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Research Article

Trend Towards Weaning Process of Infants Visiting OPD Pediatrics Unit: An Institutional Based Study

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Maternal health, Weaning Process, Infants, literacy level

Abstract | In continuation of our previous investigations, this study was designed to evaluate the effect and correlation of weaning process in infants above 6 months of age with their mothers' literacy level, employment, physical and financial health. This study was conducted at Kishwar Fazal Teaching Hospital Lahore in an OPD pediatrics. For this purpose, cross sectional survey data of 34 conservative mothers was analyzed, obtained by means of questionnaire. Initiation of weaning process at proper time is found to be somewhat finance limited factor. Total 17 and 1 out of 34 cases were sufficiently and well literate, respectively and aware about weaning process. In our study 47, 39 and 14 % mothers belonging to lower middle, middle and higher middle class background, respectively and 9, 34, 21, 19 and 17 % infants started weaning at age of 4, 6, 8, 9 and 12 months, respectively. Among all cases 10 mothers were poorly aware about weaning but among them 6 started weaning on time. Twelve (12) out of 23 sufficiently and 1 were well aware mothers started weaning on proper time. Our study revealed that in illiterate mothers to mothers having middle level of education, ignorance of proper weaning initiation may be limited by finance and their work schedule. In matric to graduate mothers their job descriptions may have considered as more related contributory factors for delayed weaning. The situation can be stabilized by resource alleviation and make them easy access for limited income families.

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Introduction

"Breastfeeding saves lives" and "Breast is best!" are renowned slogans for mothers and physicians. Mother feed is not only enriched source of nutrition for the neonate but also their essential right. The optimal duration of breastfeeding (BF) is generally practiced for the first six months of life and thereafter cereals are introduced with BF, which is continued till the age of two years and beyond (WHO 2003; Ijaz *et al*., 2015). The term "weaning" is transition phase of shifting from mother feed to semi-solid foods with a gradual reduction of infant's dependence on breast or formula milk (Gupta, 2004).

The infant is considered to be fully weaned once it is no longer fed any breast milk. The American Academy of Pediatrics identify breast milk and human milk as the "Normotensive standards for infant feeding". Accordingly, exclusive dependence on breast feeding should be continued for first 6 months followed by weaning process for at least 12 months (Dieterich *et al*., 2013). There are some factors including maternal physiology, nutritional needs and behavioral development of infant like development of biting and cultural issues are important for weaning process. The prevalence and frequency of breast feeding varies in different regions due to cultural and religious believes. Delay in initiation of weaning, early introduction of complementary feed and incorrect weaning from breast milk

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are common practices observed in different communities worldwide (Meedya *et al.*, 2010; Hughes, 2017).

The food texture and consistency is important for weaning, generally, soft and runny food like mashed fruits and vegetables are preferred foods. National Health Service (NHS), UK recommends food containing wheat, gluten, nuts, seeds, liver, fish, shell fish, cow's milk, peanuts and its products and unpasteurized cheese as preferred food for weaning. In Pakistan, estimated infant mortality rate is around 76 out of 1000 live births every year. This mortality rate indicating that around 400,000 are likely to die in first year of their life (Qamer *et al.*, 2018). According to United Nations International Children's Fund (UNICEF) report exclusive breast feeding for first 6 months can reduce under five mortality rates by 13 % in developing countries (van Odijk *et al.*, 2004; Mikkelsen *et al.*, 2007; West, 2017).

In Pakistan, different products like Khichdi, mashed potatoes, bananas and eggs and some commercial products including cereal and porridges are commonly used by mothers during weaning process. Use of meat is not common practice in many cases because it is quite expensive in Pakistan. In poor families use of tea, crackers and rusk are common during weaning process because these are easily available and economical (Alder *et al.*, 2004; Salim *et al.*, 2016; Qamer *et al.*, 2018).

The main aim of this study was to determine the level of awareness of infant's mothers about importance of weaning process in correlation with their literacy level, employment, maternal physical and financial health of families. Also, the study will explore the facts and ways that how these factors limit the initiation of weaning process at proper age and time as well as their own health. Results of this study will attract other mothers' attention about the benefits of proper initiation of weaning process.

Materials and Methods

Thirty four (34) conservative mothers with average age 25 ± 5 years having infants above age of 6-months were included in this study. These mothers were belonging with families having wide range of living status (low- high middle income) and social class have been visited OPD pediatrics of Kishwar Fazal teaching hospital, associated with Amna Inayat Medical College Lahore. Keeping in view living status and family background of mothers and its effect on weaning process, the families were grouped into 3-catagories i.e. low, middle and high middle income. Their concept for weaning process have been analyzed by survey using research design of descriptive epidemiology covering duration of three weeks. Its correlation was find out with maternal physical and financial health and her employment.

Most of the studied features like age, religion, education, occupation and monthly family income were included in the previous study (Qamer *et al.*, 2018), in continuation the current investigation was conducted, to find out relationship between awareness, literacy level, employment, physical and financial health of the mothers of infants. In this study infant's weaning process and literacy level of mothers were considered as dependent and independent variables, respectively while physical and financial health, level of awareness and employment were considered as extraneous variables. Sampling was performed as per willingness of mothers with infants above 6 months of age and can communicate in English, urdu and Punjabi. Mothers who are not willing to participate and with seriously ill infants were not included in this study. Maternal health was judged by their medical history and physical appearance.

Results and Discussion

Among participating mothers two groups were recognized depending upon their socio demographic characteristics, first group including age, religion, education, occupation and monthly family income was included in previous study (Qamer *et al.*, 2018). Second group which include awareness, literacy level and physical and financial status were considered in this study for establishing correlation among them. The main objective of this study was to correlate the education and awareness level of mothers and maternal physical and financial health of their families with transition from exclusive breastfeeding to semi solid food. Infants included in this study were belonging different communities ranging from 6-12 months of age groups. According to our study 9% of infant started weaning quite early in the age of 4 months, 34, 21, 19 and 17 % started in 6, 8, 9 and 12 months, respectively (Figure 1). When families were considered with respect to their living status it was found that 47% mothers were belonging to lower middle income families while 39 and 14 % were belonging to middle income and higher middle income families, respectively (Figure 2). On investigation of 9 % early weaning initiation and 32 % delayed weaning cases it was found that most probable reasons of this irregularity may attributed to illiteracy, employment work schedules, ill maternal and families' financial health (Figure 1 & 2). Sarwar (2002) reported that some infants were not being weaned until 7 months and older because their mothers unaware about importance of weaning after 6 months of age due to lack of knowledge. Most of their mothers felt that breast milk is nutritionally sufficient. In another

report Singh *et al*. (1997) described that same level of unawareness about importance of on time initiation of weaning process in Rajasthan.

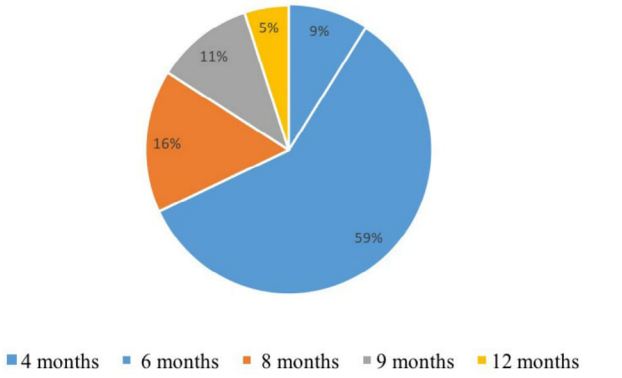

Figure 1: Percentage of infants with respect to age of weanin initiation.

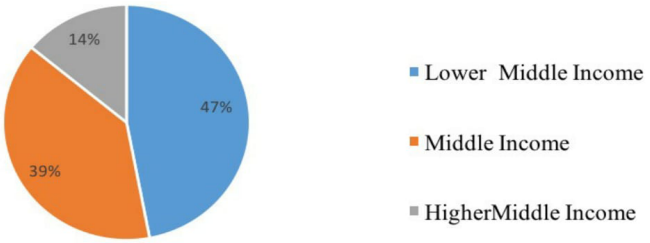

Figure 2: Percentage of mothers of infants with respect to their living status.

Different reports recommended that for balanced and proper growth of infants, gradual introduction of semi solid and solid food is mandatory after 6 months of age because breast milk alone is not sufficient to fulfill all nutritional requirements and prevention of different diseases (WHO, 1995; Qureshi *et al*., 2004; Butte *et al*., 2002; Hopkins *et al*., 2007). According to a published scientific opinion by European food safe authority panel in 2009, 4-6 months' age of infants can be considered as safe for introduction of complementary food while recommended age for introduction of gluten containing food is beyond 6 months. Nonetheless, exclusive breast feeding upto 6 months is considered sufficient for adequate nutrition but some infants may require complementary food before 6 months for their balanced growth and development (EFSA, 2009). Few other studies also support introduction of complementary food in infant's diet in around age of 26 weeks but not before 17 weeks (WHO, 2001; ESPGHAN, 2008; Smith and Blake, 2013). A somalian study revealed that majority of mothers fed their infant on Cow's milk or Goat milk for first three months after birth and started complementary food before reaching age of 6 months (Dewey, 2001; WHO, 2001; KAPS, 2007).

In our study when correlation was made between mothers' literacy level and awareness about weaning process, it was found that uneducated mothers and mothers with primary level of education have poor knowledge about importance of weaning process for their infants. Four out of 7 and 2 illiterate mother and having primary level of education status, respectively started weaning on time despite of their poor knowledge about weaning process (Table 1). The possible reason behind early and delayed initiation of weaning by rest of 1 and 2 illiterate mothers, respectively is insufficient resources and poor maternal health. This study is in agreement with the findings of (Nube and Aseno-Okyere, 1995; Sethi *et al*., 2003; Ijaz *et al*., 2015). They described that in Pakistan, delayed initiation of weaning process in most of the cases related with mothers' tendency to continue breastfeeding longer as it is cheap and not restricted with income.

Mothers with middle, matric and intermediate level of education were sufficiently aware about weaning process. Two (2) mothers in the present study with middle level of education started weaning at proper age. But, 9 and 2 mothers out of 13 and 5 with matric and intermediate level of education, respectively also started weaning of their infants on recommended time (Table 1). Rest of two mothers with matric level of education started weaning of their infants early. Delayed weaning was observed in five (05) and three (03) mothers with matric and intermediate qualification, respectively due to different reasons like

Table 1: Mother's literacy level and awareness about practice of weaning

Mother s' Education	Awareness level of mothers	Weaning on proper time	Early weaning	Delayed weaning	Total Number of cases studied	Percentage (%) of cases studied
Illiterate	Poor	4	1	2	7	20.6
Primary	Poor	2	0	0	3	8.82
Middle	Sufficient	2	0	1	5	14.7
Matric	Sufficient	9	2	5	13	38.23
Intermediate	Sufficient	2	-	3	5	14.7
Graduation	Well	1	-	0	1	2.94
Total	-	-	-	-	34	100

Table 2: A comparison among different living status of infant families for first food introduced at initiation of weaning

Food	Number of infants	No. of mothers agree	No. of mothers disagree	Family living status	Percentage (%) of total number of infants
Rice	7	21	13	Lower middle class	20.58
Cereals (Rusk, Loaf of bread)	11	24	10	Lower middle class	32.35
Vegetables & fruits (raw & boiled)	9	19	15	Middle class	26.47
Porridge	2	6	4	Middle class	5.88
Custard	3	5	3	Higher middle class	8.82
Others	2	2	2	Higher middle class	5.88
Total	34	-	-		100

employment engagements, family financial status and maternal health. Graduate mothers in our study were well aware about importance of on time initiation of weaning process. In the present study a case of graduate mother has been studied who started to wean her infant early due to her employment engagement. Additionally, early weaning was also observed among high income families, this practice can be correlated with mother's occupational duties and affordability for feeds required for initiation of weaning as compared to the families with low income. Our investigations could be supported by findings of (Wright *et al.*, 2004; Khan *et al.*, 2007; Ijaz *et al.*, 2015). These authors reported maternal health, family resources, limited knowledge and working schedule of mothers are major determinants for this variation to initiate weaning process. Thus, maternal serious illness, occupational limitations and insufficient milk are among main reasons for early weaning of infants (Marandi *et al.*, 1993; Morisky *et al.*, 2002; Singh and Bhalwar, 2007; Al-Shoshan, 2007; Li *et al.*, 2008).

Comparison of nature of first food introduced for weaning revealed the fact that it is related with financial health of families and mothers level of preference and satisfaction. Additionally, selection of food nature to wean as first food adversely influenced due to poor knowledge about nutritive value (Kulsoom and Saeed, 1997; Ssemukasa and Kearney, 2014). In the present study 7 infants belonging to lower middle class initiated their weaning from rice as first food. Four (4) mothers from the same class were willing to introduce rice as first food for their infants. Rest of 11 mothers preferred initial food for weaning from lower middle class including cereals in the form of rusk and loaf of bread. Nine (9) and 2 mothers from middle class preferred fruits and vegetables in boiled and raw form and porridge, respectively to be introduced as first food for weaning of their infants. Custard and other expensive foods were first preferred food for weaning by mothers from higher middle class. Most of the mothers from higher middle class is agreed with this preference as first food for weaning (Table 2). Furthermore, mothers have little knowledge about nutritive value and importance of consistency and diversity of foods to be introduced as first food for weaning. They normally believed that first food should be thin. These results of our study are in close agreement with the findings of (Karim *et al.*, 2013; Zafar *et al.*, 2014). These authors reported that thin and simple natured food is usually preferred by mothers for weaning without sufficient knowledge of its nutritive value.

In some cases, Pakistani mothers tended to live with extended in-laws' families. It is normal for them to receive advices from family and friends on weaning practices and type of food to be introduce as first food. Therefore, mothers of infants are confused due to contradiction between recommendations provided by health professionals and advices given by the family regarding initiation time and type of first food introduced for weaning (Jain *et al.*, 2000; Issaka *et al.*, 2015).

Conclusively our study revealed that initiation of weaning earlier or delayed among mothers of lower middle and middle class most probably more correlated with ill maternal health, limited financial resources and may be unavailability of sufficient milk. These factors may be immediate contributors for earlier or delayed shift of their infants on semi solid/ solid food before or later they reach recommended age for weaning. Nonetheless, role of awareness about nutritive value of first weaning food and efforts for improvement of infants' dietry habits cannot be neglected.

Conclusion

Financial status of families, maternal literacy level and their awareness have greatly influenced the weaning practice among mothers. It was noticed that 59% mothers started weaning of their infants on proper time. Delayed or early weaning of infants was observed in 41 % of mothers either under influence of their employment limitations, family economics or mother's literacy level. Almost all mothers are aware about importance of weaning process

at recommended age of their infants but with little time variations. However, living status of their families and working schedule of working mothers is limiting factor for onset of weaning either early or quite late after medically recommended age. This study reveals that proper on time initiation of weaning is not only awareness limiting factor but financial health of family, employment and maternal health as well.

Recommendations

It can be learnt from this study that in addition to guidance and awareness, resources alleviation related to avoid variation in weaning initiation is necessary. Awareness about proper initiation time of weaning, nutritive value and dietary habits of infants could be improved by guidance and counseling programs. Counseling programs would enable mothers to have the prospects to discuss any problems related to feeding habits of infants that they may be experiencing, share their views and experiences with other mothers for exchange of information. Resource and awareness cell/ centers for weaning should be established in different pediatric, medical and vaccination institutes, initially by funds hunting from different funding agencies and investors. Later government should invite for partial financial support. These cells/centers may provide awareness about nutritive value of variety of foods, would introduced as first food for weaning and resources in terms of allowances or feed packs. These measures would be helpful for healthy upbringing of infants without deficiencies and may lead to reduction of mortality rate of infants in developing countries.

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