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IMPACT OF AN EDUCATIONAL INTERVENTION OF 40 HOURS TRAINING OF BREAST FEEDING PROMOTING ON THE KNOWLEDGE AND ATTITUDE OF A SAMPLE OF HEALTH PROFESSIONAL STAFF: A STUDY OF A PRE AND POST EVALUATION

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ABSTRACT: *Health professionals have a crucial role in promotion, support and management of breastfeeding. To be effective in this effort, the clinician should focus on the issue from the preconception stage through pregnancy and delivery, and continue in subsequent infant care. To assess the effectiveness of the UNICEF/WHO 40-hour of breast feeding training through the assess breastfeeding knowledge and attitudes of the health profession staff before and after training course. Pre-posttest study with an intervention of an educational training course were conducted in Karbala maternity Hospital, during the period from May till July, 2016.A total of 90 participants arrange to reply to the invitation, Self-administered questionnaires were designed which include general demographic information, items related to the knowledge and attitude regarding the breast feeding. Statistical analysis was performed using the SPSS program (version 20) Results were presented as the frequencies and percentage in tables and figures. Chi-square test was used to determine any association found between these demographic variables and knowledge and attitudes. P value < 0.05 considered as cut off value for significance. The study revealed that the majority 48.9% of the participants achieved fair level score of knowledge regarding to breast feeding in pretest while the knowledge score improved as the majority 75.6% reported good knowledge in posttest. There is improvement regarding the knowledge related to basic information, breast feeding problems management and hospital policies supporting breast feeding. This improvement was significant statistically regrading knowledge related to the basic information (sings of adequate breast feeding 77.8%, breast feeding with local anesthesia 82.2%, breast feeding benefit 97.8% and contraindication to breast feeding84.4% with p<0.05. There is an improvement in good attitude from pretest to posttest in each attitude questions except for Q 14 and Q 15 (Formula is as healthy for an infant as breast milk, Breast-feeding is more convenient. than formula-feeding) the attitude is slightly reversed in the posttest. Significant statistical association were reported regarding the effect of the course of breast feeding promotion training in certain aspects of attitude questions especially the breastfeeding benefit aspect. UNICEF/WHO 40-hour of breast feeding training was effective tool to assess the breast feeding knowledge and attitudes among health profession staff that provide maternity care.*

KEYWORDS: Assess, Effectiveness, Breast Feeding Training, Knowledge, Attitudes, Health Profession Staff, Pre and Posttest.

INTRODUCTION

Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. Virtually all mothers can breastfeed, provided they have

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accurate information, and the support of their family, the health care system and society at la at large [1]. Breastfeeding is considered as an extension of maternal protection to the baby from the shelter of the in utero environment to life in the ex utero world with its variety of potentially harmful exposures [2]. It provides all the energy and nutrients that the infant needs for the first months of life, promotes sensory and cognitive development, and protects the infant against infectious and chronic diseases [3]. Improvement of exclusive breastfeeding practices, adequate and timely complementary feeding, along with continued breastfeeding for up to two years or beyond, could save annually the lives of 1.5 million children under five years of age [4] .

Breastfeeding contributes to the health and well-being of mothers, it helps to space children, reduces the risk of ovarian cancer and breast cancer, increases family and national resources, is a secure way of feeding and is safe for the environment [3, 5].

Unicef, depending on what was published by Lancet 2013, reported that the optimal breastfeeding of infants under two years of age has the greatest potential impact on child survival of all preventive interventions, with the potential to prevent over 800,000 deaths (13 per cent of all deaths) in children under five in the developing world [6] .

Over the past decades, evidence for the health advantages of breastfeeding and recommendations for practice have continued to increase. The WHO confident that breastfeeding reduces child mortality and has health benefits that extend into adulthood [3].

The World Health Organization and UNICEF recommendations on breastfeeding are support the initiation of breastfeeding within the first hour after the birth, promote the exclusive breastfeeding for the first six months, continued breastfeeding for two years or more and to start complementary feeding at the sixth months of child's age [3,7,8] .

While breastfeeding is a natural act, it is also a learned behaviour. An extensive body of research has demonstrated that mothers and other caregivers require active support for establishing and sustaining appropriate breastfeeding practices [3].

To enable mothers to establish and sustain exclusive breastfeeding for six months, WHO and UNICEF launched the Baby-Friendly Hospital Initiative (BFHI) in 1992. The BFHI contributes to improving the establishment of exclusive breastfeeding worldwide and, coupled with support throughout the health system, can help mothers sustain exclusive breastfeeding [3, 9]. WHO and UNICEF also recommend the Ten Steps to Successful Breastfeeding to increase breastfeeding initiation and duration through the obligatory adherence of the Baby-Friendly hospitals and birthing facilities to these steps [10] .

Despite the benefits of breastfeeding, the prevalence and duration in many countries are still lower than the international recommendations. In all Arab countries, there is a downwards trend in breastfeeding [8, 11] .On the other hand the epidemiological evidence strongly supports the need for strengthening breastfeeding promotion, protection and support worldwide [12].

Breastfeeding promotion is one of the most cost-effective interventional strategy to advance mother health, improving child survival and reducing the burden of childhood disease, particularly in developing countries [12,13] .

Prenatal support, hospital management and subsequent pediatric and maternal visits are all-important components of breast-feeding promotion. To encourage early initiation of

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breastfeeding and to prevent and overcome difficulties, mothers need appropriate management and skilled help. Knowledge, support and counselling should be available routinely before and after delivery (8).

Prenatal encouragement increases breast-feeding rates and identifies potential problem areas. Hospital practices should focus on rooming-in, early and frequent breast-feeding, skilled support and avoidance of artificial nipples, pacifiers and formula. Infant follow-up should be two to four days post discharge, with liberal use of referral and support groups, including lactation consultants and peer counselors [(14)].

Sometimes it is because there is no-one to give a mother the help that she needs, or because health care practices and the advice that she receives from health workers does not support breastfeeding [(15)]

Unfortunately, most health providers receive minimal, if any, education in breastfeeding, either during their undergraduate or postgraduate training , Even residents and physicians most likely to come across breastfeeding mother/baby pairs, such as in pediatrics, obstetrics/gynecology, and family medicine, have demonstrated significant deficits in breastfeeding knowledge. This may result in premature supplementation or cessation of breastfeeding [(16)].

Encouragement and education from healthcare providers result in increased breastfeeding initiation and duration.4–6 In addition, ongoing educational and support programs can improve initiation and duration of breastfeeding [(17, 18)].

Among the breastfeeding promotion interventions, one approach which has received considerable attention is the Promotion of breastfeeding in health facilities, particularly at the time of birth. This includes education and support for mothers, and changing hospital routines to establish early breastfeeding contact, rooming-in of babies with mothers, withdrawal of routine bottle feeding, and post-partum counselling [(19)] .

It is expected that clinical learning will continue with supervision by the more experienced and knowledgeable hospital staff. This ongoing clinical practice will be essential to providing continuity of care to breastfeeding mothers and babies and to ensuring the implementation of the Ten Steps to Successful Breastfeeding [(20)] .

One of its pillars, the WHO/UNICEF 18-hour course, has proven to be effective in improving maternity staff's knowledge and breastfeeding practices, as well as increasing breastfeeding rates [(8,9,14)] . WHO and UNICEF also developed the 40-hour *Breastfeeding Counselling: A Training Course* and more recently the five-day *Infant and Young Child Feeding Counselling: An Integrated Course* to train the health workers that can provide skilled support to breastfeeding mothers[(3)] .

In Iraq many studies reported the need to promote the knowledge of breast feeding to mothers. In a national nutrition survey conducted in Iraq during 1992 to 1994, anthropometric measurements were obtained from 3,616 children under five years of age. Less than 60% of the latter were exclusively breastfed during the first four months of life. They recommended that Iraqi women are in great need of breastfeeding-promotion programs [(21)].

A sample of 1000 Mother lives in Erbil city and attends at Primary Health Centers (PHC) for routine vaccination of their infant in 2001 ,revealed that (40.4%) of mothers don't know the

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importance of colostrums for newborn. (41.1%) of mothers don't know that child needs 6 months of exclusive breastfeeding [22] .

A study held in 2008 to assessed of breastfeeding knowledge, attitudes and practices of 3413 Iraqi mothers , (73.1%) initiated breastfeeding early after delivery, However, knowledge was lacking about full exclusive breastfeeding until 6 months postpartum, signs of good positioning and latch-on and the correct to introduce supplements [23] .

In 2010 another study among 251 primipara in early postnatal period attending Al-Yermouk Teaching Hospital– Baghdad \ Iraq showed lacking of antenatal education about breast feeding, only 8% of mothers received breast feeding education (reflecting real BF problems especially in early postnatal period) and mother reported only 2% of doctors as a source of breast feeding information [24] .

Through the breast feeding education intervention of the health professions will be essential to providing continuity of care to breastfeeding mothers and babies and to promote the support Breastfeeding. The aim of the study to assess the effectiveness of the UNICEF/WHO 40-hour of breast feeding training through the assess breastfeeding knowledge and attitudes of the health profession staff before and after training course.

LITERATURE REVIEW

Breast feeding

Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development [1]. Breastfeeding means the child has received breast milk direct from the breast or expressed [25].

Exclusive breastfeeding:

Exclusive breastfeeding means infant receives only breastmilk (including breastmilk that has been expressed or from a wet nurse) and nothing else, except for ORS, medicines and vitamins and minerals [1, 6].

Review of evidence has shown that, on a population basis, exclusive breastfeeding for 6 months is the optimal way of feeding infants. Thereafter infants should receive complementary foods with continued breastfeeding up to 2 years of age or beyond [9].

To enable mothers to establish and sustain exclusive breastfeeding for 6 months, WHO and UNICEF recommend [26]:

- Initiation of breastfeeding within the first hour of life
- Exclusive breastfeeding – that is the infant only receives breast milk without any additional food or drink, not even water
- Breastfeeding on demand – that is as often as the child wants, day and night
- No use of bottles, teats or pacifiers

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Breast feeding benefits:

Breast milk is the natural first food for babies, it provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life[9] .

Breastfeeding saves lives and protects the health of mothers and babies both in the short and long term. The evidence is well-established, for both the benefits to mother and baby of breastfeeding, and the significant risks of not breastfeeding [27].

One of the most highly effective preventive measures a mother can take to protect the health of her infant is to breastfeed. The success rate among mothers who want to breastfeed can be greatly improved through active support from their families, friends, communities, clinicians, health care leaders, employers, and policymakers [28] .

Policies support breast feeding needed to be integrate into the overall health and development policies of each country. Furthermore all actions that protect, promote and support breastfeeding need to be reinforce within programs such as prenatal and perinatal care, postnatal care. All healthcare staff should be trained in the skills necessary to implement these breastfeeding policies [29].

Ten Steps to Successful Breastfeeding:

To insure successful breastfeeding, every facility providing maternity services and care for newborn infants should fully practices all ten of the Ten Steps to Successful Breastfeeding set out in the joint WHO/UNICEF statement "Protecting, promoting and supporting breastfeeding: the special role of maternity services" [30.31] .

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within half an hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in - that is, allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.

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10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic [32].

Focusing on the brief period of prenatal, delivery and perinatal care provided in maternity wards and clinics, the above statement encourages those concerned with the provision of maternity services to review policies and practices that affect breastfeeding [33].

Despite strong evidences in support of EBF for the first six months of life, its prevalence has remained low worldwide and it is estimated that only about one-third of infants were exclusively breastfed for the first six months of life [34].

The role of health professionals:

Health professionals have a crucial role in promotion, support and management of breastfeeding [35].Health-care providers' lack of knowledge, training, and education pertaining to breastfeeding has been well documented in the literature. This lack of sufficient training creates a risk that many health-care providers will give inadequate, inappropriate, or no breastfeeding assistance and advice, which in turn often results in breastfeeding failure [36].

The first contact between mothers and doctors provided by family physician at the primary health care centers can significantly influence a mother's decision to breast-feed. Breast-feeding should be discussed at the first and subsequent prenatal visits. Prenatal encouragement increases breast-feeding rates and identifies potential problem areas ([14].

During the mother's first few days in hospital, the maternity staff's breastfeeding knowledge, attitudes, and practices can significantly influence future breastfeeding success [16]. Hospital routines significantly affect breast-feeding [37]. Prenatal support, hospital management and subsequent pediatric and maternal visits are all-important components of breast-feeding promotion [14]. The World Health Organization (WHO), in conjunction with the United Nations Children's Fund (UNICEF), has published a hospital breast-feeding policy called the Baby Friendly Initiative. The policy is intended for use in hospitals worldwide and is addressed to all personnel having patient-care responsibilities [30].

Health-care providers' lack of knowledge, training, and education pertaining to breastfeeding has been well documented in the literature. This lack of sufficient training creates a risk that many health-care providers will give inadequate, inappropriate, or no breastfeeding assistance and advice, which in turn often results in breastfeeding failure [36, 38]. Therefore, it is essential to have knowledge and clinical skills in breastfeeding counseling, to be able to guide and assist in breastfeeding management, when necessary [38].

Mothers often make a decision regarding breastfeeding early in prenatal care, and many have already decided whether to breastfeed prior to conception. Encouragement and education from healthcare providers result in increased breastfeeding initiation and duration [39].

Health Professionals Education:

Definition Professional education includes any program that improves the knowledge, skills, attitudes, or behaviors of health care providers in relation to the importance of breastfeeding [33]. In addition, ongoing educational and support programs can improve initiation and duration of breastfeeding [39]. Health care providers are defined here as

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doctors, nurses, midwives, nurse practitioners, nutritionists, lactation consultants, and other health care professionals working in maternity care [33] .

Breastfeeding education programs can be provided in person or online and can range from 1-hour lectures to intensive courses that last several weeks. Building skills to help health care providers deal with even routine lactation problems takes a combination of extensive formal instruction and practical experience [14].

One of the breast feeding education pillars, the WHO/UNICEF 18-hour course [16], Breastfeeding Promotion and Support course in a Baby-Friendly Hospital, a 20-hour course for maternity staff, which can be used by facilities to strengthen the knowledge and skills of their staff towards successful implementation of the Ten Steps to Successful Breastfeeding [40] . It has proven to be effective in improving maternity staff's knowledge and breastfeeding practices, as well as increasing breastfeeding rates [16].

Breast feeding education and training programs had been implemented worldwide to increase support breast feeding among providers followed by evaluation studies that documents their improvements like in Los Angeles, Australia, Tanzania, Kenya and Chile [41].

Jesusa et al (2015) review a lot of studies on the impact of breast feeding training of health professionals on the improvement of their knowledge, skills, and practices. The studies reviewed were in USA, UK, Brazil, Mexico, Australia, Italy, Nigeria, and Canada. The improvement were ranged between fair to good improvement [38] .

METHODOLOG

Design: Pre-posttest study with an intervention of an educational training course.

Setting: present study was conducted in Karbala maternity Hospital, during the period from May till July, 2016.

Sample: One hundred thirteen maternal health care providers were selected randomly as 10 participants from each health directorate of 13 governorate in Iraq (2 health directorate from Baghdad) and were invited to participate in the study and were arranged to attend an educational course at Karbala maternity Hospital.

A total of 90 participants arrange to reply to the invitation, the sample of the participants include general practitioners (G.Ps), family physicians, obstetrics/gynecologists, pediatrics, community medicine specialist and paramedical staff.

These professions were divided into three categories:

- Primary health care providers; which include the general practitioner and family physicians.
- Secondary health care providers; which include the physicians work at hospital (obstetrics/gynecologists, pediatrics, and paramedical staff.

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

- Tertiary health care providers which include community medicine specialist and other staff at the health directorate and nutrition research institutes (those are responsible for providing educational training courses to the health workers at the primary and secondary health care levels in general).

Ethical Consideration

To carry out the study, the official approval obtained from ethical and scientific Committee at AL- kindy College of Medicine, and verbal informed consent was obtained from each participants before filling the questionnaire.

Instrument

Self-administered questionnaires were designed which include general demographic information, 19 items related to the knowledge and 17 items related to the attitude regarding the breast feeding.

Part I: Socio-demographic data

Included personal data of the shared students such as: age, gender, marital status, no. of children, specialty, educational level and personal experience with breast feeding, previous training regarding breast feeding.

Regarding the specialty, in Iraq the G.Ps are attained doctors those worked at the PHC centers with no post college degree while the family physicians are specialized doctors with 4 years post college board degree in family medicine specialty.

Part II: Knowledge regarding breast feeding

Included 19 questions related to knowledge regarding such as: definition of exclusive breast feeding, benefit of and barriers of breast feeding, hospital policies and management the promote breast feeding.

The breast feeding knowledge were assessed using a modified questions from the breast feeding residency curriculum of the American academy of pediatrics [(42)].

The questions of the knowledge were multiple-choice and only one correct answer were obtained from each questions and a score of "1" was given for the correct answer and "0" for wrong. A total knowledge score (of 19 grades) was calculated and was then divided into: Poor score < 10, fair score: 10 - < 15 & good score ≥15.

Part III: Attitude toward breast feeding

Included 17 questions regarding attitude that promote breast feeding such as: positive attitude toward breast feeding benefit ,feeding cost, breast feeding being more covenant than breast feeding, the benefit of breast feeding to mother and baby , the possibility to continue breast feeding in certain conditions like mother employment , taking certain medications . Health professionals' attitudes toward infant feeding were assessed using the Iowa Infant Feeding Attitude Scale (IIFAS), a validated tool shown to have a Cronbach α ranging of 0.85-0.86 [(43)] .The IIFAS with its 17 statements, and participants are asked to which extent

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They agree with each statement on a five-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree."

IIFAS scores range from 17 and less considered as bad attitude (those include the strongly disagree and disagree), scores range from 18-34 considered as neutral attitude and scores range from 35 -85 considered as good attitude (those include the strongly agree and agree) with a higher score indicating a more positive attitude toward breastfeeding.

Each questions related to knowledge and attitude were analyzed individually to determine particular gap (gaps) for each item regarding breast feeding promotion topic.

Technical design: The study is dividing to stages:

Stage 1: included starting point data collection and pre-test assessment:

The participants were invited to answer the questionnaire that involve their knowledge and attitude evaluation regarding breast feeding by filling a pretest questionnaire which considered as basal information regarding breast feeding and were asked to fill the same information in posttest questionnaire form after they had finish the breast feeding training course .

Stage 2: intervention stage; presenting the health education training course:

The training course include "WHO/NULCEF tanning course regarding breast feeding promotion and counselling" [(15)].

The course consists of six days of training with 6-7 hours activity /day. a total of 40 hours .

The training was performed by a qualified trainers form the Ministry of Health with the cooperation of UNICEF. each day of training started with the theoretical part for about 3-4 hours of watching the presentation, use the interactive lectures that involve group discussion, role pay and was ended with 2-3 hours practical training at the hospital maternity ward to be contact with the mothers and their babies to cover the counselling and communications skills needed for successful breast feeding counselling and promotion.

Stage 3: post training (Post-test) assessment:

Following the end of the training course, the post-test questionnaire form was administered contained the identical questions from the pre-test used, except for the sociodemographic data questions were not included.

The questionnaires were repeated to clarify the impact of the intervention course of education and retention and application of knowledge and change in attitude. Participants were not informed that they would be retested with the same questionnaire at end of the course and were reassured of the confidentiality of their response and opinions regarding the pre and posttest.

Each individual question of knowledge and attitude we analyzed in the pretests and posttest by calculating the percentage of the correct answer for each individual item of questions to determine particular knowledge gaps and undesirable attitude and compare if there is an improvement in the response to each item accordingly.

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

Participants receive their pretest score, but incorrect questions are not identified till the completion of the posttest were the correct answers to all questions are given to them.

Statistical Analysis:

Statistical analysis was performed using the SPSS program (SPSS for Windows, version 20) Results were presented as the frequencies and percentage in tables and figures. Chi-square test was used to determine if there is any statistical were used to study the differences between baseline and post-training knowledge and attitudes, any association between the demographic variables and knowledge and attitudes. P value < 0.05 considered as cut off value for significance.

Results:

Table (1) shows the distribution of health profession staff who participate in the present study according to some sociodemographic characteristics, the majority 60% were of age 40 years and less, 64.4% were female, 42.2% were general practitioner followed by 22% were pediatrician. Regarding the scientific degree 53% had college degree followed by doctoral or board degree, 35, 6% worked in PHC centers, 91.1% were married with the majority 64% had 1-3 children. The majority 49% had a good Brest feeding personal experience and 80 % were with Breast feeding previous training.

Table (2) showed the association between the correct answers regarding the participants' breast feeding knowledge before and after the training course intervention, generally there is improvement regarding the knowledge related to basic information, breast feeding problems management and hospital policies regarding breast feeding. This improvement was significant statistically regrading knowledge related to the basic information (sings of adequate breast feeding 77.8%, breast feeding with local anesthesia 82.2%, , breast feeding benefit 97.8% and contraindication to breast feeding84.4% with $p<0.05$.

The significant improvements were also true regarding the knowledge of breast candidiasis management 77.8%. Hospital policies that help to promote breast feeding were also significantly improved with three out of four questions table (2).

Although the overall knowledge of breastfeeding of the present study was high, some individual items in knowledge recorded the lowest score, among the knowledge of "basic information section" the present study reviled that only less than half of the participants knew the correct signs of good attachments (Q5), Another knowledge deficiencies or gab remain in certain important areas despite the little improvement, these include; Q2 "Signs of adequate breast feeding" Q1 "Hospital positive counselling" and Q17 "Beast candidiasis".

Regarding the knowledge about the breast feeding, table (3) shows that the knowledge score of the participants in both pre and posttest in association to some sociodemographic characteristics. The knowledge score were divided into three categories; the good knowledge (score 15-19), fair knowledge (score 10-15) and bad knowledge (score less than 10). This table view that regarding the pretest score, good knowledge score were mostly among female, those who worked at PHC centers, those with bad Breast feeding personal experience and those with positive previous Breast feeding training with the following percentage (24.4, 17.8, 24.4 and 37.8) respectively.

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

Regarding the posttest there is generally improvement in knowledge score among both gender, both age groups, each specialty, work place and breast feeding experience and previous training. There is no significant statistical association between knowledge score among pre and posttest and the sociodemographic character under the study ($p > 0.05$).

Table (4) shows the association between the attitude score in both the pre and posttest, generally the improvement in good attitude from pretest to posttest in each attitude questions except for Q 14 and Q 15 14(Formula is as healthy for an infant as breast milk, Breast-feeding is more convenient. than formula-feeding) the attitude is slightly reversed in the posttest. Significant statistical association were reported regarding the effect of the course of breast feeding promotion training in certain aspects of attitude questions especially the breast feeding benefit aspect(Q 1,3,7,12)

Figure (1) shows the total score for the participants knowledge regarding breast feeding, it illustrates the changes in pre- vs. post-test scores for the knowledge. It was found that, the majority 48.9% of the participants achieved fair level score of knowledge regarding to breast feeding , followed by 42.2% had good and 8.9% got poor knowledge in pretest. After educational Intervention of the breast feeding promotion training course the knowledge score improved compared to pre-test as the majority 75.6% reported good knowledge followed by 20% with fair knowledge score.

Figure (2) shows the total score for the participants attitude regarding breast feeding, it illustrates the changes in pre- vs. post-test scores for the knowledge. It was found that, the majority 76.6 % of the participants achieved good level score of attitude regarding to breast feeding , followed by 17.5% had poor attitude in pretest. After the breast feeding training course the attitude score improved compared to pre-test as 79.4% reported for good attitude with the decrease in the bad attitude score with 14.3%.

DISCUSSION

Breastfeeding greatly enhances both infant and maternal health [44,45].The WHO offers a 20-hour breastfeeding course for health practitioners that has been shown to positively influence their confidence in and attitudes toward breastfeeding, as well as prolong exclusive breastfeeding rates [46] .The WHO/UNICEF 20-hour course, has proven to be effective in improving Maternity staff's knowledge, positively influence their attitudes toward and practices to breastfeeding, as well as increasing breastfeeding rates [16,20] .

The positive impact of conducting the UNICEF/WHO 40-hour breast feeding promotion course in Karbala maternity hospitals in Karbala/Iraq resulted in significant improvement in health professionals' of their both knowledge of and attitude toward breast feeding. The current study revealed that the knowledge score increased from fair score in pretest (nearly half of the participants) to more than three quarter with good knowledge score in posttest. The improvement in attitude scores was also positive. Many studies showed the same trend of improvement; Srinivasan et al, in a survey of 40 Canadian family physicians in 2010, showed that the mean scores for attitudes increased significantly from 77.4 before the breast-feeding training course to 83.0 after the breast feeding training course [45].

Many other studies also showed an increase in knowledge, attitude and practices [46-48]. An intervention study based on Internet-based educational intervention held on MCH providers

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in United States, 2012 concluded that Knowledge improved in all areas after completion of the educational intervention and revealed that this increase in knowledge is only the first step in improving the clinical practice of MCH providers [5].

On the other hand the improvement which was reported for the knowledge ,attitude and practice regarding breast feeding among health professionals was reported after a training of WHO/UNICEF breastfeeding courts of different hours; 3hrs.training among family physicians [45] . Cattaneo et al, in a survey of 571 health workers in Italy, trained with a slightly adapted version of the 18 hour Unicef course on breastfeeding management and promotion, showed the knowledge scores increased significantly after from 0.41 to 0.72 [49] and a study included 5 maternity hospitals in southern Croatia held on 424 health professionals which had completed the UNICEF/WHO 20-hour breastfeeding [16].

The current study is the first to assess knowledge and attitudes toward breastfeeding among health professionals after an educational intervention of nearly 40 hours training on breast feeding. It consecrate on identifying participants knowledge and attitude to cover the three components of breast feeding promotion (prenatal, hospital and postnatal care) [14]. Regarding knowledge score in the present study, it had neither significant statistical association with the sociodemographic characters (age gender, specialty or work place) nor with breast feeding personal experience and previous training. This finding consist with another studies which showed that demographic factors did not have statistically significant effects on breastfeeding knowledge scores ($p > .05$) [45, 50]. on the other hand a study with published in 2011 on health profession with personal or partner breastfeeding experience had higher pretest scores by 1.8% points, although this difference is probably not clinically significant [5] . Another study held on Medical Home Clinic providers revealed that personal breastfeeding experience led to give advice based on their experience that was not going with the evidence-based recommendations [51].

On contrary personal breastfeeding experience has frequently been shown to have a positive effect on the breastfeeding knowledge of 875 pediatrician members of the American Academy of Pediatrics in which the respondents with personal breastfeeding experience were 2.3 times more likely to recommend supportive policies to breast feeding [16, 52].

Although the overall knowledge of breastfeeding of the present study was high, some individual items in knowledge recorded the lowest score, among the knowledge of "basic information section" the present study reviled that only less than half of the participants knew the correct signs of good attachments (Q5), on the other hand this particular knowledge had little improvement on posttest following the training course. This could be contributed to the deficiency of training materials regarding this subject which might need to be associated with certain teaching aids like more detailed photos or movies or field training regarding the signs of good attachments. A study Zakarija-Grković and Burmaz, 2010 reported a no improvement in the knowledge score regarding sign of good attachment with 84.3% in both pre and posttest of breast feeding educational intervention course [16].

The present study showed another knowledge deficiencies or gab remain in certain important areas despite the little improvement, these include; Q2 "Signs of adequate breast feeding", Q1 "Hospital positive counselling" and Q17 "Beast candidiasis".

Regarding Q2"Signs of adequate breast feeding"; One of the signs of a adequate breast feeding is knowing the normal weight gin of the infant with breast feeding, the present study

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showed that the nearly three quarter of the participants knew the signs of adequate breast feeding and the appropriate infant weight gain in posttest which consider also not enough as this subject is very important as lack of awareness this problem of deficit knowledge the normal growth pattern of breastfed infants may cause health providers to recommend stopping of breastfeeding or supplementation when not needed because they could afraid of the poor infant weight gain. Still the present study is with higher in knowledge score than other studies how reported lower knowledge score in posttest [5, 51].

Hospital policies section of knowledge in the present study revealed another low scores of correct answer , they were among question Q1 (the hospital positive counselling) in which slightly more than half of the participant answered correctly the counselling question during the mother stay in hospital post-delivery. The improvement of knowledge raised to about three quarter of participants after the educational intervention. Yet this still not satisfactory as hospital is the place in when the second component of breast feeding promotion should started after the first contact with the of mothers contact at the primary health care center when the first component of this promotion (prenatal care) should be started. This might indicate the presentation the training course on most important knowledge needed regarding breastfeeding consultation was not enough, or the educational message may not have been transported in a sufficient manner.

Taveras et al. (2004) reported that women who discontinued breastfeeding within the early postpartum weeks reported their health-care provider recommended formula supplementation. Mothers expected their health-care providers would have the knowledge and skills to assist them with common breastfeeding concerns [53].

On the other hand there was a good knowledge score regarding the WHO/UNICEF ten steps of successful breast feeding (Q19). Nearly all the participants reported good knowledge scores in pretest which was also improved in posttest. The Ten Steps were presented to the world in the 1989 as the WHO/UNICEF Joint Statement on the Protection, Promotion and Support of Breastfeeding in 1990; they called upon the world to fully implement the Ten Steps in all maternities by 1995 [40].

Health care facilities play a vital role in the establishment of breastfeeding. The Ten Steps to Successful Breastfeeding provide a supportive pathway enabling women to achieve their breastfeeding intentions and guiding the training of healthcare workers in breastfeeding support. a study held Silvestre et al [50] in Brazil , 2009 showed that approximately 70% of professionals from maternity care facilities reported knowledge of the Ten Steps and thy conclude that that percentage of deficient knowledge was high considering that this subject is familiar to workers from hospital facilities

To the best of our knowledge, this is the first study in Iraq reported on the use of IIFAS in a pre/posttest of breast feeding educational intervention course to assess the attitudes of heath profession staff.

Regarding the attitude score , the current study showed general improvement in individual attitude score in comparing the positive attitude from pre to posttest , Radzyminski et al (2015 revealed that Maternal perceptions of negative attitudes of hospital staff have been found to be predictive of breastfeeding failure at 6 weeks postpartum. Mothers reporting perceived neutrality on the part of the hospital staff in relation to their decision to breastfeed were significantly more likely to wean by 6 weeks [54]. A significant difference in attitude

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

score between pre and posttest were reported among the questions that were related to the breast feeding benefits, which include the Q1"the nutritional benefit of breast feeding to the baby", Q6 "the psychological bonding between mother and baby", Q7 "the great joys of motherhood to mother" and Q12 "Breast milk is the ideal food for babies" .

Regarding the question that breast feeding is enjoyable to mother, Khoury et al [41] in 2002, showed an attitude improvement from 87.5% before intervention to 94.1% after intervention which is higher than the result of the present study.

The breast feeding in public places is such embarrassing matter to the mother , the current study showed a significant improvement in the staff attitude from two third in pretest to three quarter of participants in posttest who believe that there is no problem to breast feed in public places. A better improvements were reported by Khoury et al [41] regarding the being no problem in breast feed in public places with an attitude improvement from 85.6% to 94.9% after an educational intervention course. The same improvement was notice in the present study with the above study regarding the bounding benefit of breast feeding.

Believes that support the idea that "father feel left out if mother breast feed" (Q11), which is considered as a negative attitude to breast feeding was disagreed among three fourth of the participants in pretest while this disagreement reduced to just to one half of the participants in posttest. This might could be relate to that such topic may be not taken seriously as a barrier to breast feeding even the mother or the health profession attitude was negative, health profession negative attitude might affect the role of physician to empower women to initiate or continue breast feeding. Hatamleh et al [55] published in 2015 revealed that most of nursing students in this study agreed that all mothers should breastfeed their babies and that husbands play a major role in encouraging their wives to breastfeed. Many studies reported that father's attitude regarding breast feeding is a significant factor for mothers to initiate breast or bottle-feeding [56, 57] .Therefore, it is very important for husband to discuss with his wife on the most beneficial infant feeding methods.

A large number of respondents disagree or were neutral toward the false statement that "a mother who occasionally drinks alcohol should not breastfeed her baby" (60% and 80% pre and post training, respectively), indicating that this issue may have been adequately addressed in the 40- hour training course even this topic is not accepted in our community . On contrary a study held by Zakarija et al [16] in 2010, the agreement was (64% and 45% pre and post training. The decision whether this attitude was negative or positive were relied on the La Leche League's report (which is an international nonprofit organization that distributes information on and promotes breastfeeding and was founded in 1956 and has a presence in 68 countries). This report expressed the following: The effects of alcohol on the breastfeeding baby are directly related to the amount the mother ingests. When the breastfeeding mother drinks occasionally or limits her consumption to one drink or less per day, the amount of alcohol her baby receives has not been proven to be harmful [58].

More than three quarter of the respondents in current study had good attitude before and after training that "breast milk was the ideal food for babies" but the negative attitude was not improved after the breast feeding course intervention , this may related to bad personal experience with breast feeding of the participants and may indicate that certain attitudes will not likely to be changed easily and the training course should concentrate in the future on negative attitude even when little number of the participants reported such attitude because such idea (breast milk is the ideal food for babies) is the corner stone to the whole positive

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

attitude and knowledge to someone supposed to promote and support breast feeding such as health professionals. In constant to the present study a study held by Zakarija et al revealed that even before training, the majority of health professionals agreed that breastfeeding was more convenient than formula feeding [16].

Apart from three questions in the attitude scale used in the current study , all other questions were answered with improvement in posttest following the breast feeding intervention course, the four items were (Q11.Fathers feel left out if a mother breast-feeds. , Q14. Formula is as healthy for an infant as breast milk. , Q15. Breast-feeding is more convenient than formula-feeding) in each there is retardation in the respondent attitude toward breast feeding promotion. The other fourteen questions of attitude scale were as expected to be improved following the presentation of knowledge through the training course which is expected to improve the perception and attitude regarding breast feeding accordingly. Manzini et al reported that overall, majority of nursing students had positive attitude towards breastfeeding [56].

Limitation

This study limited by its small sample size and the participants were mostly self-selected and not chosen not randomly and could be biased. On the other hand females were mostly double the number of males who participate in the study which could considered as selection bias.

Other limitation is that the participants who agreed to take part in the study could not manage to attend the training course which was applied in another city away from their work place and residency.

CONCLUSION

UNICEF/WHO 40-hour of breast feeding training was effective tool to assess the assess breastfeeding knowledge and attitudes among health profession staff that provide maternity care. Further research is required to determine the impact of educational intervention on breast feeding rate in practice and any noticed increase in breast feeding problems.

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ISSN 2057-2611(Print), ISSN 2057-262X(Online)

APPENDIX

Table (1): the distribution of the sample according to some sociodemographic characteristics.

variable	No.	%
Age		
≤ 40	54	60
>40	36	40
Total	90	100
Gender		
Male	32	35.6
Female	58	64.4
Total	90	100
Specialty		
Medical		
-GP	38	42.2
-Family physicians	8	8.9
-Pediatrics	20	22.2
-Gyn. / obstet.	6	6.7
-Community medicine	8	8.9
paramedical	10	11.1
Total	90	100
Degree		
College	48	53.3
Diploma/master	14	15.6
Doctoral/board	28	31.1
Total	90	100
Working place		
PHC	32	35.6
Hospital	30	33.3
Health directorate	28	31.1
Total	90	100
Marital status		
Married	82	91.1
Not married	8	8.9
Total	90	100
No. of children		
0	18	20
1-3	58	64.5
>3	14	15.5
total	90	100
Brest feeding personal		
experience	44	48.8
Good	36	40.0
Neutral	10	11.2
Bad	90	100
Total		
Breast feeding previous		

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

training Yes No Total	72 18 90	80.0 20.0 100

Table (2): association between the correct knowledge scores regarding breast feeding before and after the educational intervention course.

Knowledge Questions Related to:	Pretest/ Correct Answers No. (%)	Posttest/ Correct Answers No. (%)	P-value
Basic breast feeding information:			
Q2 "Signs of adequate breast feeding".	56 (62.2)	70 (77.8)	0.000
Q3 "Breast feeding and anesthesia".	70(77.8)	74(82.2)	0.004
Q5 "Signs of good attachment".	36(40)	40(44.4)	0.02
Q6 "Breast feeding and medication".	76(84.4)	88(97.8)	0.84
Q7 "Breast feeding benefit".	86(95.6)	88(97.8)	0.04
Q8 "Hormonal physiology of breast feeding".	82(91.1)	90(100)	-
Q11 "Complementary feeding trimming".	90(100)	90(100)	-
Q14 "Sings of milk ejection".	60(66.7)	72(84.4)	0.4
Q15 "Exclusive breast feeding duration".	90(100)	88(97.8)	-
Q18 "Breast feeding contraindication".	70(77.8)	76(84.4)	0.00
Breast feeding problems management:			
Q9 "Breast engorgement".	76(84.4)	82(91.1)	0.1
Q10 "Poor breast feed infant weight gain".	82(91.1)	86(95.6)	0.17
Q12 "Sore nipple".	88(97.8)	88(97.8)	0.9
Q16 "Breast feed infant jaundice".	80(88.9)	80(88.9)	0.02
Q17 "Beast candidiasis".	61(68.9)	70(77.8)	0.00
Hospital policies regarding breast feeding:			
Q1 "Hospital positive counselling".	54(60)	64(71.1)	0.00
Q4 "Encourage breast feeding".	68(75.6)	78(86.7)	0.02
Q13 "Interfere with breast feeding".	64(71.1)	74(82.2)	0.4
Q19 "WHO/UNICEF (BFHI) Ten Steps".	84(93.3)	88(97.8)	0.04

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

Table (3): The distribution of sample according to their base line knowledge score (pretest) and post training knowledge score (posttest) in association to some sociodemographic characteristics.

Sample Characteristics	Knowledge score						P _value
	Pretest score			Post test score			
	<10 No. (%)	10-15 No. (%)	15-19 No. (%)	<10 No. (%)	10-15 No. (%)	15-19 No. (%)	0.430
Gender							
Male	2(2.2)	14(15.6)	16(17.8)	2(2.2)	8(8.9)	11(24.4)	
Female	6(6.7)	30(33.3)	22(24.4)	2(2.2)	10 (11.1)	23(51.1)	
Age (years)							0.533
≤40	2(2.2)	30(33.3)	22(24.4)	2(2.2)	10(11.5)	21(46.7)	
>40	4(4.4)	16(17.8)	16(17.8)	2 (2.2)	8(8.9)	13(28.9)	
Specialty							0.577
General P.	2 (2.2)	22(24.5)	14(15.5)	2 (2.2)	12(13.3)	24(26.7)	
Family Physician	0 (0.0)	2 (2.2)	6(6.7)	2 (2.2)	2 (2.2)	2(4.4)	
Pediatric	4(4.4)	8(8.9)	8(8.9)	2 (2.2)	2 (2.2)	8(20.0)	
Gyn. / obstet.	2 (2.2)	2 (2.2)	2 (2.2)	0 (0.0)	2 (2.2)	4(4.4)	
Community Med.	4(4.4)	2(2.2)	2(2.2)	2(2.2)	2(2.2)	4(4.4)	
Paramedical	2(2.2)	6(6.6)	2(2.2)	2(2.2)	6(6.6)	4(4.4)	
Work place							0.961
PHC	2 (2.2)	14(15.6)	16(17.8)	2 (2.2)	6(6.7)	24(26.7)	
Hospital	2 (2.2)	16(17.8)	12(13.3)	2 (2.2)	6(6.7)	22(24.5)	
Health directorate	2 (2.2)	16(17.8)	10(11.1)	2 (2.2)	10(11.1)	16(17.8)	
Breast feeding personal experience							0.694
Good	2 (2.2)	4 (4.4)	4(4.4)	2(2.2)	2(2.2)	3(6.7)	
Natural	6(6.7)	18(20)	12(13.3)	0 (0.0)	8(8.9)	14(31.1)	
Bad	2 (2.2)	20(22.2)	22(24.4)	2(2.2)	8(8.9)	17(37.8)	
Breast feeding previous training							0.642
Yes	4(4.4)	34(37.8)	34(37.8)	2(2.2)	18(20)	56(62.2)	
No	2(2.2)	12(13.2)	4(4.4)	2(2.2)	6(6.7)	12(13.3)	

ISSN 2057-2611(Print), ISSN 2057-262X(Online)

Table (4): The association of attitude scores and the relation to pre and posttest regarding breast feeding attitude questions.

Attitude questions	Attitude score						P value
	Pre test			Post test			
	Good No. (%)	Fair No. (%)	Bad No. (%)	Good No. (%)	Fair No. (%)	Bad No. (%)	
1. The nutritional benefits of breast milk last only until the baby is weaned from breast milk.	40(44.4)	10(11.1)	40(44.4)	72(80)	6(6.7)	12(13.3)	0.038*
2. Formula-feeding is more convenient than breast-feeding.	84(93.3)	2(2.2)	4(4.4)	88(97.8)	0(0.0)	2(2.2)	0.964
3. Breast-feeding increases mother-infant bonding.	80(88.9)	4(4.4)	6(6.7)	86(95.6)	4(4.4)	0(0.0)	0.006*
4. Breast milk is lacking in iron.	64(71.1)	12(13.3)	14(15.6)	74(82.2)	4(4.4)	12(13.3)	0.330
5. Formula-fed babies are more likely to be overfed than breast-fed babies.	42(46.7)	4(4.4)	44(48.9)	56(57.8)	2(2.2)	36(40)	0.788
6. Formula-feeding is the better choice if the mother works outside the home.	78(86.7)	4(4.4)	8(8.9)	82(91.1)	2(2.2)	6(6.7)	0.158
7. Mothers who formula-feed miss one of the great joys of motherhood.	72(80)	6(6.7)	12(13.3)	74(82.2)	6(6.7)	10(11.1)	0.000*
8. Women should not breast-feed in public places such as restaurants.	60(66.7)	10(11.1)	20(22.2)	72(80)	6(6.7)	12(13.3)	0.033*
9. Babies who are fed breast milk are healthier than babies who are fed formula.	72(80)	6(6.7)	12(13.3)	64(93.3)	2(2.2)	4(4.4)	0.964
10. Breast-fed babies are more likely to be overfed than formula-fed babies.	48(53.3)	10(11.1)	32(35.6)	26(51.1)	18(20)	26(28.9)	0.018*
11. Fathers feel left out if a mother breast-feeds.	64(71.1)	6(6.7)	20(22.2)	26(55.6)	22(24.4)	18(20)	0.009*
12. Breast milk is the ideal food for babies.	78(86.7)	6(6.7)	6(6.7)	80(88.9)	4(4.4)	6(6.7)	0.040*
13. Breast milk is more easily digested than formula.	80(88.9)	6(6.7)	4(4.4)	84(95.6)	2(2.2)	2(2.2)	0.827
14. Formula is as healthy for an infant as breast milk.	86(95.6)	2(2.2)	2(2.2)	82(91.1)	4(4.4)	4(4.4)	0.938
15. Breast-feeding is more convenient. than formula-feeding	80(88.9)	2(2.2)	8(8.9)	76(84.4)	2(2.2)	12(13.3)	0.904
16. Breast milk is less expensive than formula	80(88.9)	2(2.2)	8(8.9)	84(93.3)	0 (0.0)	6(6.7)	0.300
17. A mother who occasionally drinks alcohol should not breast-feed her baby	54(60)	10(11.1)	26(28.9)	72(80)	18(20)	0(0.0)	0.129

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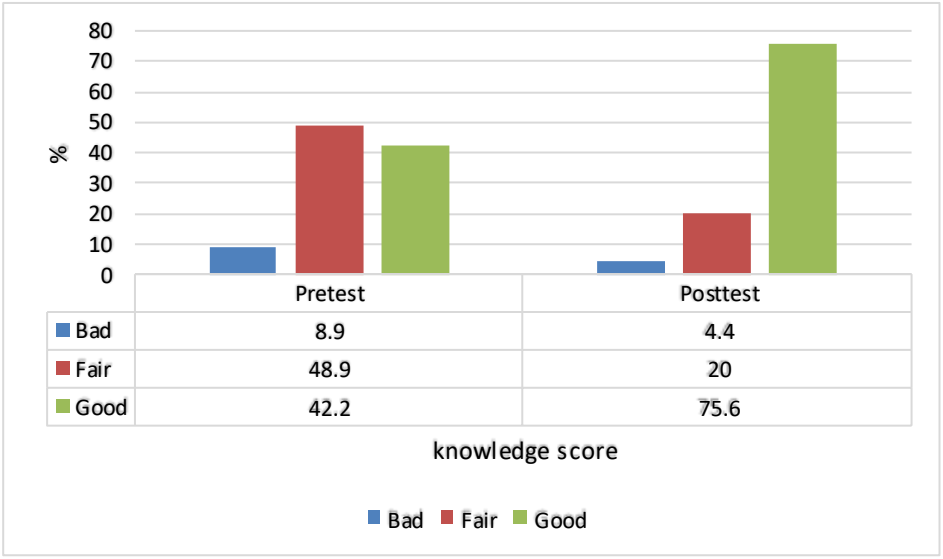

Figure (1): knowledge score of breastfeeding: N = 45; knowledge scores before versus after the training course (pre and posttest) .

Figure (2): Attitudes toward breastfeeding**:** N = 45; attitude scores before versus after the course of training (pre and posttest).

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