

Original Article

Knowledge, attitude, and practice of mothers about complementary feeding for infants aged 6-12 months in Anbar Province, Iraq

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Abstract

Background: The understanding of what mothers think about breastfeeding helps in developing successful breastfeeding promotion programs. This study aims to assess the maternal knowledge, attitude, and practice about the complementary feeding for infants aged 6-12 months.

Methods: A cross-sectional study designed to interview 219 mothers with children between 6-12 months. Data was collected between 1st March and 30th April 2019 from ten maternal and child health clinics (MCHCs) in Anbar Province, Iraq. SPSS version 16.0 was recruited to analyze the data. Descriptive and inferential statistics such as Chi-square used to present data with the significance level set at less than 0.05.

Results: The mean age of respondents was 27.76 ± 6.3 years, and 31% were at the primary school level. Two third (66.82%) of the surveyed mothers exclusively used breastfeeding to feed their infants. Most women (84.09%) have the correct knowledge about the best time to start complementary food. The vast majority of women (93.64%) refused to give vitamins to children even with signs of malnutrition.

Conclusion: Although exclusive breastfeeding is common among mothers of the western region in Iraq, there is still a considerable percentage depend on the mixture of breastfeeding and bottle feeding. The positive impact of the family and society on mothers was evident. However, more attention should be given to improve knowledge, attitude, and practice through qualified healthcare providers.

Keywords: Complementary feeding, Exclusive breastfeeding, Maternal knowledge and attitudes, Anbar, Iraq.

Background

The first six months of an infant's life are critical in terms of mental and physical health development; therefore, the World Health Organization (WHO) encourages mothers to initiate breastfeeding early and keep exclusively alone in this period [1]. Breastfeeding may last up to twenty-four months. However, in the sixth month, the components of breastfeeding become insufficient to meet the infant's feeding needs, which makes introducing complementary feeding an inevitable option. Complementary feeding refers to the time when breastfeeding is supported by semi-solid foods and liquids for infants to guarantee a proper infant and young child feeding (IYCF) [2]. Optimal IYCF included the introduction of several complementary feedings at the right time with high nutritional values, and in an appropriate quantity. However, Infectious

diseases, coupled with incorrect feeding practices, have contributed significantly to malnutrition among children under the age of two years. Factors such as education and nutritional counseling may contribute considerably to improving the health and the practice of infant and young child feeding, especially among mothers from low-literacy societies [3,4]. Therefore, healthcare decision-makers worked to ensure that caregivers and mothers provided with appropriate guidance regarding optimal nutrition for infants and young children [5]. WHO reports (2003) confirmed that the lack of knowledge about the proper way to feed infants and young children was the prominent cause of widespread malnutrition in many of the developing countries [3]. On the other hand, maternal knowledge of the importance of exclusive breastfeeding in the first six months and the date of introduction of supplementary feeding had a positive impact on the infant's health [6]. The World Health Organization indicated that the implementation and practices of ICYF are different from country to country, with a difference in the geographical and economic and cultural factors [7]. Even though people living in the same state, such as

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Iraq, may differ in their behavior according to popular beliefs, traditions, and the knowledge of mothers about appropriate practices [8].

Reviewing observational studies conducted in Iraq, Abdul Ameer et al. [9] found that most of the surveyed mothers (73.1%) launched breastfeeding just after delivery; however, they lacked knowledge about full exclusive breastfeeding until six months of child life. Moreover, urban and more educated women knew more about the concept of breastfeeding compared to rural and less educated women, but often they discontinued breastfeeding and early introduced complementary feeding.

The results of the study conducted by Al-Azzawi et al. [10] on a sample of women in Erbil, northern Iraq, showed that more than half of the mothers gave up breastfeeding before the end of the third month with an apparent lack of knowledge about the importance of early start and exclusive breastfeeding. AL-Abedi and Al-Asadi [11] studied a sample of lactating mothers in AL-Najaf city, south of Iraq. The authors found that most of the participants have good knowledge about breastfeeding; however, the experience was weak about the ideal time to initiate breastfeeding and the meaning of exclusive breastfeeding. Aiming to cover other parts of Iraq, this study designed to assess the knowledge, attitude, and practice of mothers about complementary feeding for infants aged 6-12 months in Anbar Province, West of Iraq.

Methods

Study design

A cross-sectional descriptive study was conducted from 1st March to 31st April 2019. Information was collected from ten maternal and child health clinics (MCHCs). A random sampling technique recruited to select the MCHCs equally from different regions in Anbar province in the west of Iraq.

Sample size calculation

The sample size was calculated by assuming the prevalence of knowledge is 50% among Iraqi mothers [9,10,11] with a confidence level of 95%, and an acceptable margin of 5% using the following formula: $N = [Z_{\alpha/2} \times P \times Q / (M.E.)^2]$.

So, $n = (1.96)^2 \times (0.50) \times (0.50) / (0.06)^2 = 267$. Due to exclusion criteria, 219 mothers have been included in this study (Table 1).

Study tool

A well-trained team of data collection has been recruited to interview mothers who have fulfilled the inclusion criteria using a semi-structured questionnaire [12,13,14,15] which consists of four sections: socio-demographic factors, knowledge, attitudes, and how mothers were practicing complementary feeding of an infant aged 6-24 months.

Content validity

Three experts in public health and two in the pediatric field were recruited to examine the content validity rate (CVR) [16]. The questionnaire was in Arabic language and test-piloted with fifteen mothers who are not included in this research, however for publication, the Arabic version was forward-backward translated into English by two academics and one linguistic expert English.

Table 1 Inclusion and exclusion criteria

No.	The main Criteria	Inclusion	Exclusion
1.	Mothers willing to participate with a signed consent form.	+	-
2.	Mothers bearing children aged 6 to 24 months.	+	-
3.	Mothers attending the MCHCs at time of study.	+	-
4.	Mothers bearing children aged less than six or more than 24 months.	-	+
5.	Mothers of children with known anomalies.	-	+
6.	Mothers attending the MCHCs at time of study.	-	+
7.	Mothers with very sick needing emergency care children	-	+
8.	Not willing to participate, mothers.	-	+

Statistical analysis

Descriptive analysis performed using SPSS version 16.0. The data presented using descriptive and inferential statistics, such as the Chi-square test. The level of less than 0.05 considered statistically significant.

Results

Descriptive analyses

Two hundred and nineteen mothers (response rate 82.0%) with a mean age of 27.76 ± 6.3 years (reproductive age group). However, the highest proportion (59.36%) was less than 30 years old, compared to the lowest frequency (7.76%) in the age group of more than 40 years. The level of education of mothers ranged from the lowest rate (5.9%) among diplomas and the highest percentage (31%), which represents the primary school level (Table 2).

Table 2 Age and education level of respondents (n=219)

No.	Variable	Category	N (%)
1	Age	Mean (\pm SD): 27.76 ± 6.3	
		Less than 30	130(59.36)
		30-40	72(32.87)
2	Education	More than 40	17(7.76)
		Primary school	68(31.0)
		intermediate school	31(14.10)
		Preparatory school	42(19.10)
	Bachelor	46(21.0)	
	Diploma	13(5.90)	

Table 3 presents the knowledge of mothers regarding supplementary feeding. The highest percent (66.82%) of respondent mothers were feeding their babies by breastfeeding, and the majority of them (84.09%) considered the time between the sixth and seventh months is the best time to start food supplementary. However, two-third of mothers declared that they do not allow babies to eat solid food before the age of five months. Moreover, most mothers (93.64%) refused to introduce

supplementary vitamins to their children (6-24 months) if they showed signs of malnutrition.

Table 3 Knowledge of mothers regarding supplementary feeding(n=219)

Questions	Categories		
	Home	School	Health Care Unit
Source of education?	75.9 %	18.6 %	5.5 %
Do you feed your baby breastfeed, bottle, or both?	Breast 66.82%	Bottle 4.54%	Mixed 28.64%
Best time to start food sup. with your baby	6-7 M 84.09%	7-9 M 6.36%	9-12 M 9.55%
Do you make him eat before the 5th month?	Yes 23.63%	No 76.37%	
Complementary feeding if the baby is in malnutrition.	Yes 6.36%	No 93.64%	

Table 4 presents the attitude of mothers towards supplementary feeding. More than half (53.0%) of mothers thought it is essential and imperative to help the baby during eating. Most (84.2%) of the surveyed mothers preferred to feed the baby after milking, and mostly (93.2%) thought that feeding should be slowly.

Table 5 The practice of supplementary feeding (n=219)

According to feeding in 5 – 6 months			Average of meals a day			
Rice water	Potatoes	Vegetables	Three	Two	One	Zero
61.9%	2.77 %	28.18%	3.64%	10.0%	80.0%	6.36%
According to feeding in 7 – 8 months			Average of meals a day			
Potatoes	Rice	Starch	Three	Two	One	Zero
46.81%	32.72%	21.81%	5.9%	17.27%	70.9%	5.9%
According to feeding in 9-11 month			Average of meals a day			
Bread	Meat	Egg	Three	Two	One	Zero
53.63%	2.27 %	60%	13.18%	43.18%	37.72%	5.9%
According to feeding in 11-12 month			Average of meals a day			
Fruit	Cheese	Egg	Three	Two	one	Zero
77.72%	20.45 %	57.27%	25.1%	61.81%	8.18%	5.0%

Table 6 Type of food introduced by mothers (n=219)

Questions	Yes	%	No
Do you give supplementary feeding for 9 th -month babies?	23.53%	(Fe: 7.8% and Vit. A: 15.73 %)	76.47 %
Do you give baby fatty food before the 9 th month?	28.1%		71.9%
How many meals (fatty food) a day?	1 12.6%	2 2.26%	3 0.9%

However, the majority of mothers accepted the idea to encourage baby eating automatically and preferred (84.2%) to look at the eyes of her baby during feeding.

Table 4 Attitude toward the supplementary feeding (n=219)

Modality	Percentage %	
Is it important to help your baby during eat?	Yes (53.0%)	No (47.0%)
Do you feed him before milking or after?	Before (15.8%)	After (84.2%)
Is it important to feed him the meal slowly?	Yes (93.2%)	No (6.8%)
Do you encourage him to eat, or he eats automatically?	Yes (97.7%)	No (6.3%)
Do you look at his eyes during a feed?	Yes (84.2%)	No (15.8%)

Table 5 describes the practice of feeding babies. According to mothers' experience in practicing supplementary feeding, 61.9% of children in 5-6 months preferred rice water once per day. Potatoes (46.81 %) and rice (32.72%) were the first and second choice, respectively, for children aged 7-8 months at once per day. However, children aged 9-11 months tend to eat sold food such as egg (60.0%) and bread (53.63%) once to twice per day. Moreover, the fruits (77.72%), egg (57.27%), and cheese (20.45%) entered as essential food for children aged 11-12 months twice a day.

Table 6 presents the type of food introduced by mothers. Most of the mothers do not give supplementary medical feeding (76.47 %) and fatty food (71.9 %) before the age of 9th months, however ferrous and vitamin A were the main medical supplements at that age (Table 6).

Table 7 showed that the Biscuit (55.6%) and Fruits (51.0%) respectively were the top list of the food used during the period of breastfeeding compared to canned food (3.17%). Moreover, the fruits (55.2%) and eggs (48.4%) respectively, are the favored food compared to meat (4.0%) over the first year.

Table 7 Types of food during the period of breastfeeding and through the first year (n=219)

Types of food during the period of breastfeeding	%	Types of food through the first year	%
Biscuit	55.6%	Egg	48.4%
Fruits	51.0%	Fruits	55.2%
Vegetables	29.8%	Bread	39.0%
juices	48.0%	Honey	38.0%
Nestlé	38.0%	Meat	4.0%
Canned foods	3.17%	Fat	10.8%
Sweets	21.2%		
Tea	17.2%		
bread	21.2%		
Others	5.4%		

Discussion

In this study, most of the surveyed mothers were young with low levels of education, and two-thirds of them reported early initiation of breastfeeding. These findings are comparable to local studies conducted in Baghdad [9], Erbil [10], and Al-Najaf [11] in Iraq. However, 28.64% of the participants relied on mixing breast and bottle feeding, which is consistent with UNICEF's report that mixing feeding is frequent among most societies in the Middle East and North Africa [17].

Education is one of the most important determinants of women's and children's health. The more educated a woman is, the higher her awareness of health and her ability to take care of herself and her children [18]. Women who are working outside the home tend to rely more on early supplementary feeding and cessation of breastfeeding [19,20]. In our study sample, a low level of education may have reduced the chances of employment outside the home, and most mothers have been housewives; therefore, the time to stay at home is prolonged, with the potential to exercise optimal feeding practice for their children.

Most of the participants showed excellent knowledge of the exclusive breastfeeding period and that complementary food should not be introduced before the end of the fifth month, and the best time is between the 6th and 7th months. Our results may not be compatible with previous studies conducted at the national level [9], Erbil province in the north of Iraq [10], and Basra province in the far south of Iraq [21].

It may be considered a limitation in this study that it did not refer to participants according to their resident region as rural or urban. In fact, over the last two decades, Iraq has witnessed frequent waves of internal displacement that have significantly affected the demographics (rapid urbanization and vice versa), especially in areas that have experienced military conflict such as Anbar [22,23].

Therefore, what has indicated in previous local [9] and international studies [24,25] that the educated and urban women believe, and practice breastfeeding more than rural and less educated women may not be verified in this study. Furthermore, the Anbar community is distinguished by the tribal and religious characteristics that govern the traditions of the conservative family [26]. So, it is not surprising that the family is the primary source of maternal information compared to the school or health care centers, as indicated by previous studies [9]. As a religious community linked to ancient family traditions, it raises and supports the mother in completing the period of breastfeeding, at least one or two years, when needed. Similarly, Meedya et al. [27] concluded that three essential factors that "positively influence breastfeeding duration, including breastfeeding intention, breastfeeding self-efficacy, and social support". The presence of fixed training programs such as Integration Management of Neonatal and Childhood Illness (INCHI) helps in preparing qualified caregivers to correctly classify illnesses train and communicate information on the

importance and health benefits of breastfeeding for infants and mothers [28].

The significant limitations in our study are the cross-sectional design and can be explained by the limited time and the few logistics resources to collect the data. The possibility that the study sample was from one province makes it difficult to generalize its results, taking into consideration the ethnic, geographical, and cultural differences. This study is a useful step to cover an essential part of Iraq, and the results can be added to previous studies in this field. It is unlikely that the recalling bias among the limitations of this study because the survey relied on measuring recent events.

Conclusion

In conclusion, findings of this research reflect the knowledge, attitude, and practice of breastfeeding among a sample of mothers in the Anbar province in the west of Iraq. In this study, the impact of family, society, and cultural background positively reflected on maternal behavior. More than ninety percent of the surveyed women were of reproductive age and had a low level of education, yet they initiated early breastfeeding. Moreover, most women showed excellent knowledge about exclusive breastfeeding and the appropriate time to introduce complementary foods and vitamins and how to deal with babies at the feeding time.

This study confirms the results of previous studies conducted in Iraq on the importance of the role of health institutions, media, family, and society in promoting early breastfeeding practice. The breastfeeding program should be placed permanently on the training curriculum of healthcare workers and midwifery, especially in maternity and child institutions and family medicine.

Abbreviations

MCHCs: Maternal and Child Health Clinics; WHO: World Health Organization; IYCF: Infant and Young Child Feeding; CVR: Content Validity Rate; SD: Standard Deviation; UNICEF: The United Nations Children's Fund; IMNCI: Integration Management of Neonatal and Childhood Illness

Declarations

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Availability of data and materials

Data will be available by emailing ma_m776@yahoo.com

Authors' contributions

MAM is the principal investigator of the study who designed the study and coordinated all aspects of the research including all steps of the manuscript preparation. RAA and SMY contributed to data collection and drafting the work. SAAJ contributed to the study design, analysis, and interpretation of data, drafting the work, writing the manuscript, and reviewed and approved the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the Declaration of Helsinki, and the protocol was approved by the Ethic Committee of the College of Medicine, University of Anbar (Ref: 618 at 05-November -2018). Moreover, oral consent obtained from the director of each Maternal and Child Health Clinics and a written informed consent from each mother willing to participate after explanation of the study objectives and guarantee of secrecy.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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