Factors Affecting Weaning Awareness Among Mothers in Rural Sindh

Ahsan Ali Dahani[1], Syed Imtiaz Ahmed Jafry[2], Syed Muhammad Zulfiqar Hyder Naqvi[3], Munir Ahmed Shaikh[4], Muhammad Zafar Iqbal Hydrie[5], Muhammad Zahid Shah[6]

Abstract

Objective: To determine the factors affecting weaning awareness among mothers in Kashmore, rural Sindh.
Methods: A cross-sectional study was conducted among children's' mothers at district Kashmore, Sindh, from March 2018 to November 2018. The inclusion criteria were mothers' aged 18 years or above and child's age more than two years whereas mothers refusing to give verbal informed consent were excluded from the study. A total of 200 mothers were included in the study from a rural community and were interviewed by using the study questionnaire. Data were analyzed using statistical package for social sciences version 20 while Mann Whitney U test and Kruskal Wallis H test were used for inferential analysis. The study duration spanned over 9 months.
Results: The mean age of the mothers was 27.1 ± 6.3 years and the average number of children for every household was 2.4 ± 1.3. When participants were asked about what weaning foods should be given to a child, 176 (88.0%) mothers said bread or roti, 153 (76.5%) said yogurt, 144 (72%) said boiled rice, 133 (66.5%) said vegetables, 130 (65.0%) said suji or kheer, 95 (47.5%) said egg yolk while only 71 (35.5%) said fruits. Comparison of the socio-demographic characteristics showed that the mean awareness scores of the mothers were significantly different across categories of mothers' education ($p<0.001$), fathers' education ($p<0.001$), monthly household income ($p<0.001$) and type of family ($p=0.025$).
Conclusion: Based on study results it can be concluded that certain socio-demographic factors such as mothers' education, fathers' education, monthly household income and type of family can influence the awareness of the mothers regarding the weaning of their children. Therefore any effort aimed at improving their awareness should take into account the factors identified in this study.
Keywords: Awareness, Weaning, Mothers
IRB: Approved by departmental research committee, Baqai Institute of Health Sciences. Ref#: FHM 274-2019/MPH Student/Batch 26. Dated: 19th March 2019.
Citation: Dahani AA, Jafry SIA, Naqvi SMZH, Shaikh MA, Hyderi MZI, Shah MZ. Factors Affecting Weaning Awareness Among Mothers in Rural Sindh [Online]. Annals ASH KMDC 2020;25:

(ASH & KMDC 25(3):158;2020)

Introduction

Weaning, also known as complimentary feeding, is defined by World Health Organization (WHO) as "a 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"[1]. WHO has endorsed exclusive breast feeding for first 6 months of life and then recommend initiating weaning or complimentary feeding at six months of age till the age of two years for optimal health, growth and development of the child[2,3]. Subsequent to the first six months of life breast milk, if unaided, remains short of meeting the whole nutritional necessities of the infants who grow and become more active; and any gap in meeting their energy requirements increases with the growing age of infants and young children; weaning therefore plays a decisive role in bridging these gaps[3,4].

In Pakistan, predominant breastfeeding is common with 94% of children reported are ever

[1]Department of Health, Government of Sindh
[2-5]Department of Community Medicine,
Baqai Medical University
[6]Department of Family Medicine,
Baqai Medical University

Correspondence: Dr. Ahsan Ali Dahani
Department of Health, Government of Sindh
Email: ahsandahani@gmail.com
Date of Submission: 10th January 2020
Date of Acceptance: 2nd December 2020

breastfed, and 38% are exclusively breastfed[5]. Unfortunately only 16% of breastfed children in Pakistan receive minimum dietary diversity from four or more food groups and the minimum number of meals a day. The numbers are even worse for non-breastfed children (10%). Pakistan falls below the average for South Asia in this regard, where minimum dietary diversity stands at 25% of children aged 6-23 months and minimum acceptable diet at 18%[6]. The target age for weaning ranges between 6 and 23 months when children achieve a neurological action stage of development, i.e., chewing, swallowing, digestion, excretion etc. which empowers the children to be fed on weaning foods along with continued breast feeding or formula feeding. Weaning foods can be designed from conventional family foods which can address the gap between the daily energy requirements of children and the calories achieved from breast or formula feeding[7].

Weaning during 6-24 months of life is critically important and a determining factor for optimal growth, physical, mental development and prevention of malnutrition and its complications. Its effects are deeply linked with health and disease status in the later life of a child as it offers the fundamentals necessary for the optimal health through life[6]. According to United Nations International Children Fund (UNICEF), the first 1000 days of a human's life, nine months of pregnancy plus the first two years of life, are a decisive age[8], the window of opportunity to strengthen nutritional status of a child, when an inadequately nourished child remains more susceptible to malnutrition and its injurious effects like increased morbidity and mortality[9,10].

Age-appropriate complementary feeding is an essential addition to breastfeeding after a child is six months of age. National Nutritional Survey 2018 found the indicators of quality complementary feeding to be far below acceptable levels in Pakistan[7]. Only one of every three young children receives complementary food between 6-8 months of age. A smaller proportion of boys (34.6%) are introduced to complementary food at the right age compared to girls (37.3%). Some provinces such as Sindh performed better than others but timely introduction of complementary feeding needs significant improvement across Pakistan[7]. Over time, three of the four complementary indicators have declined significantly which points to a need for robust and large-scale promotion of adequate complementary practices in Pakistan to contribute to reducing stunting among young children. Only one in seven children (14.2%) aged 6-23 months receive a meal with minimum dietary diversity, with at least four different food groups in the National Nutritional Survey 2018. Complementary foods that meet the requirements of a minimum acceptable diet to ensure optimal growth and development for children aged 6-23 months are provided to less than one in 20 children (3.6%). More children in urban areas receive adequate complementary foods than their peers in rural areas, but rates are critically low in both localities[7].

Pakistan possesses one of the highest prevalence of child malnutrition compared to other developing countries[11]. Pakistan Demographic and Health Survey 2012-13 has identified that 44.4% of children below 5 years of age were stunted, 29.4% were underweight while 10.7% were wasted[5].

According to available literature, awareness regarding proper weaning among majority of mothers is not adequate[12,13]. The socioeconomic determinants of poor maternal awareness regarding weaning may be varied. According to available literature, maternal health, maternal age, maternal education, parity and socioeconomic status are among some of the commonly reported factors for poor weaning[14-16].

Although this topic has been addressed in previous studies conducted outside Pakistan, thorough literatures search by the investigators revealed limited relevant local literature and even scarcer in rural population. This study was therefore carried out in a rural community to determine the factors affecting weaning awareness among mothers in Kashmore, rural Sindh.

Subjects and Methods

A cross-sectional study was conducted among children's mothers regarding awareness for weaning at district Kashmore, Sindh, from March 2018 to November 2018 after taking Ethical Approval from Baqai Institute of Health Sciences Departmental Research Committee. The inclusion criteria were age of mothers 18 years or above and child's age more than two years whereas mothers refusing to give verbal informed consent were excluded from the study.

By taking the frequency of the outcome factor as 50% for most liberal estimate, with 95% confidence level and 7% precision, the minimum required sample size was calculated to be 196 participants. Against the calculated sample size, a total of 200 mothers were included in the study.

The interviews were conducted by the principal investigator for his masters' research who went into a rural community of district Kashmore and approached mothers in their households using convenience sampling technique. Verbal informed consent was taken from both the participating heads of the households and the mothers prior to their interview. The mothers were interviewed by using a questionnaire designed specifically for the study.

The study questionnaire was piloted on 5% of the sample size to check both face validity and reliability and was modified accordingly. Along with demographic profile of the mothers the questionnaire contained 10 questions to assess awareness of mothers regarding weaning. These questions were about the appropriate age of weaning, the effect of weaning on child's growth, the role of weaning in protecting the child from illnesses and the foods which should be given to a child for weaning. A correct response of the participant was scored 1 while an incorrect response was scored zero. The maximum possible awareness score was therefore 10 while the minimum was 0.

After collection the data were entered in IBM SPSS version 20 and cleaned and checked for any missing values or inconsistencies. Descriptive statistics were calculated for the demographic variables such as frequencies and percentages for categorical variables and means and standard deviations for continuous variables. For inferential analysis, after checking the relevant assumptions such as the dependent variable being continuous, the independent variable comprising of two or more categories, independence of observations and the variables being not normality distributed, the awareness scores were compared across the categories of demographic variables using Mann Whitney U test and Kruskal Wallis H test to explore any statistically significant association. The significance level was set at 0.05.

Results

In our study, two hundred mothers were participated and the response rate was 100%. The mean age of the mothers was 27.1 ± 6.3 years and the average number of children for every household was 2.4 ± 1.3; 32 (16.0%) of the mothers were illiterate, 50 (25.0%) had secondary while 58 (29.0%) had intermediate education; 37 (18.5%) of the fathers had received secondary education, 87 (43.5%) had intermediate education while only 25 (12.5%) were graduates; 100 (50.0%) of the mothers had monthly household income less than 10000 Rs. while 70 (35.0%) had between 10000 to 24000 whereas 194 (97.0%) of the mothers lived in joint family system Table 1.

The study results further showed that 56 (28%) of the mothers knew the appropriate age of weaning, 110 (55%) of them knew that weaning at appropriate age has a positive effect on child growth while 95 (47.5%) of them knew that weaning at appropriate age protects a child from future illnesses. When participants were asked about what weaning foods should be given to a child, 176 (88.0%) mothers said bread or roti, 153 (76.5%) said yogurt, 144 (72%) said boiled rice, 133 (66.5%) said vegetables, 130 (55.0%) said suji or kheer, 95 (47.5%) said egg yolk while only 71 (35.5%) said fruits (results not shown).

The study results further showed that the mean awareness scores of the mothers were significantly different across categories of mothers'

education (p<0.001), fathers' education (p<0.001), monthly household income (p<0.001) and type of family (p=0.025) where mothers who were graduate or above, children fathers who were graduate or above, mothers with monthly household income of 25000 or above and mothers who lived in nuclear family system had higher mean knowledge scores than others (Table 2).

Discussion

In most of the developing countries weaning is still a challenge to optimal nutrition in children aged 6-23 months[17], and one of the key factors that can potentially improve the current situation is maternal awareness. In the given context, this study was an attempt at assessing the awareness of mothers regarding weaning and to identify its associated factors in Kashmore, rural Sindh.

Table 1. Demographic Characteristic of Participating Households

Variable (n=200)	Count (%) / Mean ± S.D 2.42 ± 1.34
Age of Mother (Years)	
Number of Children	
Up to 2	54 (27.0)
3 to 4	70 (35.0)
5 to 6	55 (27.5)
7 or Above	21 (10.5)
Mother's Education	
Illiterate	32 (16.0)
Able To Read and Write	22 (11.0)
Primary	24 (12.0)
Secondary	50 (25.0)
Intermediate	58 (29.0)
Graduate or above	9 (4.5)
Religious education only	5 (2.5)
Father's Education	
Illiterate	16 (8.0)
Able To read and write	10 (5.0)
Primary	19 (9.5)
Secondary	37 (18.5)
Intermediate	87 (43.5)
Graduate or above	25 (12.5)
Religious Education Only	6 (3.0)
Monthly Household Income	
Less Than 10,000 Rupees	99 (49.5)
10000 To 24000 Rupees	70 (35.0)
25,000 and Above Rupees	30 (15.5)
Types of Family	
Nuclear	6 (3.0)
Joint	194 (97.0)

Table 2. Association between Demographic Characteristics and Awareness Score

Variables (n=200)	Awareness Score Mean ± S.D	P
Age (Years)		
Up to 25	5.94 ± 1.65	0.361
26 or Above	5.72 ± 1.78	
Number of Children in Family		
1 to 2	6.19 ± 1.46	
3 to 4	5.76 ± 1.82	0.181
5 to 6	5.47 ± 1.67	
7 or above	6.10 ± 1.94	
Mother's Education		
Illiterate	4.63 ± 1.62	<0.001
Able to read and write	5.68 ± 1.58	
Primary	4.88 ± 1.51	
Secondary	5.94 ± 1.44	
Intermediate	6.41 ± 1.59	
Graduate or above	8.22 ± 0.83	
Religious Education Only	6.80 ± 0.83	
Father's Education		
Illiterate	4.31 ± 1.58	<0.001
Able To Read and Write	6.10 ± 1.59	
Primary	5.37 ± 1.34	
Secondary	5.68 ± 1.56	
Intermediate	5.82 ± 1.67	
Graduate or Above	7.12 ± 1.74	
Religious Education Only	6.83 ± 0.73	
Monthly Household Income		
Less than 10,000 Rupees	5.18 ± 1.69	<0.001
10000 to 24000 Rupees	6.23 ± 1.46	
25,000 or Above Rupees	7.03 ± 1.42	
Type of Family		
Nuclear	7.14 ± 1.46	W0.025
Joint	5.79 ± 1.71	

Age at which weaning should be initiated was correctly identified by only 28% of the mothers. A similarly study conducted in Gujrat, India reported that 50% mothers possessed correct knowledge that weaning should begin at six months of age[18]. These findings are suggestive that knowledge of mothers regarding weaning is far from satisfactory especially in rural areas. As reported in National Nutritional Survey 2018, the practice of satisfying a child's hunger with supplementary liquids by the mothers continued beyond the first six months, delaying initiation of complementary feeding. Some mothers continued giving their child a liquid-based diet for more than six months, believing that liquids are enough for the child. A significant number of mothers in all regions mentioned keeping their child

on liquids for at least eight months, influencing the age of initiation of complementary feeding. Moreover, among interviewed mothers, the latest age for initiation of complementary feeding was one year and the earliest was 40 days, reported by mothers in Punjab and Khyber Pakhtunkhwa provinces respectively[7]. Various reasons were provided by mothers and caregivers for initiating complementary feeding early or late, some of which were related to caregiving practices including poor knowledge, and to lack of economic resources compelling the mother to continue breastfeeding or a liquid diet like tea or diluted milk[7]. Rather than dietary diversity according to various food groups, mothers and caregivers perceived diversity more in terms of taste, that is sweet or salty foods, and repeatedly listed items in the same food groups in slightly different forms. Besides poor knowledge about dietary diversity, parents and caregivers were also constrained in providing a variety of foods to their children primarily because they could not afford to do so[7].

Published literature reveals that on average, breastfed children are fed 2.7 different food groups nationally, compared to 3.5 food groups for non-breastfed children. The figure in both cases is lower than the recommended minimum of four out of seven food groups[7]. Across all regions, dietary diversity was higher for non-breastfed children compared to breastfed children. Often caregivers preferred to feed children milk when the child was not breastfed and this was calculated as an additional food group. In our study bread or roti (88%) was the most stated as weaning food followed by yogurt (76.5%) and boiled rice (72%). Vegetables was stated as the weaning food in 66.5% mothers followed by 55% said suji/kheer, 47.5% said egg yolk and only 35.5% said fruits which was also the least consumed food in the National Nutritional Survey 2018[7].

Our study found a significant association of mothers' education with their awareness of weaning. The key decision-maker with regards to the initiation of complementary foods was usually the mother of the child. However, various household and community members influenced the decision. It was common to get recommendations from healthcare providers such as doctors or LHWs regarding the initiation of complementary feeding[7]. Chaudhry R and Humayun N in 2007 found lower maternal education to be significantly associated with delayed commencement of weaning by mothers[19]. Folasade A et al., in 2017 also reported higher maternal education to be positively correlated with better practices of weaning[20]. Even though our study assessed maternal awareness while the latter two studies evaluated maternal practice, as mothers are expected to practice only what they know is best for their children, the significance of maternal education in this scenario cannot be overlooked. Moreover, if weaning is not initiated at the recommended time and with recommended foods, it is likely to lead to malnutrition; and maternal education is also known to be a dominant risk factor for malnutrition in children[21,22].

The study results also showed monthly household income to be significantly associated with awareness of the mothers regarding weaning. It is evident from this research that lack of economic resources is the main barrier to incorporating adequate food quantity (in terms of number of portions) and diversity in children's diets. We found that affordability issues significantly influenced dietary diversity as parents were feeding their children the limited range of foods that they could afford to buy. It was mentioned that milk, eggs, meat, fruits and vegetables were hard to afford, whereas grains, roots and tubers, and shelf foods, were comparatively affordable. For this reason parents relied on these foods as staple diets[7]. A previous study by Saeed DM et al., in 2019 found social class to be significantly associated with maternal knowledge of weaning[23]. These findings are not unexpected. Another study done in 10 countries of the Eastern Mediterranean by Abul-Fadl AM et al., in 2019 showed that maternal illiteracy, low income status and rural residence are associated with lower minimum acceptable diet, dietary diversity, minimum meal frequency as well as longer duration of

breastfeeding[24]. The limited availability of resources hinders the attainment of better education by an individual, and it can reasonably be expected to limit their awareness on a given subject.

As this study was conducted in a rural setting, the overall lower literacy rate in such areas and limited access to various sources of awareness such as electronic and print media might be responsible for lower weaning awareness observed among the study population. In the light of study findings, the authors recommend that mothers should be provided with adequate information on age-appropriate complementary feeding practices, while the participation of fathers should also be enhanced in child feeding practices considering their crucial role as the main providers for the family. This needs to be more emphasized in rural areas since the parents especially fathers usually are the major stakeholders in the villages and the only source of proper information regarding health is from PHCs in such areas.

It is acknowledged that being a cross-sectional study, the study findings need to be confirmed by more rigorous study designs.

Conclusion

Based on study results it can be concluded that certain socio-demographic factors such as mothers' education, fathers' education, monthly household income and type of family can influence the awareness of the mothers regarding the weaning of their children. Therefore, any effort aimed at improving their awareness should take into account the socio-demographic factors identified in this study to improve weaning practices.

Conflict of Interests

Authors have no conflict of interests and received no grant/funding from any organization.

References

1. World Health Organization. Guiding Principles for Complementary Feeding of the Breastfed Child. Available from: http://www.who.int/nutrition/publications/guiding_principles_compfeeding_breastfed.pdf. Accessed on: 7thOctober, 2020.
2. World Health Organization. Complementary feeding: report of the global consultation, and summary of guiding principles for complementary feeding of the breastfed child. Available from: https://apps.who.int/iris/handle/10665/42739. Accessed on: 7thOctober 2020.
3. World Health Organization. Global strategy for infant and young child feeding. Available from: https://www.who.int/nutrition/publications/infantfeeding/9241562218/en/. Accessed on: 7thOctober 2020.
4. Dewey KG. Nutrition, growth, and complementary feeding of the breastfed infant. Pediatr Clin North Am 2001;48:87-104. [DOI: 10.1016/s0031-3955(05)70287-x]
5. Khan S, Zaheer S, Safdar NF. Determinants of stunting, underweight and wasting among children< 5 years of age: evidence from 2012-2013 Pakistan demographic and health survey. BMC Public Health 2019;19:358. [DOI: 10.1186/s12889-019-6688-2]
6. United Nations International Children Fund. Levels and trends in child malnutrition. Joint child malnutrition estimate. Available from: https://www.who.int/nutrition/ publications/infant feeding/9241562218/en/. Accessed on: 7th October 2020.].(Available from: https://www.who.int/nutrition/publications/jointchildmalnutrition-2019-estimates/en)
7. United Nations International Children Fund. National Nutrition Survey 2018 - Key Findings Report. Available from: https://www.unicef.org/pakistan/reports/national-nutrition-survey-2018-key-findings-report. Accessed on:7th October 2020.
8. United Nations International Children Fund. Nutrition's lifelong impact. Available from: https://www.unicef.org/nutrition/index_lifelong-impact.html. Accessed on: 7th October 2020.
9. Bilal JA, Elsheikh AE, Mahgoub HM, Adam I. Poor adherence to the World Health Organization guidelines of management of severe acute malnutrition in children 6 to 59 months of age at Kalakla Turkish Hospital in Khartoum, Sudan. Sudan J Paediatr 2018;18:63. [DOI: 10.24911/SJP.2018.1.9]
10. Kanan SO, Swar MO. Prevalence and outcome of severe malnutrition in children less than five-year-old in Omdurman Pediatric Hospital, Sudan. Sudan J Paediatr 2016;16:23.
11. Di Cesare M, Bhatti Z, Soofi SB, Fortunato L, Ezzati M, Bhutta ZA. Geographical and socioeconomic inequalities in women and children's nutritional status in Pakistan in 2011: an analysis of

data from a nationally representative survey. The Lancet Glob Health. 2015 Apr 1;3:e229-39. [DOI: 10.1016/S2214-109X(15)70001-X]

12. Batool F, Kausar S, Khan S, Ghani M, Margrate M. Nutritional status; association of child's nutritional status with immunization and mother's nutritional knowledge. [Internet] Professional Medical Journal 2019; 26:461-468. Available from: http://www.theprofesional.com/index.php/tpmj/article/view/3253/2576. Accessed on: 7th October 2020. [DOI: 10.29309/TPMJ/2019.26.03.3253]

13. Kambli S. Mother's Knowledge Regarding Weaning Process in Infants. [Internet] International Journal of Science and Research2014; 03:1192-1197. Available from: https://www.ijsr.net/archive/v3i7/MDIwMTQxMjgy.pdf. Accessed on: 7th October 2020.

14. Shukure R. Assessment of Knowledge, Attitude and Practice on initiation of complementary feeding among under two years children in Fiche Town, North Showa Zone, Ethiopia. [Internet] Int J Biomed Eng Clin Sci 2017; 3: 103-109. Available from: Accessed on: http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=345&doi=10.11648/j.ijbecs.20170306.16. Accessed on: 7th October 2020. [DOI: 10.11648/j.ijbecs.20170306.16]

15. Rao S, Swathi PM, Unnikrishnan B, Hegde A. Study of complementary feeding practices among mothers of children aged six months to two years - A study from coastal south India. Australas Med J 2011; 4:252-57.[DOI: 10.4066/AMJ.2011.607]

16. Agumasie S, Gezahegn T, Alemayehu B, Complementary feeding practice of mothers and associated factors in Hiwot Fana Specialized Hospital, Eastern Ethiopia, Pan Afr Med J. 2014; 18:143. [DOI: 10.11604/pamj.2014.18.143.3496]

17. World Health Organization. Complementary Feeding of Young Children in Developing Countries: A Review of Current Scientific Knowledge. Available from: http://www. who.int/nutrition/publications/infantfeeding/WHO_NUT_98.1/en/. Accessed on:7th October 2020.

18. Ambadan G.R, Shekhar, S. Knowledge of Recommended Weaning Practices Prevalent Among Urban Mothers. [Internet] Int J Pure App Biosci 2018;6:101-9. Available from: http://www.ijpab.com/form/2018%20Volume%206,%20issue%201/IJPAB-2018-6-1-101-109.pdf. Accessed on: 7th October 2020.

19. Chaudhry R, Humayun N. Weaning practices and their determinants among mothers of infants. [Internet] Biomedica. 2007;23:120-4. Available from: http://thebiomedicapk.com/articles/116.pdf. Accessed on: 7th October 2020

20. Folasade A, Janet K, Emmanuel OT, Oluwatosin O, Mary AA, Chinonye N. Infant weaning knowledge and practice among mothers attending infant welfare clinic in three primary healthcare centres in Ikenne local government area, Ogun state, Nigeria. [Internet] International Journal of Applied Research 2017;3:227-30. Available from: https://www.allresearchjournal.com/archives/2017/vol3issue12/PartD/3-11-114-380.pdf. Accessed on: 7th October 2020.

21. Tumwine JK, Barugahare W. Nutrition status of children in Kasese district at the Uganda-Congo border. East Afr Med J 2002;79:427-34. [DOI: 10.4314/eamj.v79i8.8830]

22. Chen M, He W, Fu Z, Fu G, Wang Y. Multiple factors analysis on malnutrition of children and under five in different patterns in China in 2000. Wei Sheng Yan Jiu 2003 ;32:249-253.

23. Saeed DM, Shedeed SA, Abdelsalam AE, Eldien B, Mohamed R. Infant Weaning Knowledge and Practice among Mothers Attending Maternal and Child Healthcare Center in Tor-Sinai City. [Internet] Egypt J Hosp Med. 2019;77:5219-5227. Available from:https://ejhm.journals.ekb.eg/article_55414.html. Accessed on: 7th October 2020. [DOI: 10.12816/ejhm.2019.55414]

24. Abul-Fadl AM, Al-Jawaldeh A, AlYassin S. Conflict, Nutritional Status and Patterns of Young Child Feeding. [Internet]International Journal of Scientific Research and Management. 2019 ;7:139-148. [DOI: 10.18535/ijsrm/v7i4.mp01]