

# Knowledge Attitude and Practice towards Accreditation of Hospitals as Baby-friendly for Improving Maternal and Neonatal Outcomes

Azza M. Abul-Fadl, Aliaa M. Diab, Ali Abdel-Naby Morsy, Hala M. ElBegawy

Pediatric Department, Faculty of Medicine, Benha University, Egypt.

**Corresponding to:** Hala M. ElBegawy, Pediatric Department, Faculty of Medicine Benha University, Egypt.

**Email:**

halamostafa19890@gmail.com

**Received:** 12 December 2022

**Accepted:** 11 March 2023

## Abstract

**Background:** The UNICEF/WHO Baby Friendly Hospital Initiative (BFHI) is a worldwide program aimed at promoting, protecting and supporting breastfeeding through the 'Ten Steps' for successful breastfeeding. **Aim:** To assess the underlying causes that lead to poor implementation of BFHI after the designation of the hospitals as Baby-friendly. **Methods:** This was a cross sectional descriptive study for comparing the knowledge, attitude and practice (KAP) of staff representing three types of hospitals: 7 University (UH), 7 public (PH) and teaching hospitals (TH) from different parts of the country. Interviews were conducted for 350 staff members (university staff, medical students, house-officers, nurses and doctors working in maternity and neonatal units) & 140 mothers from different localities & different hospitals. **Results:** Knowledge, attitude and practice towards the Code was significantly lowest among UH staff compared to the

other hospitals ( $P < 0.001$ ). Services that support breastfeeding mothers were highest in the UH ( $P = 0.006$ ). Education about breastfeeding was highest in UH ( $P = 0.001$ ). Practices of early initiation (step 4) was significantly higher in PH (36.7%) and TH (17.5%) compared to UH (5.4%), ( $P < 0.001$ ). Managing breastfeeding difficulties were highest in UH ( $P < 0.007$ ). Prescribing formula was significantly higher in PH (33.3%) and TH (20%) compared to UH (10.4) with  $P < 0.001$ . **Conclusions:** Improving and sustaining breast feeding can be achieved by revising teaching methodologies and curricular contents and updating practices in UH. This can ensure that medical students who will become the future staff working in PH and TH will provide better services.

**Keywords:** Knowledge; Accreditation; Baby-friendly; Maternal; Neonatal outcomes.

## **Introduction:**

Breastfeeding is the biological norm for all mammals, including humans. Breastfeeding is critical for achieving global goals on nutrition, health and survival, economic growth and environmental sustainability. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend that breastfeeding be initiated within the first hour after birth, continued exclusively for the first 6 months of life and continued, with safe and adequate complementary foods, up to 2 years or beyond (1).

Globally, a minority of infants and children meet these recommendations: only 44% of infants initiate breastfeeding within the first hour after birth and 40% of all infants under 6 months of age are exclusively breastfed. At 2 years of age, 45% of children are still breastfeeding. Immediate and uninterrupted skin-to-skin contact and initiation of breastfeeding within the first hour after birth are important for the establishment of breastfeeding, and for neonatal and child survival and development.

The risk of dying in the first 28 days of life is 33% higher among newborns who initiate breastfeeding 2–23 hours after birth, and more

than twice higher among those who initiate breastfeeding 1 day or longer after

birth, compared to newborns who were put to the breast within the first hour after birth (2).

Exclusive breastfeeding for 6 months provides the nurturing, nutrients and energy needed for physical and neurological growth and development. Beyond 6 months, breastfeeding continues to provide energy and high-quality nutrients that, jointly with safe and adequate complementary feeding, help prevent hunger, undernutrition and obesity. Breastfeeding ensures food security for infants. Inadequate breastfeeding practices significantly impair the health, development and survival of infants, children and mothers. Improving these practices could save over 820 000 lives a year (3).

Many hospitals in Egypt were designated in the past as Baby Friendly Hospitals (BFH's) but their practices were not maintained, and they consequently did not remain as BFH's. This is a worldwide problem. So, the UNICEF and WHO have devised monitoring tools and reassessment tools that can assist countries to do periodic checkup and re-assessment for these hospitals. Universities play an important role in providing well trained staff for the public and private hospitals.

### **Methods:**

This was a cross sectional descriptive study in which a purposeful questionnaire of 490 persons from different governorates, hospitals, cultures, socio-economic levels & educations from university staff, medical students, nurses, doctors from different specialties & mothers from different governorates was purposefully selected to conduct the research in their locations.

The study was conducted from 2021 to 2022 after obtaining consents from all hospitals and also to the mothers included. The study was done after being approved by the research ethics committee (Code: MS 29-1-2021)

**Inclusion criteria:** The selected hospitals were hospitals providing maternity services, hospitals provide neonatal care services and hospitals having a delivery rate of over 100 per month.

**Exclusion criteria:** No maternity services, no neonatal services, delivery rates < 100 per month and refusal to consent to participate in the screening survey.

**Sample size:** Sufficient sample size considered to include 14 hospitals representing Upper and Lower Egypt, different educations, different governorates, different socio-economic levels as well as urban and rural areas.

### **Questionnaire form for staff covering the Baby Friendly Hospital Initiative Ten Steps:**

**Step 1:** Have a written breastfeeding policy that is routinely communicated to all health care staff. **Step 2:** Train all health care staffs in skills necessary to implement this policy. **Step 3:** Inform all pregnant women about the benefits and management of breastfeeding. **Step 4:** Help mothers to initiate breastfeeding within an hour of birth. **Step 5:** Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants. **Step 6;** Give new-born infants no food or drink other than breast milk, unless medically indicated. **Step 7:** Practice rooming-in (allows mothers and infant to remain together 24 hours a day). **Step 8:** Encourage breastfeeding on demand. **Step 9.** Give no artificial teats or pacifier to breastfed infants. **Step 10:** Foster the establishment of breastfeeding support and refer them to mothers on discharge from the facility.

Questionnaire for mothers included in the same annex covering the baby friendly hospitals initiative the ten steps.

### **Statistical analysis**

Statistical analysis was done by SPSS v25 (IBM Inc., Chicago, IL, USA). Quantitative variables were presented as mean and standard deviation (SD) and were compared. Qualitative

variables were presented as frequency and percentage (%).

### **Results:**

The study included 350 healthcare providers (280 from university hospitals, 30 from public hospitals and 40 from teaching hospitals).

There was statistically significant differences between the 3 groups regarding the knowledge about the International Code of Marketing of Breast Milk Substitutes (ICBMS), code prohibiting staff to accept gifts sponsorship and code prohibiting company representative ( $p < 0.001$ ) with the lowest knowledge among university hospitals health care providers. There was also statistically significant differences between the 3 groups regarding the percent of health care providers who know that the facility has a policy for promotion of breastfeeding with lowest knowledge among public hospitals ( $p = 0.025$ ).

The percentage of health care providers can list some of services or practices the facility provides to support breastfeeding was higher among university hospitals than the other 2 types of hospitals with statistically significant difference ( $p = 0.006$ ). All the included health care providers received or gave education, training or orientation about the Ten Steps promoting breast feeding. Also, all the included physicians, except one, in the university hospitals group received or give

education, training or orientation about exclusive breast feeding (EBF) with no statistical significance between the 3 groups.

Percent of health care providers who received or gave education, training, or orientation about the hazards of formula feeding was the lowest among public hospitals and the highest among university hospitals with statistically significant difference ( $p < 0.0001$ ). **Regarding step 3**, there were no statistically significant differences between the 3 categories of hospitals regarding the percent of facilities that have or display or give education material about the benefits of breastfeeding to mothers. There was statistically significant difference between the 3 groups regarding the percent of facilities which inform, support or prepare pregnant women to breastfeeding with higher prevalence among teaching hospitals and lower prevalence among public hospitals ( $p = 0.031$ ).

There was statistically significant difference between the 3 groups regarding the percent of facilities which educate pregnant women about breastfeeding with highest prevalence among public hospitals ( $p = 0.021$ ). **Regarding step 4**, there was statistically significant difference between the 3 groups regarding the percent of facilities which inform pregnant women about breastfeeding in the first hour after birth with highest prevalence among university hospitals

( $p= 0.016$ ). However, the 3 groups were comparable regarding the percent of facilities which inform pregnant women in breastfeeding in first few hours. Early skin to skin in labor room had the highest prevalence among public hospitals health care providers with statistically significant difference ( $p< 0.001$ ). **Table 1a**

**Regarding steps 5, 7 & 8**, there were statistically significant differences between the 3 groups regarding knowing how to manage breastfeeding difficulties with the highest prevalence among the university hospitals health care providers ( $p= 0.007$ ). The 3 groups were comparable regarding knowing how to help women in the delivery ward to breastfeed.

**Regarding steps 6 & 9**, the 3 groups were comparable regarding knowing that formula feeding is associated with serious diseases later on in life. There were statistically significant differences between the 3 groups regarding the practice to prescribe formula only after informing the mothers of their hazards with the highest prevalence among public hospitals ( $p= 0.001$ ).

**Discharge Instructions and Practices**, there were statistically significant differences between the 3 groups regarding the percent of health care providers who inform & support women for breastfeeding during the postpartum period and who can list services

provided by the facility to educate mothers about breastfeeding with the highest prevalence among public hospitals ( $p= 0.001, 0.019$  resp.). There was also statistically significant difference between the 3 groups regarding the percent of health care providers who can list services provided by the facility to support continued exclusive breastfeeding with the highest prevalence among university hospitals ( $p< 0.001$ ). There was statistically significant difference between the 3 groups regarding awareness of the benefits of becoming Baby-friendly with the highest prevalence among university hospitals ( $p= 0.044$ ). **Table 1b**

**Regarding accreditation and designation of hospitals as Baby-friendly**, none of the participants in the groups knows about Baby friendly hospital initiative, aware of the national program for BFHI in Egypt and aware of the Ministerial urging hospitals become accredited as Baby friendly. All of the participants, except 1 physician, agree that every hospital providing maternity and neonatal services should become accredited as a BFH with no statistically significant differences between the groups. **Regarding Continued Education in lactation management (LM)**, there was no statistically significant difference between the groups regarding awareness of postgraduate university

degree programs to certify lactation specialists and percent of physicians who consider participating in these programs if made available in local universities. **Regarding Designating hospitals as Baby-friendly**, there were no statistically significant differences between the groups regarding the percent of participants who have the awareness that their hospital was designated as BFH in past, gave suggestions for making their hospital BFH, have the awareness if their hospital is preparing to become BFH and have awareness of the benefits of becoming Baby-friendly.

#### **Figure 1 and Figure 2**

The university healthcare providers were distributed as follows: 70 physicians, 35 nurses and 175 medical students. Regarding early initiation of breastfeeding in hospitals, there was statistically significant differences between the 3 groups regarding the practice to inform mothers to breastfeed in the first hour with the highest prevalence among the nurses ( $p=0.03$ ) or in the first few hours with the highest prevalence among the physicians ( $p=0.033$ ). The percentage of participants who know that formula feeding is associated with serious disease later on in life was highest among the physicians group with a statistically significant difference ( $p= 0.013$ ). Regarding discharge instructions and practice, the percent of participants who inform & support women

for breastfeeding during the postpartum period was highest among the physicians group with a statistically significant difference ( $p= 0.008$ ) while the 3 groups were comparable regarding who can list services provided by the facility to support continued exclusive breastfeeding and who can list services provided by the facility to educate mothers about breastfeeding. Regarding postnatal support in breastfeeding, the percent of participants who inform & support women for breastfeeding during the first six months after birth was highest among the physicians group with a statistically significant difference ( $p= 0.008$ ). Regarding accreditation and designation of hospitals as Baby-friendly, the percent of participants who know about the Baby Friendly Hospital Initiative and are aware of the national program for BFHI in Egypt was highest among the physicians group with statistically significant difference ( $p< 0.001$ ). Regarding continued LM, the 3 groups were comparable regarding awareness of postgraduate university degree programs to certify lactation specialists. However, the percentage of participants who considered participating in these programs if made available in local universities was highest among the physicians group with statistically significant difference ( $p= 0.025$ ). Regarding designating hospitals as Baby-friendly, the

percent of participants who had the awareness of the benefits of becoming Baby-friendly and the awareness if their hospital is preparing to become BFH were highest among the physicians group with statistically significant difference ( $p= 0.043, 0.017$ ). **Table 2; Figure 3 and Figure 4**

The study included 140 mothers distributed according to the type of hospital they follow into 3 groups: 70 mothers in university hospitals, 30 mothers in public hospitals and 40 mothers in teaching hospitals. The three groups were comparable regarding items for step 1 and all the mothers agree that every hospital (including their hospital) should be regularly monitored for its practices to become Baby-friendly.

**Regarding Training and Education in Baby Friendly**, the highest percent of mothers who received information about any or all of the Ten Steps was in the teaching hospitals with a statistically significant difference ( $p < 0.021$ ).

The three groups were comparable regarding receiving information about how to continue breastfeeding if mother falls sick, about how to continue breastfeeding if the mother develops a breast condition, receiving information about the hazards of formula feeding and receiving information on how to continue breastfeeding up to 2 years with other foods. All the mothers

in the 3 groups received information about the benefits of exclusive breastfeeding. **Table 3a Regarding education of pregnant women about breastfeeding**, all the groups were comparable regarding the percent of mothers who know the dangers of formula and not breastfeeding after childbirth and the dangers of introducing formula milk instead of breastfeeding during acute infections of the baby. However, the lowest percent of mothers who know the benefits of becoming Baby-friendly was in the university hospitals with statistically significant differences ( $p= 0.21$ ). University hospitals had the highest percent of mothers agreeing that every hospital should be regularly monitored in its practices to become Baby-friendly ( $p= 0.19$ ). Comparable percents of mothers in the groups know that early formula feeding is linked with serious disease later in life with statistically significant difference ( $p= 0.005$ ). **Regarding the National Program of Breastfeeding Promotion**, all the groups were comparable regarding the percent of mothers who know about the Baby friendly hospital initiative, know that there is a national program for BFHI in Egypt and that there is a Ministerial urging hospitals become accredited as Baby friendly. All of them agree that every hospital providing maternity and neonatal services should become accredited as a BFH. **Table 3b**

**Table 1a:** Comparison between the 3 types of hospitals regarding implementation of the revised 10 steps:

Implementation of the revised 10 steps	University Hospitals		Public Hospitals		Teaching Hospitals		Test of significance	p vale
	No= 280	%	No= 30	%	No= 40	%		
<b>Updated revised step 1 to 10 of the BFHI</b>								
Knows about ICBMS	5	1.8	4	13.3	5	12.5	FET=13.3	<b>0.001</b>
Knows Code prohibits staff to accept gifts sponsorship	3	1.1	5	16.7	5	12.5	FET= 21.8	<b>&lt;0.001</b>
Knows code prohibits company representatives	5	1.8	5	16.7	6	15.0	FET= 19.57	<b>&lt;0.001</b>
Knows facility has a policy for promotion of breastfeeding	279	99.6	28	93.3	40	100	FET= 7.12	<b>0.025</b>
Will abide by the code if you want your hospital to become accredited as Baby-friendly	280	100	29	96.7	40	100	FET=6.09	0.086
Agrees that every hospital should be regularly monitored	280	100	29	96.7	40	100	FET= 6.09	0.086
Can list some of services or practices your facility provides to support breastfeeding	259	92.5	25	83.3	31	77.5	FET= 9.59	<b>0.006</b>
<b>Training and education in the Ten steps</b>								
Received or gives education, training, or orientation in Ten Steps	280	100	30	100	40	100	-	-
Received or gives education, training, or orientation in EBF	279	99.6	30	100	40	100	FET= 1.63	1.0
Received or gives education, training, in LM in sick baby	250	89.3	28	93.3	35	87.5	FET= 0.562	0.766
Received or gives education, training, or orientation in LM of breast conditions	226	80.7	25	83.3	32	80.0	X2= 0.142	0.932
Received or gives education, training, or orientation in hazards of formula	280	100	24	80.0	36	90.0	FET= 33.88	<b>&lt;0.001</b>
Received or gives education, training, or orientation in continued BF for 2 years	280	100	28	93.3	40	100	FET= 11.44	<b>0.003</b>
<b>Prenatal Education (Step 3)</b>								
Facility have or display or give education material about the benefits of breastfeeding to mothers	265	94.6	29	96.7	37	92.5	FET= 0.642	0.746
Informs/supports/prepares pregnant women to breastfeeding	256	91.4	23	76.7	38	95.0	FET= 6.54	<b>0.031</b>
Educates pregnant women in breastfeeding	141	50.4	16	53.3	11	27.5	X2= 7.7	<b>0.021</b>
<b>Early initiation of breastfeeding in hospitals (Step 4)</b>								
Informs pregnant women in breastfeeding in first hour	249	88.9	23	76.7	30	75.0	X2= 8.30	<b>0.016</b>
Informs pregnant women in breastfeeding in first few hours	254	90.7	29	96.7	33	82.5	FET=2.73	0.26
Practices early skin to skin in labor room	15	5.4	11	36.7	7	17.5	FET= 26.18	<b>&lt;0.001</b>

FET: Fisher exact test; X2: Chi square test; level of significance< 0.05



**Table 1b:** Comparison between the 3 types of hospitals regarding implementation of the revised 10 steps:

Implementation of the revised 10 steps	University Hospitals		Public Hospitals		Teaching Hospitals		Test of significance	p vale
	No= 280	%	No= 30	%	No= 40	%		
<b>Technical Support in Breastfeeding (Step 5, 7, 8)</b>								
Manages breastfeeding difficulties	265	94.6	24	80.0	35	87.5	FET= 9.13	<b>0.007</b>
Helps women in delivery ward to breastfeed	11	3.9	4	13.3	2	5.0	FET= 4.66	0.075
<b>Supporting exclusive breastfeeding in hospitals (Step 6 &amp; 9)</b>								
Knows formula feeding is associated with serious disease later on in life	260	92.9	26	86.7	36	90.0	FET= 2.11	0.322
Prescribes formula only after informing mothers of their hazard	29	10.4	10	33.3	8	20.0	X2= 13.98	<b>0.001</b>
<b>Discharge Instructions and Practices</b>								
Informs & support women in breastfeeding during the postpartum period	261	93.2	29	96.7	30	75.0	FET= 13.17	<b>0.001</b>
Can list services provided by facility to support continued exclusive breastfeeding	271	96.8	25	83.3	33	82.5	FET= 16.48	<b>&lt;0.001</b>
Can list services provided by facility to educate mothers in breastfeeding	150	53.6	23	76.7	27	67.5	X2= 7.88	<b>0.019</b>
<b>Postnatal support in breastfeeding</b>								
Informs & support women in breastfeeding during the first six months after birth	261	93.2	25	83.3	36	90.0	FET= 3.95	0.122
<b>Accreditation and designation of hospitals as Baby-friendly</b>								
Knows about Baby friendly hospital initiative	17	6.1	0	0.0	6	15.0	FET= 4.58	0.10
Aware of the national program for BFHI in Egypt	28	10.0	0	0.0	7	17.5	FET=4.06	0.13
Aware of the Ministerial urging hospitals become accredited as Baby friendly	22	78.6	0	0.0	2	5.0	FET=1.58	0.453
Agrees that every hospital providing maternity and neonatal services should become accredited as a BFH	280	100	29	96.7	40	100	FET= 6.09	0.086
<b>Continued Education in LM</b>								
Aware of postgraduate university degree programs to certify lactation specialists	243	86.8	25	83.3	36	90.0	X2= 0.674	0.714
Considers participating in these programs if made available in local universities	252	90.0	24	80.0	30	75.0	X2= 8.81	<b>0.012</b>
<b>Designating hospitals as Baby-friendly</b>								
Aware that hospital was designated as BFH in past	19	6.8	4	13.3	5	12.5	FET= 3.30	0.184
Aware of the benefits of becoming Baby-friendly	271	96.8	26	86.7	38	95.0	FET= 5.86	0.044
Gave suggestions for making their hospital BFH	20	7.1	1	3.3	2	5.0	FET=0.198	0.91
Aware if their hospital is preparing to become BFH	141	50.4	11	36.7	16	40.0	X2= 3.19	0.203

**Table 2:** Comparison between responses of physicians, nurses and medical students in the 7 university hospitals:

Responses	Physicians		Nurses		Medical students		Test of significance	p vale
	No= 70	%	No= 35	%	No= 175	%		
<b>Updated revised step 1 to 10 of the BFHI</b>								
Knows about ICBMS	3	4.3	0	0.0	2	1.1	FET=1.43	0.49
Knows Code prohibits staff to accept gifts sponsorship	1	1.4	0	0.0	2	1.1	FET= 0.202	0.904
Knows code prohibits company representatives	1	1.4	0	0.0	4	2.3	FET= 0.122	0.94
Knows facility has a policy for promotion of breastfeeding	70	100	35	100	174	99.4	FET= 1.21	1.0
Will abide by the code if you want your hospital to become accredited as Baby-friendly	70	100	35	100	175	100	-	-
Agrees that every hospital should be regularly monitored	70	100	35	100	175	100	-	-
Can list some of services or practices your facility provides to support breastfeeding	68	97.1	29	82.9	162	92.6	X2= 6.87	<b>0.032</b>
<b>Training and education in the Ten steps</b>								
Received or gives education, training, or orientation in Ten Steps	70	100	35	100	175	100	-	-
Received or gives education, training, or orientation in EBF	70	100	35	100	174	99.4	FET=1.21	1.0
Received or gives education, training, in LM in sick baby	70	100	29	82.9	151	86.3	X2= 11.56	<b>0.003</b>
Received or gives education, training, or orientation in LM of breast conditions	56	80.0	25	71.4	145	82.9	X2= 2.48	0.29
Received or gives education, training, or orientation in hazards of formula	70	100	35	100	175	100	-	-
Received or gives education, training, or orientation in continued BF for 2 years	70	100	35	100	175	100	-	-
<b>Prenatal Education (Step 3)</b>								
Facility has, displays or gives education material about the benefits of breastfeeding to mothers	37	52.9	19	54.3	85	48.6	X2= 0.614	0.736
Informs/supports/prepares pregnant women to breastfeeding	69	98.6	30	85.7	157	89.7	X2= 6.67	<b>0.036</b>
Educates pregnant women in breastfeeding	70	100	31	88.6	164	93.7	FET= 7.73	<b>0.014</b>
<b>Early initiation of breastfeeding in hospitals (Step 4)</b>								
Informs pregnant women in breastfeeding in first hour	66	94.3	34	97.1	149	85.1	X2= 6.99	<b>0.03</b>
Informs pregnant women in breastfeeding in first few hours	69	98.6	31	88.6	154	88.0	X2= 6.85	<b>0.033</b>
Practices early skin to skin in labor room	4	5.7	3	8.6	8	4.6	FET= 1.30	0.531
<b>Technical Support in Breastfeeding (Step 5, 7, 8)</b>								
Manages breastfeeding	69	98.6	33	94.3	163	93.1	FET= 2.95	0.235

<b>difficulties</b>								
<b>Helps women in delivery ward to breastfeed</b>	3	4.3	1	2.9	7	4.0	FET= 0.162	1.0
<b>Supporting exclusive breastfeeding in hospitals (Step 6 &amp; 9)</b>								
<b>Knows formula feeding is associated with serious disease later on in life</b>	70	100	30	85.7	160	91.4	X2= 8.62	<b>0.013</b>
<b>Prescribes formula only after informing mothers of their hazard</b>	6	8.6	7	20.0	16	9.1	X2= 4.02	0.134
<b>Discharge Instructions and Practices</b>								
<b>Informs &amp; support women in breastfeeding during the postpartum period</b>	70	100	31	88.6	160	91.4	FET= 9.06	<b>0.008</b>
<b>Can list services provided by facility to support continued exclusive breastfeeding</b>	69	98.6	33	94.3	169	96.6	FET= 1.57	0.464
<b>Can list services provided by facility to educate mothers in breastfeeding</b>	35	50.0	15	42.9	100	57.1	X2= 2.87	0.238
<b>Postnatal support in breastfeeding</b>								
<b>Informs &amp; support women in breastfeeding during the first six months after birth</b>	70	100	31	88.6	160	91.4	FET= 9.06	<b>0.008</b>
<b>Accreditation and designation of hospitals as Baby-friendly</b>								
<b>Knows about Baby friendly hospital initiative</b>	14	20.0	3	8.6	0	0.0	FET= 34.94	<b>&lt;0.001</b>
<b>Aware of the national program for BFHI in Egypt</b>	22	31.4	0	0.0	6	3.4	X2= 48.0	<b>&lt;0.001</b>
<b>Aware of the Ministerial urging hospitals become accredited as Baby friendly</b>	10	14.3	3	8.6	9	5.1	X2= 5.8	0.055
<b>Agrees that every hospital providing maternity and neonatal services should become accredited as a BFH</b>	70	100	35	100	175	100	-	-
<b>Continued Education in LM</b>								
<b>Aware of postgraduate university degree programs to certify lactation specialists</b>	65	92.9	31	88.6	147	84.0	X2= 3.53	0.171
<b>Considers participating in these programs if made available in local universities</b>	68	97.1	33	94.3	151	86.3	X2= 7.37	<b>0.025</b>
<b>Designating hospitals as Baby-friendly</b>								
<b>Aware that hospital was designated as BFH in past</b>	2	2.9	5	14.3	12	6.9	FET= 4.54	0.097
<b>Aware of the benefits of becoming Baby-friendly</b>	70	100	32	91.4	169	96.6	FET= 5.28	<b>0.043</b>
<b>Gave suggestions for making their hospital BFH</b>	40	57.1	15	42.9	86	49.1	X2= 2.18	0.336
<b>Aware if their hospital is preparing to become BFH</b>	10	14.3	3	8.6	7	4.0	X2= 8.10	<b>0.017</b>

FET: Fisher exact test; X2: Chi square test; level of significance < 0.05.

**Table 3a:** Comparison of responses between mothers among different hospitals:

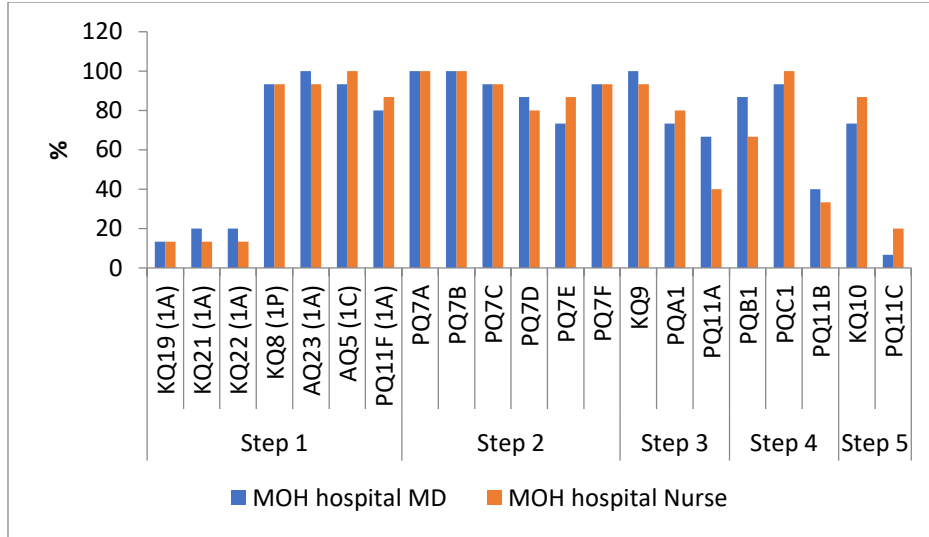
Responses	University Hospitals		Public Hospitals		Teaching Hospitals		Test of significance	p vale
	No= 70	%	No= 30	%	No= 40	%		
<b>Critical management procedures for Step 1</b>								
Knows that protecting the rights of the child requires prohibiting employees from accepting gifts, sponsorships or invitations from infant formula companies	21	30.0	9	30.0	12	30.0	X <sup>2</sup> = 0.0	1.0
Knows that there is a warning from the ministry that prevents company representatives from meeting mothers or giving them free samples or gifts to promote their products	21	30.0	9	30.0	12	30.0	X <sup>2</sup> = 0.0	1.0
Agrees that every hospital (include yours) should be regularly monitored in its practices to become Baby-friendly	70	100	30	100	40	100	-	-
Was exposed to advertising of milk and food products for infants through television, ads in stores, supermarkets, hospitals, doctor's offices, or through social media (WhatsApp, Facebook)?	65	92.9	30	100	40	100	FET= 3.74	0.129
<b>Training and Education in Baby Friendly in Step 2</b>								
Received information about any or all of the Ten Steps	9	12.9	11	36.7	7	17.5	7.76	<b>0.021</b>
Received information about the benefits of exclusive breastfeeding	70	100	30	100	40	100	-	-
Received information about how to continue breastfeeding if mother falls sick	59	84.3	24	80.0	33	82.5	X <sup>2</sup> = 0.277	0.871
Received information about how to continue breastfeeding during if mother develops a breast condition	28	40.0	12	40.0	16	40.0	X <sup>2</sup> = 0.0	1.0
Received information about the hazards of formula feeding	52	74.3	22	73.3	30	75.0	X <sup>2</sup> = 0.025	0.988
Received information on how to continue breastfeeding up to 2 years with other foods	68	97.1	30	100	40	100	FET= 1.24	0.712

FET: Fisher exact test; X<sup>2</sup>: Chi square test; level of significance< 0.05

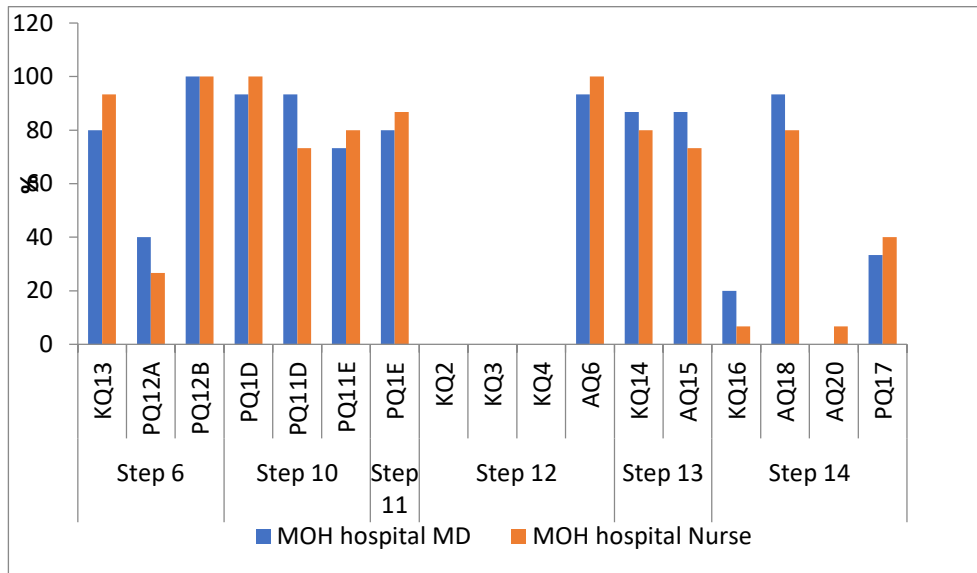
**Table 3b:** Comparison of responses between mothers among different hospitals:

Responses	University Hospitals		Public Hospitals		Teaching Hospitals		Test of significance	p vale
<b>Education of pregnant women in breastfeeding (Step 3)</b>								
<b>Knows the dangers of formula and not breastfeeding after childbirth</b>	67	95.7	26	86.7	37	92.5	FET= 2.67	0.261
<b>Knows the dangers of introducing formula milk instead of breastfeeding during acute infections of the baby</b>	69	98.6	30	100	40	100	FET= 1.21	1.0
<b>Know the benefits of becoming Baby-friendly</b>	50	71.4	27	90.0	36	90	X <sup>2</sup> = 7.76	<b>0.021</b>
<b>Early initiation of breastfeeding (Step 4)</b>								
<b>Agrees that every hospital should be regularly monitored in its practices to become Baby-friendly</b>	7	1.0	0	0.0	0	0.0	FET= 6.04	<b>0.019</b>
<b>Exclusive breastfeeding (Step 6)</b>								
<b>Knows that early formula feeding is linked with serious disease later on in life</b>	49	70.0	22	73.3	32	80.0	X <sup>2</sup> = 1.31	0.519
<b>National Program of Breastfeeding Promotion</b>								
<b>Knows about the Baby friendly hospital initiative</b>	1	1.4	0	0.0	1	2.5	FET= 0.944	1.0
<b>Knows that there is a national program for BFHI in Egypt</b>	2	2.9	0	0.0	1	2.5	FET= 0.185	0.91
<b>Knows that there is a Ministerial urging hospitals become accredited as Baby friendly</b>	2	2.9	0	0.0	1	2.5	FET= 0.185	0.91
<b>Agrees that every hospital providing maternity and neonatal services should become accredited as a BFH</b>	70	100	30	100	40	100	-	-

FET: Fisher exact test; X<sup>2</sup>: Chi square test; level of significance < 0.05



**Figure 1:** Different response for steps 1-5 between physicians and nurses in MOH hospitals



**Figure 2:** Different response for steps 6-14 between physicians and nurses in MOH hospitals

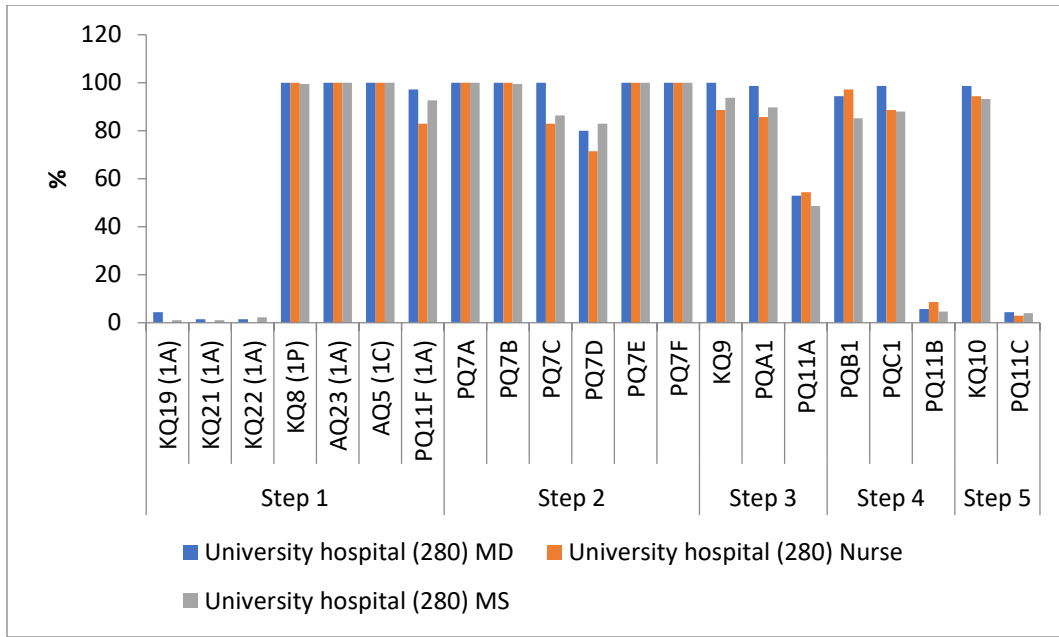


Figure 3: Different response for steps 1-5 between physicians, nurses and medical students in university hospitals

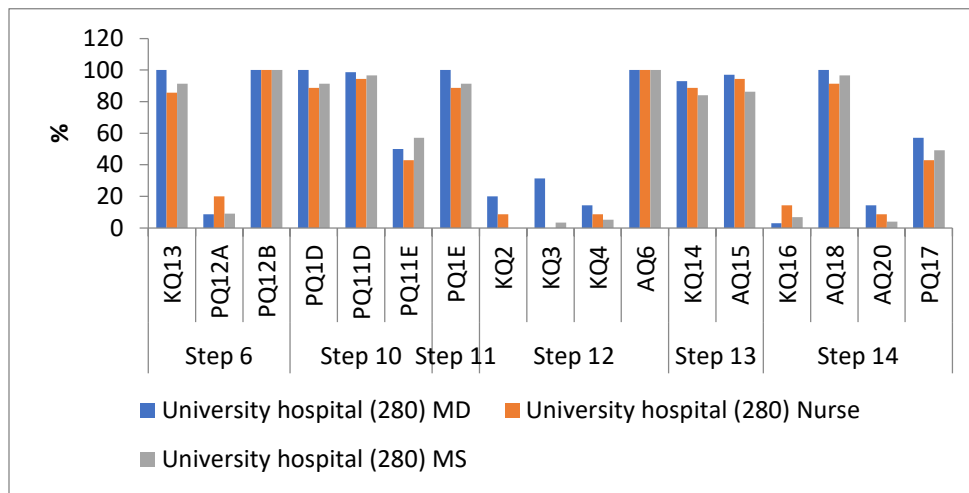


Figure 4: Different response for steps 6-14 between physicians, nurses, and medical students in university hospitals

**Discussion:**

The Baby-friendly Hospital Initiative (BFHI) is a worldwide initiative of the United Nations Children’s Fund (UNICEF) and the World Health Organization (WHO), launched in 1991 following the adoption of Innocent Declaration

for breastfeeding promotion and support in 1991. It urges hospitals to abide by the Ten Steps for promoting and supporting breastfeeding in maternity health facilities and implementing the International Code of

Marketing of Breast milk Substitutes (The Code) (4).

Installing monitoring systems for identifying poor hospital practices should be integrated into the quality improvement departments to ensure continuous improvement. According to the Academy of Breastfeeding Medicine protocols (ABM), physicians and especially pediatricians carry the responsibility of promoting and protecting breastfeeding (5).

A study conducted in 2018 showed that monitoring of six university hospitals and working at improving the revised Ten steps for promoting and supporting breastfeeding produced some significant improvements. But the study limitations were the short duration of monitoring which did not permit steps that showed resistance to improvement as steps 4 and 6 to actually show the required improvements (6).

In the current study, we compared differences within the health teams between physicians and nurses in each of the hospital groups. We found that most of nurses had the knowledge about importance of breastfeeding and hazards of formula feeding. Also, most of them reported that they advise mothers to initiate breastfeeding exclusively and practice early skin to skin contact (SSC) between mothers and babies with no difference between physicians and nurses. This is in agreement with other studies that reported similar

findings (7-9). A study conducted in 2018 also proposed that most of physicians and nurses had similar attitude toward skin to skin practice (10).

Most of the included nurses and physicians reported that they had received or gave training or orientation about the Ten steps and exclusive breast feeding. There is considerable diversity in the findings in different studies about the issue of training. A previous study reported that 39% of nurses did not receive teaching courses about Baby Friendly Hospital Initiative (BFHI) (7).

Supporting and protecting breastfeeding has been shown to have high economic returns and to enable cost savings for hospitals that can be invested in other services. This has been shown by a number of studies (11). When comparing health statistics for 1000 never breastfed infants with 1000 infants exclusively breastfed for at least 3 months, the never breastfed infants had 60 more lower respiratory tract illnesses, 580 more episodes of otitis media and 1053 more episodes of gastrointestinal illnesses (12).

In the current study, there was no statistically significant difference between physicians and nurses regarding the accreditation as BFHI as most of participants agree and want to provide services to help their health facility to become accredited as 'Baby-Friendly'. This goes hand



in hand with the results of different studies in other countries (7, 13-15).

In our study, only one third of the mothers had adequate knowledge about the importance and practice of EBF and BFHI. A recent meta-analysis in Egypt for 24 studies over the past decade and a half showed that KAP of mothers towards EBF was slowly rising, although there was considerable lack of knowledge about formula hazards and supplements given with breastfeed (16).

Low knowledge, attitude and practice (KAP) towards EBF was also reported by an Indian study that reported moderate knowledge among Indian mothers about EBF (17). Also, only 45% of mothers had high knowledge about breastfeeding and BFHI. Similar misconceptions and inadequacy of knowledge have been reported previously in other areas (18, 19).

Regarding practicing EBF, most of the included mothers in the current study knew the danger of introducing milk formulas and the benefits of breastfeeding and practice breastfeeding. The prevalence of EBF found in this current study is far below the WHO recommendations for increasing the prevalence of EBF, demonstrating a wide gap between the desired and the actual practice of EBF (20).

In the current study, the percent of mothers who know the hazards of formula was higher among rural mothers than urban mothers with

statistically significant difference. In agreement with the current study, another study reported significant difference between urban and rural mothers and different educational levels regarding practice of exclusive breastfeeding (21). A recent study reported that higher educational levels and urban residency were associated with better breastfeeding practice (22). In contrary to the current study, one study did not report significant difference between mothers of different educational levels and practice of EBF. They reported strong association between breastfeeding on-demand and the level of knowledge (23).

## **Conclusions:**

Improving and sustaining breast feeding can be achieved by revising teaching methodologies and curricular content and updating practices in University Hospitals. This can ensure that medical students who will become the future staff working in Public Hospitals and Teaching Hospitals will provide better services.

## **References:**

1. Brines J, Billeaud C. Breast-Feeding from an Evolutionary Perspective. *Healthcare (Basel)*. 2021;9.
2. Smith ER, Hurt L, Chowdhury R, Sinha B, Fawzi W, Edmond KM. Delayed breastfeeding initiation and infant survival: A systematic review and meta-analysis. *PLoS One*. 2017;12:e0180722.

3. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;387:475-90.
4. Lamounier JA, Chaves RG, Rego MAS, Bouzada MCF. Baby friendly hospital initiative: 25 years of experience in Brazil. *Revista Paulista de Pediatria*. 2019;37:486-93.
5. Feldman-Winter L, Barone L, Milcarek B, Hunter K, Meek J, Morton J, et al. Residency curriculum improves breastfeeding care. *Pediatrics*. 2010;126:289-97.
6. Abul-Fadl A, Farghally N, Ez-ElArab HS, Shandidi MR, Mostafa O, AlAttar G, et al. A Multicenter Survey for Monitoring the Baby-Friendly Initiative in 6 University Hospitals in Egypt (2017-2018): A Comparative Analysis. *Open Journal of Social Sciences*. 2018;6:293-306.
7. Vizzari G, Morniroli D, Consales A, Capelli V, Crippa BL, Colombo L, et al. Knowledge and attitude of health staff towards breastfeeding in NICU setting: are we there yet? An Italian survey. *Eur J Pediatr*. 2020;179:1751-9.
8. Nyqvist KH, Häggkvist AP, Hansen MN, Kylberg E, Frandsen AL, Maastrup R, et al. Expansion of the baby-friendly hospital initiative ten steps to successful breastfeeding into neonatal intensive care: expert group recommendations. *J Hum Lact*. 2013;29:300-9.
9. WHO. Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: World Health Organization; 2017.
10. Baley J, Fetus Co, Newborn, Watterberg K, Cummings J, Eichenwald E, et al. Skin-to-skin care for term and preterm infants in the neonatal ICU. *Pediatrics*. 2015;136:596-9.
11. Weimer J. The Economic Benefits of Breastfeeding: A Review and Analysis. Food Assistance and Nutrition Research Report No. 13. Washington, DC: Food and Rural Economics Division. Economic Research Service, US Department of Agriculture. 2001:14-8.
12. Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Pediatrics*. 1999;103:870-6.
13. Wieczorek CC, Schmied H, Dorner TE, Dür W. The bumpy road to implementing the Baby-Friendly Hospital Initiative in Austria: a qualitative study. *International Breastfeeding Journal*. 2015;10:1-14.
14. Wieczorek CC, Marent B, Dorner TE, Dür W. The struggle for inter-professional teamwork and collaboration in maternity care: Austrian health professionals' perspectives on the implementation of the Baby-Friendly Hospital Initiative. *BMC Health Services Research*. 2016;16:1-15.
15. Weiqi C. Breastfeeding knowledge, attitude, practice and related determinants among mothers in Guangzhou, China. West cluster: University of Hong Kong. 2010:1-115.
16. Abul-Fadl AM, Al-Jawaldeh A. A Metanalysis of Trends in Knowledge and Practice of Breastfeeding in Egypt: A Case Study from the Eastern Mediterranean Region. *Open Journal of Social Sciences*. 2022;10:135-51.
17. Vijayalakshmi P, Susheela T, Mythili D. Knowledge, attitudes, and breast feeding practices of postnatal mothers: A cross sectional survey. *International journal of health sciences*. 2015;9:364.
18. Issaka AI, Agho KE, Page AN, Burns P, Stevens GJ, Dibley MJ. Determinants of early introduction of solid, semi-solid or soft foods among infants aged 3-5 months in four Anglophone West African countries. *Nutrients*. 2014;6:2602-18.

19. Apanga PA. A review on facilitators and barriers to exclusive breastfeeding in West Africa. *benefits*. 2014;4:1-15.
20. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Group BCSS. How many child deaths can we prevent this year? *The lancet*. 2003;362:65-71.
21. Hamze L, Mao J, Reifsnider E. Knowledge and attitudes towards breastfeeding practices: A cross-sectional survey of postnatal mothers in China. *Midwifery*. 2019;74:68-75.
22. Mogre V, Dery M, Gaa PK. Knowledge, attitudes and determinants of exclusive breastfeeding practice among Ghanaian rural lactating mothers. *International breastfeeding journal*. 2016;11:1-8.
23. Muda SM, Zanudin NQAZM, Basha MAMK. Knowledge, Attitude and Practice of Exclusive Breastfeeding among Primipara at Baby Friendly Hospital (BFHI). *Jurnal Islam dan Masyarakat Kontemporari*. 2022;23:104-15.

**To cite this article:** Azza M. Abul-Fadl, Aliaa M. Diab, Ali Abdel-Naby Morsy, Hala M. ElBegawy. Knowledge Attitude and Practice towards Accreditation of Hospitals as Baby-friendly for Improving Maternal and Neonatal Outcomes. *BMFJ* 2023;40(annual conference issue): 194-212.