

The Level of Knowledge and its Determinants about Baby-Friendly Hospitals Initiative among Primary Health Care Physicians at Makkah Al-Mukaramah City, Saudi Arabia

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ABSTRACT

Background: Several global programs enforce the countries to implement strategies among hospitals, which provide maternity services to increase the rate of breastfeeding and decrease the risk of infants and maternal mortality and morbidity.

Aim of study: To assess the level of knowledge and its determinants of Baby-Friendly Hospitals Initiative (BFHI) among primary health care centers' (PHCCs) physicians.

Methodology: This study was a cross-sectional study carried out among PHCCs physicians in Makkah, Saudi Arabia.

Result: Out of 150 physicians, 61.3% were female, and 80.7% were Saudis, 67.3% were general practitioners, 41.4% were family medicine doctors, 50.0% had less than five years of experience, 38.0% reported that pregnant women always receive health education about breastfeeding. About two-thirds (61.3%) stated that they were aware of BFHI, and 88.7% reported the right number of 10 steps for successful breastfeeding. Regarding the steps of BFHI, the highest rate to choose the right statement were for step Four by 72.9%, followed by 65.3% for step Three. The mean score of knowledge was 8.1 ± 2.1 , where 55.3% had good level of knowledge. Female, and family medicine doctors showed a significant higher level of knowledge than others did ($p=0.007$, $p<0.0001$) respectively. There was a significant positive correlation in the level of the knowledge and years of

experience, where those with more experience showed high level of knowledge about BFHI ($r=0.273$, $p=0.002$). On the other hand, there was no significant difference regarding specialty level and age.

Conclusion: More than half of the physicians had good knowledge regarding BFHI. The best correctly identified BFHI steps among physicians were steps fourth and third, while the least correctly identified BFHI steps were eighth, and sixth. Physicians with good knowledge about BFHI were female, family medicine physicians, those with more experience.

Keywords: Baby-Friendly Hospitals Initiative, Knowledge, Determinants, Saudi Arabia.

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INTRODUCTION

Mothers' milk plays a significant source of nutrition for infants.^{1,2} Breastfeeding is the natural way to provide lifetime benefits for infants, mothers, income, and environment.^{3,4}

In several studies, it has been reported that there are advantages of breastfeeding for newborns such as decreasing the risk of diabetes mellitus and obesity and protecting babies from

infections, such as otitis media and gastroenteritis.^{5,6} Furthermore, it protects the mothers from breast cancer, ovarian cancer, and hypertension, as it has been shown in different studies.⁷⁻⁹

Several global programs enforce the countries to implement strategies among hospitals, which provide maternity services to increase the rate of breastfeeding and decrease the risk of infants and maternal mortality and morbidity.^{10,11} The Baby Friendly Hospital Initiative (BFHI) is the best program that is organized by the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) with recommended ten steps to successful breastfeeding among mothers around the world.¹²⁻¹⁴

Several studies proved the positive impact of the BFHI on public health regarding the infants and mothers.¹⁵⁻¹⁷

In KSA, 28 out of 400 hospitals have implemented the BFHI in their practice. A study performed in Riyadh 2012 found that exclusive breastfeeding mothers with access to an effective BFHI program in the Kingdom of Saudi Arabia (KSA) is 50.9%, versus 29% who are not accessible to a BFHI hospitals.¹¹ Another study performed in Jeddah showed that 77% of women who are exclusively breastfeeding at BFHI versus 7% of women who are not to BFHI hospital.¹⁸

According to several studies, there are barriers to implement the BFHI¹⁸. One of those studies was performed among health care workers, resulting in the misconception of staff knowledge on the nature of the BFHI.^{18,19} Another study showed that there are knowledge and skill gaps among staff. Also, there are barriers to implement the BFHI.²⁰

In 2011, the study was carried out in primary health care center in AL-Madinah AL-Monawarah showed that 39.3% of physicians in antenatal care, did counseling about breastfeeding.²¹

The physician providing maternity services play a significant role in promoting the BFHI in their practice, improving the breastfeeding rate among Saudi mothers. Up to the researcher knowledge, there was no study in Saudi Arabia about the health care workers knowledge about the BFHI.

SUBJECTS AND METHODS

A cross-sectional study was conducted in the Holy City of Makkah Al-Mukaramah, which is the capital of Makkah Region, located at the west of KSA. The medical care in Makkah Al-Mukaramah city included about ten hospitals, and primary healthcare centers distributed over seven sectors. Three out of seven sectors located inside Makkah Al-Mukaramah city with 39 out of 81 primary health care centers located inside Makkah Al-Mukaramah and two out of three MOH hospitals were located inside Makkah Al-Mukaramah city. The study was carried out among PHCC physicians working inside Makkah Al-Mukaramah City during the study period (2020). The sample size of this study has been calculated using the Raosoft software. The total number of the study population was 220 physicians. Therefore, the recommended minimum sample size was calculated to be 155 physicians based on the following:

- Estimated Prevalence = 50%
- Confidence level = 95%
- Error = 5%
- Non-respondents = 10%

The total number of doctors was divided on 20 duty days per month ($155/20 = 8$ physicians/day). Then the researcher followed a proportional simple random sampling technique at the PHCC.

Based on the relevant literature, a self – administrated questionnaire was designed by the researcher and was used in this study for data collection. It consists of three main parts:

Part 1: Demographic data of participant physicians: Name "optional," age, gender, nationality, specialty level, working place (name of PHC and name of the sector) and duration of their experience in PHC "in years"

Part 2: Three questions (adapted from WHO) to assess the antenatal services.

Part 3: Assessment of physicians' knowledge :

- Two questions for evaluating general information about BFHI (number of steps for successful breastfeeding and component of BFHI).
- Three questions to evaluate Information about essential definitions on BFHI (exclusive breastfeeding – demand breastfeeding – rooming-in)
- Ten questions to assess the knowledge of 10 steps for successful breastfeeding.

The validity of the constructed questionnaire was evaluated by three consultants (an expert statistician and two-family medicine consultants). The reliability of data collected for the knowledge questions through the pilot study was tested by applying the Cronbach's alpha coefficient, which was 0.755, i.e., more than 75% reliability. Moreover, the Pearson' Correlation coefficient was calculated to assess "internal consistency" between the physicians' total knowledge score and the score for each knowledge variable, which revealed a significant internal consistency, as shown in the following table.

The researcher made a schedule for PHCC visits on different days. Then, the researcher introduced herself and obtained the informed consent of participants. After that, she distributed and collected the questionnaires by hand on the same day.

After finishing the questionnaire, the researcher expressed her gratitude to each participant and a "Ten Steps for Successful Breastfeeding "Card was given as a gift to them for their participation.

Approvals of the Research Committee of the Joint Program of Family and Community Medicine in Makkah Al-Mukaramah, the General Directorate of Health Affairs, General Health Section in Makkah Al-Mukaramah and the directors of primary health care centers sectors were obtained.

Collected data were verified by hand, then coded and entered by the researcher into her personal computer. The Statistical Package for Social Sciences (SPSS version 21) was used for data entry, cleaning, and analysis. Regarding knowledge score, the total score for knowledge questions was 15. A score of "1" was given to each correct answer and a score of "0" was given to each incorrect answer. The total score was calculated by the summation of each individual score, with a minimum total score of (0) and a maximum of (15). Then, each physician's percent total knowledge score was calculated, and physicians' knowledge grade were categorized into either "knowledgeable" (with percent total $\geq 60\%$), or "non-knowledgeable" (with percent total $< 60\%$). P-values less than 0.05 were considered as statistically significant. Quantitative variables were presented as mean \pm SD, while categorical (qualitative) variables were presented as frequency and percentage. Reliability of knowledge questions was assessed by the Cronbach's alpha coefficient. Moreover, the Pearson' Correlation coefficient was applied to assess their

"internal consistency". Analytical statistical tests (independent t test, one way ANOVA, and Pearson's correlation tests) were used in this study. Normality distribution of physicians' total knowledge scores was tested using the "Shapiro-Wilk" test, which showed the non-significant difference from normality, i.e., physicians' total knowledge score is "normally distributed".

RESULTS

The study involved 150 physicians with a response rate of 96.8%. More than half of participants, 85(56.7%) aged 30-40years. Females represented 92 (61.3%) of them. The majority 121(80.7%) were Saudis, 101 (67.3%) were GPs (MBBS-qualified) and 49(41.4%) were family medicine physicians. Nearly half of them, 75 (50.0%) had less than five years of experience, while 58 (38.7%) had 5-10 years of experience. (Table 1)

The majority 148(98.7%) reported having the antenatal clinic in their PHCC, 57 (38.0%) noted that pregnant women always receive information about the benefits and management of breastfeeding, and 124 (82.7%) reported that this education covers all the key-points of breastfeeding. More than half of participants 92(61.3%) stated that they were aware of BFHI. (Table 2)

More than half of participants 92(61.33%) stated that they were aware about BFHI, 84(56.0%) reported the right component of BFHI "10 steps to successful breastfeeding & Code of marketing BMS", and 133 (88.7%) reported the right number of steps "All 10 steps to successful breastfeeding in maternity services". (Table 3) Regarding the definitions of terms related to BFHI, 105 (70.0%) chose the right meaning of exclusive feeding, i.e., "newborn receiving only breast milk and no other liquids or solids except for drops or syrups consisting of vitamins, minerals, or medicines.", 89 (59.3%) chose the right definition of demand feeding "Feeding baby whenever he signals that he's hungry – usually by crying or

sucking on his hands", and only 69 (46.0%) chose the right definition of rooming in "Placement of a newborn with its mother 24 hours/day, rather than in a nursery, during the postpartum hospital day".

Regarding the steps of BFHI, the highest rate to choose the right statement was that for step 4, i.e., "*Place babies in skin-to-skin contact with their mothers as soon as the mothers are responsive and alert*" by 109 (72.7%), followed by 98 (65.3%) for step 3, i.e., "*The antenatal education, including both that provided orally and in written form should cover key topics related to the importance and management of breastfeeding*", then step 7 i.e. "*Mother and baby stay together and/or start rooming-in immediately after birth* considered ", by 90 (60.0%), then step 1 "*All full-term infants should be considered to be breastfeeding infants after giving birth and being offered help to breastfeed, unless the mother has specifically stated that she has no plans to breastfeed*", by 85 (56.7%), and step 9, i.e., "*Providing the mothers with information about the risks associated with feeding milk or other liquids with bottles and teats*", by 79 (52.7%). The mean score of knowledge was 8.1 ± 2.1 , where more than half 83 (55.3%) had a good level of knowledge, while 67 (44.7%) had a poor level of knowledge. (Figure 1)

The results showed significant differences in physicians' knowledge levels according to their gender and specialty, where females and family medicine doctors had the highest levels of knowledge than others ($p= 0.007$, $p<0.0001$, respectively). On the other hand, there was no significant difference regarding specialty level. (Table 4)

The results showed a significant positive correlation in the level of the knowledge and years of experience, where those with more experience showing a higher level of knowledge about BFHI ($r=0.273$, $p=0.002$). On the other hand, there was no significant correlation with age.

Table 1: Personal characteristics of the study sample

Variables	No.	%
Age group		
<30 years	47	31.3
30-39 years	85	54.7
40-49 years	13	10.7
>50 years	5	3.3
Gender		
Male	58	38.7
Female	92	61.3
Nationality		
Saudi	121	80.7
Non-Saudi	29	19.3
Specialty level		
GP	101	67.3
FM Specialist	40	26.7
FM Consultant	9	6.0
Years of experience		
<5 years	75	50.0
5-10years	58	38.7
>10 years	17	11.3
Working place		
AL-Zaher Sector	51	34.0
AL-Adel Sector	40	26.7
AL-Kakiah Sector	59	39.3

Table 2: Evaluating the antenatal services on the study sample.

Variables	No.	%
Antenatal clinic		
Yes	148	98.7
No	2	1.3
Benefits and management of breastfeeding		
Always	57	38.0
Sometimes	83	55.3
Never	10	10.0
Keys points related to the importance and management of breastfeeding		
Yes	124	82.7
No	15	10.0
Not available	11	7.3

Table 3: Assessment of General knowledge about BFHI

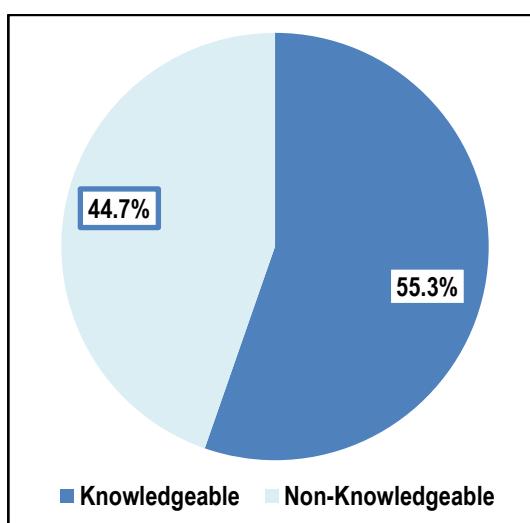
Variables	No.	%
Awareness of BFHI		
Yes	92	61.3
No	58	38.7
Components of BFHI		
Prevention of Mother to Child Transmission (PMTCT)	7	4.7
Mother friendly care	3	2.0
10 steps to successful breastfeeding	84	56.0
All of the above	54	36.0
Unknown	2	1.3
Steps of BFHI		
All 10 Steps to Successful Breastfeeding in maternity services. [#]	133	88.7
All 8 Steps to Successful Breastfeeding in maternity services	11	7.3
All 7 Steps to Successful Breastfeeding in maternity services	3	2.0
Unknown	3	2.0

Table 4: Comparing knowledge level regarding different socio-demographic data:

Variables		Mean	SD	Test	P-value
Gender #	Male	7.42	1.72	5.186	0.007
	Female	8.31	2.17		
Specialty level ^	GP	6.86	2.16	0.601	0.550
	Specialist	8.23	1.99		
Specialty#	Consultant	7.61	1.60	16.175	<0.001
	GP	7.19	1.52		
	FM	8.53	2.25		

Data presented as mean± SD; # Comparisons was made using independent t test (t)

^ Comparisons was made using one way ANOVA (F); * Statistically significance at the <0.05 level.

**Figure 1: Participants' knowledge Score.**

DISCUSSION

In 1990, the WHO and the UNISEF applied the BFHI, to encourage successful breastfeeding, BFHI is a program that assembles maternity health care providers to make changes in behaviors based on the accomplishment of the "Ten Steps to Successful Breastfeeding".¹⁴ The present study aimed to evaluate the knowledge of physicians about BFHI and to determine the factors (gender, specialty, work experience) associated with the level of knowledge about BFHI.

Results of this study showed that more than half of physicians had good knowledge regarding BFHI, and the rest had low knowledge. Similar results were found in the Tanzania study, which reported that 52.0% of healthcare providers had a desirable level of knowledge.²² while a study in India showed that most medical participants had an average level of knowledge about BFHI.²³

In the current study, 38.0% of participants reported that women received information about breastfeeding. This is higher than that

reported by a study in Tanzania, where 25.0% of women received information.²⁴ It is also higher than that reported by the study of Brazil, where only 20.0% of pregnant women knew about breastfeeding benefits.²⁵ These variations could be attributed to the differences in socio-economic factors and geographical areas. On the other hand, this average result (42.9%) and suboptimal levels of knowledge regarding breastfeeding that has been detected in the present study may be explained by the inadequate exposure of primary care physicians to continuing education at the PHCC.

Essential health education to pregnant women through ANC is necessary as a useful tool to increase the prevalence of breastfeeding. Therefore, every consultation at a healthcare facility should be used optimally so that the pregnant women get the maximum benefits from their health care providers.

The result showed that more than two-third of participants knew the correct number of steps to successful breastfeeding (i.e., ten steps) and more than half knew the component of the BFHI. The highest participants' correct responses regarding BFHI were related to step four (72.7%), step three (65.3%) and step seven (60.0%). While the least identified BFHI were steps eight, (50.0%) and step six (44.67%). In USA, a study reported completing the 4th, 7th and 9th, steps and the incomplete steps were the 1st, 2nd, 3rd, & 10th.²⁶ While in AlHassa, the highest rates were for "artificial milk is given to newborns in the nursery", "postpartum follow-up visit", and "prelacteal foods are given to newborns before breastfeeding", while the least was for "other breastfeeding support groups", "lactation management unit available in the hospital", and "active reaching out: Patient follow-up phone call after discharge".²⁷

More than half of participants reported the right definitions of exclusive feeding (70.0%) and demand feeding (59.3%), while less than half of participants (46.0%) reported the proper definitions of rooming-in. Findings of the present study showed that participants' knowledge grades regarding BFHI were significantly better among females, FM physicians, and those with more experience. However, in the Tanzania study, there was no significant relationship between knowledge level and years of experience since professional training or gender.²⁴

Based on the findings of this study, the following can be concluded:

- More than half of physicians had good knowledge regarding BFHI.
- More than half were aware of BFHI.
- The best correctly identified BFHI steps among physicians were the 3rd, 4th, and 7th, while the least correctly identified BFHI steps were the 8th and 6th.
- Characteristics of physicians with good knowledge about BFHI included being a female, FM physician, and those with more experience.

Based on the findings of this study, the following can be recommended:

- Primary health care providers are requested to provide the necessary health education on breastfeeding for all pregnant women through ANC and must be repeated at every visit.
- Continuing education messages to physicians on BFHI should cover the main points of identified knowledge gaps, especially definitions, and the right component of each step.

- Continuing education messages on BFHI to physicians should be forced for those who are less experienced and general physicians.
- Encourage the pregnant women to talk about breastfeeding with their doctors.
- To conduct nation-wide studies on assessment of physicians' knowledge regarding BFHI need, with larger sample sizes and in regions other than Makkah Al-Mukarramah, to identify the levels and distributions of different knowledge grades as well as the areas and topics of knowledge deficits.
- To present the most key points in this study to PHC physicians' training centers and to publish pamphlets about BFHI to be distributed to pregnant women attending antenatal clinics.

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