two years; 4% responded that it should be continued up to one year; and 15% responded 'do not know'. Though 88% mothers were aware about timely complementary feeding, but 46% had no knowledge about four food groups, age-wise frequency, and serving size. Majority of the mothers could not tell about right age of children to introduce meat, eggs and vegetables. Also, 69% mothers could not tell names of iron containing foods. Overall, 47% mothers had appropriate knowledge about complementary feeding. The assessment of mothers' practices about child feeding showed that only 27% mothers had standard exclusive breastfeeding practices. The mothers who predominantly and partially breastfed were 20% and 39%, respectively. Those who fed solely on formula milk were 14%. More than 50% mothers were giving food of low diversity to their children; only 31% mothers were practicing recommended four food groups. Overall, 23% mothers were feeding their children in an appropriate feeding style. The mothers' knowledge was significantly associated with their working job status; seeking antenatal care and counseling about complementary feeding; delivery within hospital ($p < 0.05$). Whereas, elder age ≥ 35 years, formal school education, family income ≥ 21000 PKR/month, and multi-parity of mothers had no relationship with their knowledge. However, working job status ($OR = 4.903$) and seeking antenatal care and counseling ($OR = 2.906$) showed higher odds for appropriate knowledge of mothers. The mothers' practices were significantly associated with their formal school education, seeking antenatal care and counseling about complementary feeding; delivery within hospital ($p < 0.05$). Whereas, elder age ≥ 35 years, working job status, family income ≥ 21000 PKR/month, and multiparity of mothers had no relationship with their feeding practices. However, elder age ≥ 35 years ($OR = 2.400$) and formal school education ($OR = 3.231$)

Table 1. Association of mothers' sociodemographic characteristics with their knowledge and practices about complementary feeding

	Knowledge		Practices	
	Odds (95% CI)	p-value	Odds (95% CI)	p-value
Age ≥ 35 years	1.125 (0.145-3.663)	0.845	2.400 (0.730-7.890)	0.140
Education Literate	0.875 (0.384-1.993)	0.835	3.231 (1.051-9.932)	0.033
Job status Working	4.903 (1.005-23.933)	0.047	1.872 (0.382-9.184)	0.433
Monthly income ≥ 21000 PKR	0.971 (0.506-1.862)	0.928	0.600 (0.292-1.233)	0.163
Parity Multiparous	1.143 (0.597-2.189)	0.687	1.068 (0.530-2.153)	0.854
Antenatal visit Yes	0.158 (0.033-0.748)	0.013	1.133 (1.056-1.217)	0.018
Counseling Yes	2.906 (1.407-6.003)	0.003	1.699 (0.815-3.542)	0.155
Place of delivery Hospital	0.875 (0.779-0.943)	0.013	1.109 (1.040-1.182)	0.031

showed higher odds for appropriate practices of mothers (Table 1).

Though, no significant association was obtained between appropriate knowledge and appropriate practices

of complementary feeding, it was obvious from the results that seeking antenatal care and counseling, and delivery within hospital had significant association with appropriate postnatal knowledge and practices. Whereas, elder age, family income, and previous experience (multiparity) of mothers cannot guarantee appropriate feeding practices.

DISCUSSION

Both, breast feeding and complementary feeding practices, can decrease under-five mortality rate by 13% and 6%, respectively.¹³ Thus, adherence to infant and young child feeding (IYCF) practices is obligatory for the better health of children. Unfortunately, majority of the mothers in present study reported poor practices in terms of food quality and quantity. Only one third proportion of mothers used to feed diverse foods to the children. Though, no considerable association between appropriate knowledge and appropriate practices of mothers about complementary feeding was found in the present study, however, mothers' who received antenatal care, counseling and delivered within hospital showed significant relationship with their appropriate knowledge and appropriate practices. Other studies from Pakistan have also reported inappropriate child feeding practices such as short duration of exclusive breastfeeding; starting complementary feeding before the age of six months; and poor knowledge and practices in respect of food frequency and diversity.¹⁴ A study from Northern region of Pakistan reported similar results of poor knowledge and practices regarding food frequency and diversity as observed in present study. It showed that only 72% mothers had started complementary feeding timely; whereas 16% started before the age of 6 months, and 12% at the age of 1 year. Moreover, 39% mothers had no knowledge about giving four food groups to their children.¹⁵

The studies from India had reported results almost similar to the findings from Pakistan. Sethi et al¹⁶ concluded that Indian mothers had inadequate knowledge and inappropriate practices about introduction of complementary feeding. Kujur and friends reported a gap between the knowledge and the practices of exclusive breastfeeding and introduction of complementary feeding among Indian mothers.¹⁷ Similarly, Jain and coauthors reported that more than 83% mothers had good knowledge, but the practices were not satisfactory. Unfortunately, 36% Indian mothers practiced exclusive breastfeeding; 48% started complementary feeding at the right age; but only 6% continued breastfeeding for two years.¹⁸ Other studies have reported more or less similar results about knowledge and practices of mothers. Semahegn and coauthors from Ethiopia reported that 19% started complementary feeding earlier than six months; however 60% initiated it at the age of 6 months. Two main reasons of poor practices included lack of knowledge (47%) and mothers' perception of inadequate breast milk production (30%).¹⁹ Similarly, Berisha and colleagues from Kosova reported that overall

88% mothers had adequate knowledge about complementary feeding, whereas only 38% mothers had appropriate feeding practices.²⁰ These studies have a common finding that mothers had a better knowledge but the practices were not corresponding to their knowledge. Olatona and friends from Nigeria reported very low rate (14.9%) of mothers' knowledge about complementary feeding. The inadequate knowledge had been associated with mothers' age and education level. Appropriate complementary feeding practices were associated with mothers' education level and occupation.²¹ Unlike to this, getting formal education, family income ≥ 20000 PKR per month, age ≥ 35 years and multiparity had no relationship with the knowledge

in current study. However, Ashraf and coauthors reported significant association between appropriate complementary feeding practices and education of Pakistani mothers.²² Habibi and colleagues from Morocco also reported a significant association of exclusive breastfeeding with mother's education ($p<0.001$); socioeconomic status ($p<0.001$); and employment ($p<0.001$).²³

Kassa and associates reported that food diversity practices (18%) of Ethiopian mothers were almost similar; however minimum meal frequency (67%) and introducing complementary feeding at right age (72%) were better than the practices of mothers from Pakistan, India, Nigeria and Kosova. Moreover, educational level [AOR=3.24], and smaller size of family [AOR=12.10] were independent predictors of appropriate complementary feeding practice.²⁴ In current study, mothers' occupation (OR=4.903) and counseling (OR=2.906) had higher odds for appropriate knowledge. Similarly, education (OR=3.231) and elder age (OR=2.400) had higher odds for appropriate practices.

Sanusi and colleagues from Nigeria reported that mothers who had knowledge of food diversity and breastfeeding duration were 70% and 60%, respectively. While exclusive breastfeeding was practiced only by 24%. The relationship of mothers' knowledge with infant feeding practices was not significant.²⁵ Similarly, the results of present study also found no significant association between appropriate knowledge and appropriate practices of complementary feeding. The results also revealed that elder age, family income, and multiparity could not lead to adequate knowledge and appropriate practices. However, receiving antenatal care and counseling had a profound impact on appropriate complementary feeding practices.

CONCLUSION

The maternal knowledge and practices regarding complementary feeding were inappropriate in the local population from Central Lahore represented at Ganga Ram Hospital Lahore. Seeking antenatal care, counseling and delivery within an appropriate healthcare facility had significant association with appropriate knowledge and practices. Increasing the awareness and proper counseling of mothers to adhere with appropriate child feeding practices is strongly recommended.

ACKNOWLEDGEMENTS

We thank Dr. Farah Zahoor who helped us in data collection; and Dr. Faiz Ahmed Raza for his assistance in manuscript writing.

REFERENCES

1. World Health Organization. Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals. Geneva, Switzerland: World Health Organization; 2009. [Cited 2018 May 19]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK148965/pdf/Bookshelf_NBK148965.pdf
2. Sethi V, Kashyap S, Seth V. Effect of nutrition education of mothers on infant feeding practices. *Indian J Pediatr*. 2003;70(6): 463-6.
3. Victora CG, de Onis M, Hallal PC, Blossner M, Shrimpton R. Worldwide timing of growth faltering: revisiting implications for interventions. *Pediatrics*. 2010;125(3): e473-80.
4. World Bank. 2006. Repositioning nutrition as central to development: a strategy for large-scale action. directions in development series. Washington, D.C. [Cited 2018 May 19]. Available from: <https://siteresources.worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategyOverview.pdf>
5. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet*. 2003;362(9377): 65-71.
6. Sinhababu A, Mukhopadhyay DK, Panja TK, Saren AB, Mandal NK, Biswas AB. Infant-and young child-feeding practices in Bankura district, West Bengal, India. *J Health Popul Nutr*. 2010;28(3): 294-9.
7. Victora CG, Adair L, Fall C, Hallal PC, Martorell R, Richter L, et al. Maternal and child undernutrition study group. Maternal and child undernutrition: Consequences for adult health and human capital. *Lancet*. 2008;371(9609): 340-57.
8. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al. Maternal and child undernutrition study group. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet*. 2008;371(9608): 243-60.
9. Ruel MT, Levin CE, Armar-Klemes M, Maxwell D, Morris SS. Good care practices can mitigate the negative effects of poverty and low maternal schooling on children's nutritional status: evidence from Accra. *World Dev*. 1999;27(11): 25-6.
10. Caetano MC, Ortiz TT, Silva SG, Souza FI, Sarni RO. Complementary feeding: inappropriate practices in infants. *J Pediatr (Rio J)*. 2010;86:196-201.
11. Brennan L, McDonald J, Shlomowitz R. Infant feeding practices and chronic child malnutrition in the Indian states of Karnataka and Uttar Pradesh. *Eco Hum Bio*. 2004;2:139-58.
12. Sethi V, Kashyap S, Seth V, Agarwal S. Encouraging appropriate infant feeding practices in slums: a positive deviance approach. *Pakistan J nutrition*. 2003;2:164-166.
13. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet*. 2003;362:65-71.
14. Mohsin SS, Shaikh AS, Shaikh R, Haider N, Parkash A. Knowledge attitude and practice of mothers regarding complementary feeding. *J Dow Univ. Health Sci*. 2014;8:21-25.
15. Dad F, Habib I. Mother's knowledge, attitude and practices (KAP) regarding complementary feeding for children age 06-24 months in Kurram Agency of FATA Pakistan. *J Prev Med Public Health*. 2017;3:33-42.
16. Sethi RK, Padhy S, Raju DV. Knowledge, attitude and practices regarding complementary feeding among mothers of children 6 to 24 months of age in Konaseema region. *Int J Contemp Pediatrics*. 2017;4:394-398.
17. Kujur A, Vidyasagar, Haider S, Kashyap V. Knowledge attitude and practice of complimentary feeding among mothers attending immunization centre, RIMS, Ranchi, Jharkhand. *IJIMS*. 2016;3:70-76.
18. Jain S, Thapar RK, Gupta RK. Complete coverage and covering completely: Breast feeding and complementary feeding: Knowledge, attitude, and practices of mothers. *Med J Armed Forces India*. 2018;74:28-32.
19. Semahegn A, Tesfaye G, Bogale A. Complementary feeding practice of mothers and associated factors in Hiwot Fana Specialized Hospital, Eastern Ethiopia. *Pan Afr Med J*. 2014;18:143.
20. Berisha M, Ramadani N, Hoxha R, Gashi A, Zhjeqi V, Zajmi D, et al. Knowledge, attitudes and practices of mothers in Kosova about

- complementary feeding for infant and children 6-24 months. *Med Arch.* 2017;71:37-41.
21. Olatona FA, Adenihun JO, Aderibigbe SA, Adeniyi OF. Complementary feeding knowledge, practices, and dietary diversity among mothers of under-five children in an urban community in Lagos State, Nigeria. *Int J MCH AIDS.* 2017;6:46-59.
 22. Ashraf S, ud Din Ahmed M, Mushtaq MH, Singh G, Khan A. KAP survey in mothers towards infant care and feeding in Pakistan. *American J Epidemiol Public Health.* 2017;1:001-007.
 23. Habibi M, Laamiri FZ, Aguenou H, Doukkali L, Mrabet M, Barkat A. The impact of maternal socio-demographic characteristics on breastfeeding knowledge and practices: An experience from Casablanca, Morocco. *Int J Pediatr Adolesc Med.* 2018;5:39-48.
 24. Kassa T, Meshesha B, Haji Y, Ebrahim J. Appropriate complementary feeding practices and associated factors among mothers of children age 6-23 months in Southern Ethiopia, 2015. *BMC Pediatr.* 2016;16:131.
 25. Sanusi R.A, Leshi O.O, Agada U.N. Mother's knowledge and practice of breastfeeding and complementary feeding in Enugu State Nigeria. *JRNM.* 2016;5:021-029.