

Pattern of complete weaning and its related factors in Fars Province

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Abstract:

Introduction:

Proper pattern of complete weaning and its duration is as important as initiation of breastfeeding. This study aimed to determine the pattern of CBF and its related factors in Fars province.

Materials and Methods:

In this study, 734 infants aged 2.5 to 3 years (urban and rural) were selected using multi-random sampling method. The required data were collected through health records and interviews. In addition to descriptive statistics the effect of demographic and cultural variables on CBF weaning was studied using statistical tests.

Results:

The mean time of CBF weaning was 21 ± 5.7 months. 50.1% of children ceased CBF at 24 months of age or later. Pattern of CBF weaning in 61% of the children was abrupt. There were associations between mother's education, husband's job, method of delivery and birth rank duration of CBF weaning. There weren't any associations between birth weight and maternal age with duration of CBF weaning. The most (30%) reason of CBF weaning before 24 months of age was the parent's concern about failure to thrive.

Conclusion:

Duration of breast feeding in this study was more than other studies, but there is still a discrepancy with WHO recommendation. Abrupt CBF weaning can reduce mother and baby's compliance and increase the emotional and physical damages. To promote breast feeding indices, the use of modern educational methods and establishment of breast feeding clinics are recommended.

Keywords: Breastfeeding, Infants, Weaning

Introduction

Along with recognizing the great value of breastfeeding, its unique role in the prevention of diseases and infant mortality, and providing their health care in recent decades, many studies on breastfeeding show that most benefits of mother's milk are directly related to breastfeeding duration (1-3). American Academy of Pediatrics (AAP) recommends breastfeeding continuation for 12 months and the World Health

Organization (WHO) and UNICEF recommend for two years (3-4). However, breastfeeding continuation in the religious, historical, scientific and medical documentations is recommended for two years. The time of complete weaning among ancient Hebrews was recommended almost three years and in other resources such as Talmud (Jewish law) and the Quran at least two years (5). The proper time for complete weaning has been suggested different in different

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textbooks, but the time agreed upon in most scientific references is about 24 months (6).

Complete weaning can be a dangerous process for child. Changing pattern of infant diet can cause malnutrition, weight loss, aggression, and other mental health problems in child (7). Inappropriate weaning may be damaging and might leave physical – psychological damages on the mother and child (8). The process of complete weaning by the mother can be either gradual or sudden. Gradual weaning is the best way to stop breastfeeding and should be accompanied by full psychological and nutritional support to prevent damages caused by disorders in child (3, 8-9). Removing one serving of milk every 2 to 3 days gradually is the best way of complete weaning for children and prevents mother's breast congestion (3). Weaning methods are different in various communities. In some societies, children are allowed to continue breastfeeding as long as they desire (10). These children stop breastfeeding spontaneously often without any violence or emotional trauma at the age of 3 or 4 years old (3). Breastfeeding can continue in the second year of life or longer along with the family meal as long as the mother or infant desires (3).

According to a study conducted in Jordan in 2006, the average age of complete weaning was 12.4 months (11). The results of another study showed that the average age of complete weaning was 12-23 months in 68% of children in developing countries and in 78.8% of children in South and Central Asia (12). Based on UNICEF report in 2012, the frequency of breastfeeding continuation up to 20-23 months is 44% in Africa, 76% in South Asia, 33% in Latin America and the Caribbean, 22% in Commonwealth of Independent State (CIS), 56% in developing countries and 61% in less developed countries (13).

The results of a study conducted in 2005 showed that more children (52.1%) were

breastfed for less than two years and the mean age of their complete weaning was 20.6 months. The results of this study showed that 55% of mothers had stopped breastfeeding gradually and 45% had stopped breastfeeding suddenly. Also it was revealed that 37.2% of mothers had used drug and others had used other methods such as using chemicals or physical coverage for complete weaning (7). The study of Ministry of Health's Integrated Monitoring & Evaluation System (IMES) in 2005 showed that nearly 98% of women in Fars province began breastfeeding after the birth, but breastfeeding continued only in 86.4% to 12-15 months and in 73.7% to 20-23 months (14).

Because of the few studies on children weaning pattern in the country and that the problems of malnutrition and slow growth in children are observed in two periods of stopping exclusive nutrition and starting complementary feeding, the current study was performed with the aim of determining children's complete weaning pattern and factors associated with it in Fars province with a population of almost 4.5 million people and 160 thousand children of 12-36 months (14, 15).

Materials and Methods

In this retrospective cohort study, 734 children aged 2.5 to 3 years were selected by multistage random sampling method in 2010 in Fars province. The sample size was obtained based on 95% confidence coefficient and power of 80% and by considering the design effect equal to 1.35. Sampling was performed according to both urban and rural populations considering their population ratio. To do this, every health center in the city and each health home in the village were selected as a cluster and children aged 2.5 to 3 years were selected by systematic random sampling proportional to population of that area. The instrument for the study included demographic questions about the child and parents as well as questions about

breastfeeding, the way of its continuity to the end of 24 months, weaning and predictor variables such as age, education, occupation, place of life, parents' ethnicity and child's gender, method and place of delivery. To examine the content validity and construct validity of the questionnaire, the views of four specialists i.e. neonatal, nutrition, epidemiology specialists and experts in social medicine were used. The reliability of the questionnaire was confirmed acceptable by conducting a pilot study on 50 subjects by two independent questioners with an interval of one month (Kappa coefficient between 75% and 85% and internal correlation coefficient between 75% and 98%). The questionnaire was completed by data from children's health records as well as through interviews with parents. To examine differences in time of complete weaning, in addition to t-test and analysis of variance, the survival models such as the Kaplan–Meier and log–rank test were used. The significance value was considered less than 5%.

Results

Of total 734 children under study, 53.5% were urban and 51.8% were boy. Mean age of children was 32.87 ± 2.68 months.

Most children were born at gestational age of 39 weeks. Most Kids (50.1%) were the first child and 98.2% were born in hospital and 61.1% were born through natural vaginal delivery. Mothers aged 18 to 47 years with mean age of 29.31 ± 5.4 years, fathers aged 20 to 74 years with mean age of 34.09 ± 6.15 years and their age distribution was normal. The highest level of education of mothers was high school diploma (27.4%) and of fathers was middle school (30.4%). Most mothers (83.8%) and fathers (82.3%) were Fars people. Most mothers were housekeepers (90.8%) and fathers were self-employed (43.7%). The birth weight of 92.5% of children under study was above 2500 g. The time range of complete weaning in children under study was 1-35 months with the mean of 21 ± 5.7 months and the median of 24 months. Complete weaning of half children (50.1%) occurred at 24 months or later (Table 1). Complete weaning had occurred before 24 months in 49.9% of children. The reasons for complete weaning before 24 months of age are given in Table 2. In 61% of the children complete weaning was abrupt (less than seven days) and for the rest was gradual. Complete weaning duration ranged from 7 to 35 days (Table 3).

Table 1: Time frequency distribution of complete weaning in children

Time of complete weaning	Number (%)
At birth to 6 months	40 (5.5)
7 to 12 months	35 (4.8)
13 to 18 months	64 (8.8)
19 to 20 months	79 (11)
21 to 23 months	145 (19.9)
24 months	268 (36.8)
More than 24 months	97 (13.3)

82% of parents cited that they had changed the children' diet after complete weaning and 85.1% had considered psychological support program for children. The most common psychological supports for children after complete weaning included

hugging baby more frequently (50%), buying children' favorite things such as toys (48.8%), taking the child to the grandmother, family, friends and others (48.2%) and playing more frequently with children (42.5%). Some parents supported

their children mentally with several methods. 72.6% of mothers mentioned that they obtained some information about the way and time of complete weaning. The most resources for obtaining information about the way and time of complete

weaning included face to face training by health personnel (50.4%), friends, relatives, neighbors (40.6%), books, manuals, pamphlets (9.8%), respectively. Some parents also had obtained information by several different methods.

Table 2: Causes frequency distribution of complete weaning before 24 months

Reasons of complete weaning	Frequency (%) *
Parents concerns about children failure to thrive due to decreased desire for food	110 (30)
Lack of milk	80 (22)
Mother's personal view for complete weaning before 24 months	54 (14.8)
Baby refusing to breastfeed	53 (14.5)
Subsequent pregnancy	38 (10.5)
Medical prohibition	9 (2.5)
Other cases	77 (21)

* This question could have more than one answer option.

Table 3: Duration frequency distribution of complete weaning

Duration of gradual complete weaning	Percentage (%)
Abrupt (less than 7 days)	61
7 to 14 days	20
15 to 30 days	18
More than 30 days	1

The effects of some demographic variables on the time of complete weaning were examined in statistical analysis of the present study. The mean time of complete weaning was significant according to variables of mother's education and husband's occupation (Table 4).

The mean duration of complete weaning in women who had given birth in the natural way (62%) was significantly more than women who had given birth by cesarean section (38%) ($P < 0.001$) and duration of complete weaning had a significant positive correlation with birth order ($P < 0.001$ and $r = 0.129$). No significant relationship was observed between breastfeeding duration and the variables of mother's gestational age, birth weight, and

mother's age ($P > 0.05$). Also, there was no relationship between the way of complete weaning (gradual or abrupt weaning) and the place of life, parents' education, occupation and ethnicity as well as child gender ($P > 0.05$). The mean duration of complete weaning in children whose mothers received information on complete weaning was significantly higher than children whose mothers did not obtain any information ($P \leq 0.001$). To evaluate the effect of above variables on breastfeeding duration, in addition to the aforementioned tests, Kaplan-Meier survival model and the log-rank test was used as well and it was revealed that there was no difference between the results obtained and the results presented.

Table 4: Comparison of mean time of complete weaning (months) separated by demographic variables

Variable		Number (%)	Standard deviation± mean (months)	P-value
Place of life	City	393 (53.5)	20.8±5.9	0.145*
	Village	393 (46.2)	21.4±5.3	
Mother's education	Illiterate/ elementary school level	199 (271.1)	22.1±5	≤0.001**
	Middle school level	176 (24)	21.7±4.2	
	High school level /diploma	267 (36.4)	20±6.5	
	University level	92 (12.5)	20.4±6.1	
Mother's occupation	Housekeeper	665 (90.6)	21.1±5.6	0.703*
	Others	69 (9.4)	20.8±5.8	
Mother's ethnicity	Fars	613 (83.5)	21.1±5.6	0.704*
	Others	121 (16.5)	20.9±5.8	
Father's education	Illiterate/ elementary school level	161 (219.9)	21.2±5.7	0.139**
	Middle school level	223 (30.4)	21.6±4.6	
	High school level /diploma	262 (35.7)	20.7±6.01	
	University level	87 (11.9)	20.1±6.6	
Father's occupation	Employee	113 (15.4)	20.7±6.2	0.038**
	Worker and farmer	247 (33.7)	21.8±4.9	
	Self-employed/others	371 (50.5)	20.6±5.9	
Father's ethnicity	Fars	604 (82.3)	21.1±5.5	0.326*
	Others	130 (17.7)	20.6±5.9	
Child's gender	Boy	379 (51.6)	21.2±5.2	0.301*
	Girl	352 (48)	20.8±6	

*T test

**ANOVA

Discussion

According to the results of the present study, the mean time of complete weaning was 21±5.7 months and the longest complete weaning (36.8%) was at 24 months. Complete weaning in 50% of children had occurred before 24 months and the most frequent reason of complete weaning before 24 months was parents' concerns about failure to thrive due to loss of desire for food and after that was lack of milk. A study performed in Sri Lanka showed that 78% of children were breastfed for less than 24 months (16). The results of a study conducted in Brazil showed that breastfeeding for 45% of children was stopped before 6 months and

for 62% of children was stopped before 12 months and only 38% of them were still breastfed up to 12 months (17). In a report released by UNICEF, frequency of breastfeeding continuation up to 20-23 is 16% in Azerbaijan, 25% in Brazil, 35% in Egypt, 58% in Iran, 22% in Turkey, and 55% in Pakistan (13). World Health Organization recommends breastfeeding continuation up to 24 months (4). In the present study, the frequency of breastfeeding continuation up to 20-23 months was 70% that this percentage is better than other countries, even Muslim countries. The relative improvement in the current study compared to other studies is due to set up breastfeeding specialized

counseling centers in Fars province, implementing an integrated, comprehensive and effective surveillance system of healthy child program and providing training on the way and time of complete weaning by health personnel. The findings of the current study show that 50.4% of mothers received face-to-face training by health personnel.

In this study, parents' concerns about infant's failure to thrive due to decreased desire for food and lack of milk was cited the reasons for complete weaning before 24 months included. The results of a study conducted in the United States to investigate the reasons for complete weaning in the first year of life from mothers' view showed that insufficient milk, breast being bitten during breastfeeding by the infant and infant's refusing to breastfeed were the most common reasons of complete weaning (18). The results of the present study showed that there was a significant difference between mean time breastfeeding continuation and mother's education, husband's occupation, method of delivery, and birth order, but there was no significant relationship between breastfeeding duration and variables such as gestational age, mother's age and birth weight. Also, no significant relationship was observed between the way of complete weaning and place of life (city and village), education, parents' occupation and ethnicity, and child gender. The results of a study conducted in Sri Lanka are different with the results of the present study. In that study, breastfeeding continuation at the end of one year old was significantly lower in unemployed women than employed women (17). A study performed in the United States showed that breastfeeding continuation is different in different races, so that breastfeeding duration in Hispanic mothers is more than African and white mothers. Also African-American mothers, due to early return to work, stop breastfeeding earlier than white women (18). The results of a study

conducted by Li in the United States also indicated that mothers who breastfed their first child stop breastfeeding earlier than other mothers, also younger, unmarried, less educated mothers and mothers with lower economic status stop breastfeeding earlier than other mothers (19). Due to the lots of differences seen in different studies, it seems that social determinants affecting community health are different in each society and it is necessary that each community study and detect factors affecting its health independently to promote indicators influencing its health.

The results of the current study showed that the way of complete weaning in most children (61%) was abrupt (less than seven days) and in the rest was gradual. Gradual weaning duration ranged from 7 to 35 days. The results of a study conducted by Hamami in Damghan also showed that the mothers of 45% of children had stopped breastfeeding suddenly (7). Abrupt weaning can reduce mother and child compatibility and increase the possibility of emotional and physical trauma (8). Hence, in order to prevent physical and psychological damages caused by improper methods of weaning, accurate and timely information should be provided for families by modern training methods so that complete weaning will be improved and correct by changing their attitude and performance.

In this study, by referring to the health records of children aged 2.5 to 3 years and performing random sampling among them, their records were examined. Then, the data were collected from the records or by calling and asking mothers in regard to complete weaning. If there was a prospective cohort study of the children, it would be possible to collect data with greater accuracy. Most data obtained from retrospective studies or from records that are collected more for administrative activities, have some flaws and even biases in remembering and their quality is not as good as prospective data quality (20, 21).

Conclusion

In general, it can be concluded that breastfeeding continuation in the population under study was more than in other studies, but there was still a discrepancy with World Health Organization's recommendation to continue breastfeeding up to two years. Also it was revealed that the way of complete weaning in most children under study was abrupt. To promote these indicators, using new training methods and

establishing breastfeeding specialized counseling centers, is essential.

Conflict of interest

The authors have no conflict of interest in this study.

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