

Knowledge, attitudes and practices of Iraqi mothers and family child-caring women regarding breastfeeding.

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معارف ومواقف وممارسات العراقيات من الأمهات والقائمات على رعاية الأطفال حول الرضاعة من الثدي

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الخلاصة: قِيم الباحثون المعارف والمواقف والممارسات حول الإرضاع من الثدي لدى 3413 من العراقيات، من الأمهات والقائمات على رعاية الأطفال، وعلى ترابطها مع الخصائص الاجتماعية والديموغرافية المرافقة. وتبين للباحثين أن معظم من شملتهن الدراسة (73.1%) قد بدأن بإرضاع أطفالهن باكراً بعد الولادة، وأن 92.9% منهن يعتقدن بأن اللبأ جيد لأطفالهن، وأن 64.6% منهن يرضعن أطفالهن على الطلب. إلا أن المعارف لم تتوافر في ما يخص الاقتصار على الرضاعة من الثدي حتى مرور 6 أشهر على الولادة، وحول علامات الوضعية الجيدة وتعليق الطفل، وحول الوقت الصحيح لإدخال المكملات الغذائية، وكان ما يقرب من 35% منهن يعتقدن أن لبن الثدي غير كافٍ لأطفالهن، وكانت معارف النساء الريفيات وذوات التعليم المنخفض عن مفاهيم الرضاعة من الثدي أقل مما لدى المتعلمات الحضريات، إلا أنهن يواصلن الرضاعة من الثدي لمدة أطول ويُدخلن المكملات الغذائية في وقت أكثر تأخراً.

ABSTRACT We assessed breastfeeding knowledge, attitudes and practices of 3413 Iraqi mothers and adult female relatives in the same household and their association with sociodemographic characteristics. The majority of the women (73.1%) initiated breastfeeding early after delivery, 92.9% believed colostrum was good for their baby and 64.6% breastfed on demand. However, knowledge was lacking about full exclusive breastfeeding until 6 months postpartum, signs of good positioning and latch-on and the correct time to introduce supplements. Nearly 35% believed that breast milk was not enough for their infants. Rural and less educated women knew less about breastfeeding concepts than more educated urban women but more continued breastfeeding longer and introduced supplements later.

Connaissances, attitudes et pratiques en matière d'allaitement au sein des mères de famille iraqiennes et de leurs parentes s'occupant des enfants

RÉSUMÉ Nous avons évalué les connaissances, les attitudes et les pratiques en matière d'allaitement au sein de 3413 mères iraqiennes et femmes de la famille s'occupant des enfants, ainsi que leur association avec les caractéristiques socio-démographiques. La majorité des femmes (73,1 %) commençaient à allaiter peu de temps après l'accouchement, 92,9 % pensaient que le colostrum était bon pour leur bébé et 64,6 % allaitaient à la demande. En revanche, on observait un manque de connaissances sur l'allaitement exclusif au sein jusqu'à six mois après l'accouchement, sur les signes attestant d'une bonne position et d'une bonne préhension et sur le moment opportun pour introduire des compléments dans l'alimentation du bébé. Près de 35 % des femmes pensaient que le lait maternel n'était pas suffisant pour leur nourrisson. Les femmes vivant dans les zones rurales et ayant un faible niveau d'instruction avaient moins de connaissances sur les concepts relatifs à l'allaitement au sein que les femmes plus instruites vivant en milieu urbain, mais elles étaient plus nombreuses à allaiter plus longtemps et à attendre avant d'introduire des compléments alimentaires.

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Introduction

Breast milk contains all the nutrients, antibodies, hormones and immune factors that a baby needs. On 18 May 2001, the World Health Organization (WHO) endorsed exclusive breastfeeding (BF) until an infant is 6 months of age [1]. If the drive for universal BF in the first 6 months is accomplished, an estimated 1.5 million lives could be saved each year [2].

The United Nations Children's Fund (UNICEF) has called for greater global commitment to promote BF [2]. In some countries of the Middle East and North Africa where the advantages of BF have been widely publicized and where the Baby-friendly Hospital Initiative (BFHI) has been implemented, BF rates are increasing. Countries like the Islamic Republic of Iran, Iraq, Jordan, Morocco, Oman, Syrian Arab Republic and the Gulf countries have successfully adopted BF promotion and BFHI since the 1990s [3]. In Iraq, BF is almost universal and regarded as the normal way to feed infants and young children. Although promotion of BF and BFHI began in 1993, there is a lack of data on exclusive BF and factors associated with it, making it difficult to identify areas that require intervention. Moreover, baseline data are generally lacking, making trend assessment difficult.

Over the past 30 years, many studies worldwide have identified the socio-economic determinants of BF, but far fewer have attempted to explore societal and cultural influences on BF [4]. For a BF intervention to be successful, research needs to be conducted on public perceptions and societal norms that shape women's decisions to initiate and continue BF [5,6]. Without an understanding of these factors, health care professionals cannot easily develop and implement effective strategies for promoting BF in any population [6-8].

To understand the societal norms and attitudes to BF in Iraq, we used survey interviews to explore some of the factors associated with the beliefs, attitudes and practices of BF of Iraqi women and to assess the effect of urbanization, educational background and age on these views.

Methods

We analysed data from a nationwide cross-sectional household survey (KAP-2002, unpublished) conducted by the Ministry of Health, Ministry of Higher Education and the Ministry of Planning and Development Cooperation with support from UNICEF during the period 17 October to 5 November 2002. All the mothers and adult female relatives in the same household (child-caring women) (3413 people) were asked about different factors that may affect their children's lives including health, nutrition, education, safe water, sanitation and child protection. The BF item was part of the health and nutrition sections, and this article presents the BF findings from the survey.

The families were selected by cluster random sampling with proportional allocation from all Iraqi governorates except the 3 northern ones to which access was prohibited at that time. Both urban and rural areas were included to collect information from a representative sample of Iraqi women.

All the mothers and child-caring women were interviewed by trained interviewers using a pre-tested questionnaire to obtain information on BF knowledge, attitudes and practices and other relevant sociodemographic characteristics. The questionnaire was developed by experts in the ministries of Health, Higher Education, Planning and Culture in Iraq. Permission and ethical approval to carry out the study were obtained

from the head of the Central Statistical Organization in Iraq.

Exclusive BF was defined as infant feeding with human milk without the addition of any other liquids or solids. Educational levels of the women were divided into 4 categories: illiterate women or those with informal or unknown education (no formal education), those with primary education (6 years formal education), those with intermediate education (9 years formal education), and those with secondary and higher education (12 years or more formal education).

Analyses were carried out with *SPSS*, version 11.0. Statistical analysis included descriptive statistics [mean, standard deviation (SD), ratios and frequencies]. The Student *t*-test and *F*-test were used to compare the means of different variables, and the standard chi-squared test was used to test for association in categorical variables. $P \leq 0.05$ was considered significant.

Results

Table 1 shows the characteristics of the women and their knowledge and practice of BF. The mean age (SD) of the women was 35.3 (9.8) years, with an urban to rural ratio of 1.8:1.0. Only 12.6% of the participants had secondary and higher levels of education.

As regards BF, 73.1% of the women started BF immediately and 92.9% considered giving colostrum was good for the baby; however 60.2% also gave water and sugar early after delivery, especially for jaundiced infants. We found that 88.1% of the women did not wash their hands before starting BF and 64.6% breastfed on demand. Although 1286 (37.7%) of the sample reported that they knew what full exclusive BF was, only 41.8% of these women defined it correctly and 49.5% of these reported that full exclusive BF should

continue for 6 months postpartum. Signs of good positioning and latch-on were not clear to all the women and 22.8% did not know any signs.

In addition, 34.8% of the women believed that breast milk was not enough to feed their infants and it is mainly due to mother's malnourishment (40.3%), unknown causes (22.3%) or due to the mother's illness (17.8%) (participants could cite more than 1 reason). Thus 78.6% started supplementing BF between 3 and 6 months postpartum (Table 1).

There were statistically significant differences between urban residents and rural residents in all the variables studied concerning KAP about BF (Table 2). Although urban women started BF earlier, more fed according to a schedule and introduced supplements earlier compared with rural women ($P < 0.001$). Significantly more rural than urban women believed that giving colostrum was not good for the baby, gave water and sugar to jaundiced infants and believed that their breast milk was not enough for their baby ($P < 0.001$). Also 64.7% of rural women compared with 54.9% of urban women did not know the correct definition of full exclusive BF and its duration ($P = 0.001$) (Table 2).

A significant association was found between women's educational level and their knowledge and practice of BF (Table 3). Illiterate women and those with informal or unknown education lacked appropriate knowledge, attitudes and practices of BF compared with urban women in almost all the parameters studied except for the frequency of BF. Significantly more of these women delayed starting BF, believed giving colostrum was bad for the baby, gave water and sugar to jaundiced infants and believed that their breast milk was not enough for their infants compared with more educated women. In addition, fewer washed their

Table 1 Characteristics of 3413 women according to their knowledge and practices of breastfeeding (BF)

Variable	No.	%	Variable	No.	%
<i>Education (n = 3406)</i>			<i>BF duration^a (months) (n = 1286)</i>		
Illiterate and informal	1243	36.5	0–3	138	65.3
Primary	1432	42.0	3.1–6	636	49.5
Intermediate	301	8.8	6.1–9	123	9.6
Secondary and higher	430	12.6	> 9.1	371	28.8
<i>When to start BF (n = 3384)</i>			Don't know	18	1.4
Immediately	2473	73.1	<i>Signs of good positioning/latch on</i>		
Within 24 h	483	14.3	Close to the mother	1990	42.6
After 24 h	188	5.6	Baby's head in line with the body; no arching		
Other	240	7.1	or sideways turning	1172	25.1
<i>Giving colostrum is (n = 3390)</i>			Breast touches the chin	225	4.8
Good	3149	92.9	Baby's lower lip inverted	113	2.4
Not good	120	3.5	Other	391	8.4
Don't know	121	3.6	Don't know	779	16.7
<i>Give water and sugar to jaundiced child (n = 3396)</i>			Total ^b	4670	100.0
Yes	2043	60.2	<i>Breast milk is insufficient for baby (n = 3378)</i>		
No	1221	36.0	True	1176	34.8
Don't know	132	3.9	Not true	2069	61.2
<i>Wash hands before BF (n = 3413)</i>			Don't know	133	3.9
Yes	407	11.9	<i>Causes of insufficient milk</i>		
No	3006	88.1	Ill mother	305	17.8
<i>Frequency of BF (n = 3391)</i>			Delay in starting BF	26	1.5
Scheduled	705	20.8	Short duration of BF	43	2.5
On demand	2189	64.6	Wrong positioning	15	0.9
Other	396	11.6	Malnourished mother	690	40.3
Don't know	101	3.0	Other	252	14.7
<i>Know the definition of full exclusive BF (n = 3413)</i>			Don't know	381	22.3
Yes	1286	37.7	Total ^b	1712	100.0
-correct definition	537	(41.8)	<i>When to start supplements (months) (n = 3413)</i>		
-incorrect definition	749	(58.2)	0–3	448	13.1
No	2127	62.3	3.1–6	2681	78.6
			> 6.1	252	7.4
			Don't know	32	0.9

^aFull exclusive BF

^bMultiple answers accepted.

Mean (standard deviation) age of the women = 35.3 (9.8) years.

Urban:rural ratio = 1.8:1.

Data were missing for some women for some variables.

hands before BF and knew the correct definition of full exclusive BF and its duration. On the other hand more of illiterate women gave breast milk on demand and delayed introducing supplements than the more educated mothers, more of whom breastfed according to a schedule and started supplements earlier (Table 3).

When the sample was analysed by age group, a statistically significant association was found between age group and some of the variables studied. Younger (≤ 20 years old) women were more likely to start BF later (after the first 24 hours of life) and wash their hands before BF than the other age groups. Also, both younger and older women (≤ 20 and ≥ 41 years) were less knowledgeable of the meaning of full exclusive BF than those aged 21–40 years. However, more older women delayed the introduction of supplements until 6 months postpartum than younger women (Table 4).

Discussion

Because this study was a national survey involving a large, demographically diverse sample of women, the results reflect current social and cultural norms regarding BF in Iraq. Our study shows that many Iraqi women are familiar with the benefits of BF and believe in some important concepts of BF, such as the early initiation of BF, giving colostrum to their babies, and practising BF on demand. On the other hand, these women lacked the knowledge of full exclusive BF, its duration, signs of good positioning and latch on, the need to wash hands before BF and the correct time for the introduction of supplements. The results are generally consistent with the literature and other studies [4,9–14].

As with many other parts of the world, Iraq is experiencing rapid urbanization. An increasingly urban lifestyle can lead to alter-

ations in traditional behaviours such as BF. In addition, evidence shows that maternal education, social class, ethnic background and religion are related to the decision to initiate and continue BF [15]. Results from our study show that urbanization was significantly related to women's level of education (urban:rural ratio for secondary and higher education level was 12:1). More of these urban, educated women than the rural, less educated women believed and practised correct BF, as for example they started BF earlier, believed in giving colostrum was good for their baby, were more likely to know about full exclusive BF and its duration, and when to start supplements. In addition, fewer would give water and sugar to their jaundiced infants. These beliefs and practices may be the result of the success of BF promotion and BFHI programmes in Iraq. Education influences nutritional knowledge, behaviour, and perceptions toward the child, and women with higher educational levels are more likely to take notice of new information about baby feeding from the media or books. These findings are supported by other studies that showed that mother's level of education was positively associated with some concepts of BF [5,7–11,13–19].

On the other hand, although exclusive BF of infants for about 6 months and BF with good quality complementary foods up to 2 years are well known recommendations [1,20], most of our participants were not fully aware of this and only 15.7% knew the correct definition of full exclusive BF and its duration. As a result, the vast majority of the women in our sample introduced supplements prior to 6 months of age. A similar rate (86.3%) was reported from a study carried out in Basra, Iraq [21]. This concurs with UNICEF's report that mixed breast- and bottle-feeding as early as the first month and the premature introduc-

Table 2 Knowledge and practices of the women about breastfeeding (BF) according to residence

Variable	Urban		Rural		Significance
	No.	%	No.	%	
Mean (SD) age of the women (years)	35.3 (9.5)		35.2 (10.5)		$t = 0.8, P > 0.05$
<i>Education</i>	(n = 2200)		(n = 1206)		$\chi^2 = 335.8, P < 0.001$
Illiterate, informal and unknown	598	27.2	645	53.5	
Primary	958	43.5	474	39.3	
Intermediate	247	11.2	54	4.5	
Secondary and higher	397	18.1	33	2.7	
<i>When to start BF</i>	(n = 2188)		(n = 1196)		$\chi^2 = 56.3, P < 0.001$
Immediately	1655	75.7	818	68.4	
Within 24 h	320	14.6	163	13.6	
After 24 h	108	4.9	80	6.7	
Other	105	4.8	135	11.3	
<i>Giving colostrum is:</i>	(n = 2191)		(n = 1199)		$\chi^2 = 69.8, P < 0.001$
Good	2095	95.7	1054	87.9	
Not good	47	2.1	73	6.1	
Don't know	49	2.2	72	6.0	
<i>Give water and sugar to jaundiced child</i>	(n = 2194)		(n = 1202)		$\chi^2 = 139.9, P < 0.001$
Yes	1172	53.4	871	72.5	
No	947	43.2	274	22.8	
Don't know	75	3.4	57	4.7	
<i>Wash hands before BF</i>	(n = 2206)		(n = 1207)		$\chi^2 = 4.9, P = 0.03$
Yes	283	12.8	124	10.3	
No	1923	87.2	1083	89.7	
<i>Frequency of BF</i>	(n = 2193)		(n = 1198)		$\chi^2 = 24.4, P < 0.001$
Scheduled	509	23.2	196	16.4	
On demand	1372	62.6	817	68.2	
Other	242	11.0	154	12.8	
Don't know	70	3.2	31	2.6	
<i>Correctly defined full exclusive BF</i>	(n = 854)		(n = 432)		$\chi^2 = 11.6, P = 0.001$
Yes	385	45.1	152	35.2	
No	469	54.9	280	64.8	
<i>Duration of full exclusive BF (months)</i>	(n = 854)		(n = 432)		$\chi^2 = 20.0, P < 0.001$
0–3	86	10.1	52	12.0	
3.1–6	453	53.0	183	42.4	
6.1–9	78	9.1	45	10.4	
≥ 9.1	221	25.9	150	34.7	
Don't know	16	1.9	2	0.5	
<i>Breast milk is insufficient for baby</i>	(n = 2185)		(n = 1193)		$\chi^2 = 86.2, P < 0.001$
True	658	30.1	518	43.4	
Not true	1462	66.9	607	50.9	
Don't know	65	3.0	68	5.7	

Table 2 Knowledge and practices of the women about breastfeeding (BF) according to residence (concluded)

Variable	Urban		Rural		Significance
	No.	%	No.	%	
<i>When to start supplements (months)</i>	<i>(n = 2206)</i>		<i>(n = 1207)</i>		$\chi^2 = 30.7, P < 0.001$
0–3	313	14.2	135	11.2	
3.1–6	1748	79.2	933	77.3	
≥ 6.1	125	5.7	127	10.5	
Don't know	20	0.9	12	1.0	

Data were missing for some women for some variables.
SD = standard deviation.

tion of complementary food are commonly found in all countries in the Middle East and North Africa [3]. Illiterate women and women aged 41 years or older were less likely to practise complementary feeding than younger and more educated women. Many studies have reported similar findings [5,10,13,14,16,22–24].

Concern over inadequate milk production and the belief that breast milk alone is an insufficient source of energy for a growing baby are common among lactating women throughout the world [5,7–15,17,21,24–26]. In our sample, over a third believed that breast milk was not enough to satisfy their infants, mostly because of the malnourishment of the mother herself. The findings of 2 Iraqi studies, one from Mosul (north) and the other from Basra (south), showed this was the reason for discontinuation of BF in 40.8% and 25.7% of mothers respectively. Although many studies have reported similar findings, most of them simply reported the fear or anxiety of the mother that BF alone may not be sufficient, and not the opinion of the mother about the cause that may contribute to this inadequacy. However, 2 studies reported that inadequate maternal nutrition is a barrier to successful BF [18,27].

A major limitation of our study is its cross-sectional nature. A more detailed comprehensive prospective study or cross-cultural research including qualitative

methods, such as focus group interviews, would more accurately identify barriers to or promoters of BF among our population and suggest ways of addressing them. Another possible limitation of the data is recall bias, especially in the case of women with older children. However, it is unlikely that recall bias would greatly affect the findings because the survey measured major and memorable life events.

Conclusion and recommendations

Prior to the development of BF promotion programmes there needs to be a clear understanding of what women know, think and practice about BF. This paper provides useful data on BF knowledge, attitudes and practices of a representative sample of Iraqi women and highlights some sociodemographic variables associated with BF initiation and continuation. Our findings also show that the level of exclusive BF was low. Development of successful infant-feeding interventions aimed at promoting overall infant health can benefit from knowledge of these BF patterns. Our findings also support the need for health care system interventions, family interventions and public health education campaigns to promote BF, especially in less educated and rural women.

Table 3 Knowledge and practices of the women about breastfeeding (BF) according to educational level

Variable	Grp 1		Grp 2		Grp 3		Grp 4		Significance
No. (%)	1243 (36.5)	1432 (42.1)	301 (8.8)	430 (12.6)	3406 (100)				
Urban:rural	598:645, 1:1.1	958:474, 2:1	247:54, 4.6:1	397:33, 12:1	$\chi^2 = 335.8, P < 0.001$				
Mean (SD) age of the women (years)	40.2 (10.1)	31.9 (8.6)	31.4 (8.1)	34.9 (7.4)	$F = 206.7, P < 0.001$				
	No.	%	No.	%	No.	%	No.	%	
<i>When to start BF (n = 3379)</i>	(n = 1232)	(n = 1418)	(n = 299)	(n = 430)					$\chi^2 = 82.9, P < 0.001$
Immediately	825	67.0	1039	73.3	241	80.6	364	84.7	
Within 24 h	188	15.3	209	14.7	41	13.7	44	10.2	
After 24 h	103	8.4	66	4.7	10	3.3	9	2.1	
Other	116	9.4	104	7.3	7	2.3	13	3.0	
<i>Giving colostrum is (n = 3385):</i>	(n = 1235)	(n = 1422)	(n = 298)	(n = 430)					$\chi^2 = 189.4, P < 0.001$
Good	1050	85.0	1371	96.4	295	99.0	428	99.5	
Bad	96	7.8	21	1.5	2	0.7	1	0.2	
Don't know	89	7.2	30	2.1	1	0.3	1	0.2	
<i>Give water and sugar to jaundiced child (n = 3390)</i>	(n = 1234)	(n = 1427)	(n = 299)	(n = 430)					$\chi^2 = 265.9, P < 0.001$
Yes	912	73.9	838	58.7	143	47.8	148	34.4	
No	275	22.3	523	36.7	152	50.8	267	62.1	
Don't know	47	3.8	66	4.6	4	1.3	15	3.5	
<i>Frequency of BF (n = 3386)</i>	(n = 1233)	(n = 1424)	(n = 299)	(n = 430)					$\chi^2 = 78.9, P < 0.001$
Scheduled	195	15.8	288	20.2	91	30.4	131	30.5	
On demand	871	70.6	910	63.9	174	58.2	230	53.5	
Other	136	11.0	177	12.4	33	11.0	49	11.4	
Don't know	31	2.5	49	3.4	1	0.3	20	4.7	
<i>Wash hands before BF (n = 3406)</i>	(n = 1243)	(n = 1432)	(n = 301)	(n = 430)					$\chi^2 = 10.3, P < 0.001$
Yes	120	9.7	190	13.3	35	11.6	60	14.0	
No	1123	90.3	1242	86.7	266	88.4	370	86.0	
<i>Knowledge of full exclusive BF (n = 3406)</i>	(n = 1243)	(n = 1432)	(n = 301)	(n = 430)					$\chi^2 = 99.3, P < 0.001$
Yes	356	28.6	563	39.3	134	44.5	232	54.0	
No	887	71.4	869	60.7	167	55.5	198	46.0	

Table 3 Knowledge and practices of the women about breastfeeding (BF) according to educational level (concluded)

Variable	Grp 1	Grp 2	Grp 3	Grp 4	Significance
Correctly defined full exclusive BF (n = 1285)					$\chi^2 = 50.9, P < 0.001$
Yes	(n = 356) 112	(n = 563) 217	(n = 134) 77	(n = 232) 130	56.0
No	244	346	57	102	44.0
	31.5	38.5	57.5	56.0	
	68.5	61.5	42.5	44.0	
Duration of full exclusive BF^a (months) (n = 1267)					$\chi^2 = 33.3, P < 0.001$
0-3	(n = 352) 34	(n = 556) 65	(n = 133) 12	(n = 226) 27	11.9
3.1-6	157	257	79	142	62.8
6.1-9	41	58	10	14	6.2
≥ 9.1	120	176	32	43	19.0
	9.7	11.7	9.0	11.9	
	44.6	46.2	59.4	42	62.8
	11.6	10.4	7.5	14	6.2
	34.1	31.7	24.1	43	19.0
Breast milk is insufficient for baby (n = 3373)					$\chi^2 = 39.5, P < 0.001$
True	(n = 1226) 480	(n = 1421) 462	(n = 298) 86	(n = 428) 147	34.3
Not true	685	897	205	278	65.0
Don't know	61	62	7	3	0.7
	39.1	32.5	28.9	34.3	
	55.9	63.1	68.8	65.0	
	5.0	4.4	2.3	3	0.7
When to start supplementsa (months) (n = 3374)					$\chi^2 = 57.9, P < 0.001$
0-3	(n = 1226) 154	(n = 1422) 204	(n = 300) 35	(n = 426) 53	12.4
3.1-6	928	1137	253	359	84.3
≥ 6.1	144	81	12	14	3.3
	12.6	14.3	11.7	12.4	
	75.7	80.0	84.3	84.3	
	11.7	5.7	4.0	14	3.3

^aDon't know response was excluded.

Data were missing for some women for some variables.

Grp 1 = illiterate, informal and unknown education; Grp 2 = primary education; Grp 3 = intermediate education; Grp 4 = secondary and higher education.

Table 4 Knowledge and practices of the women about breastfeeding (BF) according to age group

Variable	Age group (years)						Significance
	≤ 20		21–30		31–40		
Total [No., (%)]	156 (4.6)	1076 (31.5)	1204 (35.3)	977 (28.6)	3413 (100)		$\chi^2 = 7.8, P = 0.04$
Urban:rural	1.3:1	1.8:1	2:1	1.8:1			
Education (n = 3406)							
Illiterate, informal and unknown	(n = 156)	(n = 1074)	(n = 1201)	(n = 975)			$\chi^2 = 528.5, P < 0.001$
Primary	34 21.8	204 19.0	400 33.3	605 62.1			
Intermediate	96 61.5	611 56.9	487 40.5	238 24.4			
Secondary and higher	16 10.3	151 14.1	95 7.9	39 4.0			
	10 6.4	108 10.1	219 18.2	93 9.5			
When to start BF (n = 3384)							
Immediately	(n = 153)	(n = 1065)	(n = 1198)	(n = 968)			$\chi^2 = 24.9, P = 0.003$
Within 24 h	111 72.5	772 72.5	889 74.2	701 72.4			
After 24 h	19 12.4	166 15.6	154 12.9	144 14.9			
Other	14 9.2	37 3.5	83 6.9	54 5.6			
	9 5.9	90 8.5	72 6.0	69 7.1			
Wash hands before BF (n = 3413)							
Yes	(n = 156)	(n = 1076)	(n = 1204)	(n = 977)			$\chi^2 = 37.3, P < 0.001$
No	24 15.4	171 15.9	140 11.6	72 7.4			
	132 84.6	905 84.1	1064 88.4	905 92.6			
Knowledge of full exclusive BF (n = 3413)							
Yes	(n = 156)	(n = 1076)	(n = 1204)	(n = 977)			$\chi^2 = 10.4, P = 0.015$
No	52 33.3	428 39.8	474 39.4	332 34.0			
	104 66.7	648 60.2	730 60.6	645 66.0			
Correctly defined full exclusive BF (n = 1286)							
Yes	(n = 52)	(n = 428)	(n = 474)	(n = 332)			$\chi^2 = 11.0, P = 0.01$
No	18 34.6	171 40.0	225 47.5	123 37.0			
	34 65.4	257 60.0	249 52.5	209 63.0			
When to start supplements^a (n = 3381)							
0–3	(n = 153)	(n = 1069)	(n = 1193)	(n = 966)			$P = 13.6, P = 0.03$
3.1–6	14 9.2	138 12.9	162 13.6	134 13.9			
≥ 6.1	129 84.3	860 80.4	954 80.0	738 76.4			
	10 6.5	71 6.6	77 6.5	94 9.7			

^aDon't know response was excluded.
Data were missing for some women for some variables.

As health professionals can provide invaluable support for mothers initiating and continuing BF in our population, support for training of government health workers in tertiary, secondary and primary care

facilities in lactation management will enable them to promote, support, and protect exclusive BF adequately. Training needs could be extended to staff at private clinics and to traditional birth attendants.

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