-

MCFC

Egyptian Journal of Breastfeeding

Volume (11) January, 2015

THEME OF CURRENT ISSUE:

WOMEN TO WOMEN SUPPORT FOR MATERNAL HEALTH & SURVIVAL

Issued by Mother Child Friendly Care Association (MCFC)

MCFC-Egyptian Journal of Breastfeeding (EgJB)
ISSN: 18473/2011
Volume (11) January, 2015

THEME: ***Women to women support for maternal health & survival***

Printed by Tobgi Press, Cairo, Egypt **Issued by Mother Child Friendly Care Association Alexandria** ***(Registration no. 2538-2010)***

Guidelines for authors of original research studies:

Authorship. Authors should give their full names and the name and address of their institutions. **Tables and Figures** should be numbered consecutively (e.g. Table 1, Fig. 1) and up to a total of 9. **Abstracts** up to 500 words allowed, in English at the beginning and is translated into Arabic at the end of the article. **The body of the text** should be structured as Background, Subjects and Methods, Results and Discussion, typed in a double spaced word document (font 12 Times New Roman), not exceeding 12 pages (size A4). The journal does not accept any papers or work funded by infant milk formula companies or code violators. Ethical considerations for work on mothers and babies should be clearly described. **References** should not exceed 40. They should be in American Psychological Association (APA) style used for citing in social sciences articles. Then they are sorted alphabetically and numbered for reference in the text. For more information on references please refer to http://www.apastyle.org/

Correspondence information
Mother Child Friendly Care Association
10, Dameitta Street – Bolkly – Alexandria – **flat 143, Email: abulfadl2025@gmail.com**

Table of Contents

INTRODUCTION: BREASTFEEDING AND CARDIOVASCULAR RISK

BY THE CHIEF EDITOR: DR AZZA ABUL-FADL, PROFESSOR OF PEDIATRICS, BENHA UNIVERSITY

The purpose of this issue is to highlight the importance of breastfeeding which is an important phase in the reproductive cycle of women which enables them to recover from the hardships imposed on their body organs and systems by pregnancy.

Amazingly enough even when women suffer any dysfunction in their body, breastfeeding works to assist their body to adapt back to the norm. For instance when a woman develops diabetes mellitus, hypertension, autoimmune disorders, or an even mental disorder as depression, breastfeeding helps alleviate this condition. Moreover some of these conditions may be ameliorated or go into remission or disappear. It is as if a woman's body is rejuvenated with the birth of her newborn child. The heart and circulatory system is a clear example of this; where the increase in the cardiac output and increase in the ventricular dimensions works to nurture blood to the tissues of two separate beings, generating tissues of a fetus and regenerating tissues for the mother. Breastfeeding is the after the storm cleansing process which helps to stabilize and settle revolutionary changes that have been imposed on the body by the pregnancy.

Hence breastfeeding needs to be supported; even more in women who have suffer from any cardiac condition. Breastfeeding should be regarded as nature's innate additional therapeutic intervention. Intensifying breastfeeding practices by increasing frequency of suckling, expressing milk and ensuring the baby and mother are close and are able to establish bonding and secure attachment, have even more profound psychological benefits to the mother by reducing stress hormones that may aggravate her condition.

Mothers with a heart condition need to be counseled privately during antenatal care and reassured that they will not be deprived from their motherhood. Moreover they need to be supported to practice first hour skin to skin and early initiation of breastfeeding. Hence, the lactation consultant should a member of the medical management team.

Section I: Review articles

I.1. Breastfeeding and Cardiovascular health

Excerpts from News Headlines

BREASTFEEDING CUTS RISK OF HEART DISEASE …

EVEN MORE THAN STATINS! EVIDENCE FROM RESEARCH SHOWS…

Researchers discover that mother's milk may provide greater protection in a baby's later life than taking statins

Researchers found that babies who were breastfed for at least three months had lower levels of a protein linked to heart disease as adults. This means that breastfeeding can continue to benefit women's health into old age and may reduce the risk of a heart attack.

It is known that breastfeeding lowers the risk of allergies, ear infections and admission to hospital in babies and it has been linked to better health overall into adulthood, with lower rates of obesity in people who were breastfed as babies.

Lead author Thomas McDade, professor of anthropology at Northwestern University, said: "***This is a major public health issue. If we can raise breastfeeding rates it will pay dividends in healthcare savings in the future."***

The study, conducted at Northwestern University looked at nearly 7000 adults over 15 years, and compared adult C-reactive protein (CRP) levels with their birth weight and their parents' breast feeding choices.

It was found that level of C-reactive protein (CRP) were 20 per cent lower in people who had been breastfed for at least three months and were almost 30 per cent lower in those breastfed for at least a year.

Statins, currently prescribed to more than seven million people in the UK at risk of cardiovascular disease, have been shown to reduce CRP by around 15 per cent.

Raised levels of CRP are associated with an increased risk of cardiovascular disease including coronary heart disease, heart attacks, angina and strokes – and Type-2 diabetes in later life.

It is thought that breastfeeding may help shape the immune system as it develops, reducing low-level inflammation in later life.

"The longer this group was followed up the more they started to see greater heart attacks and diabetes in those individuals who were not breastfed" says MacDade.

"It is hoped that such findings will draw attention to this as an important social policy

issue and help women to be determined to breastfeed their babies" continues McDade.

It is likely that any disease that is related to being overweight or obese, and can trigger inflammatory processes will be traced back to breastfeeding as a down regulator for this process; this includes many autoimmune diseases, dementia and cancer. Many or all of these could be directly or indirectly affected by breastfeeding.

The Ministry of Health in Egypt and the Department of Health guidelines in the United States recommend exclusive breastfeeding up to the age of 6 months. Breastfeeding should also be continued until at least two years of more to mount up its positive effects.

However, although more than eight in ten mothers start breastfeeding, only one in four are still breastfeeding at six weeks in the US and only 30% or less into the second year in Urban areas in Egypt.

Julie Ward, Senior Cardiac Nurse at the British Heart Foundation, said: "*Our studies go further by suggesting that the longer you breastfeed your baby the healthier your child will be in later life.*

"This supports current NHS guidelines, which advocate breastfeeding for the first six months before combining breast milk with more solid foods" she continues.

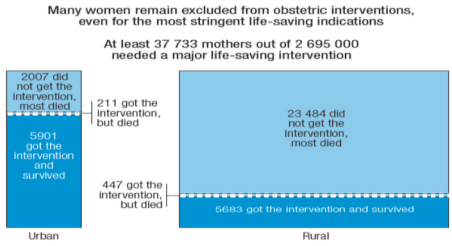
"*However, parents of babies and mothers who failed in being supported to breastfeed can teach their children about healthy eating and making physical activity fun from a young age and you can inspire healthy habits to protect their hearts as they grow up*."

Prof. Mary Renfrew, Professor of Mother and Infant Health at the University of Dundee, said: "*The paper is an important step in the accumulating evidence base that there are important differences between breast fed and not.*

"It supports the idea that breastfeeding mothers should continue feeding for longer. Breastmilk in addition to solid foods helps to reduce inflammation as breastmilk is full of actively anti-inflammatory compounds.

"*In the US and the UK, breastfeeding is not easy. There are strong socioeconomic reasons that for several generations, babies have been bottle-fed.*

"We need to take the accumulating evidence base extremely seriously and take a careful, sensitive and proactive approach to help women to overcome these socioeconomic barriers." write ***Rebecca Smith,*** **Medical Editor, and Sarah Gallagher (The Telegraph, 23 April, 2014)**



Access to education about safe motherhood and breastfeeding should be a joint integrated approach to promoting health of women during pregnancy and throughout their life… and living... For quality lifetime

I.2- BREASTFEEDING REDUCES RISK OF HEART DISEASE, STROKE, AND DIABETES

New data strongly suggest that Breastfeeding cuts a woman's risk of **heart disease** *and diabetes long after her infant has grown up.* [1]

Since pregnancy increases a woman's risk of heart disease, stroke, and diabetes. It was shown that when women breastfeed this cancels out this risk. A study by Schwarz [2] and colleagues analyzed data collected from about 140,000 postmenopausal women enrolled in the Women's Health Initiative. All of the women had given birth. Cumulative total duration of breastfeeding was determined for each study participant.

The longer women nursed babies, the less likely they were to develop diabetes, heart disease, or stroke. [2]

When a woman breastfeeds for one or more months, she is less likely to have diabetes, high blood pressure, or high cholesterol. While breastfeeding for more than six months during a lifetime, decreases the likelihood of having a heart attack or stroke.

Any breastfeeding was good, but more was better, was reported by Schwarz study. [2]

It seems to be nature's way of lessening the physical costs of having a child.

Pregnancy without breastfeeding ups the risk of heart disease and stroke [3]*, but with breastfeeding a woman has the same risk she had before pregnancy. More pregnancies increase the risk to heart disease. But if the woman breastfeeds longer in each pregnancy it cancels the former effect.*

It is estimated that for every 100 women who accumulate at least 12 months of breastfeeding over their lifetime, one case of diabetes would be prevented. Also for every 125 women who accumulate 12 months of breastfeeding, one case of heart disease would be prevented.

The interesting finding in Gunderson study is that even when you take women's body weight into account, there still seems to be an important association between breastfeeding and long-term health effects.[4].

Other studies show that years after weaning their children, women who breastfeed for at least three months have fewer risk factors for diabetes and heart disease, including smaller waist circumference. [4]

References

1- **Daniel J. DeNoon (2009) WebMD Health News WebMD News Archive April 21.**

2- **Schwarz EB Ray RM, Steube AM et al. (2009) Duration of lactation and risk factors for maternal cardiovascular disease. Obstet Gynecol. 113:974**

3- **McTigue K, Kuller L. (2008) Cardiovascular risk factors, mortality, and overweight. JAMA 299:1260–1.**

4- **Gunderson EP, Lewis CE, Wei GS, Whitmer RA, Quesenberry CP, Sidney S. (2007) Lactation and changes in maternal risk factors. Obstet Gynecol. 109(3):729-38.**

I.3. How Breastfeeding Reduces Risk of Cardiovascular and Metabolic Diseases

Heart disease is the number one killer of women in the world. **Breastfeeding is known to lower the risk of heart disease.** In fact **b**babies of low birth weight and those who are never breastfed - or only breastfed for less than 3 months - are more likely to grow into young adults with levels of chronic inflammation that may contribute to heart disease and metabolic disorders. Evidently, breastfeeding can also lower a woman's own risk to develop heart disease and thereby influence morbidity and mortality rates among women. (1)

Breastfeeding for at least nine months had a 56% reduction of developing metabolic syndrome. Metabolic syndrome is associated with cardiovascular disease (CVD) risk and is also the precursor syndrome to Type-2 diabetes; which includes a cluster of symptoms such as insulin resistance, high LDL and VLDL cholesterol, high triglycerides, high BMI, and visceral obesity. These symptoms are known to increase the risk of CVD. Also recent evidence shows that post-menopausal women (average age of 60) who had breastfed had significantly lower rates of heart disease, hyperlipidemia, high LDL cholesterol, and a host of other cardiovascular risk factors. (1)

Several studies conducted with mothers of infants have shown that breastfeeding down regulates stress in both mothers and babies. In fact, after breastfeeding, women are less stress-responsive in laboratory settings, meaning that when researchers try to stress them in the half hour or so after breastfeeding, the mothers show less of a stress response. That's the short-term effect of breastfeeding. The results of the recent studies on cardiovascular disease and metabolic syndrome suggest that breastfeeding has a far longer-term stress-lowering effect than anyone suspected. Breastfeeding appears to have permanently changed women's stress response, lowering their overall risk in older age groups.

HTTP://WWW.UPPITYSCIENCECHICK.COM/BF_LOWERS_CARDIOVASCULAR_AND_META.PDF

As such, it is important to identify behaviors that modify women's risk of CVD. The impact a woman's decision to breastfeed her children, may have on her future risk of CVD, has been shown to be impressive. Breastfeeding increases a mother's metabolic expenditure by an estimated 480 kcal/day;(2) lactating mothers lose more weight in the postpartum period than women who do not breastfeed.(3) Active lactation has been shown to improve glucose tolerance,(4) lipid metabolism (5) and C-reactive protein.(6) Recently, a number of studies have indicated longer range effects of lactation.(7,8)

Researchers from Northwestern University in Evanston, IL, report their findings in the ***Proceedings of the Royal Society B: Biological Sciences***.

In their study background, they note that while we already know higher blood levels of C-reactive protein (CRP) are a key biomarker of inflammation, and predict increased cardiovascular and metabolic disease risk in adulthood, we know little about the developmental factors that influence inflammation.

Using data from the National Longitudinal Study of Adolescent Health (Add Health), they evaluated levels of CRP in nearly 7,000 young adults aged from 24 to 32, and linked them back to their birth weight and how long they were breastfed.

The study is particularly interesting because the researchers compared siblings, so they could remove biases that normally plague this kind of study.

They used differences in birth weight and breastfeeding duration between siblings to predict differences in adult CRP.

Their analysis showed that:

- Lower birth weights and shorter duration of breastfeeding predicted higher CRP levels in young adults
- For each extra pound of birth weight, the CRP level in young adulthood was 5% lower
- CRP levels were 20-30% lower in young adults who were breastfed for 3-12 months as babies compared to those who were never breastfed.

It is recognized that breastfeeding has a calorific demand on the mothers body (estimated to be approximately 480 kcal/day) and thought that women who breastfeed have a tendency to lose more weight postpartum than women who do not breastfeed. Cardiovascular disease (CVD) is the leading cause of death for women in developed nations.

A study in America was carried out to establish whether prolonged breastfeeding would reduce postmenopausal risk factors for CVD. The researchers used data from an ongoing initiative to examine the effects of lactation on risk factors (obesity, hypertension, diabetes, and hyperlipidemia) and incidence of CVD in 139,681 women based on reported cumulative months of breastfeeding. Parous women who had never breastfed were more likely to be obese and to have hypertension, diabetes, or hyperlipidemia than were those who had lactated. Even after adjustment for sociodemographic and lifestyle variables, family history, and BMI, women who reported a lifetime history of more than 12 months of lactation were 10–15% less likely to have hypertension, diabetes, hyperlipidemia, and CVD. [(9)]

The reasons for the protection offered by breastfeeding are unknown. However, some authors speculate that hormonal changes might favorably impact on cardiovascular risk factors. The authors conclude that among postmenopausal women, increased duration of lactation is associated with a lower prevalence of hypertension, diabetes, hyperlipidemia, and CVD.

References

1- Schwarz EB Ray RM, Steube AM et al. (2009) Duration of lactation and risk factors for maternal cardiovascular disease. Obstet Gynecol 2009 May; 113:974

2. Butte NF, Wong WW, Hopkinson JM. (2001) Energy requirements of lactating women derived from doubly labeled water and milk energy output. J Nutr 2001;131:53–8. [PubMed: 11208938]
3. Rooney BL, Schauberger CW. (2002) Excess pregnancy weight gain and long-term obesity: one decade later. Obstet Gynecol. 100:245–52.
4. Yang JQ, Xu YH, Gai MY. (1994) Breast-feeding in reducing regular insulin requirement in postpartum for insulin dependent diabetes mellitus and gestational diabetes mellitus. Zhonghua Fu Chan Ke Za Zhi 1994;29:135–7, 188.
5. Kjos SL, Henry O, Lee RM, Buchanan TA, Mishell DR Jr. (1993) The effect of lactation on glucose and lipid metabolism in women with recent gestational diabetes. Obstet Gynecol 82:451–5.
6. Williams MJ, Williams SM, Poulton R. (2006) Breast feeding is related to C reactive protein concentration in adult women. J Epidemiol Community Health. 60:146–8.
7. Stuebe AM, Rich-Edwards JW, Willett WC, Manson JE, Michels KB. (2005) Duration of lactation and incidence of type 2 diabetes. JAMA. 294:2601–10. [PubMed: 16304074]
8. Villegas R, Gao YT, Yang G, Li HL, Elasy T, Zheng W, et al. (2008) Duration of breast-feeding and the incidence of type 2 diabetes mellitus in the Shanghai Women's Health Study. Diabetologia 2008;51:258–66.
9- Gunderson EP, Jacobs DR Jr, Chiang V, et al. (2010) Duration of lactation and incidence of the metabolic syndrome in women of reproductive age according to gestational diabetes mellitus status: a 20-Year prospective study in CARDIA (Coronary Artery Risk Development in Young Adults).Diabetes. 59(2):495-504.
10- Catherine Paddcock, Medical News Today (2014) Http://www.medicalnewstoday.com/articles/275868.php

Political Will Makes Hospitals Baby Friendly in Egypt: Justice for babies!

H.E. Prof. Dr. Maha ElRabat, is the first woman to be assigned as Minister of Health in Egypt, she issued the ministerial decree for obligating all hospitals that serve mothers and babies to become baby friendly by abiding to the Ten steps to successful breastfeeding and prohibit marketing of any breastmilk substitutes (Egypt Ministry of health, Ministerial decree 36/2014).

I.4. MATERNAL MORTALITY AND HEART DISEASE: IS CARDIAC THE LEAD CAUSE OF DEATH IN PREGNANCY?

A report released this week provides some sobering statistics on global maternal and infant mortality rates: an estimated 350,000 to 500,000 women still die in childbirth each year, 3.6 million newborns die in the first month of life, and an additional 5.2 million children die before the age of 5 years.

According to the United Nations Children's Fund, 135 countries have child mortality rates of less than 40 per 1000 live births or have a rate reduction sufficient to meet the goal of two-thirds reduction by 2015. However, at this time, 39 countries show insufficient progress, and 18 showed no progress or worsening child mortality rates. Countdown to 2015 focuses on 68 countries, most in Africa, which together account for 92% of maternal, newborn, and child deaths.

Maternal mortality (MMR) data show accelerated decreases in China, Egypt, Ecuador, and Bolivia, but surprising increases in the United States, Canada, and Denmark, according to the results of a database analysis reported online April 12 in The Lancet. However the MMR are rising in the private sector from unsupervised malpractice and the MoH are taking action to control this. Why women deliver with the private sector needs to be probed and a more stringent network of care should be imposed starting with raising awareness during antenatal care to monitoring delivery practices. Integrating safe motherhood with Baby Friendly could be an expanded strategic way to go.

Yearly rate of decline of global MMR since 1990 was 1.3% (uncertainty interval, 1.0% - 1.5%), with the MMR going from 422 (uncertainty interval, 358 - 505) per 100,000 live births in 1980 to 320 (uncertainty interval, 272 - 388) per 100,000 live births in 1990, and to 251 (uncertainty interval, 221 - 289) per 100,000 live births in 2008.

Rates of yearly decrease in MMR from 1990 to 2008 varied between countries, with only 23 countries on track to achieve a 75% decrease in MMR by 2015. The highest decline was in the Maldives (8.8%; uncertainty interval, 8.7%-14.1%); in contrast, there was an increase of 5.5% (uncertainty interval, 5.2%-5.6%) in Zimbabwe, and there were also surprising increases in some high-income countries including the United States, Canada, and Denmark. In the United States, there was an increase of 42% from 12 maternal deaths per 100,000 live births in 1990 to 17 in 2008, which is more than double the rate in the United Kingdom, 3-fold the rate in Australia, and 4-fold the rate in Italy.

Certain countries, including China, Ecuador, Bolivia, and Egypt, have seen particularly accelerated decline in MMR

between 1990 and 2008, according to the study results. Egypt, for example, experienced a change from 195 maternal deaths per 100,000 live births in 1990 (uncertainty interval, 120 - 312) to 43 maternal deaths per 100,000 live births in 2008 (uncertainty interval, 25 - 71). MMR in Egypt due to non-communicable disease (NCD) is on the rise and hence breastfeeding promotion can play a role in reducing MMR due to NCD particularly cardiovascular causes; as hypertensive disease is the second leading cause, following postpartum hemorrhage. Also, new data show that pregnant women who have heart disease have a 100-fold higher mortality than the normal pregnant population. (1)

A registry has been published online in the ***European Heart Journal*** on September 11, 2012, set up by the **European Society of Cardiology**, to assess death rate of women with heart disease during pregnancy. The authors note that overall, about 0.9% of pregnant women have some form of heart disease. The results from Egypt are shown in section III (research study #9)

The results showed a maternal mortality of 1%, compared with 0.007% in the normal population. However, clear differences were found in outcomes with respect to the underlying cardiac diagnosis, with cardiomyopathy in developed countries and Rheumatic heart disease in less developed countries, associated with the worst prognosis, and these women also had higher rates of heart failure and ventricular arrhythmias. Postpartum hemorrhage occurred more often in patients with valvular heart disease, probably related to their high use of oral anticoagulants.

As may be expected, there was also a large difference between mortality rates in developing (3.9%) and developed (0.6%) countries.

Death of the fetus during pregnancy was five times higher in women with heart disease (1.7% vs. 0.35% in the normal population), and death of the baby within 30 days of birth was 1.5 times higher (0.6% vs. 0.4%). However, these figures again varied enormously between developed and developing countries

Outcomes for Women with Heart Disease Compared with the Normal Pregnant Population

Outcome	Normal population (%)	Congenital heart disease (%)	Valve disease (%)	Cardiomyopathy (%)	Ischemic heart disease (%)
Maternal mortality	**0.007**	**0.5**	**2.1**	**2.4**	**0**
Heart failure	**0**	**8.0**	**18**	**24**	**8.0**
C-section	**23**	**38**	**42**	**58**	**60**
Fetal death	**0.35**	**0.5**	**3.9**	**4.5**	**4.0**

Many women do not realize they have a heart condition until it makes itself obvious during pregnancy. In certain countries, such as Egypt and India, women are under huge pressure to have children, and even if they are aware of a heart problem they might not seek help for fear of being stigmatized or discouraged from becoming pregnant.

Valvular heart disease as a result of rheumatic fever is also much more common in less developed countries, but in Western countries it is mostly limited to the immigrant population.

Severe rheumatic mitral stenosis is still common in developing countries. When severe, it leads to significant disability and maternal and fetal mortality, since the hemodynamic adaptations to pregnancy are badly tolerated. Pregnancy can lead to development of heart failure in patients with asymptomatic or even unknown mitral stenosis, as a result of the increased mitral valve pressure gradient caused by the physiologic increase in heart rate and blood volume in pregnancy.

Should the mitral stenosis be corrected by mitral valve surgery, or percutaneous mitral valve balloon valvuloplasty? Heart failure in patients with mitral stenosis complicating pregnancy is a common problem in developing countries. Since 1984, percutaneous dilation of the mitral valve using a balloon catheter has become a therapeutic alternative to open heart surgery. The efficacy of percutaneous mitral valve balloon dilation is well established, its results have been shown to be more favorable than open heart surgery (commissurotomy) particularly for the fetus. (2)

In conclusion, emphasis on cardiac disease and pregnancy is emerging a significant problem which calls for lactation consultants to be more attentive to the management of lactation for women with heart disease instituting appropriate counseling and support antenatally and ensuring appropriate early support at delivery with early skin-to-skin between mother and baby for bonding and establishment of lactation. This practice also reduces neonatal mortality by 22%. It is important to make appropriate communication with the birth attendant prior to delivery to discuss the management plan of these patients and ensure that breastfeeding support is a part of cardiac care plan, with particular emphasis on choice of safe medications during breastfeeding.

References

1- Roos-Hesselink JW, Ruys TPE, Stein JI, et al. (2012) Outcome of pregnancy in patients with structural or ischaemic heart disease: Results of a registry of the European Society of Cardiology. *Eur Heart J* DOI:10.1093/eurheartj/ehs270.

2- e Souza JA, Martinez EE Jr, Ambrose JA, Alves CM, Born D, Buffolo E, Carvalho AC. (2001) Percutaneous balloon mitral valvuloplasty in comparison with open mitral valve commissurotomy for mitral stenosis during pregnancy.J Am Coll Cardiol. 37(3):900-3.

Neonatal and maternal mortality are related to the absence of a skilled birth attendant

I.5 How Breastfeeding Contributes to a Healthy Environment

Formula proves to be a disaster to the environment!

In contrast, to breastfeeding which is ecologically friendly, formula feeding is unsustainable and leaves a large, heavy ecological footprint. The concept of ecological footprint includes the resources consumed by the human population as well as the waste left behind. The carbon footprint[9] of greenhouse gases left behind contributes to climate change, while waste and garbage pollute our environment. All the resources and raw materials that are extracted cause the depletion of our planet's limited and non-renewable natural capital. In addition to these factors, formula feeding involves transportation at every stage of manufacturing and aggressive marketing.

Formula feeding is unsustainable and leaves a large, heavy ecological footprint

A Quilt of Greenhouse Gas Emissions

While it is important to examine **the inputs or resources** needed for producing formula milk powder, it is vital to also investigate **the outputs or waste** products that are left behind in these processes. These outputs have a direct impact on *greenhouse gas emissions* or *GHG*. Carbon dioxide, methane and nitrous oxide are examples of the greenhouse gases produced by anthropogenic or 'man'-made activities.

They are named greenhouse gases because they act like the glass of a greenhouse and trap the heat of the sun's rays. Calculating the carbon footprint of infant formula use can be done either at the industry level or at the home level. While it is possible to calculate the ecological footprint of formula production for each country independently, much of the data required is not easily available. For instance, if formula is produced nationally, where is the milk sourced from? How many cows are needed to produce the milk? How is the dairy managed? How distant are these milk collection centres? Is the milk transported by road or by rail? If formula is imported, then it is even more difficult to calculate these factors, as they occur in distant countries and all involve transport.

According to the Food and Agriculture Organization of the United Nations (FAO), the average global GHG emissions from milk production, processing and transport are estimated to be **2.4 kg CO2-eq. per kg of FPCM** (fat and protein corrected milk) at the farm gate. In 2007, globally 553 million tons of milk were produced, processed and transported generating 1328 million tons CO2-eq of GHG. Globally, from every 100 kg raw milk produced and processed, only 20 Kg (that is 20%) is used for producing powdered milk leading to production of 2.2 kg powdered milk. This means, for each 1 kg of powdered milk production and processing, 21.8 kg CO2-eq.of GHG is emitted. This figure may be used to estimate GHG emissions caused by production of formula milk powder at country level if the amount of such products produced in the country is known. (1)

Growing deforestation has resulted in higher greenhouse gas emissions. Comparing the total emission of greenhouse gas to the total milk production across the world, the amount of emission is more than double the milk production. Greenhouse gas emission becomes even higher after adding the emissions caused due to transportation of milk across different parts of the world.

The growing burden on the environment is a point of concern

Ecological Footprint or environment footprint is a measure of human demand on the earth's resources and the load imposed on nature by a given activity or population. To leave no ecological footprint means that a person or an activity replaces in the environment exactly what is taken out.

By assessing the use of non-renewable resources it is possible to estimate how much of the Earth or how many Earth–are needed to sustain a particular level of consumption.

Carbon Footprint is "the total set of greenhouse gas (GHG) emissions caused by an organization, event, product or person." GHG can be emitted through transport, and clearance, and the production and consumption of food, fuels and manufactured goods. The carbon footprint is often expressed in terms of the amount of carbon dioxide, CO2, emitted or its equivalent comprised of other GHGs such as methane, (CH4). These gases together contribute to global warming and are expressed in terms of CO2 -e (equivalent).

Carbon dioxide, methane and nitrous oxide are examples of the greenhouse gases produced by anthropogenic or 'man'-made activities

To estimate the total ecological footprint of formula feeding products, it is necessary to focus on the whole process of manufacturing the formula feed, including milk production, industrial manufacturing, transportation and preparation. Formula feeding also increases the manufacturing of associated products such as tin for cans, cans for packing the formula, plastic for bottles and teats, labels and printing for marketing and distribution, and sterilizers for sterilizing the bottles. This puts a

burden on the planet additional to that of manufacturing formula from liquid milk. (1)

Besides that, babies, especially those under six months of age, cannot take milk in any form except liquid. Producing formula involves turning liquid milk into a powder, and then adding water to turn it into a liquid again for consumption. Even so, we need to estimate the emissions from each stage-production of milk formula, including transport, the manufacturing of feeding bottles, and finally reconstituting formula into a liquid that the infant can consume- as there is a huge requirement of energy, most often causing irreversible damage to the environment.

The processing of milk into powder, the packaging, and transportation all result in emissions of carbon dioxide and other greenhouse gases, leading to global warming. Emissions are relatively high if coal is used in energy production, as is the case in many developing countries. No less important are the **indirect impacts** of formula feeding such as deforestation, loss of woodlands and wetlands. (1)

Use of Scarce Raw Materials for Packaging

Aluminum, cadmium and other metals are used in manufacturing, storage and packaging of formula products. The processing and recycling aluminum are both energy intensive. Apart from being energy intensive processes, contamination caused by Aluminum for packaging of formula is also a cause of concern. A research paper on this subject states: "The aluminum content of infant formulas is between 10 and 40 times higher than the aluminum content of breast-milk and will contribute significantly towards the body burden of aluminum in infants. There is evidence of immediate and delayed toxicity in infants, and especially pre-terms exposed to aluminum; since many of the formulas are packaged for sale using aluminum-based materials. The high content of aluminum in the soya-based formula probably reflects its prior concentration in the soybean plant …" (2)

In 2009, the Lancet reported that while breastfeeding is a thoroughly eco-friendly feeding practice, the carbon footprint created by the formula milk industry from sourcing, producing and packaging is massive. The paper further stated that in the USA alone, more than 32 million kW of energy is used every year for processing, packaging and transporting formula and 550 million cans, 86,000 tons of metal and 364,000 tons of paper are added to landfills every year. (3)

Use of Scarce Energy Resources

According to USFDA, powdered infant formula is manufactured by more than a dozen firms in 40-50 processing plants worldwide. (4) The processes of infant milk formula manufacturing with dry blending include: dry blending to mix ingredients from different producers in many countries, sifting, transferring to bags or drums for storage, filling large cans that

are flushed with inert gas, then seamed, labeled, coded and packed into cartons for transport. Wet blending requires spray drying. Both these processes are energy intensive processes at high temperatures. "Baby milks are the end product of a number of industrial processes. The energy used to create the right degrees of temperature and the mechanical procedures cause air pollution (acid rain and greenhouse gases) and uses natural resources in the form of fuel." [5]

Food Miles

There are only about 40-50 processing plants in the world that are concentrated in countries such as Ireland and New Zealand. As a result, many countries import powdered milk for formula from these countries which results in increased fuel and energy requirements for transportation. The energy costs and carbon footprints of these import and export journeys need to be impact the environment.

The calculations of the carbon emissions, which are produced by transporting milk from farms to the factories and then the formula from factories to stores to homes, depends on the size of the country. *The same calculations need to be made for complementary foods introduced after six months, when these are not made from local foods produced using sustainable agricultural methods. Unlike traditional indigenous foods, these processed, packaged, transported or imported complementary foods leave a large ecological footprint as they travel from farm - or factory - to plate.*

Piling on of Toxic Chemicals, Waste and Garbage

Impact on Human Health and Wellbeing

Currently, out of the 136.7 million babies born annually, only 39% of children aged less than six months are exclusively breastfed in 2012. [9]

Abiding to the Global strategy of WHO [6] and the code of marketing [7] is essential as every baby who is not breastfed will add an additional baby to the market of formula which will thus bring severe consequences for infant health as well as for the environment.[9]

References

1- Linnecar A, Gupta A, Dadhich JP Bidla N. (2014) Formula for Disaster: weighing the impact of formula feeding vs breastfeeding on environment, BPNI / IBFAN Asia.

2- Burrell S-A and Exley C. (2010) There is still too much aluminum in infant formulas. BMC Pediatrics,10:63

3- Coutsoudis A and Coovadia M. (2009) The Breastmilk Brand: promotion of child survival in the face of formula-milk marketing. The Lancet 374: 423-425.

4- USFDA. (2013) Powdered infant formula: An Overview of Manufacturing Processes. Accessed 30.09. http://www.fda.gov/

5- Radford A. (1997) Breastmilk - A World Resource. World Alliance for Breastfeeding Action, Malaysia: http://www.waba.org.my

6- World Health Organization and UNICEF (2003) Global Strategy for Infant and Young Child Feeding. WHO, Geneva.

7- World Health Organization (2006, revised 2008) The International Code of Marketing of Breast-Milk substitutes. WHO, Geneva.

8- World Health Organization (2007) Guidelines on safe preparation, storage and handling of powdered infant formula. WHO, Geneva: http://www.who.int/foodsafety/publications/micro/pif_guidelines.pdf

9- UNICEF (2013) Breastfeeding is the cheapest and most effective life-saver in history. Media Centre http://www.unicef.org/eapro/media_21214.html

The Tree of Life

In Asia, the Arab countries and many other regions of the globe, the *Tree of Life* is a powerful image. Trees such as the *banyan*, the *Bodhi*, the coconut and the date palm and *peepal* trees, symbolize the interconnection of all life on our planet. They give us much of our food, drink and medicines.

They also give shade, shelter and building materials for humans, plants and animals, and provide a focus to our meeting points. Most of all, they absorb carbon dioxide, thus mitigating the climatic effects of greenhouse gas. They also emit oxygen, without which there can be no human life.

Trees charge no fee for all these services to humankind. Just like the *Tree of Life*, every breastfeeding mother gives her baby nourishment, fluids and protection through the thousands of live immune cells acting as anti-infective agents. Breastfeeding can be sustained without any harm to Mother Earth. For all this the mother often receives only scanty recognition, if any. It is proposed that every breastfeeding mother should be awarded a golden leaf to symbolize her contribution to the health of her baby and the health of our planet.

Reference

Linnecar A, Gupta A, Dadhich JP Bidla N. (2014) Formula for Disaster: weighing the impact of formula feeding vs breastfeeding on environment, BPNI / IBFAN Asia.

Section II: Original Research Studies

Evaluation of Baby Friendly Hospital Practices in Maternity Hospitals in Qena Governorate

Sahar Fahmy Gawad MD, Sayed Ahmed Taha**, Ahmed Hashem Abdellah**, Ahmed ElAbd***, Azza MAM Abul Fadl+*

*Department of nursing obstetrics and gynecology, Qena faculty of nursing, South Valley University, **Professors in the Obstetric department, Qena faculty of medicine, South Valley University, *** Pediatric department, Qena faculty of medicine, South Valley University, + Professor of Pediatrics Benha Faculty of medicine, Benha University (study funded by UNICEF/ECO)

Abstract

Introduction: The Baby Friendly Hospital Initiative (BFHI) is a global program that has been recently updated and expanded to include mother friendly practices and first hour skin-to-skin (STS) contact up to the first breastfeed.

Aim: To monitor BFHI implementation in Qena University Hospital (QUH) and Negh Hamadi Hospital (NHH) to assess the needs for improvement of the Ten Steps of BFHI in these hospitals and compare with maternity facilities, not exposed to BFHI in Qena governorate in Upper Egypt.

Methodology: A monitoring tool was adapted from the BFHI material for monitoring the program in QUH and a sample of 90 mothers were interviewed from QUH and NHH and compared to Qena General Hospital which was not exposed to BFHI training. The monitoring was carried out by nursing staff from the faculty of nursing in Qena with the collaboration of MCFC and supported by UNICEF. The results were statistically analyzed.

Findings: There were some improvements in the baby friendly practices, in the trained hospitals. The mean score of the "revised" Step "4" of the updated baby friendly practices for supporting early STS during vaginal delivery was highest in NHH (6) and QUH (4.25) but absent in (0.0) in QGH. The mean score for baby friendly practices in postpartum wards for supporting early initiation of breastfeeding mothers with normal vaginal delivery was highest in QUH (7) and low in both NHH and QGH (4.75 and 5.0 respectively). Exposure to bottles or nipples in the three hospitals in Qena (Steps "6" and "9") was highest in QGH with a mean score of 4.2 in NHH and 5.25 in QUH. Trained hospitals showed statistically significant higher scores compared to untrained facilities with regards to all the "Ten steps" that support early breastfeeding in the postpartum wards ($P<0.05$), except for not offering bottles and nipples and for neonatal care unit practices that encourage early and frequent expression of breastmilk and encouraging the mother to be with the baby to breastfeed ($P>0.05$).

Conclusions: Overall practices were low and indicate the importance of the presence of an installed in-service training program or monitoring system at governorate level to ensure sustainability of the program inputs. The role of the nursing team is integral to providing support to mothers in these hospitals. We recommend that the nursing department should have its own built-in training program with ongoing evaluation of skills and practices of their staff to identify their training needs.

Key words: breastfeeding, breastfeeding, monitoring, skin-to-skin, Ten steps

Introduction

The World Health Organization WHO/UNICEF Baby-Friendly Hospital Initiative (BFHI) was developed to support the implementation of the Ten Steps for successful breastfeeding. Since it has been launched in 1991, over 20,000 facilities caring for babies at birth have been designated as Baby friendly. [1,2] The main aim of the Baby Friendly is to reduce neonatal and infant mortality and long term disabilities from chronic disease by increasing the rates of early initiation with continued exclusive breastfeeding whilst protecting mothers and babies from suboptimal feeding practices and exposure to infant milk formula. The increasing hazards associated with the latter have been well documented and it goes beyond doubt that depriving infant of mother's milk and exposure to other milks in the critical period of growth and development early in infancy is hazardous to their short and long term health and well-being as well as their survival. [3]

The practices included in the Baby friendly have been supported by evidence that leads to successful continuation breastfeeding. These begin with educating women during pregnancy about the benefits and management of breastfeeding (step 4), also encouraging mother friendly practices at birth. The practice that has been updated in 2006 is to support initiation of breastfeeding as early as immediately after birth by immediate continuous uninterrupted skin-to-skin contact (STS) for one hour during which the first breastfeed occurs, whilst teaching mother her baby's readiness to feed (step 4). Next in the postpartum ward, teaching mothers how to breastfeed and how to express breastmilk when separated from their babies (step 5) and ensuring that no other supplements are introduced other than breastmilk (step 6), keeping the mother and baby together in one room (step 7) and encouraging unrestricted breastfeeds with no restriction on frequency or duration of the feed (step 8). Finally ensuring the baby is not offered any bottles or pacifiers (step 9) and referring her on discharge to an appropriate mother support group for continued breastfeeding (step 10). [4]

Since the designation of over 125 Baby Friendly hospitals and health centers in 1995 in Egypt, the BFHI has come to an agonizing standstill. This has influenced hospital and birth practices and has caused the neonatal mortality rates and case morbidity rates to increase in some instances. Still substantial improvements in child health have been achieved. However neonates admitted to neonatal care units (NCU) are a challenge, since many of the violations to the international code of marketing breastmilk substitutes occur in the NCU. This may indirectly responsible for eventually result in rise of disease and disability in these children later on in their life. [5]

Attempts at making hospitals practices Baby friendly have faced many challenges, the most important of which is sustainability and lack of integration between services, i.e. obstetric, neonatal and pediatric services, as hospital and primary health care practices. [6] The aim of the current study is to examine the extent of adherence of the maternity and neonatal services providers to the Ten steps one year following an intensive training program for over one half of the staff using the UNICEF/WHO 20 hour

course for promoting breastfeeding in a Baby Friendly Hospital.

There is a pending need to assist hospitals around the country to meet the Global Criteria of the Baby Friendly Hospitals as a continuum for improving perinatal care services provided to mothers and babies and to identify the most suitable strategy for optimizing their implementation. This will facilitate the integration of the Baby Friendly in the accreditation of hospitals. **Hence the aim** of this study is to assess the outcome of training in the two hospitals targeted by the national program in 2012 on the implementation of BFHI in order to identify the main challenges facing BFHI in these hospitals and extrapolate to the national needs of the country.

Subjects and Methods

This is a cross sectional descriptive baseline monitoring survey for assessing practices of health staff working in three separate hospitals; two of which were exposed to training of their maternity and pediatric staff, these were ElQena University Hospital (QUH) and Negh Hamadi District Hospital (NHH). The training was conducted in the implementation of the Ten steps using the UNICEF BFHI 20 hour course by certified International Board Lactation Consultants from the MCH department of the MoH and from the Mother Child friendly care association. This was completed in 2011 and 2012. The third hospital, Qena General Hospital (QGH) was selected as a control as it was not exposed to any training and had a high flow rate comparable with the two other hospitals in the same governorate.

Logistics and ethical considerations: Approvals to carry out the study in the QUH were obtained by official letters from the Mother and Child Friendly care association regarding the UNICEF Egypt office funded implementation of the Baby Friendly in the hospital. UNICEF had supported MCFC to train over 250 staff working in the maternity and pediatrics university hospitals through the twenty hour course for promoting breastfeeding in baby friendly hospitals. Hospital policy was written and disseminated to all staff and posted in the pediatric and maternity wards.

Tools: The study included four sets of questionnaires that were adapted from the monitoring tool of the UNICEF/WHO material for monitoring Baby friendly hospitals. The first set targeted antenatal practices, the second practices related to virginally delivered mothers, the third were mothers exposed to caesarian delivery and the fourth targeted practices inside the neonatal care unit (NCU).

Sample selection: The study targeted ninety mother-baby pairs (30 underwent normal vaginal delivery, 30 underwent cesarean section and 30 with babies in the neonatal intensive care unit). Ten mothers from each group were chosen from each hospital. The data collectors were local nursing staff from Faculty of nursing who were trained in the interview sheet.

The first group were 30 mothers (10 in each hospital) in the postnatal ward; delivered vaginally; who were interviewed regarding antenatal education and antepartum mother friendly practices as well as postnatal practices that involve early and prolonged STS between mother and baby, early initiation of breastfeeding through first hour STS contact between mother and baby, rooming-in and on-demand feeding, exclusive breastfeeding, no use of bottles and pacifiers. The second group included 30 mothers delivered by cesarean section (CS) (10 in each hospital) who were interviewed about whether they were encouraged to have a spinal anesthesia, hazards of having a cesarean delivery of her choice and whether there was a medical indication for their section delivery. The third group included 30 mothers whose babies were in the NCU; (10 in each hospital). They were interviewed about whether they were admitted to the hospital or encouraged or allowed to breastfeed or provide STS care to their baby during their stay in the unit. Also whether they were instructed to empty their breasts 6-8 times in 24 hours to maintain milk flow and production and whether

they were encouraged to feed their baby by cup and spoon.

Compilation and analysis of data: the data was compiled in collective sheets and were analyzed by frequency distribution (percent) and presented in tables to represent the practices covering the global criteria for each of the Mother and Baby Friendly practices and also the neonatal care practices according to the Expanded Integrated Baby friendly Hospital Update that was released in 2006 and finalized by UNICEF in 2009. The statistical analysis was carried out by using ANOVA for analysis of variance and t-test of significance for comparing groups using a cut-off value of P<0.05.

Results

The results are presented in tables 1 to 8. They were analyzed in accordance to the UNICEF/WHO Baby Friendly Hospital global criteria for the Ten steps and the Expanded Integrated Baby Friendly Hospital Update for the steps from 3 to 10, mother friendly and adherence to the international code of marketing breastmilk substitutes (ICMBMS) as follows:

Table (1) shows that there was a significant difference in education in mother and baby friendly practices during antenatal visits with a score of 6.0 and 5.5 for hospitals of QGH and NHH respectively (P<0.05).

Table (2) shows that the mean score of Mother and Baby Friendly Practices in antepartum wards for supporting breastfeeding mothers was highest in QUH (8.5) and QGH (7) and lowest in NHH (4.0) at P<0.001.

Table (3) shows that the mean score for Baby Friendly Practices to the "revised" Step "4" of Updated Baby friendly; for supporting breastfeeding mothers with normal vaginal delivery, was highest in NHH (6) and QUH (4.25) but absent in (0.0) in QGH at P<0.001.

Table (4) shows that the mean score for Baby Friendly Practices in postpartum wards for supporting early initiation of breastfeeding mothers with normal vaginal delivery was highest in QUH (7) and low in both NHH and QGH (4.75 and 5.0 respectively) at P<0.001.

Table (5) shows that exposure to of non-Baby Friendly Practices in postpartum wards related to offering supplements or exposure to bottles or nipples in the three hospitals in Qena (Steps "6" and "9") was highest in QGH untrained and not exposed to BFHI. Individual practices were significantly different (P<0.001) but overall mean score for these practices was 4.2 in public NHH and 5.25 in QUH at P>0.05.

Table (6) shows that practices in postpartum wards towards operative delivery (CS) tended to encourage spinal or epidural in 60% being highest in QUH (70%). However, the education of the mother about the hazards of CS were low (26.7%) being highest in NHH (50%%) and low (30%) in QUH but absent in QGH at P<0.001.

Table (7) shows that the practice of baby friendly practices inside the NCUs remain very low at 3.4 and 2.8 in the trained hospitals in QUH and NHH respectively and nil in the untrained hospitals with no significant difference in all hospitals under study at P>0.05.

Table (8) shows that the mean score for prompting exclusive breastfeeding, increasing awareness of hazards of formula milk and protecting breastfeeding by abidance to no promotion or exposure to company representatives inside health facilities (ICMBMS) was high in all hospitals ranging from 8.7 in NHH to 8.0 in QUH and QGH.

Finally none of the hospitals adopted a referral system to mother support groups at P<0.001.

Discussion

The UNICEF/WHO Baby Friendly hospital Initiative (BFHI) is an undisputed way to reduce infant mortality and improve quality of care for mothers and children. The BFHI has had great impact on breastfeeding practices. Rates of increase in the number of ever-certified *Baby-friendly* hospitals vary by region and show some chronological correlation with trends in breastfeeding rates. (1)

Breastfeeding support in peripartal period by implementing the BFHI's Ten Steps

and abiding by the code has been shown to improve child health and decrease maternal and infant morbidity and mortality particularly in low income countries [7]. Mother friendly practices have a similar effect, and support of these latter practices can significantly increase breastfeeding rates as shown by other workers in Egypt. [8,9]

The continued growth may reflect the dedication of ministries of health and national BFHI groups, as well as increasing recognition that the Ten Steps are effective quality improvement practices that increase breastfeeding and synergize with community interventions and other program efforts. [1,2]

In Egypt the exclusive breastfeeding rates in hospitals and early initiation rates have been reported by the national demographic health survey as being in the range of 40 to 50%.[6] This also reflects on exclusive breastfeeding rates at 6 months which is around 50%. Studies of hospital practices, that influence the duration of breastfeeding, have repeatedly reported exclusively breastfeeding in the hospital extends the duration of exclusive, full, and any breastfeeding. A positive effect on breastfeeding duration could also be shown for full rooming-in, first suckling within one hour, breastfeeding on demand, and also practice of pacifier use. [10]

The current study we have noted that baby friendly practices in Qena hospitals is experiencing many challenges, the most striking is the poor implementation of the STS care, exclusive breastfeeding and other steps related to education prenatally and teaching mothers techniques and skills in breastfeeding.

The practice of immediate uninterrupted first hour skin to skin contact for at least one hour or up to the first breastfeed was poorly understood and it was accepted that any STS before the first breastfeed would be accepted, which was highest in the hospitals exposed to training but completely absent in those not exposed. This lowered the overall score for the governorate to this step to 3. The baseline score for the governorate in 2008 was 4 for any STS contact before or after the first breastfeed. Although our results appeared lower for the governorate they were still higher for the trained hospitals and there was a better understanding of this step in these hospitals. [10]

The underlying causes of poor abidance by practices may be due to the rapid turnover of staff, lack of staff commitment, lack of in placed systems that make *baby friendly practices* work or simply the lack of motivated staff or lack of continuous follow-up of interventions for ensuring sustainability [7,8].

Educating mothers to in positioning and attachment and on how to express milk and also how to assess baby's readiness to feed to encourage on-demand were highest in QUH giving it a mean score of 7 compared to 5.6 for the governorate as a whole. There was some improvement in the mean score when we compared it to that of the baseline BFHI assessment study in 2008 which reported a score of 4. [10]. It was not different in the public hospitals whether exposed or not exposed to training but still higher than the mean score of the baseline. Practices that did were not consistent with steps "6" and "9" were highest in the untrained hospital (QGH) while it was lowest in trained pubic hospital. The baseline score for abiding to steps 6 & 9 in the national baseline study (2008) was 4 and 6 respectively, giving a mean of 5 which is consistent with the mean for the current

findings except that in the trained hospitals especially in the public hospitals it had shown some improvement. This is consistent with the findings of other workers [4] who followed up the outcome of babies who were delivered in a hospitals exposed to the 20 hour course, they noted that practices did improve for early initiation, exclusive breastfeeding, rooming in and demand feeding. The improvement for exclusive breastfeeding at discharge was from 6% to 11% over the 12 months of the period of the study. This improvement although significant does not really reflect effectiveness of training alone in improving baby friendly practices and that more effective interventions need to be done to ensure a change in practices.

Operative delivery presents a barrier to successful initiation of breastfeeding. Unfortunately we found that many mothers requested to do CS and were unaware of the hazards she and her baby may be exposed to from such a procedure. This was highest in in the public hospital of NHH and lowest in the untrained hospitals indicating that the mother friendly component needs to be emphasized hand in hand with the Baby friendly for supporting success of the latter. In Russia, a study carried out in Baby Friendly hospitals showed that there were some shortcomings in the BFHs: frequent use of labor anesthesia; insufficient placing of newborns on the mother's abdomen, rooming-in, and initiating breastfeeding immediately; and a short length of STS contact (<30 minutes). The women in BFHs also observed the use of feeding bottles and dummies, and experienced some problems with breast health. They attributed this to the lack of attention to maintaining adherence to the criteria of the 10 steps of the BFHI. [11]

Mother friendly practices were considerably higher in the QUH when compared to the other two hospitals and coincided with the high baseline levels assessed at the start of implementation in 2008. The mean for the three hospitals when compared to the baseline study in 2008 showed a significant decline from 8 to 4.8. This could be attributed the significant discrepancy between hospital practices, hence the importance of implementation of a program at nationwide scale rather than in pilot areas and the importance of integration between primary and secondary services with regards preventive services linked to hospitals.

The attitude towards a comprehensive and integrative view of both mother and baby friendly practices is particularly important and unless maternity staff members are really convinced of its importance it may not be sustained. In Australia, despite a strong support for BFHI, the principles of this global strategy are interpreted differently by health professionals and further education and accurate information is required. It may be that the current processes used to disseminate and implement BFHI need to be reviewed. The findings suggest that there is a contradiction between the broad philosophical stance and best practice approach of this global strategy and the tendency for health professionals to focus on the ten steps as a set of tasks or a checklist to be accomplished. [12]

Other workers have shown that nurses who had participated in the BFHI training were significantly more knowledgeable about some aspects of exclusive breastfeeding and had a more positive attitude, they were also more likely to employ correct practices for the promotion

of exclusive breastfeeding. [13] However their practices need to be supported and encouraged by medical staff.

The use of the decision makers course for medical staff can allow them to become more committed to the BFH, rather than enroll them in a 20 hour course that requires time and which they cannot be committed to complete. This could be a future strategy for sustaining Baby Friendly in hospitals, where medical staff can receive the one day *Decision-makers course* and the nursing staff who is in direct contact with mothers can receive the 20 hour course.

Although the mean score for antenatal information delivered to mothers through hospital based antenatal clinics was higher in the non-baby friendly hospital, yet difference was not significant. The higher score might reflect the superior primary health care services for ANC linked to the QGH which is centrally located in the city capital of the governorate. Overall this score is higher than the score measured at baseline in 2008 before the revitalization of BFH national program increasing from of 4 to a 5.75 which indicates that the current efforts despite all the constraints are making some difference. In the USA, all Missouri hospitals that offer maternity services were assessed to measure their compliance with WHO/UNICEF Baby Friendly Hospital Initiative (BFHI). Representatives from seventy six hospitals responded to a telephone survey relating to hospital breastfeeding practices and policies as defined by BFHI's Ten Steps to Successful Breastfeeding. No hospital fully supported the Ten Steps. Compliance with the WHO/UNICEF criteria varied greatly. The least support was for Step 1 as only 28% of hospitals had a written breastfeeding policy that was communicated to all staff. The greatest support was for Step 3, 93% of hospitals had staff who informed all pregnant women of breastfeeding benefits. They concluded that in order to increase breastfeeding rates and duration, administrators of hospitals that offer maternity services must be consistently hammered with the concepts and importance of the Ten Steps, in order to create a breastfeeding supportive culture within their institutions [14].

In this study mean score for prompting exclusive breastfeeding, increasing awareness of hazards of formula milk and protecting breastfeeding by abidance to no promotion or exposure to company representatives inside health facilities was high in all hospitals ranging from 8.7 in NHH to 8.0 in QUH and QGH. It was much higher than the baseline survey conducted in 2008, indicating efforts to protect breastfeeding were effectively implemented although the score was lowered by lack of adequate information delivered during antenatal education about the hazards of supplements and artificial milks and animal milk. However, the Practice of Baby friendly practices inside the NCUs remain very low being 3.4 and 2.8 in the trained hospitals in QUH and NHH respectively and nil in the untrained hospitals. Hence training did make some difference in the practice. Also none of the hospitals adopted a referral system to mother support groups despite the ongoing training of community village leaders in support of continued breastfeeding.

Walsh et al., [15] reported in their study of BFHs that that staffs' understanding and personal views are often discordant with BFHI aims. Perceived difficulties include the accreditation process, hospital dynamics, and the Ten Steps implementation plus a bottle feeding culture and maternal employment that impact upon continued breastfeeding. They concluded that upper management support, specific funding, a dedicated coordinator with "area leaders", development of a specific breastfeeding policy incorporating various disciplines and staff, containing detailed protocols that comply with the International Code of Marketing of Breast Milk Substitutes and subsequent World Health Assembly (WHA) resolutions, are all required. Staff and mothers require multiple modes of education to understand the BFHI, including sponsorship for training of lactation consultants. [15]

In a recent study workers recommended a tool for measuring compliance to BFHI and concluded that a methodology to measure BFHI compliance may help support the implementation of this effective intervention and contribute to improved maternal and child health.[16] In Egypt, a pilot monitoring tool for measuring compliance to the global criteria of the Ten steps BFHI within hospitals showed that such tools can motivate staff to improve their performance and sustain it as it becomes routine practice rather than implementing one time training without any follow-up system, especially in hospitals that do not have an in-service training policy or system installed in place. [17] Other workers have shown the importance of administrator's commitment, in-service training programs and installment of monitoring systems and integration into quality management influenced the success of BFHI impact on the community. [18,19,20,] Moreover other workers have shown that socio-demographic and cultural factors may be more important determinants of the duration of breastfeeding than some of the very specific hospital practices targeted in the Ten steps to successful breastfeeding. [21,22] From a public health perspective, we may influence the duration of breastfeeding through better post-discharge support services, or through interventions that improve attitudes to breastfeeding in specific socio-cultural and economic groups. [23,24] The fostering of mother support groups by the facility can have a significant effect on the successful continuation of breastfeeding i.e. duration and exclusiveness of breastfeeding. [25]

Conclusion: BFHI practices that support breastfeeding continue to be impeded in maternity care practices interfering with successful breastfeeding and hence overall health and survival of mothers and babies.

Recommendations: Installment of periodic, systematic, ongoing in-service training programs in all hospitals particularly University and public hospitals in the country is required for improving, updating knowledge and practice of staff. This should be adjoined with the installation of a credit hour system for staff assigned to the health care system, records for trained staff and continuous monitoring of outcome of such training on the quality of services provided.

References

1- Labbok MH (2012) Global baby-friendly hospital initiative monitoring data: update and discussion. Breastfeed Med.7:210-22.

2- Goodman K, DiFrisco E (2012) Achieving Baby-friendly designation: step-by-step. MCN Am J Matern Child Nurs. 37(3):146-52.

3- Saadeh RJ (2012) The Baby-Friendly Hospital Initiative 20 years on: facts, progress, and the way forward. J Hum Lact. 28(3):272-5.

4- Zakarija-Grkovic I, Šegvić O, Bozinovic T, Ćuže A, Lozancic T, Vuckovic A, Burmaz T (2012) Hospital practices and breastfeeding rates before and after the UNICEF/WHO 20-hour course for maternity staff.J Hum Lact. Aug;28(3):389-99.

5- Abul-Fadl AM, Shawky M, El-Taweel A, Cadwell K, Turner-Maffei C (2012) Evaluation of mothers' knowledge, attitudes, and practice towards the Ten steps to successful breastfeeding in Egypt. Breastfeed Med. 7(3):173-8.

6- El-Zanaty F, Way A (2009) Feeding practices and micronutrient supplementation. In: Egypt Demographic and Health Survey 2008. Ministry of Health, El-Zanaty and Associates, and Macro International, Cairo, , pp. 166–175.

7- Abul-Fadl A, Shawky M.,ElNaggar M, Elwan N, Nowara M, Foda A., ElTaweel A, ElSherif H. (2011) Assessing health staff practices that influence continuity of breastfeeding. Egyptian Journal of Breastfeeding 2: 68-78.

8- Shawky M, Abul-Fadl A, ElNaggar M, Elwan N, Nowara M, Foda A, ElTaweel A, ElSherif H. (2011) Assessing mother friendly in maternity services in Egypt. Egyptian Journal of Breastfeeding 2: 79-87.

9- Anwar AA, Abul-Fadl AM, Noseir M, Mahdy MH (2012) Promoting mother friendly practices as a strategy towards Baby friendly Hospitals. Egyptian Journal of Breastfeeding 4: 89-98.

10- Abul-Fadl AM, Shawky M, Nasr K and Olumese I (2011) Status of the Ten Steps of

Baby Friendly Hospitals in Egypt (Egyptian Lactation Consultant Association (ELCA), MCH-MoH- and UNICEF) Egyptian Journal of Breastfeeding 1: 34-98.

11- Abolyan LV (2006) The breastfeeding support and promotion in Baby-Friendly Maternity Hospitals and Not-as-Yet Baby-Friendly Hospitals in Russia. Breastfeed Med. 1(2):71-8.

12- Schmied V, Gribble K, Sheehan A, Taylor C, Dykes FC (2011) Ten steps or climbing a mountain: a study of Australian health professionals' perceptions of implementing the baby friendly health initiative to protect, promote and support breastfeeding. BMC Health Serv Res. 31(11):208.

13- Owoaje ET, Oyemade A, Kolude OO (2002) Previous BFHI training and nurses' knowledge, attitudes and practices regarding exclusive breastfeeding. Afr J Med Med Sci. 31(2):137-40.

14- Syler GP, Sarvela P, Welshimer K, Anderson SL (1997) A descriptive study of breastfeeding practices and policies in Missouri hospitals. J Hum Lact. 13(2):103-7.

15- Walsh AD, Pincombe J, Henderson A (2011) An examination of maternity staff attitudes towards implementing Baby Friendly Health Initiative (BFHI) accreditation in Australia. Matern Child Health J. 15(5):597-609.

16- Haiek LN. (2012) Measuring compliance with the Baby-Friendly Hospital Initiative.Public Health Nutr. 15(5):894-905.

17- Sherif H., Abul-Fadl A, Shawky M., ElTahawy E, Elwan N (2011) Effectiveness of a computerized monitoring tool for the Baby friendly Hospital Initiative in Egyptian settings. Egyptian Journal of Breastfeeding 2: 102-114.

18- Tarrant M, Wu KM, Fong DY, Lee IL, Wong EM, Sham A, Lam C, Dodgson JE.(2011) Impact of baby-friendly hospital practices on breastfeeding in Hong Kong. Birth. 38(3):238-45.

19- DiGirolamo AM, Grummer-Strawn LM, Fein S (2001) Maternity care practices: implications for breastfeeding. Birth. 28(2):94-100.

20- Abrahams SW, Labbok MH (2009) Exploring the impact of the Baby-Friendly Hospital Initiative on trends in exclusive breastfeeding. Int Breastfeed J. 29(4):11.

21- Semenic S, Childerhose JE, Lauzière J, Groleau D (2012) Barriers, facilitators, and recommendations related to implementing the Baby-Friendly Initiative (BFI): an integrative review.J Hum Lact. 28(3):317-34.

22- Fletcher DM.(1997) Achieving Baby Friendly through a quality management approach. Aust Coll Midwives Inc J. 10(3):21-6.

23- Pincombe J, Baghurst P, Antoniou G, Peat B, Henderson A, Reddin E. (2008) Baby Friendly Hospital Initiative practices and breastfeeding duration in a cohort of first-time mothers in Adelaide, Australia. Midwifery. 24(1):55-61.

24- Perez-Escamilla R, Lutter C, Segall AM, Rivera A, Trevino-Siller S, Sanghvi T (1995) Exclusive breast-feeding duration is associated with attitudinal, socioeconomic and biocultural determinants in three Latin American countries. J Nutr. 125:2972–84.

25- Dearden K, Altaye M, De Maza I, De Oliva M, Stone-Jimenez M, Burkhalter BR, Morrow AL. (2002) The impact of mother-to-mother support on optimal breast-feeding: a controlled community intervention trial in periurban Guatemala City, Guatemala. Rev Panam Salud Publica.12:193–201.

ANCIENT EGYPTIAN WOMEN TO WOMEN SUPPORT FOR BIRTH FRIENDLY PRACTICES

Table (1) Comparison of education on Mother Baby Friendly practices in antenatal clinics for promoting breastfeeding mothers in the three hospitals in Qena

Information		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Benefits of having companion of her choice at birth		-	-	3	10	5	16.7	8	13.3
Methods of non-drug pain relief methods during labor		-	-	6	20	4	13.3	10	16.7
Benefits of holding baby STS immediately after birth (on delivery)		-	-	4	13.3	10	33.3	14	23.3
Importance of keeping baby with mother from birth to discharge		-	-	9	30	5	16.7	14	23.3
Total score of hospital based antenatal information				22	73.3	24	80	46	76.7
Statistical analysis of frequency	X2=			6.263					
	^^P value			P<0.05					

*QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital
^QUH was not included in this part of the study; ^^P: statistically significant

Table (2) Comparison of Mother and Baby Friendly Practices in antepartum wards for supporting breastfeeding mothers in 3 hospitals in Qena

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Allowed movements & drinks in first stage		24	80	0	0.0	12	40	36	40
Not separated from her baby after birth		27	90	24	80	30	100	81	85
Total		51	85	24	40	42	70	39	48.75
Statistical analysis of frequency	X2=			19.711		11.328			
	P1 value			<0.001		<0.01			
	X2=					10.152			
	P2 value					<0.01			
Mean score	Mean±SD	8.5±1.3		4±1.7		7±1.7		6.5±2.5	
	Z=			4.638		2.987			
	P1 value			<0.001		=0.003			
	Z=					4.530			
	P2 value					<0.001			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH
*QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital

Table (3) Comparison of Baby Friendly Practices to the "revised" Step "4" of the Updated Baby friendly for supporting breastfeeding mothers with normal vaginal delivery in 3 hospitals in Qena

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
STS performed in labor ward up to first breastfeed		12	40	12	40	0	0	24	26.7
STS performed in postnatal ward		12	40	21	70	0	0	33	36.7
STS done but on second day		15	50	30	100	0	0	45	50
STS assisted by accompanying family members		12	40	9	30	0	0	21	23.3
Baby stayed STS for at least 30 minutes or up to first breastfeed		12	40	0	0	0	0	12	13.3
Total		63	42	72	48	0	0	135	30
Statistical analysis of frequency	X2=			24.624		44.266			
	P1 value			<0.001		<0.001			
	X2=					52.952			
	P2 value					<0.001			
Mean score	Mean±SD	4.25±1.2		6±1.6		0		6.5±2.5	
	Z=			3.503					
	P1 value			<0.001					

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH, *QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital

Table (4) Comparison of Baby Friendly Practices in postpartum wards for supporting early initiation of breastfeeding mothers with normal vaginal delivery in the three hospitals in Qena

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Assisted early initiation with first hour		12	40	21	70	30	100	63	70
Teach mothers to feed to the feeding cues		12	40	18	60	0	0	30	30.33
Teach mother positioning and attachment		30	100	12	40	30	100	72	80
Teach mother how to express milk		30	100	6	20	0	0	36	40
Total		84	70	57	47.5	60	100	201	55.8
Statistical analysis of frequency	X2=			28.156		44.266			
	P1 value			<0.001		<0.001			
	X2=					49.138			
	P2 value					<0.001			
Mean score	Mean±SD	7±1.7		4.7±2.4		5±1.9		5.6±2.25	
	Z=			2.971		3.640			
	P1 value			=0.003		<0.001			
	Z=					0.389			
	P2 value					>0.05			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH, *QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital

Table (5) Comparison of non-Baby Friendly Practices in postpartum wards related to offering supplements or exposure to bottles or nipples in the three hospitals in Qena (Steps "6" and "9")

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Do prescribe formula or drinks		12	40	15	50	0	0	27	30
Family member offered supplements to newborn		12	40	9	30	15	50	36	40
Offer supplements by bottle not cup or spoon		21	70	24	80	30	100	75	83.3
Offered/suckled on pacifier		18	60	3	10	30	100	51	56.7
Total		63	52.5	51	42.25	75	62.5	189	52.5
Statistical analysis of frequency	X2=			10.203		19.442			
	P1 value			<0.001		<0.001			
	X2=					17.113			
	P2 value					<0.001			
Mean score	Mean±SD	5.25±2.6		4.2±2.13		6.3±1.7		5.6±2.25	
	Z=			1.352		1.533			
	P1 value			>0.05		>0.05			
	Z=					3.911			
	P2 value					<0.001			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH
***QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital**

Table (6) Comparison of practices in postpartum operative wards towards cesarean section in the three hospitals in Qena

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Spinal or epidural encouraged		21	70	0	0	15	50	36	60
Mother informed reason for C-Section delivery		24	80	21	70	0	0	45	50
C-Section was mother's choice		12	40	24	80	0	0	36	40
Mothers informed of hazards of C-section when unnecessary		9	30	15	50	0	0	24	26.7
Total		66	55	60	66.7	15	12.5	141	42.7
Statistical analysis of frequency	X2=			27.795		33.154			
	P1 value			<0.001		<0.001			
	X2=					46.117			
	P2 value					<0.001			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH
***QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital**

Table (7) Comparison of Neonatal Care Baby Friendly practices for supporting breastfeeding in the three hospitals in Qena

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Mother allowed to stay with her preterm in the hospital		0	0	21	70	0	0	21	23.3
Mother taught & practiced STS with her preterm		3	10	0	0	0	0	3	0.33
Mother expressed 6-8 times		21	70	0	0	0	0	21	23.3
Mother instructed to by staff to express her milk		15	50	12	40	0	0	27	30
Staff advised assisting preterm to feed by cup not bottle		12	40	9	30	0	0	21	23.3
Total		51	34	42	28	0	0	93	20.7
Statistical analysis of frequency	X2=			44.744		36.127			
	P1 value			<0.001		<0.001			
	X2=					3 1.398			
	P2 value					<0.001			
Mean score	Mean±SD	3.4±1		2.8±1.24		0		2.07±1.75	
	Z=			1.769		4.832			
	P1 value			>0.05		<0.001			
	Z=					4.861			
	P2 value					<0.001			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH, *QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital

Table (8) Comparison of Baby Friendly practices that protect breastfeeding in the three hospitals in Qena governorate in Upper Egypt

Practice		QUH*		NHH**		QGH***		Total	
		No	%	No	%	No	%	No	%
Information given to pregnant about hazards of supplementary feeding		0	0	18	60	12	40	30	50
Exclusive breastfeeding or breastmilk fed practiced from birth		18	60	30	100	30	100	78	86.7
Mother protected from direct contact with representative from formula milk company		30	100	30	100	30	100	90	100
Total		48	80	78	86.7	72	80	198	78.9
Statistical analysis of frequency	X^2=			17.314		13.691			
	P1 value			<0.001		<0.001			
	X^2=					2.763			
	P2 value					>0.05			
Mean score	Mean±SD	8±2		8.67±1.5		8±1.72		8.2±1.77	
	Z=			2.207		0.137			
	P1 value			=0.027		>0.05			
	Z=					1.491			
	P2 value					>0.05			

P1: statistically significant difference versus QUH; P2: statistically significant difference versus NHH, *QUH: Qena University Hospital, ** NHH: Negh Hamadi Hospital, ***QGH: Qena General Hospital

تقييم برنامج مستشفيات الولادة الصديقة للطفل بمحافظة قنا

الدكتورة/ سحر فهمى* – الأستاذ الدكتور /السيد طه - الأستاذ الدكتور/ أحمد هاشم** – الدكتور أحمد العبد** - الأستاذة الدكتورة عزة أبو الفضل*****

كلية التمريض و**كلية الطب بقنا جامعة جنوب الوادي وكلية طب جامعة بنها بدعم من منظمة اليونيسف ووزارة الصحة (البرنامج القومى لدعم المنشأت الصديقة للطفل)**

الهدف من الدراسة : تقييم تنفيد برنامج الصحة العالمية للمستشفيات الصديقة للطفل فى ثلاث مستشفيات بمحافظة قنا .

الطريقة : قمنا باستخدام أداة لتقييم برنامج سياسية طبيعية فى ثلاث مستشفيات بمحافظة قنا مستشفى قنا الجامعى ومستشفى قنا العام ومستشفى نج حمادى حيث تم تطبيق البرنامج ومقارنته بمستشفى قنا العام والتى لم يطبق التدريب بها وتم تنفيد ه وذلك من خلال ممرضات من كلية تمريض قنا و تم تحليل النتائج احصائيا .

النتائج : أسفرت الدراسة بأن الأمهات الوالدات طبقن الممارسات الحديثة كالبدء بالرضاعة الطبيعية مبكرا بملامسة الجلد للجلد فى مستشفى قنا الجامعى ونجع حمادى وقد وجد أن الأمهات فى م. قنا العام كانوا الأكثر تعرضاً للبزازات والحلمات الصناعية كما أن المساندة فى طريقة الرضاعة وطريقة التعصير من العاملين بالمستشفى كانت غير موجودة فى هذه المستشفى.

الإستنتاجات والتوصيات: أوضحت الدراسة أن التطبيق الفعلى لبرنامج المستشقيات الصديقة للطفل لدعم الرضاعة الطبيعية غير كافى ويحتاج المزيد من التدريب والتقييم المستمر وتحفيز المستشفيات والعاملين بها وبالأخص فى المستشفيات التى لم تتعرض للتدريب. ونوصي باجراء تدريب مؤسسي مستمر للتمريض ومتابعة مستمرة مركزياً من مديرية الصحة بالمحافظة للفريق الطبى لتعليم المهارات اللازمة لدعم الامهات على الرضاعة الطبيعية الناجحة كوسيلة لخفض وفيات الرضع .

Impact of Iron Supplementation to Pregnant Women on Infant Growth at Six Weeks of age

Azza Abul-Fadl MD, Mohamed Rashad MD*, Samy Abdel Azim MD** Heba Ramsy MD*,*

Pediatric Department, Benha Faculty of medicine, Benha University, **Obstetric Department, Benha Faculty of Medicine, Benha University

Abstract

Background: Pregnant women and infants are at high risk of development of iron deficiency because of their increased iron requirements. It is still controversial whether iron supplementation should be recommended for all pregnant women and whether it may increase risk or improve growth outcome of the offspring.

Aim: To study the effect of iron supplementation to pregnant women during the third trimester on the birth outcome and the growth of their infants at six weeks of age.

Methods: This is a longitudinal cohort non-randomized experimental case-control study that included sixty pregnant women with normal hemoglobin (Hb) or with mild anemia conducted on two cohorts assembled from two health facilities in Benha. One half (30) received continuous daily iron supplements (30mg/day) throughout the third semester while the other half received placebo. All pregnant women received education about nutrition and optimal breastfeeding postpartum practices to encourage early initiation and exclusive breastfeeding. Blood samples were collected from mothers in the 3rd trimester, and from babies at birth and 6th week postpartum to measure Hb and red cell indices. Anthropometric measurements for infants' weight, length and head circumference were done biweekly and interpreted using the WHO international growth standards (IGS) and local Egyptian standards (EGS).

Findings: At six weeks of age body weight and supine length of babies of iron supplemented mothers were significantly higher than babies of mothers on placebo but not head circumference. Underweight (below -2SDS) was doubled by the use of IGS in the supplemented group from 33.3% to 66.7%. Stunting (below -2SDS) increased by 4.5 times in the supplemented group from 10% to 46.7% using the IGS and from 3.3% to 50% using the EGS. None of the babies were large-for-dates at birth or overweight at six weeks. There was no significant difference in cord blood hemoglobin (Hb) and red cell indices between both groups. However the difference became apparent at 4 weeks of age as Hb levels and rec cell count rose to significantly higher levels among infants of iron supplemented mothers.

Conclusions: Iron supplementation to pregnant mothers has a significant role in improving growth rate of their infants but exposed them to hemoconcentration.The IGS are more sensitive in detecting underweight, while the EGS are more sensitive in detecting stunting in the neonates. We recommend that mothers who are iron deficient should be treated by supplements on regular basis while those without iron deficiency can receive intermittent supplementation; this is in-line with the recent WHO recommendation.

Key words: iron supplementation, pregnancy, breastfeeding, antenatal education, infant growth

Introduction

Iron deficiency is the most common cause of anemia worldwide and, according to the World Health Organization, affects over 2 billion people: half of all pregnant women and 40% of preschool children in low- and middle-income countries are thought to be anemic. Anemia contributes to 20% of all maternal deaths and is also linked to increased maternal morbidity, higher rates of preterm birth and low birth weight, and reduced infant survival, with potential long-

term consequences for child growth and development. [1] Adequate maternal micronutrient status is especially critical during pregnancy and lactation. Iron deficiency is probably the most common nutritional disturbance in the world. At the highest risk, irrespective of economic status, are women at the reproductive age- especially those who are pregnant. [2] One of the important issues in this regards is the importance of recognizing the continuum of maternal micronutrient status from the preconception period through lactation, and of fetal and infant dependency on adequate maternal status through this time. [3] Multiple micronutrient deficiencies are likely to be contributors to poor pregnancy outcomes and infant development. [4]

The main cause of multiple micronutrient deficiencies is probably attributed to poor quality diet, often due to an inadequate intake of animal source foods (ASF) especially in developing countries. Women who avoid meat and/or milk in wealthier regions of the world are also at higher risk of micronutrient depletion during pregnancy and lactation**.** Diseases such as malaria, and infection with intestinal parasites, also impair status and alter the metabolism of multiple micronutrients. [5] Moreover, in pregnancy and/or lactation, the requirements for most nutrients are higher, increasing the risk of inadequate intake. Several micronutrient deficiencies are well established to be contributors to abnormal prenatal development and/or pregnancy outcome. These include folate, iron, and iodine deficiencies. [6]

Many studies indicated that routine iron supplementation during pregnancy may have beneficial effects on pregnancy outcome. Severe anemia in pregnancy may have adverse effects for the newborn and should be treated or prevented early in pregnancy. [7,8] Supplementation with iron is generally recommended during pregnancy to meet the iron needs of both mother and fetus. Iron supplementation may improve pregnancy outcome when the mother is iron deficient. However, it is also possible that prophylactic supplementation may be harmful in non-anemic mothers, increasing the risk of preterm delivery and impairing child development. [9, 10]

The controversy has therefore stimulated us to study the effect of iron supplementation to pregnant women in the third trimester of pregnancy on the outcome of growth and development of their infants at 6 weeks of age.

Subjects and Methods

This study is a longitudinal follow up cohort study. It was done in Benha University hospital and a privately owned hospital of Prof. Samy AbdelAzim. Sixty women were selected in the third trimester of pregnancy and were allocated into two groups according to their iron supplementation. They were exposed to antenatal education in nutrition during pregnancy and information about the benefits of exclusive breastfeeding and postpartum practices that lead to early initiation and exclusive breastfeeding in the early weeks and months of life. The sixty mother infant pairs were included in this study. Sample was non-randomized as an experimental case control. They included 60 pregnant women that became 60 mother infant pairs that were classified into: Group 1: 30 mother-infant pairs of iron supplemented mothers. Group II: 30 mother-infant pairs of women who did not receive iron supplementation during pregnancy. The inclusion criteria included primigravida and multigravida (< 3 with interval not less than 2 years), women in their third trimester with mild anemia (10-11 gm/dl) or normal Hb, otherwise normal healthy mothers with no chronic disease or complications during pregnancy or delivery. Exclusion criteria included those who developed any complications late in pregnancy or at delivery and mothers with severe and moderate

anemia (Hb < 9 gm/dl) as well as those who had preterm deliveries. Tools: Interview forms were designed to interview women during pregnancy and follow them up after delivery. Interviews were carried out by direct person-to-person by a physician investigator. The questionnaires covered information about pregnancy including prenatal visits (number, paid or not paid), iron prescription (start of intake, dose, and complication), diet assessment; during delivery; mode of delivery, paid or unpaid, attendant at birth, duration of stay at hospital. During follow up amount of bleeding (number of packs per day), duration of bleeding, return of menses and mode of contraception and breastfeeding practices.

Growth assessment included anthropometric measurement of weight; to nearest gm. Length; to nearest mm, occipto-frontal circumference to nearest mm and monitoring on growth charts. The measurements were taken: At birth, at two week, at 4 weeks and six weeks of age and interpreted by plotting using the Egyptian and WHO growth curves for weight-for-age, length-for-age and head circumference for age. [9, 10]

Blood samples were drawn at birth and at 2, 4 and 6 weeks and analyzed for hemoglobin in gm/dl, red cell count (RBC), hematocrit (Hct) in percent, mean corpuscular volume (MCV) and mean corpuscular hemoglobin concentration (MCHC).

Ad*ministrative and ethical considerations:* An official permission to conduct the study was obtained by the researcher from the head of the gynecological department of both hospitals. The inclusion in the study was voluntary and information about the aim of the study was explained in a local language to each participating woman and an informed consent was obtained from her to use the data collected in this study while maintaining privacy and confidentiality.

Statistical analysis: Obtained data were presented as mean±SD, ranges, numbers and ratios. Results were analyzed using Wilcoxon ranked test for unrelated data (Z-test) for comparison between studied subjects categorized into groups of intervention and non-intervention and analyzed using percent distribution and Chi-square test (X^2 test) for comparisons between groups. Statistical analysis was conducted using the SPSS (Version 15, 2006) for Windows statistical package. P value <0.05 was considered statistically significant.

Results

Tables (1, 2 and 3) shows that there was a statistically significant higher body weight gain and increase in the supine length of infants, but not in head circumference in the iron supplemented mothers during pregnancy compared to those who were not supplemented, at P<0.05.

Tables 4 and 5 show that underweight and stunting were significantly higher in the non-supplemented group, although overall the sample was from a poor area. Underweight was prevalent in twice as much using the IGS and stunting was five times higher in the non-supplemented groups using the local growth charts.

Charts 1,2 and 3 show that at birth there was no significant difference in cord hemoglobin, red cell count RBCs, hematocrit, MCH, MCHC levels between newborns of iron supplemented mothers and those of non-supplemented mothers, but the difference became significant at 4 weeks of age with significantly higher levels among the infants of the iron supplemented mothers.

Discussion

Iron deficiency is the most prevalent nutritional disorder worldwide, especially in developing countries. It occurs when iron absorption does not equal iron requirements plus iron loss. Because iron requirements are especially high among pregnant women, infants, young children, and adolescents, these groups run a high risk of iron-deficiency anemia.

This study showed that pregnant women who received routine iron supplementation during the third trimester of pregnancy had newborns with a statistically significant

higher birth weight compared to those who did not receive supplementation (p<0.001).

Similar findings were reported by other workers [11] who found that mean birth weight was higher by 108 g (P = 0.03), and the incidence of preterm delivery was lower (8% -14%; P = 0.05) in the 30 mg daily supplemented group compared with the control group**.** One possible explanation is that iron deficiency among pregnant women has been shown to reduce the oxygen supply to the fetus, cause intrauterine growth retardation, and increase the risk of premature delivery and reduced birth weight. Thereby iron supplementation encourages more oxygenation and thereby enhancing the growth of the fetus.

It is possible that iron supplements may be preferentially transferred to the placenta and fetus, thus contributing to higher birth weight rather than to higher maternal iron stores as transfer of iron to fetus depends on level of hemoglobin in placenta. [15]

Another explanation is that the increase transfer of dietary iron to the fetus may be related to changes in the expression of placental iron transport proteins. It has been shown that increased fetal iron demand or maternal iron insufficiency is related to both an increase in the expression of placental transferrin receptor on the syncytio-trophoblast and an increase in the expression of the ferritin receptor in the placental microvillus membrane**.** [16]

Expression of the endosomal membrane iron transporter, divalent metal ion transporter, has also been shown to be involved in the transfer of iron from the syncytio-trophoblastic endosome into the cytoplasm. Moreover, placental iron regulatory protein 1 activity has been directly related to transferrin receptor messenger RNA concentrations in human placenta, and expression of this protein has been found to be related to the iron content of the placenta. [14]

Iron supplementation from 28 weeks gestation did not influence the development of anemia but increased birth weight by 206 grams and lowered the incidence of low birth weight infants from 17% to 4%. Preterm delivery incidence was not affected, perhaps because supplementation was not started early enough in pregnancy. [17]

This current study showed that there was a statistically significant effect of iron supplementation on growth in supine length. Although head circumference was somewhat higher in the supplemented groups yet the difference was not statistically significant. This is similar to the findings reported by other workers. [18]

In this study we interpreted our findings using two different standards of growth namely the local national (Egyptian growth standards) [11] and the international World Health Organization (WHO) growth standards. [12] We found a higher percent of infants below 3rd centile when plotted on the (WHO) growth Charts compared to those plotted on the national growth charts. This is most probably related to the cohort group used in the development of the growth charts, in which the pregnant women in one set probably the international WHO growth standards were assumedly not iron supplemented.

In our study we found that iron supplements increased hemoglobin levels during pregnancy that were maintained during the postpartum period, although they were exposed to adequate dietary intakes, even in women who enter pregnancy with adequate hemoglobin level. Similar findings were reported by others**.** [18] One possible explanation is that the amounts that can be absorbed from an optimal diet are still less than the iron requirements in later pregnancy

and a woman must enter pregnancy with adequate iron stores if she is to meet her requirements fully.

The risk of postpartum anemia was greatest in those who were anemic in pregnancy; 49% of women who were anemic in the third trimester developed anemia postpartum compared with 21% who were no anemic. (18)

Iron deficiency anemia frequently develops in pregnancy which indicates that the physiologic adaptations are often insufficient to meet the increased requirements. (19) As a result, iron supplementation during pregnancy is a common practice throughout the world.

In this study iron supplementation to pregnant mothers was found to have a significant role in improving child birth outcome with regards duration of gestation as shown by the statistically significant higher gestational age in the supplemented group than non-supplemented group. Similar findings were reported by workers from Zimbabwe (17). Also Scholl, (20) found that iron deficiency anemia is associated with over two fold increase in the risk of preterm delivery. Other workers (21) found that low hemoglobin was associated with an increased risk (5%–79%) of small for gestational age (SGA) births, but not with preterm delivery.

Hence, routine iron supplementation during pregnancy seems to be a safe strategy to prevent maternal anemia, particularly in developing countries. These countries have traditional diets that do not provide adequate iron, also the high prevalence of malaria and other infections which are endemic increase the loss of iron.

Prophylactic iron supplementation is recommended in developing countries (22) and in the United States (23) for all pregnant women in the second and third trimesters of pregnancy. In other countries, iron supplementation is recommended only for anemic women with proven iron deficiency anemia, as in Great Britain (24), or for women with low prepregnancy iron stores, as in Canada. (25)

Intake of supplements containing iron or a combination of iron and folic acid by pregnant women may improve maternal health and pregnancy outcomes. Recently, intermittent supplementation regimens have been proposed as alternatives to daily regimens. (7) Moreover in 2011, the World Health Organization (WHO) strongly recommended the use of intermittent IFA supplementation in non-anemic women in pregnancy.(27)

However caution must be interpreted for low income countries where borderline deficiency is common increasing the risk of exposure to iron deficiency especially if the diet does not meet the increased needs of the growing fetus and mother. (28)

In conclusion, this study shows that supplementation of iron to women with marginal levels of Hb (11gm) and mild anemia may be beneficial. We recommend that women who have marginal levels of Hb receive regular or intermittent iron supplements during pregnancy especially in the third trimester; this should be supplemented by antenatal education on diets rich in iron and importance of early exclusive breastfeeding.

References

1. Hanieh S, Ha T, Simpson J, Casey G, Khuong N, Thoang D (2013) The effect of intermittent antenatal iron supplementation on maternal and infant outcomes in rural Vietnam: A cluster randomized trial 6 (10) e1001470
2. Lu W, Lu M, Li Z, Zhang C (2014) Effects of Multimicronutrient supplementation during

pregnancy on postnatal growth of children under 5 years of age: A Meta-Analysis of Randomized Controlled Trials February 20 DOI: 10.1371/journal.pone.0088496

3. Nesby-O'Dell S, Scanlon KS, Cogswell ME, et al. (2002) Hypovitaminosis D prevalence and determinants among African American and white women of reproductive age: third National Health and Nutrition Examination Survey, 1988–1994. Am J Clin Nutr 76:187–92.
4. Anaya M, Allen LH, Begin F, Peerson JM, Torun B, Brown KH. (2004) The high prevalence of vitamin B-12 deficiency in Guatemalan infants is associated with a higher intake of breast milk, and with poor quality complementary foods. FASEB J 18:844.
5. Keen CL, Clegg MS, Hanna LA, et al. (2003) The plausibility of micronutrient deficiencies being a significant contributing factor to the occurrence of pregnancy complications. J Nutr 133:1597–1605.
6. Allen LH. (2005) Multiple micronutrients in pregnancy and lactation: an overview. American Journal of Clinical Nutrition 81: 1206-1212.
7. El Guindi w, Pronost J, Carels C, Largeaud M, El Gareh N,Montoya Y, Arbeille P. (2004) Severe maternal anemia and pregnancy outcome. J Gynecol Obst Biol Reprod. 33 : 506-9.
8. Pena-Rosas JP, Viteri FE (2009) Effects and safety of preventive oral iron or iron+folic acid supplementation for women during pregnancy. Cochrane Database Syst Rev 2009: CD004736.
9. Scholl TO, Hediger ML, Bendich A. et al. (1997) Use of multivitamin-mineral prenatal supplement: influence on the outcome of pregnancy. Am. J. Epidemiol; 146, 134–141.
10. Ziaei S, Norrozi M, Faghihzadeh S, Jafarbegloo E (2007) A randomised placebo-controlled trial to determine the effect of iron supplementation on pregnancy outcome in pregnant women with haemoglobin > or = 13.2 g/dl. BJOG 114: 684–688.
11. Egyptian Growth Curves. (2002): A linkage project of Cairo University (Diabetes Endocrine and Metabolism Pediatric Unit) and National Research Centre in collaboration with Wright State University, USA. (Egyptian principle investigator Isis Ghali, and US principle investigator Roger M Siervogel).
12. World Health Organization (2006) The WHO child growth standards. Geneva: World Health Organization.
13. Siega-Riz AM, Hartzema AG, Turnbull C, Thorp J, McDonald T and Cogswell ME (2006) The effects of prophylactic iron given in prenatal supplements on iron status and birth outcomes: A randomized controlled trial American Journal of Obstetrics and Gynecology 2006; 194 ,512-519.
14. Cogswell ME, Parvanta I, Ickes L, Yip R and Brittenham G (2003) Iron supplementation during pregnancy, anemia, and birth weight: a randomized controlled trial. American Journal of Clinical Nutrition; 78:773-781.
15. Georgieff MK, Wobken JK, Welle J, Burdo JR, Connor JR. (2000) Identification and localization of divalent metal transporter-1 (DMT-1) in term human placenta. Placenta;21:799–804.
16. Lao TT, Chan PL, Tam KF (2001) Gestational diabetes mellitus in the last trimester—a feature of maternal iron excess? Diabet Med 18:218–23.
17. Mishra V, Thapa S, Retherford RD, Dai X. (2005) Effect of iron supplementation during pregnancy on birthweight: evidence from Zimbabwe.Food Nutr Bull 26:338-47.
18. Mungen E. Iron supplementation in pregnancy. J Perinat Med 2003 ; 31:420-6.
19. Bothwell TH (2000) Iron requirements in pregnancy and strategies to meet them. Am J Clin Nutr;72:257–64.
20. Scholl TO. Iron status during pregnancy: setting the stage for mother and infant. Am J Clin Nutr 2005; 81: 1218-1222.
21. Scanlon KS, Yip R, Schieve LA, Cogswell ME (2000) High and low hemoglobin levels during pregnancy: differential risks for preterm birth and small for gestational age. Obstet Gynecol 96:741–8.
22. Stoltzfus RJ, Dreyfus ML (1998) Guidelines for the use of iron supplements to prevent and treat iron deficiency anemia. INACG/WHO/ UNICEF. Washington, DC: ILSI Press.
23. Institute of Medicine. Nutrition during pregnancy. (1990) Washington, DC: National Academy Press.
24. Hibbard BM. (1988) Iron and folate supplements during pregnancy: supplementation is valuable only in selected patients. BMJ 297: 1324–6.
25. World Health Organization (2011) Guideline: intermittent iron and folic acid supplementation in non-anaemic pregnant women. Geneva: World Health Organization.

26. Stoltzfus RJ (2011) Iron interventions for women and children in low-income countries. J Nutr 141: 756S–762S

Table (1) Comparing outcome of iron supplementation during pregnancy on neonate mean birth weight and subsequent weight in kg at 2,4 and 6 weeks in group I (iron supplemented) and group II (not supplemented) in mean and standard deviation (SD)

Study group / Weight(kg)	Group I (n=30) mean ±SD	Group II (n=30) mean ±SD	T	P*
Birth (B)	3.37 ± 0.27	2.94 ± 0.16	7.5	<0.001
2 weeks (w)	3.47 ± 0.28	3.03 ± 0.14	7.69	<0.001
4 w	3.56 ± 0.3	3.13 ± 0.14	7.11	<0.001
6 w	4.68 ± 0.34	4. 24 ± 0.16	6.41	<0.001

**Cut off value for statistical significance is P<0.05 .*

Table (2) Comparing outcome of iron supplementation during pregnancy on mean birth length and subsequent supine length in cm at age 2,4 and 6 weeks in group I (iron supplemented) and group II (not supplemented) in mean and standard deviation (SD)

Study group / Serial lengths (cm) by age in weekS	Group I (n=30) Mean ±SD	Group II (n=30) Mean ±SD	t-test value	*P value
Birth	48.43 + 1.36	47.47 + 1.11	2.99	<0.01
2 w	50.28 + 1.45	48.7 + 0.9	5.04	<0.001
4 w	51.78 + 1.26	49.96 + 0.87	6.51	<0.001
6 w	52.78 + 0.99	51.1 + 0.79	7.27	<0.001

**Cut off value for statistical significance is P<0.05.*

Table (3) Outcome of iron supplementation during pregnancy in relation to birth head circumference and subsequent increases at 2, 4 and 6 weeks in group I (iron supplemented) and group II (not supplemented)

Study group / HC (cm) by age in weeks	Group I (n=30) Mean ±SD	Group II (n=30) Mean ±SD	t-test	*P
Birth	36.33 + 0.8	36.17 + 0.95	0.71	>0.05
2 w	37.37 + 0.76	37.08 + 0.85	1.39	>0.05
4 w	38.08 + 0.46	37.85 + 0.75	1.28	>0.05
6 w	38.67 + 1.05	38.7 + 0.46	0.14	>0.05

**Cut off value for statistical significance is P<0.05 .*

Table (1) Comparing Age-for-weight (A/W) of 6 weeks aged infants of mothers who were iron supplemented versus those not supplemented during pregnancy, using the national and WHO growth standards

	Group I (iron supplemented)	Group II (non-supplemented)

Weight at 6th weeks	(n=30)				(n=30)			
	Egyptian		WHO		Egyptian		WHO	
	N	%	N	%	N	%	N	%
<3rd centile	0	0	10	33.3	0	0	20	66.7
3rd -25th centile	16	53.3	16	53.4	28	93.3	10	33.3
25th 50th centile	9	30	4	13.3	2	6.7	0	0
50th-75th centile	0	0	0	0	0	0	0	0
75th -97th centile	5	16.7	0	0	0	0	0	0

Table (2) Comparing Age-for-length (A/L) of 6 weeks aged infants of mothers who were iron supplemented versus those not supplemented during pregnancy using the national and WHO growth standards

L/A centiles at age 6 weeks	Group I (iron supplemented) (n=30)				Group II (non-supplemented) (n=30)			
	Egyptian		WHO		Egyptian		WHO	
	n	%	N	%	N	%	n	%
<3rd centile	1	3.3	3	10	15	50	14	46.7
3rd -25th centile	12	40	26	86.7	14	46.7	16	53.3
25th 50th centile	15	50	1	3.3	1	3.3	0	0
50th-75th centile	2	6.7	0	0	0	0	0	0
75th -97th centile	0	0	0	0	0	0	0	0

Chart (4) Mean Hb among iron supplemented (group I) not supplemented (groupII)

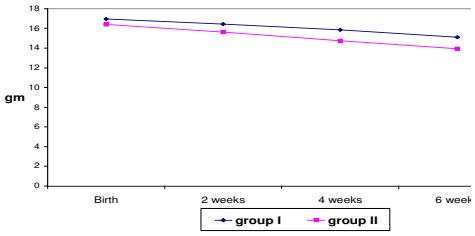


Chart (5) Mean RBCs among iron supplemented (group I) & not supplemented (groupII)

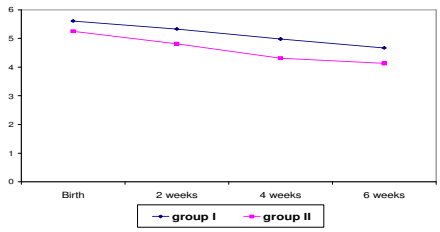


Chart (6) Mean Ht among iron supplemented (group I) & not supplemented (groupII)

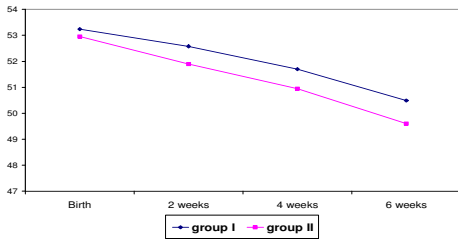
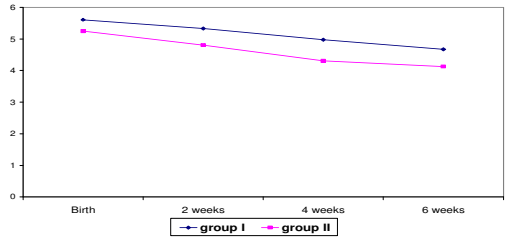


Chart (8) Mean MCH among iron supplemented (group I) & not supplemented (groupII)



Antenatal education in breastfeeding and child birth practices is pivotal to successful breastfeeding and child health and survival

Prof. Dr Nemat Foad, writer and defender of Egyptian heritage. Authors of 40 books including "To my children" which she completed over 20 years and was translated into English.

الكاتبة المصرية الكبيرة والأديبة والأستاذة الجامعية د. نعمات أحمد فؤاد قد اختارت وسيلة أخري للتعبير عن حبها لأبنائها حنان وفينان وأحمد حيث فضلت أن تهديهم كتابا من تأليفها لتعبر من خلاله عن المشاعر المتدفقة التي انتابتها في اللحظة التي علمت فيها أنها حامل في كل واحد منهم ولحظة الميلاد وعند اختيار الأسماء..واستمرت في وصف مشاعرها هذه تجاه أبنائها طوال عشرين عاما في فصول امتزجت فيها مشاعر الأمومة والحنان بخبرة السنين وعمق الثقافة وعبق الإيمان لتكتمل دائرة المشاعر والعلاقات الأسرية التي تناولتها في هذا الكتاب.

تأثير إمداد الحوامل بالحديد على نمو أطفالهن عند عمر ستة أسابيع

أ.د/ عزة أبو الفضل*، أ.د / محمد رشاد *، أ.د/ سامي عبد العظيم ، د/ هبة رمزى***

***قسم طب الأطفال و **قسم طب النساء والولادة – كلية طب بنها جامعة بنها**

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Traditional Misbeliefs and Malpractices that Challenge Successful Breastfeeding Initiation and Continuation in Sohag

Azza MAM Abul-Fadl MD, Amal Zaki MD**, Atef ElShetani MD**, Dina Abdel Hady PHD***, Adel Shakshak, MD***, Mohamed Nour-el-Din, MD****

*Professor of pediatrics, Benha Faculty of Medicine **Director General of Community leaders in Family Planning Sector, ***Maternal and Child Health Department, MoH,

Abstract

Background: Breastfeeding saves lives by preventing death from serious diseases. However exclusive breastfeeding remains low especially in rural Upper Egypt (UE). Hence it is important to understand the beliefs and traditional practices that impact UE women's infant feeding decisions in order to appropriately support these women to breastfeed.

Aim: To identify the root causes that lead to the poor child survival indicators in rural UE in relation to breastfeeding practices and the effect of training district health supervisors in influencing these beliefs.

Methods: This is an observational ethnographic study of the 11 districts of Sohag in UE that explored misbeliefs and practices related to breastfeeding from supervisors of community women leaders (CWL) experiences who were exposed to a trainer of trainers in Mother Support groups (TOT-MSG) who were exposed to the adapted WHO/UNICEF community training modules in breastfeeding. Data from the 30 recruited SCWL were analyzed using the problem solving and operational research methodologies. A pre-posttest was done to identify the gaps and needs for retraining.

Findings: The root causes that lead to inexclusive breastfeeding are the traditional misbeliefs about breastmilk and the need for supplements that are regularly offered by family members and health staff. These include "Laban Nakad", "Moshahara", Kabsa", the breast that brings "joy" and the other that brings "misery" that breastfeeding weakens the mother and separation of baby from mother after birth, need for supplements because colostrum is never "enough" and that milk come on the third day only and that mothers need to restrict the feeds and pump their milk on the third day. Training improved their knowledge by 40%, but the main gaps were related to the Code and to expressed milk.

Conclusions: The identification of local beliefs assists to tailor training to the needs of the audience and assist trainers to address their local problems. More emphasis is needed for training in how to change cultural misbeliefs and malpractices that interfere with successful breastfeeding and place the babies at risk of early death.

Recommendations: CWL can prove to be an influential tool in improving community practices and health facility practices in breastfeeding through institutionalization of Mother Support Groups. Training in changing behavior and managing conflict of values should be designed to meet the needs of women working within the community. Finally the institution of a supervisory system at district level based on problem solving and quality improvement projects that involve both the CWL and the health team may be very beneficial in influencing change based on community self-assessed needs.

Key words: mother support groups, Breastfeeding, traditional misbeliefs

Introduction

Infant mortality rates (IMR) in Egypt have decreased significantly over the past 3 decades by one half mainly due to efforts of the MCH department in the Ministry of Health (MoH) to control common childhood illnesses especially diarrhea and acute respiratory illness and improve access to perinatal care. (1) However neonatal MR decreased by one third. Both MR and NMR are highest in Upper Egypt (UE) rural areas and lowest in Urban Lower Egypt by 2 to 3times. (2) This wide inter-regional gap within the country calls for action and more diligent understanding and focus on these areas and an intensified understanding of the risk factors they are exposed to.

Improving early breastfeeding practices especially the timely breastfeeding (within the first hour), first hour skin-to-skin (STS) and exclusive breastfeeding rates in the first few days of life and for the first 6 months remains a challenge. Trends over the past few years have shown little improvement in the former three practices, but the latter fourth practice has doubled (exclusive breastfeeding for the first six months). (3,4) Success in the latter practice has mainly been due to the strengthened supervisory system in primary health care, monitoring of indicators and integration of vertical programs through the national integrated childhood health (IYCF) of the World Health Organization. (5)

Based on the Global strategy of Infant & Young Child Feeding (GIYCF) of WHA, the World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding from birth to six months of life and continued breastfeeding with adequate complementary feeding for two years or more. (4) However, exclusive breastfeeding rates are low, especially in the low income countries, and decline dramatically following birth and at six months are reported as being less than 20%. (2,7) Also incomplete breastfeeding, i.e. early discontinuation before two years are high and carry many ill consequences for babies and mothers. (8) Breastfeeding has many benefits for the baby and the mother. Many studies have shown how community traditions and beliefs can interfere with the success of breastfeeding. Cultural aspects influence breastfeeding practices to a great extent and this differs from one country to another and even within the same country these practices may show regional disparities. (9-12)

UNICEF and WHO in the joint statement for ensuring success of breastfeeding initiation and continuation have agreed on the importance of the Ten Steps to successful breastfeeding. (13) These steps have become the basis for the Baby Friendly Hospital Initiative (BFHI), supported by the evidence in the literature that supports each one of these steps; however health facility practices have presented a challenge to many countries including Egypt. Success in implementation has changed little over the past two decades. (12,13,14) Of these steps, steps 3 and step 10 can be implemented in the community and can influence how practices related to steps 4,5,6,7,8 and 9 are implemented once family centered maternity care (FCMC) is integrated with the BFHI. (15). Changing practices is difficult, especially when they are instigated by deep rooted beliefs and traditions that influence the culture of breastfeeding practice. (16,17)

The aim of this study is to conduct an ethnographic study of the 11 districts of Sohag in UE for exploring misbeliefs and traditional malpractices related to breastfeeding from community women leaders (CWL) experiences who were exposed to a trainer of trainers in Mother Support groups (TOT-MSG) aimed at training and monitoring local Raedat to support women in breastfeeding from pregnancy and throughout breastfeeding.

Subject and Methods

We recruited 30 WCLs who included supervisors of the local Raedat working in each district and supervisors of the local women club centers in the health centers in the villages dispersed in the 11 districts of Sohag in Upper Egypt, with 2-5 women from each district. Each supervisor meets with her local CWLs (Raedat) coming from the villages in their district to follow-up their duties in their area which consist of home visits and local seminars in the women clubs in each health center affiliated to the a village or number of villages. The purpose of the current training was to prepare them to train their local Raedat on conducting Mother support groups, with which the same woman would register in the support group and be encouraged to come back to the support group over the period of her pregnancy and breastfeeding period. Women, who regularly attend these groups and successfully breastfeed exclusively for six months and up to 2 years with foods, would be entitled to become a peer support counselor for other mothers. The success of the Raeda would be assessed by the number of initiated mother support groups (MSG) and the number of other mothers who have become peer counselors and are working in this same line to encourage and support other mothers in their social network.

The Raedat were recruited through the Family Planning sector of the Ministry of health, hence the focus of their work was on reproductive health, hence this was an opportunity to integrate the Baby Friendly practices with reproductive health for strengthening both programs and applying the concept of expanded integrated BFHI update.

The pilot study involved the following steps:

First: Devising the follow-up forms and adapted training modules based on the WHO Integrated Infant and Young Child Feeding (IYCF) and the UNICEF Baby Friendly 20 hour course for promoting and supporting breastfeeding by Baby Friendly hospitals.

Second: Conducting the 3 day training workshop in which the 30 participants (Raedat Supervisors and heads of Women clubs) were exposed to a pretest of 20 MCQs and open-ended questionnaires to identify the most common and prevalent beliefs, practices and difficulties that face breastfeeding in their region and the type of support that women in their region can access in breastfeeding. They were then exposed to a post-test to assess change in knowledge acquired about breastfeeding practices. The training used the adapted course for Community support leaders in perinatal breastfeeding support.

Third: Analysis of the results of the pre- and post-tests to assess the change in practice.

Fourth: An in-depth qualitative analysis to identify the traditions, practices and support given to mothers using brain storming and prioritization methods followed by using problem solving quality improvement tools for the identification of root causes of malpractices, misconceptions and misbeliefs: the Pareto chart and further analysis by categorization using the "Fish bone or cause effect diagram" to identify root causes.

Fifth: Discussion of the results with influential officials in the central Ministry of Health with the MCH department and Family Planning sector using more problem solving quality improvement tools to identify the most effective means of addressing support programs that can change and solutions based on acceptability (التقبل المجتمى), accessibility (الإمكانية), affordability (costالتكلفة), impact(التأثير) and time (الوقت) .

Results

The results by phase of implementation were as follows:

Table (1) shows the pre-post test results of change in knowledge acquired about breastfeeding of the women Village Community Women Leaders by District. The overall improvement after exposure to training was 41.2% with an increase from 26.1% in the pretest to 67.3% in the post-test score. By topic of training the highest improvement score was in step 8 of the Ten steps in recognizing signs of readiness to breastfeed, identifying and managing breast and nipple difficulties and counseling skills at an improvement score increased by three times. While topics related to step 5, how breastfeeding works and follow-up support, their post score was double the pre-score. The family planning score was originally at 62 and increased to 100% at the end of the training. But the items of code and breastfeeding protection was down scored, since this was not discussed with them as it was regarded a difficult topic to discuss, but apparently there is a need to cover more intently.

Table (2) shows lists the common misconceptions in Sohag related to breastmilk as mentioned by the Village Community Women Leaders by District. These were mostly myths rather than misconceptions, in which the traditional community would carry along generations that a women's milk becomes no good when she is in grief, or that her milk stops when exposed to the evil eye or that some women in some families just don't have milk or that some mothers have thin milk. The first two myths were the most commonly mentioned (40.7% and 21.9% respectively). But it was expected that when mother's milk was not enough that she must resort to supplements of cow's milk. This appeared the critical pathway for resolving these problems rather than resorting to relactation or use of another nursing mother. Although breastfeeding up to two years is mentioned in the holy text of Moslems and the Bible as a desirable practice for getting optimum benefit to mother and child, yet because this is associated with sisterhood or brotherhood so may interfere with marriage, hence people are reluctant to practice it on routine basis.

Table (3) lists common misconceptions in Sohag related to the baby whereby babies were offered herbal drinks in 48.4%, pacifiers to sleep in 19% and formula milks in 16%, that sleep nourishes baby. The most serious was to stop breastfeeding if baby develops diarrhea and not to bathe baby except after one week.

Table (4) demonstrates the common misconceptions in Sohag related to the practice of breastfeeding mentioned by the Village Community Women Leaders by District. It shows that the most common malpractice (on behalf of the mothers) related to the practice of breastfeeding was based on the misconception that breastfeeding weakens and drains women (22.6%) and that there is no breastmilk in the first three days of life (12.9%). Eventually when the milk comes –milk needs to be pumped out (19.4), moreover, mother needs to limit her feeds and feed baby by schedule. There is preference to feed on one side as there is a breast that gives joy and another that makes the baby sad. Moreover, if a mother develops a fever or is any medication, she should stop breastfeeding. Other practices as washing breasts before every feed, and using breastfeeding as a contraceptive method or eating certain foods that can help baby relieve the colics, emphasis on intake of liquids to increase milk were also common practice. Most of these practices have their origins from old obsolete medical practice, indicating the role practitioners who are of the older generations on influencing breastfeeding practice.

Table (5) presents the common malpractices related to health workers in Sohag as mentioned by the Village Community Women Leaders by District. The commonest was sugary fluids, prescription of drinks by doctors and giving glucose water by nurses in 37% , 15%, and 11% respectively giving a total of 63% who are offered replacement feeds and deprived of colostrum. This is in addition to the doctors who prescribe milks at any time which raise the prelacteals and supplements given or prescribed by health workers at birth to 70%. Other

common practices related to health facility included separating the baby at birth (11.1%). Also giving routine IV fluids to the mother at birth, delaying the feed of a mother who is delivered by cesarean and offering bottles to babies (at 3.7% for each). The practice of advising nipple preparation is still advised by health workers at 3.7%. While the practice of still advising mothers to stop breastfeeding was mentioned in 3.7%.

Table (6) identifies 20 common difficulties facing Breastfeeding women in Sohag as mentioned by the Village Community Women Leaders the most common of which was cracked nipples in 24%, refusal to feed in 17%, breast engorgement in 11% and postpartum depression (7%). Flat, absent or inverted nipples accounted for another 19%. Other concerns were related to fussy baby (4%), not enough milk (3%), oral thrush (2%), cleft lip (1%), and abnormal palate (1%), jaundice (1%) which account to 12% due to baby related difficulties. Other less common conditions in the mothers included maternal ***disease*** or mother on medications (4%), breast pain during breastfeeding (1%), working mother (1%) or first time mother who is unable to care for the baby or too afraid to have the baby touch her (1% each), which accounted for 15% of the breastfeeding concerns from maternal related causes.

Table (6) lists the most preferred support person in Sohag who provide support to the mother as mentioned by the Village Community Women Leaders. The mother of the woman giving birth was the top most preferred supporter to the mother during breastfeeding in 22.9% and mentioned as first order in 60% followed by the Raeda in 16%, mother in law in 8%, husband in 8% and doctor in 4%. The sister was the second most preferred support network in 20.69%, the mother-in-law came third at 17.24% and husband fourth at 9.19%. Other important support social networks were the wife of the husband, the community leader, the nurse, and other close older family member as aunt from mother's or father's side. Least was the sister in law at 2.3% or the doctor at 2.3%. It appeared from the discussion that mother resorted to the support from the closest, oldest or most experienced family member who was either in the same house (extended family member) or close to her.

Analysis using the problem solving tools of Quality management:

By brainstorming and prioritizing for the most common misconceptions and practices and by using he Pareto chart 38 causes were mentioned the 7 (20%) that formed 80% of the problem and interfere with breastfeeding, can thereby influence the solution of 80% of the problem were Drinks of Carawy & Yansoon after birth immediately to baby to clean baby's gut and mother being told that she should not breastfeed her baby the grief milk "laban Nakad", giving baby sugary drinks and glucose, mother weakened by breastfeeding, mother needs to pump her milk on the third day, "Moshahara" when visitors see mother breastfeed, doctor prescribing baby drinks . Since most of the women in the postpartum period have postpartum depression or baby blues, hence many of the women will not be allowed to breastfeed her baby "Laban Nakad". This is also supported by the other misconceptions that mention that mother has no milk in the first three days or it is not enough or that it only comes after the third day or that it is thin and that baby should therefore be given supplements in this period.

By categorizing the causes that result in low early breastfeeding rates are shown in tables 2,3,4 and 5. They are cause related to baby, to mother's milk, to breastfeeding practice and to health facility practice (we included maternal causes with breastfeeding practice as they were very much linked). The root causes identified in the category of breastmilk was Laban Nakad" mentioned by 8 of the 11 districts (73%) followed by "Moshahra" mentioned by 4 districts (36%). The districts that mentioned both these traditional beliefs were Dar-ElSalam, Minshah, Bilinah, Sakolta which are the districts with highest levels of illiteracy and school drop outs (CAMPAS, 20012). Hence the root causes may be related to the poor education. Root causes of baby was offering the herbal drinks

mentioned again by 8 of the 11 districts (73%) followed by offering pacifiers for the baby to sleep especially that sleep is believed to help the baby grow, also that formula feeding fattens baby. In the category of the breastfeeding practice and maternal factors, the root cause identified was that breastfeeding weakens mother and that mother does not need to breastfeed in the first 3 days or breastfeed less and otherwise pump her milk when it is too much, hence breastfeeding practice is not intensified in the early period that interferes with milk production and milk flow. The fourth category was health facility related whereby 8 of the 11 districts mentioned offering of sugary water, glucose or drinks as supplements early on.

The outcome of such practices are seen are in the common difficulties that face the breastfeeding mother which were mainly breast engorgement and cracked nipple, both of which are related to the above mentioned poor practices as shown in the flow chart (critical pathway) analysis below.

By analyzing the above findings by a critical pathways, we can assume to say that as a result of the prevailing myths in the Upper Egypt women, mostly among illiterate women, the doctors, who have no skills of counseling, would prescribe supplements to the baby that was prevented from breastfeeding by his surrounding community. We cannot say whether the doctor is pressured to do this or whether he finds himself driven by the traditional practices, accepting or rather agreeing with them by prescribing these supplements. Other practices that contribute to practitioners decisions to prescribe these supplements is when a baby is separated or is given a bottle or when mothers are given IV fluids that lead to baby loosing extra fluids from his body and eventually predisposing him to dehydration. All of which can be avoided by reversing these practices and abiding by the Ten Steps to promotion of breastfeeding at birth whether inside or outside health facilities.

This critical pathway will explain the common breastfeeding difficulties that face mothers during breastfeeding, mainly the breast engorgement that is a consequence to delayed and limited feedings at birth and the cracked or sore nipple because the baby is offered feeds by bottle so learns the nipple feeding practice. Mother then resorts to the most experienced, usually elderly family members, who are also close to her and have a strong influence over her or are the household leaders, mostly the mother or mother in-law. The latter and former were influenced by their own parents and thus the myths or misconceptions are carried from one generation to the next, reinforced only by the poor health facility practices that are run by older practitioners that have not updated their practice and are still influenced by the obsolete practices in breastfeeding.

Discussion

Egypt mortality rates for children show that in rural Upper Egypt is higher at all ages than mortality in rural Lower Egypt; the large differential in post-neonatal mortality is particularly noteworthy. The post-neonatal mortality rate in rural Upper Egypt is 19 deaths per 1,000 births, more than double the rate in rural Lower Egypt (8 deaths per 1,000 births). The child mortality rate in rural Upper Egypt (7 deaths per 1,000) is almost twice as high as the rate in rural Lower Egypt (4 deaths per 1,000). [1,2]

Early breastfeeding with skin-to-skin can lower neonatal mortality by 22% as shown by the evidence supporting Baby Friendly. [18] Our study shows that the root cause for the poor feeding practices are related to traditional misbeliefs and malpractices that separate and prevent the baby and mother from experiencing their early breastfeeding patterns and interfere with the establishment of breastfeeding. [19,20]

Many of the previous studies in Egypt conducted in both Upper and Lower Egypt have shown how these traditional practices

that impact feeding practice are associated with diarrhea and death from diarrhea in infancy, particularly among rural and uneducated women. [20,21] Overall, mortality is generally inversely related to mother's education, with children born to women who never attended school being almost twice as likely to die by the fifth birthday as children born to mothers with a secondary or higher education (44 deaths per 1,000 births versus 25 deaths per 1,000 births, respectively). Births to mothers in the highest wealth quintile are two and a half times as likely to survive to the fifth birthday as children born to mothers in the lowest quintile. [1,2]

Unfortunately because males are the preferred gender especially in the UE communities, they tend to be more exposed to these traditional misbeliefs. Hence, neonatal mortality is higher among boys than girls (23 deaths per 1,000 and 12 deaths per 1,000, respectively). Sex differentials in post-neonatal and child mortality rates are quite small. Under-five mortality is higher among boys (38 deaths per 1,000 births) than among girls (28 deaths per 1,000 births). [1,2]

In our findings we showed that many of these mothers, especially the primi ones, did not have experience in caring for their child or in breastfeeding and depended on more experienced people in their social network as their mothers, older sisters or mother-in-law to get advice and guidance. This permitted the misbeliefs and malpractices to be more easily disseminated. The EDHS study[2] showed that children born to mothers who were under age 20 at the time of the birth or over age 40 are significantly more likely to die at all ages than children born to other mothers. Mortality levels are generally lowest for births to mothers age 20-29. This was shown by another study that looked in the knowledge and attitudes and practice of mothers towards breastfeeding that showed that these mothers of extremes of age were more vulnerable to feeding practices at risk of exposing their children to poor feeding practices and to death. [22]

Our study clearly showed that our educational intervention about breastfeeding improved the knowledge, confidence, and behaviors of CWL and can do the same for physicians who exert an equally influential effect on breastfeeding outcomes. [23] Mother support groups from the community can be having the same effect of peer counselors that have been repeatedly shown to influence change in behavior particularly with regards to exclusive breastfeeding. [24]

Our study showed that many of malpractices were also health facility related. Unfortunately physicians are targeted by the marketing tactics of companies that produce breastmilk substitutes and this can have a negative impact on breastfeeding initiation and continuation with exclusive breastfeeding. Hence stricter measures to implement the code are necessary. [25,26]

Breastfeeding difficulties, mostly cracked, sore nipple and breast engorgement were mostly related to the poor breastfeeding practices as delayed initiation and use of bottles and pacifiers. The latter were found to be detrimental in breastfeeding continuation other than exposing the baby to infections and poor health. [25, 27]

The results of training improved dramatically the knowledge about family planning with breastfeeding as this was found to be one of the misconceptions identified by the group. This is important as

the risk of early childhood death increases among children born to mothers after too short birth intervals, and children of high birth order. Overall, the under-five mortality rate among children born less than two years after a previous birth is 70 deaths per 1,000 births, more than three times the level among children born four or more years after a previous birth. About 18 percent of all non-first births occur within 24 months of the previous birth, these results indicate the importance of continuing efforts to promote the use of family planning for birth spacing. [(2)]

Conclusions and recommendations: The reversal of practices that interfere with breastfeeding require a community based approach that can place pressure on health facilities to abide by the Ten Steps to promotion of breastfeeding at birth whether inside or outside health facilities. However this requires changing deep rooted beliefs, myths and misconceptions instigated in the community by generations who carried the knowledge of community traditions reinforced by ignorance and illiteracy and the power of the older generations that want to rule and control the woman and the child. Hence well planned community interventions that target the family [(14),] interventions for making health facilities abide by the Ten Steps to successful breastfeeding, [(27)] as well as monitoring systems through quality management approach (28) and mother to mother support group institutionalization within these health facilities in primary health to improve early breastfeeding practices and reducing neonatal, post-neonatal and infant mortality rates. [(28, 29)]

Table (1) Pre-post test results of change in knowledge acquired about breastfeeding of the women Supervisory team of the Community Women Leaders from the 11 districts of Sohag in Upper Egypt

N	**Breastfeeding topics**	**Pre-test score**	**Post-test score**	**Improvement score**
1	**Protection of breastfeeding by Code Implementation**	3.3	0	-3.3
2	**Counseling skills (tested by knowledge of listening and confidence building skills)**	16.3	62.5	+49.2
3	**Step 8 (on demand feeding testing by signs of readiness to feed)**	20	90	+70
4	**Step 5 (tested by signs of good attachment, milk expression)**	25	48	+23
5	**Breast and nipple difficulties**	23	85	+62
6	**How breastfeeding works**	30.3	85	+54.7
7	**Follow up Support**	29	67	+38
8	**Family planning and support of breastfeeding continuity**	61.5	100	+38.5
	Mean improvement score	26.1	67.3	+41.2%

Table (2) Common misconceptions in Sohag related to breastmilk as mentioned by the Community Women Leaders (CWL-Raedat) from the 11 districts of Sohag in Upper Egypt

*District Misconception (6)	Sg	Akm	Min	Grg	Mrg	Drs	Bln	Ghn	Tm	Tht	Skt	Total	Score
Woman in grief "laban Nakad"	2		2		1	2	1	2	2		1	13	40.7
"Moshahara" or "Kabsa" milk lessens & Sheikh relieves it "Titfak"			2			3	1				1	7	21.9
Milk is thin				1	1				1		2	5	15.6
Mother's milk is not enough so baby needs supplements of cow's milk	1								1	2		4	12.5
When visitors wearing gold see mother her milk dries up	1					1						2	6.25
Less milk runs in families by heredity						1						1	3.12
	3		4	1	2	5	2	2	4	2	4	32	100

**Districts: Sg: Sohag, Akm: Akmeem, Min: Minshah, Mrg: Maragha, Bln: Balyahnah, Ghn: Gehina, Tm: Tema, Tht: Tahta, Skl: Sakolta*

Dr. Hekmat Abu Zeid, appointed first woman Minister of Social Affairs in 1962 and founder of the Raedat project, project of productive family and the project of rural women development.

في سبتمبر 1962 أصدر الزعيم الراحل جمال عبد الناصر قراراً جمهورياً بتعيين الدكتورة حكمت أبو زيد وزيرة للدولة للشئون الاجتماعية لتفتح الطريق امام المراة المصرية لتولي المناصب القيادية ,وهى الذى أسست "مشروع الأسر المنتجة" و"مشروع الرائدات الريفيات" و"مشروع النهوض بالمرأة الريفية".

Table (3) Common misconceptions in Sohag related to the baby as mentioned by the Community Women Leaders (CWL-Raedat) from the 11 districts of Sohag in Upper Egypt

*District : Misconception:	Sg	Akm	Min	Grg	Mrg	Drs	Bln	Ghn	Tm	Tht	Skt	T	%
Drinks of Carawy & Yansoon help clean the newborn's gut (Batno)	4	2	1	2	1		1	2		2		15	48.4
Offering pacifiers helps baby sleep	1	2	1					1		1		6	19.35
Formula feeding helps fatten baby						5						5	16.1
Sleep nourishes baby so don't wake it			1							1		2	6.45
Colostrum is less and therefore not enough (does not meet baby needs)									1			1	3.22
Bathe the baby only after one week									1			1	3.22
Breastfeeding must be stopped if baby has diarrhea								1				1	3.22
	5	4	3	2	1	5	1	3	2	4	0	31	100

Districts: Sg: Sohag, Akm: Akmeem, Min: Minshah, Mrg: Maragha, Bln: Balyahnah, Ghn: Gehina, Tm: Tema, Tht: Tahta, Skl: Sakolta

Table (4) Common misconceptions related to the practice of breastfeeding mentioned by the Community Women Leaders (CWL-Raedat) from the 11 districts of Sohag in Upper Egypt

District Misconception (11)	Sg	Akm	Min	Grg	Mrg	Drs	Bln	Ghn	Tm	Tht	Skt	Total	Score
BF weakens mothers	2			1	1	1					2	7	22.58
Pumping milk on 3rd day	2				1			1			2	6	19.36
Not BF 1st 3 days or until milk comes in	1			1			1		1			4	12.92
One breast gives joy & other misery			1				2					3	9.68
Limiting feeds						3						3	9.68
Fluids & ghee make milk come	2								1			3	9.68
Scheduled feeds							1					1	3.22
Onions help baby relieve (colics)	1											1	3.22
Stop BF with fever or on antibiotics									1			1	3.22
No family planning method needed with BF										1		1	3.22
Wash breast before feeds			1									1	3.22
	8	0	2	2	2	4	4	1	3	1	4	31	100

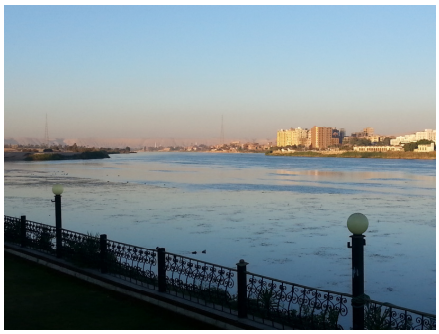
Districts: Sg: Sohag, Akm: Akmeem, Min: Minshah, Mrg: Maragha, Bln: Balyahnah, Ghn: Gehina, Tm: Tema, Tht: Tahta, Skl: Sakolta BF: breastfeeding

Raedat Supervisors training in mother support groups in Sohag

Table (5) Common health facility related malpractices as mentioned by the Community Women Leaders (CWL-Raedat) from the 11 districts of Sohag in Upper Egypt

*District	Sg	Akm	Min	Grg	Mrg	Drs	Bln	Ghn	Tm	Tht	Skt	Total	Score
Offering sugary water	4	1			2			2	1			10	37.04
Do prescribe drinks* (Obs)	1	1		1						1		4	14.82
Nurses give glucose	1		1	1								3	11.11
Separating baby for bathing	1			1	1							3	11.11
Doctors who prescribe Milks (Ped)		1		1								2	7.41
Offering bottles	1											1	3.7
Stop breastfeed with diarrhea								1				1	3.7
Routine IV fluids at labor		1										1	3.7
C-section must delay breast feed									1			1	3.7
ANC advise nipples exercises									1			1	3.7
Total												27	99.99

Districts: Sg: Sohag, Akm: Akmeem, Min: Minshah, Mrg: Maragha, Bln: Balyahnah, Ghn: Gehina, Tm: Tema, Tht: Tahta, Skl: Sakolta **Cid water or Gripe water or baby drink



Sohag city – Nile view

Table (6) Common breastfeeding difficulties and concerns in Sohag as mentioned by the Community Women Leaders (CWL-Raedat) from the 11 districts of Sohag in Upper Egypt

*District	Sg	Akm	Min	Grg	Mrg	Drs	Bln	Ghn	Tm	Tht	Skt	T	%
Cracked nipple	4	2	2	1	2	5	2	1	2	1	2	24	24
Refusal to feed	4	1	1	2	2	4		1			2	17	17
Breast engorgement	1	1		1		5	1	2				11	11
Flat or absent nipple	2			1	1			2	1		1	8	8
Inverted nipple	1						2		2		2	7	7
Mother depressed	1		1			3	1		1			7	7
Mother has renal or liver disease or cancer	3				1						1	5	5
Crying fussy baby and colics	1			1		1			1			4	4
Not enough milk			1				2					3	3
Mother on medications					1						1	2	2
Oral Monilia	1	1										2	2
Unable to care for baby	1				1	1						2	2
Sore nipple							1					1	1
Cleft lip or palate	2											2	2
Working mother	1											1	1
Baby gets jaundice									1			1	1
Difficulty in swallowing											1	1	1
Breast pain with breastfeeding				1								1	1
Primi mother is fearful of baby touch of breast					1							1	1
Total												100	100

Districts: Sg: Sohag, Akm: Akmeem, Min: Minshah, Mrg: Maragha, Bln: Balyahnah, Ghn: Gehina, Tm: Tema, Tht: Tahta, Skl: Sakolta

Table (7) Common support social network by individual person who provide support to the mother in Sohag as mentioned by the Community Women Leaders (Raedat) from the 11 districts of Sohag in Upper Egypt

	Support person/ order of giving support	1st		2nd		3rd		4th		5th		SCORE	
		no	%	no	%	no	%	no	%	no	%	no	%
1	Mother	15	60.0	2	9.5	3	14.28	0	0.0	0	0.0	20	22.9
2	Sister	0	0.0	6	28.57	6	28.57	3	23.08	3	3.75	18	20.69
3	Mother-in-law	2	8.0	7	33.33	5	23.81	1	7.69	0	0.0	15	17.24
4	Husband	2	8.0	3	14.28	1	4.8	1	7.69	1	12.5	8	9.19
5	Wife of husband	0	0.0	0	0.0	3	14.28	3	23.08	1	12.5	7	8.05
6	Raeda (Community leader)	4	16.0	2	9.5	0	0.0	1	7.69	0	0.0	7	8.05
7	Nurse	1	4.0	0	0.0	2	9.5	0	0.0	1	2.5	4	4.59
8	Unspecified family member Aunt (sister or father or mother)	0	0.0	0	0.0	1	4.8	2 1	15.4 7.69	0	0.0	2 2	2.3 2.3
9	Sister-in-law	0	0.0	0	0.0	0	0.0	0	0.0	2	25.0	2	2.3
10	Doctor	1	4.0	1	4.8	0	0.0	0	0.0	0	0.0	2	2.3
11	Neighbors	25	100	21	100	21	100	13	100	8	100	87	100

References

1- UNICEF-state of children report,Egypt, Cairo 2014

2- El-Zanaty, Fatma and Ann Way. 2009. Egypt Demographic and Health Survey 2008. Cairo, Egypt: Ministry of Health, El-Zanaty and Associates, and Macro International.

3- El-Kerdany I., Abul-Fadl AM., Orabiui Azza Fahmy Ehsane. Abdul Khalek Khalil. (1993) A multicentre baseline assessment of the Ten steps to successful breastfeeding. Journal of the Arab Child (accepted on 20th Jan , 1993).

4- ElKerdany IML, Abul-Fadl MAM,. et al. Pre and post implementation of BFHI in Egypt, UNICEF Cairo Office publication, 1994.

5- WHO: Infant and young child feeding counseling: an integrated course (Trainer's guide). Geneva: World Health Organization; 2006.

6- WHO/UNICEF. Innocenti Declaration and Innocenti Infant and Young Child Feeding. WHO press, Geneva, 2008.

7- Abba MA, Koninck DM, Hamelin AM: A qualitative study of promotion of exclusive breastfeeding by health professionals in Niamey, Niger. Int Breastfeed J 2010, 5:8. http://www.internationalbreastfeedingjournal.com/ content/5/1/8.

8- Abul-Fadl AM., Fahmy E., Kolkeliah N., Narouz M. (2005) The psychological benefits of continued breastfeeding in the second year for mother and child. International Journal Childhood Neuropsychiatry, 2(2): 143-153.

9- Steinman L, Doescher M, Keppel GA, Pak-Gorstein S, Graham E et al. Understanding infant feeding beliefs, practices and preferred nutrition education and health provider approaches: an exploratory study with Somali mothers in the USA. Matern Child Nutr. Jan 2010; 6(1): 10.1111/j.1740-8709.2009.00185.x.

10- Davies-Adetugbo AA: Sociocultural factors and the promotion of exclusive breastfeeding in rural Yoruba communities of Osun state. Nigeria Soc Sci Med 1997, 45(1):113–125.

11- Kishore MSS, Kumar P, Aggarwal AK: Breastfeeding knowledge and practices amongst mothers in a rural population of North India: a community-based study. J Trop Pediatr 2008, 55(3):183–188.

12- Scavenius M, Van Hulsel L, Meijer J, Wendte H, Gurgel R: In practice, the theory is different: A processual analysis of breastfeeding in northeast Brazil. Soc Sci Med 2007, 64:676–688.

13- UNICEF/WHO (1989) Joint statement for supporting successful breastfeeding in maternity facilities, WHO, Geneva.

14- Abul-Fadl AMA. 2006. Family versus health workers support of women in the perinatal period: An In-depth qualitative analysis. ELCA Scientific Journal, special issue dedicated to the proceedings of the Egyptian Lactation Consultant Association's first scientific meeting pp 91-102.

15- Thorkild Tylleskar DJ, Nicolas M, Ingunn Marie E, Mickey C, Abdoulaya Hama Diallo, and the other members of the PROMISE-EBF study Group: Exclusive breastfeeding promotion by peer counselors in sub-Saharan Africa (PROMISE-EFB): a cluster-randomised trial. Lancet 2011, 378:420–427.

16- Abul-Fadl AM. (1994) Indicators of health facility practices that affect breastfeeding in 149 hospitals and maternity facilities in Egypt. Presented in: The Sixth National Pediatric Conference meeting of the Egyptian Pediatric Association in Alexandria, October 13-14, 1994, Marriott Hotel in Cairo.

17- Kroeger, M., and Smith, L. (2004) Impact of birthing practices on breastfeeding: Protecting the mother and baby continuum. Boston: Jones and Bartlett.

18- Christensson K, Cabrera T, Christensson E, Uvnas-Moberg K, Winberg J.(1995) Separation distress call in the human neonate in the absence of maternal body contact. Acta Paediatr. 1995; 84:468-473**.**

19- Perez-Escamilla R, Lutter C, Segall AM, Rivera A, Trevino-Siller S, Sanghvi T.(1995) Exclusive breast-feeding duration is associated with attitudinal, socioeconomic and biocultural determinants in three Latin American countries. J Nutr. 125:2972–84.

20- Eissa AM., Khashaba AA., Abul-Fadl AM., Shoulah A., Rashad M., Kafrawy M. (1993) Breastfeeding and Health Status in Qaluibiya Governorate/Egypt (1990). The Gazette of the Egyptian Pediatric Association. 41(Jan): 46-57.

21- Hossain MM, Radwan MM, Arafa SA, et al. Prelacteal infant feeding practices in rural Egypt. *Journal of tropical pediatrics* 1991, 38(6):317-22.

22- Abul-Fadl AM, Shawky M, El-Taweel A, Cadwell K, and Turner-Maffei C (2012) Evaluation of Mothers' Knowledge, attitudes, and practice towards the Ten Steps to successful Breastfeeding in Egypt. Breastfeeding Medicine. 7(3):173-178. doi:10.1089/bfm.2011.0028

23- Hillenbrand KM, Larsen PG. Effect of an educational intervention about breastfeeding on the knowledge, confidence, and behaviors of pediatric resident physicians. *Pediatrics* 2002;110(5):e59.

24- Kistin N et al. Effect of peer counsellors on breastfeeding initiation, exclusivity, and duration among low income urban women. *Journal of human lactation,* 1994;10(1):11-15.

25- Howard CR, Howard FM, Lanphear B, et al. Randomized clinical trial of pacifier use and bottle-feeding or cup feeding and their effect on breastfeeding. *Pediatrics* 2003, 111(3):511-518.

26- Abul-Fadl AM. (1993) A survey on infant milk formula status in Egypt (UNICEF supported study. Presented in: The BFHI Seminar Workshop (MOH/UNICEF/WHO), 12-14 May, 1993, Port Saed, Egypt.

27- Semenic S, Childerhose JE, Lauzière J, Groleau D. (2012) Barriers, facilitators, and recommendations related to implementing the Baby-Friendly Initiative (BFI): an integrative review.J Hum Lact. 28(3):317-34.

28- Fletcher DM.(1997) Achieving Baby Friendly through a quality management approach. Aust Coll Midwives Inc J. 10(3):21-6.

29- Dearden K, Altaye M, De Maza I, De Oliva M, Stone-Jimenez M, Burkhalter BR, Morrow AL. (2002) The impact of mother-to-mother support on optimal breast-feeding: a controlled community intervention trial in periurban Guatemala City, Guatemala. Rev Panam Salud Publica.12:193–201.

المعتقدات والممارسات المتوارثة التي تعوق البداية والإستمرار فى الرضاعة الطبيعية الناجحة بمحافظة سوهاج

أ.د/ عزة محمد عبد المنعم أبو الفضل ، الدكتور/ عاطف الشتانى ، الدكتورة / أمال زكى ، الدكتور/ محمد نور الدين، الدكتور/ عادل شكشك ، الدكتورة/ دينا عبد الهادى

قطاع الصحة الإنجابية وتنظيم الأسرة *والإدارة العامة لرعاية الأمومة والطفولة بوزارة الصحة والسكان** وكلية الطب جامعة بنها***

نشاط مدعم من قبل مكتب منظمة الأمم المتحدة (اليونيسف) بالقاهرة لبرنامج تشجيع المستشفيات الصديقة للطفل لجمعية أصدقاء رعاية الأم والطفل

الخلفية: تحافظ الرضاعة الطبيعية على حياة الأطفال بتقليل معدل وفيات الرضع من الأمراض المعدية وسوء التغذية، وعلى الرغم من ذلك فإن معدلات الرضاعة المطلقة مازالت تعانى من التدنى ولذلك كان من ضرورياً دراسة وتفهم الإعتقادات الشائعة والممارسات السائدة التى تؤثرعلى أنماط تغذية الرضع.

الهدف: تحليل ممارسات التغذية ما حول الولادة التى ترتبط بالرضاعة الطبيعية لتحديد العوامل التى تؤدى الى تدنى معدلات الرضاعة المطلقة وكذلك تأثير التدريب على تغيير معرفة وإتجاهات الفريق الإشرافى للرائدات بالإدارات الصحية بسوهاج.

طريقة البحث: تم تجميع معلومات عن الرضاعة الطبيعية (المعتقدات والممارسات والمؤثرين على الأم) من الفريق الإشرافى للرائدات ومشرفات نوادى المرأة بالإدارات ال 11 بمحافظة سوهاج وهم : سوهاج والمراغة وطما وطهطا والمنشاه وأخميم وسقلتا ودار السلام والبلينا وجرجا والجهينه حيث حضر 3 الى 5 سيدة من كل إدارة ، حيث تم تدريبهم من خلال إدماج الدليل التدريبى المتكامل للتدريب على تغذية الرضع وصغار مع منهج اليونيسف لمبادرة المستشفيات الصديقة للطفل وإختبار التغيير فى المعرفة من التدريب قبل وبعد التدريب ثم تحليل النتائج باستخدام أدوات الجودة لحل المشكلات والتوصل لجذور المشكلة لادراج الحلول المتاحة.

النتائج : كانت أكثر المعتقدات إنتشاراً هى "المشاهرة" و"لبن النكد" و "الكبسة" وحذر الرضاعة فى الأيام الأولى الى أن يأتى اللبن فى اليوم الثالث وأن الرضاعة تضعف الأم وأنه يجب تحديد الرضعات واعتصار اللبن الزائد فى اليوم الثالث ، وأن تلك الإعتقادات تؤدى الى وصف وإعطاء مكملات من مشروبات شعبية مثل الكراوية والينسون أو محاليل الطبية مثل السكر والجلوكوز أو "البيبى درينك" من قبل الطاقم الصحى كما تؤدى الى إنتشار تحجر اللبن بالثدى وتشقق وألم الحلمة والذى يمكن تجنبها باتباع الخطوات العشر للمنشآت الصديقة للطفل. كما إرتفع معدل التحسن فى الإختبارالبدى بنسبة 40%.

الخلاصة والتوصيات: نستخلص من الدراسة أن المعتقدات المتوارثة بالمجتمع تلعب دوراً فعالاًمؤثراً فى إنقاص معدلات الرضاعة المطلقة عند الولادة وفى الشهور الستة التالية وأن الرائدة الريفية تستطيع أن تلعب دوراً فعالاً فى إحداث التغيير إذا توافر لها التدريب على مجموعات الدعم ومهارات التواصل لتغيير السلوك المجتمعي وطرق حل المشكلات والمتابعة والتقييم المستمر لمجموعات الدعم.

A Qualitative Assessment of the Knowledge Gained from Exposure to Training in Baby Friendly in Alexandria Governorate

Sameh Saad ElDin Sadek, Mohga M. Fikry**, , Samaah Zohair Yassin***, Hanaa Abuel-Kassem*, Noha Ibrahim Naeem*, Azza Mohamed Abdel Monem Abul-Fadl**

***Alexandria Regional Center for Woman Health & Development, **Alexandria Health directorate, ***Mother Child Friendly Care**

Abstract

Background: The Mother Child Friendly Care (MCFC) Association in collaboration with Alexandria Regional Center for Woman Health & Development (ARC) with the support of the Alexandria Health directorate and central MCH/MoH and UNICEF, conducted two trainings in Baby Friendly Hospital Initiative (BFHI) over the year 2014 in order to reach out for private hospitals in Alexandria and train staff representatives of the pediatric and maternity departments.

Aim: To conduct a post assessment utilizing the knowledge assessment forms for each of the 15 sessions of the Baby Friendly.

Methods: Training was conducted for 43 participants who attended the 20 hour training course in ARC by certified lactation consultants from MCFC. The training lasted for three days and implemented the UNICEF material of section 3 of the BFHI. They represented 2 university hospitals, 5 private hospitals, 2 public hospitals and 12 primary health care centers and family units. The attendants included 19 nurses, 20 doctors and 4 teaching staff in the High Institute of public Health. After 8 weeks they were gathered to assess their knowledge using the knowledge check list at the end of each of the 15 sessions. Out of the 43 only 22 showed up for the test. We analyzed the results in relation to the content of the 20 hour course.

Findings: The understanding and interpretation of the participants of the important content related to the sessions was highest for the sessions that had practical implications as the counseling, assessing a breastfeed, positioning the baby at the breast, practices that assist continuation of breastfeeding and milk expression for feeding in special situations. It was lowest for the understanding of the code of marketing breastmilk substitutes, mother friendly practices and support for continuation of breastfeeding.

Conclusions and recommendations: Since the content covered in the 20 hour course contains the basic minimum information that can assist a health workers implement the Ten Steps in the maternity facility to make it Baby Friendly, hence we recommend that emphasis be made on aspects related to the code of marketing, the mother friendly practices and mother support groups by including practical sessions in these topics to support adult learning. Also we recommend that training should be extended to 5 days to include one day for section 2 and a day at the ending for the processes and tools for preparing for the designation process and including the self-appraisal and monitoring tool in this day.

Key words: Baby Friendly Hospitals, training, assessment

Introduction

Effective training and education of health professionals is required to ensure that women receive the best education, support and advice to breastfeed. The 20 hour course is currently used as a standard guide for training staff in hospitals around the world to become Baby Friendly. (1)

The Baby-Friendly Hospital Initiative (BFHI) is the most widely promoted program for increasing breastfeeding rates. A study to evaluate the impact of BFHI training on hospital practices and breastfeeding rates during the first 12 months of life showed that training of health professionals, based on the BFHI, was associated with significant improvement in some Baby-Friendly hospital practices and initial exclusive breastfeeding rates. [(2)] Doctors are in an ideal position to influence a woman's decision about breastfeeding. Studies have shown that residents recognize the importance of their role in promoting and supporting breastfeeding, but they have knowledge deficits and difficulty in advising mothers with lactation problems. [(3)]

It is well documented that residents have limited knowledge about common breastfeeding problems.[(3)] Although resident physicians often teach, few trials have tested interventions to improve residents' teaching skills. A pilot trial in 2001-2002 found that 13 trained resident teachers taught better than did untrained control residents. [(4)] Also interactive, problem-based workshop to teach residents the basics of breastfeeding problem solving were shown to improve clinical diagnostic skills and residents' comfort with breastfeeding. [(5)]

Strategies for enhancing program implementation and outcomes include expansion of provider education, development of additional patient interventions, enhancement of environmental structural supports, and continuation and expansion of program evaluation activities.[(6)]

Subjects and Methods

Training was conducted for 43 participants who attended the 20 hour training course in ARC by certified lactation consultants from MCFC. The training lasted for three days and implemented the UNICEF material of Baby Friendly for section 3. . They represented 2 university hospitals, 5 private hospitals, 2 public hospitals and 12 primary health care centers and family units. The attendants included 19 nurses, 20 doctors and 4 teaching staff in the High Institute of public Health. After 8 weeks they were gathered to assess their knowledge using the knowledge check list at the end of each of the 15 sessions. Out of the 43 only 22 showed up for the test. We analyzed the results in relation to the content of the 20 hour course.

The participants came from the following health facilities that were preparing to become Baby Friendly:

Public hospitals: Alanfoushi pediatric hospital and Ghomhouria General Hospital which are general hospitals providing services in different specialties including maternity and pediatrics (the former only pediatric not delivery services).

Private hospitals: Andolesia, Agyad, Salama, Alex Sydney and AlSalama hospitals that provide maternity and neonatal care services to mothers and babies

Health units and family health centers: Borg ElArab, Moharem Bek, Wadi ElKames, Dofae, Hanouville, Nekhila, ElHadra, ElBitash, ElSeyouf, Dane, ElMitar and ARC clinics. These provide mainly antenatal and postnatal care and family planning services and child care services.

Results

Qualitative assessment of findings of the results of the post-test:

Session 1 discusses the *Global Strategy of Infant & Young Child Feeding (GSIYCF).* All staff had a good knowledge of the dates of launching of the Baby Friendly. Their full understanding of the aims of BFHI were lacking in 31.8% as some of them poorly

understood that adherence to the code was expanded and had become an obligatory criterion of BFHI while others did not understand that there was a difference between ending free supplies and the implementation of the code in its entirety. Also 36.4% were unaware that GSIYCF addresses adequate complementary feeding while some believed that it addressed also safe motherhood. Hence we recommend that more stress be made on explaining the importance of the code as an essential component of Baby Friendly. We also need to probe into issues related to IYCF with live examples of how countries adopt this strategy in their plans for promoting infant nutrition. We suggest that an activity or exercise would be useful for adult learners. (Table 1)

Session 2 discusses *communication skills*. The candidates were assessed by the exercises' session and we sampled only three skills of the ten skills that were taught. There was good understanding of active listening (asking open ended questions) in 90.9% and also for building confidence (empathy) in 90.9%. However there was a lack of understanding of avoiding the use of judgmental words in 13.6%. The latter could represent the difference in the language and expressions used for judging in different cultures. (Table 2)

Session 3 discusses *promoting breastfeeding during pregnancy (Step 3).* Participants were asked to list two reasons why exclusive breastfeeding is important for the child and another two for the mother. Their responses focused on general benefits of breastfeeding and only 45.4% mentioned that it was protective against life threatening diseases. Benefits of the mother were mentioned but only 22.7% mentioned the lactational Amenorrhea Method (LAM) for contraception as an important benefit. They were also asked to address two important practices to learn during the antenatal for successful breastfeeding. Only 40.9% mentioned early prolonged skin to skin as one of them. (Table 3)

Session 4 addresses *Protecting breastfeeding*. There were five statements that required candidate to state whether they were true and false. There was a poor understanding of the scope of breastmilk substitutes in 68.4%, while 36.4% did not think that health workers can be given any publication as long as they do share them with mothers, since this material must be factual. Only 13.6% though that BFHI prohibits use of milk formula in the wards. Also only 18.2% agreed that donations of formula should be given to mothers of infants in emergency situations. The lack of understanding of the issues mentioned indicates that more time needs to be given to this session, probably in the form of a full day with practical exercises in the hospitals. (Table 4)

Session 5 discusses *birth practices and breastfeeding - Step 4*. As shown in table (5) we found that 63.6% of the candidates were able list two mother friendly labor or birth practices that can help the mother and baby get a good start with breastfeeding. While 90.1% were able to list two baby friendly labor or birth practices that can help the mother and baby get a good start with breastfeeding. This is indicates that there is a better understanding of the baby friendly but not of the mother friendly or birth practices and "at birth" practices. The latter need to be given by professionals qualified in this specialty. Also maybe the title of the session needs to include (mother friendly practices) as a verification of the content of this session. Also there was a poor understanding of the question about describing three barriers to first hour as most of the candidates focused on the contraindications to STS rather than the barriers, 68.2% mentioned structural or hospital policy barriers and only 31.8% mentioned the cultural barriers, although the latter are the most common barriers in our culture.

Session 6 discusses *how milk gets from breast to baby*. All candidates were able to describe the four points of good positioning while 18.2% missed one or more points of the five points of good attachment, mostly the full cheeks. This indicates that information about

the physiology of suckling and assessment of oral structures can be an additional resource material to be given to the candidates attending the 20 hour course in our settings. (Table 6)

Session 7 discusses *how to help a mother in positioning at a breastfeed*. Almost all of the participants were able to respond to how and when we use the different positions as shown in table (7). The cross cradle and side lying may have been new to some, especially the side lying where there are still some departments that teach that it may increase the risk of otitis media.

Session 8 discussed *practices that assist breastfeeding that include Steps 6, 7, 8 and 9* of the Ten steps. We asked candidates to give three reasons for rooming-in and to describe 3 signs of readiness to breastfeed and list 3 risks of unnecessary supplements and to finally name 3 side effects of pacifiers, the responses were adequate in 75%, 85%, 65% and 80% respectively. (Table 8)

Session 9 discusses problems and management issues related to *milk supply*. All participants mentioned the signs of poor milk supply as decrease in weight gain and reduced frequency of urination after 2 weeks of age. Practices that increase milk supply were inadequate as 40% as the latter did not mention the importance of increasing the frequency and duration of breastfeeding as suckling is the prime means by which mothers can enhance the secretion and flow of her milk. While stopping of extra unnecessary supplements was mentioned by 35% of the candidates. (Table 9)

Session 10 discusses *support of breastfeeding for infants with special situations and Session 11 discusses when a baby cannot feed on the breast*. We focused on preterms and probed the practices that can assist feeding preterms with breastmilk. Frequent expression of milk to maintain milk supply was mentioned by 75% and care by STS was mentioned by 75% while initiating expression within the first 6 hours after delivery was not mentioned. The importance and why cup feeding is preferred to feeding by other means if the baby cannot breastfeed was not clear to 85% of the respondents. (Table 10)

Session 12 discussed the *breast and nipple conditions*. The response to prevention of engorgement that was expected to be mainly early or immediate breastfeeding and frequent breastfeeding was mentioned by 12 (54.5%) of participants. In response of how to assess a case with sore nipples only 12 (54.5%) mentioned assessing a breastfeed and 8 (36.4%) adequately described the differences between a blocked duct, non-infective mastitis and infective mastitis. (Table 11)

Session 13 discusses *maternal health concerns* which was assessed by two questions, the first whether mother needed special foods to breastfeed and the second whether she would need to stop breastfeeding if she was needed to take medications, correct responses to the latter and former were 45.5% and 59.1% respectively. (Table 11)

Session 14 discusses the means by which *support for continuation of breastfeeding* can be offered by the health facility. Overall there was good understanding the different ways in which a working mother can be guided on how to continue to exclusively breastfeed even if she goes back to work by 81.8% of the participants. However in-depth analysis of their responses revealed that they did not mention the importance of expressing her milk at work or working with her managers to make her workplace breastfeeding friendly. They focused on expressing milk and leaving it for the baby or taking the baby with her or leaving him in a nearby nursery. The role of the hospital was not mentioned as part of having their facility Baby Friendly, that it should also be a model for a workplace breastfeeding friendly facility. With regards mother support groups again there was a an overall negative attitude towards this practice as 27.3% did not mention anything about it, indicating that they are not aware of the powerful role of such groups in the community. Hospitals are usually divorced from community work, this component needs to be strengthened in our health care system. (Table 12)

Session 15 discusses *making their hospital Baby Friendly*. The majority (%) mentioned the increase in education material rather than the policy, education and training in Baby friendly and change in the labor and postpartum practices. Since the majority did represent primary health care centers, it is expected that responses about the public education and awareness would be predominating. However we suggest that a separate training (full day) or module for the process of making a hospital Baby Friendly should be made available. The MCH/MoH department has recently released a training guide that includes the tools and processes required for making the facility Baby Friendly. On the other hand sections 2 and 4 of the BFHI material should somehow be incorporated into the 20 hour course and the training for Baby Friendly should therefore be expanded to 5 days to include the latter and former modules. (Table 13)

Discussion

The Baby-Friendly Hospital Initiative (BFHI) is the most widely promoted program for increasing breastfeeding rates. To evaluate the impact of BFHI training on hospital practices and breastfeeding rates during the first 12 months of life. Eighty percent of maternity medical and nursing staff at the University Hospital in Split, Croatia, completed the updated and expanded United Nations Children's Fund/World Health Organization 20-hour course. Seven hundred seventy-three mothers (388 in the pre- and 385 in the post-training group) were included in a birth cohort and interviewed at discharge and at 3, 6, and 12 months postpartum to evaluate hospital practices and infant feeding. Six out of 10 Baby-Friendly practices were assessed using standard BFHI forms. The workers found that three months after training was completed, 3 of the Baby-Friendly practices assessed (Step 4, "Initiate breastfeeding within a half-hour of birth"; Step 7, "Rooming-in"; and Step 8, "Feeding on demand") had significantly improved. The proportion of newborns exclusively breastfed during the first 48 hours increased from 6.0% to 11.7% ($P < .005$). There was no difference in breastfeeding rates at discharge or at 3, 6, or 12 months between the pre- and post-training groups. (4)

Evaluation of any program implementation at multiple levels of the organization in collaboration with providers is critical to understanding program outcomes. (6)

In Egypt there is a strong move by universities to adopt and implement residency programs that give residents professional training integrated with their clinical responsibilities during their rounds within departments. Breastfeeding management and making practices Baby Friendly needs to be included in such programs. Also the National Board of residency programs organized by the Ministry needs to include these in the various residency programs.

A study was conducted to assess whether a problem-based, interactive breastfeeding workshop would improve resident skill level. (5) Two groups of second- and third-year family medicine residents were assigned to an intervention or control group; both groups participated in pre-and post-intervention Objective Structured Clinical Examinations (OSCEs) and completed written questionnaires. The intervention consisted of a 4.5 hour interactive workshop with didactic presentations and opportunities to work with a lactation consultant and standardized patients trained to role-play selected breastfeeding problems. They found baseline differences in knowledge

or performance scores on the OSCEs between the intervention and control groups. OSCE scores after intervention were significantly better in the intervention group for the content areas assessing position and latch and the evaluation of sore nipples. All residents in the intervention group and correctly diagnosed the cause of both the sore nipples and low milk supply at the follow-up OSCE, with P values of <0.001 and 0.068, respectively. The intervention group felt significantly more confident in their breastfeeding problem-solving (P < 0.001). [5]

A study was conducted by Morrison et al [2] To determine whether a longitudinal residents-as-teachers curriculum improves residents' teaching skills through a randomized, controlled trial for residents required to learn teaching skills. A 13-hour curriculum in which residents practiced teaching and received feedback during 1-hour small-group sessions taught twice monthly for 6 months. A 3.5-hour, 8-station, objective structured teaching examination was enacted and rated by 50 medical students before and after the intervention. On a 1 to 5 Likert scale, intervention residents outscored controls on overall improvement score. The intervention residents improved 28.5% overall, whereas the scores of control residents did not increase significantly (2.7%). However, their study was conducted at a single institution. Their study showed that generalist residents randomly assigned to receive a 13-hour longitudinal residents-as-teachers curriculum consistently showed improved teaching skills, as judged by medical student raters. [2]

An interactive multimedia curricular intervention was designed for pediatric residents to increase their knowledge about common lactation issues. The residents completed questionnaires before and after the intervention to measure knowledge and confidence. Resident behaviors in the clinical setting were measured before and after the intervention using telephone surveys of breastfeeding mothers after a clinic visit with a pediatric resident. They included forty-nine pediatric residents; their mean knowledge scores increased from 69% before the intervention to 80% after the intervention. Significant increases in knowledge included advising mothers about low milk supply, mastitis, abscess, or using medication, and in recognizing the benefit of the decreased risk of maternal cancer. Management skills with breastfeeding mothers and infants in the clinical setting improved significantly. Before the intervention residents performed an acceptable number of behaviors 22% of the time, while after the intervention their performance was acceptable 65% of the time. Particular behaviors that showed significant improvement after the intervention included discussing signs of breastfeeding adequacy with the mother and correct management of lactation problems. [7]

Authors have indicated that not only breastfeeding knowledge and confidence, but most importantly clinical behaviors of pediatric residents can be enhanced through innovative educational opportunities. Appropriate counseling for breastfeeding mothers by pediatricians might contribute to an increase in the duration of breastfeeding. Breastfeeding is the preferred nutrition for infants, but

many authorities report inadequate training on advice given to mothers who breastfeed. [7]

First-year pediatric residents during their 4-week community hospital newborn nursery rotation were consecutively assigned to 1 of 3 groups. One group shadowed an International Board Certified Lactation Consultant (IBCLC) for 1 hour; another group watched a 25-minute case-based breastfeeding DVD; and a third group observed a 3-hour prenatal parent breastfeeding class (CLS). Residents were assessed by (1) a pretest and posttest evaluating their breastfeeding knowledge and confidence, and (2) a clinical skills scenario managing a breastfeeding standardized patient (SP). The thirty-nine pediatric residents participated in the study (11 in IBCLC, 16 DVD, 12 CLS) over a 1-year period. All groups significantly improved their knowledge scores and confidence in managing breastfeeding problems, with the IBCLC group showing more improvement in knowledge than the other groups (P = .02) and a higher rating of their teaching method (P = .01). They concluded that all 3 teaching methods were time-efficient and produced important gains in knowledge and confidence, with residents in the IBCLC group demonstrating greatest improvement in knowledge and a higher rating of their teaching method. Our study provides support for 3 methods of teaching residents breastfeeding management and demonstrates that IBCLCs are well-received as interprofessional educators. Moreover studying and evaluating the effect of an educational intervention on pediatric residents' knowledge about breastfeeding, their confidence in lactation issues, and their management skills during clinical encounters with breastfeeding mothers is mandatory. [8]

Another study that used role plays audiovisuals and exercises assessed their program by pretesting and post-testing evaluations that were videotaped and scored by an expert panel were assessed by the Objective Structured Clinical Evaluation showed no significant differences between the intervention and the control groups. Analysis of written test scores revealed that residents' general knowledge increased significantly more for the intervention group than for the control group from pretest to posttest ($P < .001$). Evaluation of the videotapes showed significant improvement for the intervention group compared with controls in overall score and in the use of specific screening techniques and interviewing skills ($P < .05$). [9]

In conclusion there is a great need to resort to other ways for disseminating the 20 hour course for the Baby Friendly as it has become a ministerial decree obligating all hospitals to implement the Ten Steps and abide by the international code of marketing breastmilk substitutes. We recommend that this could be integrating in the specialty residency programs of universities and of the National Board of the Ministry of Health & Population. This could bring about the change towards change at national scale.

Table (1) Comparison of Scores related to selected criteria for achieving an understanding of session 1 (BFHI: a part of the Global) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Information	Correct		Incorrect		Total	
	No	%	No	%	No	%
***Global Strategy of IYCF**	14	63.6	8	36.4	43	100
Dates of BFHI launching	22	100	0	0.0	43	100
Understanding of the BFHI	15	68.2	7**	31.8	43	100

*Global Strategy of Infant & Young Child Feeding – GSIYCF (they were unaware that nutritional status, complementary feeding were part of the GSIYCF ** Six of the seven did not think that the implementation and monitoring of the Code was part of the BFHI

Table (2) Comparison of scores related to selected criteria for achieving an understanding of session 2 (Communication skills) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Practice	Correct		Incorrect		No response		Total (22)	
	No.	%	No.	%	No.	%	No.	%
Able to use effective open ended questions for active listening	20	90.9	2	9.1	0	0.0	22	100
Able to use effective empathy responses for building confidence	20	90.9	2	9.1	0	0.0	22	100
Able to avoid judging mothers and replace with appropriate response	19	86.4	3	13.6	0	0.0	22	100

Table (3) Comparison of scores related to selected criteria for achieving an understanding of session 3 (Promoting breastfeeding during pregnancy – Step 3) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Information about Importance of exclusive & early initiation by first hour Skin to skin	Correct		Others		Total	
	No.	%	No.	%	No	%
For infant: Mentioned saves from Life threatening diseases	10	45.4	12	55.6	22	100
For mother: Mentioned contraceptive effect (LAM)	5	22.7	17	77.3	22	100
Practice of early initiation by prolonged continuous STS	9	40.9	13	59.1	22	100

Table (4) Comparison of scores related to selected criteria for achieving an understanding of session 4 (Protecting breastfeeding) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

	True		False		Correct	
	No.	%	No.	%	No	%
Giving mothers company-produced leaflets about breastmilk substitutes can affect infant feeding practices.	**22**	**100**	**0**	**100**	**22**	**100**
Breastmilk substitutes include formula, teas, and juices (as well as other products)	**15**	**68.2**	**7**	**31.8**	**15**	**68.2**
The International Code and BFHI prohibit the use of formula for infants in maternity wards	**18**	**81.8**	**3**	**13.6**	**3**	**13.6**
Health workers can be given any publication or materials by companies as long as they do not share these publications with mothers	**14**	**63.6**	**8**	**36.4**	**14**	**63.6**
Donations of formula should be given to mothers of infants in emergency situations	**4**	**18.2**	**18**	**81.8**	**18**	**81.8**

Table (5) Comparison of scores related to selected criteria for achieving an understanding of session 5 (Birth practices and breastfeeding - Step 4) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

	Correct No.	%	Other response No.	%	Total No	%
Listed two mother friendly labor or birth practices that can help the mother and baby get a good start with breastfeeding.	**14**	**63.6**	**8**	**36.4**	**22**	**100**
Listed two baby friendly labor or birth practices that can help the mother and baby get a good start with breastfeeding.	**20**	**90.1**	**2**	**9.9**	**22**	**100**
Described three barriers to first hour skin to skin contact						
Structural or policy	**15**	**68.2**	**7**	**31.8**	**22**	**100**
Cultural	**7**	**31.8**	**15**	**68.2**	**22**	**100**

Table (6) Comparison of scores related to selected criteria for achieving an understanding of session 6 (How milk gets from breast to baby) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Staff competence in step "5":	**Complete No.**	**%**	**Incomplete No.**	**%**	**Total No**	**%**
Described the five points of good attachment	19	81.8	4	18.2	22	100
Described the four points of good position at the breast	22	100	0	0.0	22	100

Table (7) Comparison of scores related to selected criteria for achieving an understanding of session 7 (Helping with a breastfeed - Step 5 – sections 1-3) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Name the conditions in which we recommend these positions	**Correct No.** **%**		**Incorrect No.** **%**		**Total No** **%**	
Underarm position	22	100	0	0.0	22	100
Cross cradle	21	95.45	1	4.5	22	100
Side lying position	21	95.45	1	4.5	22	100

Table (8) Comparison of scores related to selected criteria for achieving an understanding of session 8 (Practices that assist breastfeeding – Steps 6, 7, 8 and 9) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

	Correct No.	**%**	**Other response No.**	**%**	**Total No**	**%**
Gave 3reasons for rooming-in	**15**	**75**	**5**	**25**	**20**	**100**
Described three signs of baby's readiness to feed	**17**	**85**	**3**	**15**	**20**	**100**
Listed 3 risks of unnecessary supplements	**13**	**65**	**7**	**35**	**20**	**100**
Named 3 side effects of offering pacifiers to babies	**16**	**80**	**4**	**20**	**20**	**100**

Table (9) Comparison of scores related to selected criteria for achieving an understanding of session 9 (Milk supply) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Practices that increase milk supply	Correct		Other response		Total	
	No.	%	No.	%	No	%
Increase the frequency of suckling	12	60	8	40	20	100
Discontinue supplements	13	65	7	35	20	100

Table (10) Comparison of scores related to selected criteria for achieving an understanding of session 10 (Special infant situations) and session 11 (when a baby cannot feed on the breast-step 5)in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

Practices that assist breastfeeding a preterms	Correct		Other response		Total	
	No.	%	No.	%	No	%
Initiate milk expression within 6 hours	0	0	20	100	20	100
Express 6-8 times	15	75	5	25	20	
Care for baby in STS (KMC)	15	75	5	25	20	100
Listed 4 reasons why cup feeding is preferred to feeding by other means if the baby cannot breastfeed.	3	15	17	85	20	100

Table (11) Comparison of scores related to selected criteria for achieving an understanding of session 12 and 13 (Breast and Nipple Concerns and Maternal health concerns) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

	Correct		Other response		No response		Total	
	No.	%	No.	%	No.	%	No.	%
Early and frequent breastfeeding to prevent engorgement	12	54.5	8	36.4	2	9.1	22	100
Assessing a breastfeed as a means for evaluation of a mother with sore nipple	12	54.5	8	36.4	2	9.1	22	100
Adequately described difference between a blocked duct, non-infective mastitis and infective mastitis	5	22.7	15	68.2	2	9.1	22	100
Mentioned to continue breastfeeding as most important for all of these conditions	8	36.4	12	54.5	2	9.1	22	100
Mothers need no special foods to breastfeed	10	45.5	6	27.3	6	27.3	22	100
Mothers can take alternative medications compatible with breastfeeding	13	59.1	3	13.6	6	27.3	22	100

Table (12) Comparison of scores related to selected criteria for achieving an understanding of session 14 and 15 (On-going Support for Mothers – Step 10 and Making your hospital Baby-friendly) in the UNICEF 20 hour course for promoting breastfeeding in the Baby Friendly hospitals in Alexandria

	Correct		Other response		No response		Total	
	No.	%	No.	%	No	%	No	%
Listed 3 ways by which a working mother can continue to breastfeed her baby exclusively	18	81.8	2	9.1	2	9.1	22	100
Give two reasons why mother-to-mother support may be useful to mothers	13	59.1	3	13.6	6	27.3	22	100
For exchange of experiences	7	31.8	9	40.9	6	27.3	22	100
For building mother's confidence in her ability to continue								
Listed 2 interventions to make their facility baby friendly	22	100	0	0.0	0	0	22	100

References

1- Leyland A, Bond K. (2014) Working in collaboration to achieve UNICEF baby friendly accreditation. Pract Midwife. 2014 17(7):26-8.

2- Morrison EH, Rucker L, Boker JR, Gabbert CC, Hubbell FA, Hitchcock MA, Prislin MD. (2004) The effect of a 13-hour curriculum to improve residents' teaching skills: a randomized trial. Ann Intern Med. 2004 Aug 17;141(4):257-63.

3- Ortiz Matos N, García Fragoso L. (2008) Management of lactation and breastfeeding: role of the resident physician. Bol Asoc Med P R. 2008 Apr-Jun;100(2):21-3.

4- Zakarija-Grkovic I, Šegvić O, Bozinovic T, Ćuže A, Lozancic T, Vuckovic A, Burmaz T. (2012) Hospital practices and breastfeeding rates before and after the UNICEF/WHO 20-hour course for maternity staff. J Hum Lact. 28(3):389-99.

5- Haughwout JC, Eglash AR, Plane MB, Mundt MP, Fleming MF. (2000) Improving residents' breastfeeding assessment skills: a problem-based workshop. Fam Pract. 17(6):541-6.

6- VanDevanter N, Gennaro S, Budin W, Calalang-Javiera H, Nguyen M (2014) Evaluating implementation of a baby friendly hospital initiative. MCN Am J Matern Child Nurs. 39(4):231-7

7- Hillenbrand KM(1), Larsen PG. (2002) Effect of an educational intervention about breastfeeding on the knowledge, confidence, and behaviors of pediatric resident physicians. Pediatrics. 110(5):e59.

8- Tender JA, Cuzzi S, Kind T, Simmens SJ, Blatt B, Greenberg L. (2014) Educating pediatric residents about breastfeeding: evaluation of 3 time-efficient teaching strategies Hum Lact. 30(4):458-65.

9- Kokotailo PK, Langhough R, Neary EJ, Matson SC, Fleming MF. (1995) Improving pediatric residents' alcohol and other drug use clinical skills: use of an experiential curriculum. Pediatrics. 96(1 Pt 1):99-104.

Women who enlightened other women to seek self development

Prof. Aisha Moahmed Aly Abdel Rahman, famous as "Bint ElShatee" (1913-1998); Egyptian thinker and writer, and a university professor and researcher, the first woman lecturing in Al-Azhar, and workingin the press of Al-Ahram newspaper in Egypt, "in disguise as Bint ElShatee" as it was prohibited for women to work and educated herself in secrecy to become the first Arab woman to gain the King Faisal Prize in Literature and Islamic Studies.

الدكتورة عائشة محمد علي عبد الرحمن المعروفة ببنت الشاطئ (1330 هـ / 1913 - 1419 هـ / 1998م)، مفكرة وكاتبة مصرية، وأستاذة جامعية وباحثة، وهي أول امرأة تحاضر بالازهر الشريف، ومن اوليات من اشتغلن بالصحافة في مصر وبالخصوص في جريدة الأهرام، وهي أول امرأة عربية تنال جائزة الملك فيصل في الآداب والدراسات الإسلامية.

تقييم المعرفة المكتسبة من تدريب ممثلى المستشفيات ووحدات الرعاية على الدليل المعدل لتشجيع ومساندة الرضاعة الطبيعية داخل المستشفيات الصديقة للطفل

الأستاذ الدكتور/ سامح سعد الدين صادق* ، الدكتورة / مهجة فكرى، الدكتورة /سماح زهير*** ، الدكتورة /هناء أو القاسم* ، الدكتورة /نهى نعيم* ،الأستاذ الدكتورة / عزة أبو الفضل***

*مركز الأسكندرية الإقليمى لصحة وتنمية المرأة – **مديرية الشئون الصحية بالأسكندرية –*** جمعية أصدقاء رعاية الأم والطفل**

المقدمة: يلعب مركز الإسكندرية الإقليمي دور فعال فى تعزيز الصحة وتنمية المرأة وقد أجرى دورتين في إدارة الرضاعة الطبيعية باستخدام دليل المستشفيات الصديقة للطفل خلال عام 2014 من أجل الو□ول للمستشفيات الخا□ة في الإسكندرية العاملين الصحيين بمراكز رعاية الأمومة والطفولة.

الهدف وطريقة البحث : إجراء تقييم نهاية الدورة باستخدام استمارات التقييم المعرفة معدة من الدليل التدريبى لليونيسف فى التوعية عن الرضاعة الطبيعية والتى كانت مدتها 20 ساعة وقام بالتدريب إستشاريين دوليين فى الرضاعة الطبيعية تحت إشراف جمعية أ□دقاء رعاية الأم والطفل واستمر التدريب لمدة ثلاثة أيام باستخدام دليل اليونيسف المعدل للمستشفيات الصديقة للطفل و□ضر التدريب 43 مشارك من الأطباء والتمريض يمثلون: مستشفى الجامعي و 5 مستشفى خاص و 2 المستشفى عام و 12 مركزا للرعاية الصحية الأولية وو□دات طب الأسرة. وتضمن الحضور 19 ممرضة، و20 طبيبا و 4 أعضاء هيئة التدريس في معهد العالي للصحة العامة. وقد تم إستدعائهم بعد 8 أسابيع لتقييم معرفتهم باستخدام اختبار لتقييم المعرفة للجلسات ال15. و قد□ضر الإختبار 22 متدرب من ال 43 (51.1%) فقط من مجموع من سجل لحضور التدريب.

النتائج: و بتحليل نتائج فيما يتعلق بمحتوى الدورة 20 ساعة وجدنا أن هناك تفهم للمشاركين لمحتوى الجلسات وبالأخص بما يختص بتقديم المشورة، وتقييم الرضاعة، وتقييم أوضع الإسترضاع على الثدي، والممارسات التي تساعد استمرار الرضاعة الطبيعية والحليب المعتصر وكيفية التغذية في الحالات خا□ة. وكان أدنى مستوى للفهم خاص بتحديد التسويق لبدائل لبن الأم، والممارسات الصديقة للأم ودعم الاستمرار الأم فى الرضاعة الطبيعية.

الخلاصة والتوصيات: دورة ال 20 ساعة تحتوي على الحد الأدنى من المعلومات الأساسية التي يمكن أن تساعد العاملين الصحيين على تنفيذ الخطوات العشر في المنشأة الأمومة لجعلها □ديقة الطفل ، وبالتالي فإننا نو□ي بأن يبذل المزيد من التركيز على الجوانب المتصلة بالتدريب على تطبيق ومتابعة مدونة تحديد التسويق للألبان وبدائل الرضاعة بطرق مؤثرة وعملية، وأيضاً يجب التركيز على الممارسات الصديقة للأم ومجموعات دعم الأم. كما نو□ي بأن يتم إطالة مدة التدريب إلى 5 أيام لتشمل ساغات إضافية تغطي الأجزاء الخا□ة بتجهيز وتقييم المنشآت الصديقة للطفل .

Assessing the Needs of Pediatric Teaching Curriculum of Undergraduate Medical Students in Child Survival

Usama Abuel Fetouh MD, Mohamed El-Bakry MD, Azza Abul-Fadl MD

Pediatric Department, Benha Faculty of Medicine, Benha University

Abstract

Background: The importance of disseminating the practice of exclusive Breastfeeding is an international agenda in child survival programs and its integration in medical curricula ensures that the future generations of the medical community will adopt this in their practice. Assessing outcome of teaching and learning can be useful for furthering curricular development.

Aim: To study the outcome of a pediatric teaching curriculum and knowledge gained of undergraduate medical students in child health with a focus on Breastfeeding and prevention of Diarrhea.

Methods: The study was carried out in Benha faculty of medicine on the 5th year medical students. Students were exposed during their 3 months rounds in pediatric department to an intensive program of two hours in breastfeeding theoretical teaching in primary care pediatrics and one hour in the neonatal care, together with integration of feeding in all branches of specialty pediatrics. At the end of the academic year the students were exposed to a short essay question about the how breastfeeding reduces risk of diarrhea. The model answer specified that students should be able to describe the types of diarrhea (infective and non-ineffective) and breastfeeding practices (exclusive versus nonexclusive and the compositional and functional properties of breastmilk that enhance the protective effects of breastfeeding in preventing or reducing risk of diarrhea.

Results: The teaching curricula in breastfeeding have expanded but teaching hours do not meet the needs. There is increased interest and motivation of both staff and students in addressing these topics. Although students were able to list the various immunological constituents in breastmilk and were able to describe how they work, very few of them mentioned the importance of practices as exclusive breastfeeding, on demand feeding and night feeding to make these immunological components more effective. Moreover, none mentioned the variations and adaptations that occur in the breastmilk to meet the needs of the infant's and mother situation. They were unaware of the enteromammary and bronchomammary pathways that protection the baby from transmission from the mother. Their main concern was infective diarrhea and very few mentioned role of breastfeeding in decreasing risks associated with non-infective diarrhea including some chronic or congenital disorders.

Conclusions: Knowledge of students about breastmilk and breastfeeding is high and medical curricula has expanded in this respect, but the hours of teaching do not match the needs. Also there is increased acceptance and motivation of students to pay attention to these topics. We recommend that more hours be added in the practical and clinical aspects of breastfeeding management.

Key words: child survival, diarrhea, medical education, assessment

Introduction

Maternal and child mortality rates are an important determinant of any country's health status. Decreasing maternal and child mortality rates has been given high priority at the national level. [(1)] The

importance of disseminating the practice of exclusive Breastfeeding is an international agenda in child survival programs. An important strategy is to integrate it in medical curricula and residency programs rather than expand and overburden students with extra syllabi and/or content. This urgency of inclusion of topics and skills in child survival is an increasing need given the demand to decrease infant and maternal mortality especially in countries that are less developed. [2] They are also important for developed countries given the protective effect of early breastfeeding on the prevention of obesity and related cardiac and other non-communicable diseases that are a major cause for morbidity and mortality and the resulting rise in the costs of medical care. [3] Moreover it is the most efficient way that will ensure that the future generations of graduates of medical schools will adopt this in their practice. Assessing outcome of teaching and learning can be useful for furthering curricular development. [4,5]

We hypothesize that one of the major factors for improving progress in reducing maternal and neonatal mortality is the involvement of medical educators by urging inclusion in their teaching attempt to reduce these rates. [1,4] Also subjects related to maternal and child health are taught disjointedly through different disciplines. [4,5] Additionally, the textbooks used in our curricula are written in the West where the issues related to infant and maternal mortality are entirely different; thus our medical students and doctors are unaware of the local issues and are not equipped with the knowledge and skills to deal with them.

Aim: To study the outcome of the final examination in the knowledge gained of undergraduate medical students in child health versus other clinical topics.

Subjects and Methods

The study was carried out in Benha faculty of medicine on 120 the 5th year medical students. Students were exposed during their 3 months rounds in pediatric department to an intensive program of two hours in breastfeeding theoretical teaching in primary care pediatrics and one hour in the neonatal care, together with integration of feeding in all branches of specialty pediatrics. At the end of the academic year the students were exposed to a short essay question about the how breastfeeding reduces risk of diarrhea. The model answer specified that students should be able to describe the types of diarrhea (infective and non-ineffective) and breastfeeding practices (exclusive versus nonexclusive and the compositional and functional properties of breastmilk that enhance the protective effects of breastfeeding in preventing or reducing risk of diarrhea.

The results were then compared to another question about growth and development.

Results

We scored the results from 120 randomly selected papers from a total of 235 papers. Mostly students went on to list the immunological constituents in breastmilk and how they work. In this respect 55% stated that it was sterile, 10% mentioned it had a low PH. The highest score (80%) mentioned lysozyme and complement factors followed by the Bifidus factor (71.67%) and its role in inhibiting growth of pathogenic bacteria acting as a prebiotic and probiotic (as mentioned by some). This was followed by secretory immunoglobulin A (sIgA) mentioned by 62.5% and 56.67% mentioned lactoferrin and its role in binding with iron to prevent growth of bacteria, 56.67% mentioned the

presence of active cells and phagocytic function of breastmilk. While none of the students mentioned the importance of breastfeeding being exclusive to bring about its optimal immunological efficiency of these components. The antiviral factors in breastmilk was mentioned by 38.3% and the anti-protozoal (anti-giardia) was mentioned by 52.5%. None mentioned the anti-staphylococcal factors in breastmilk. Many mentioned the glycoproteins, oligosaccharides, nucleotides, cytokines and others, but we did not score these and the given lists were taken to represent their memorization index of components in breastmilk. In the same line they mentioned that breastmilk acts as an anitallergic and immunomodulator.

Since the question specified reducing risk of diarrhea rather than gastroenteritis, it was expected that students would mention infective and non-infective. Also the question did not limit an age and therefore student was expected to go beyond the period of feeding to the long term effects of breastfeeding later on in life. None of the students mentioned the role of breastfeeding in reducing the risk of non-infective diarrhea as the lactose intolerance due to the presence of lactase enzyme; neither did they mention role of breastfeeding in preventing or delaying onset of other malabsorption syndromes as gluten enteropathy, celiac disease or other enzyme deficiency states. Also they did not mention the long term effects of breastfeeding in reducing risk of developing chronic inflammatory bowel disease as ulcerative colitis or Chron's disease or cystic fibrosis in later life.

Discussion

Overall the knowledge of the students reflected the density of information provided in the curricula about the immunological properties of breastmilk and their role in the prevention of diarrhea. Several universities in the United States have integrated breastfeeding in their curricula for residents and have tested its effectiveness of teaching methods thereafter. [1-5]

In Duke University the faculty staff are implementing residency programs for delivering culturally effective Breastfeeding care. This was received best when we used our own cases from the rotation to get better buy in from the residents compared with using pre-made cases that were not commonly seen by residents. Residents have really found the information on how to help teen moms breastfeed most helpful. The aim of the program is to encourage moms of Latina backgrounds to exclusively breastfeed rather than to do both breast and bottle. Residents work hard to convince these moms to exclusively breastfeed, and are very proud when they have helped a mom to make this choice (vs. bottle supplemental when not medically indicated). They also have rotations in the newborn nursery and the community rotations and are exposed to didactic training from the obs/Gyn and pediatric faculty staff. They are observed in "breastfeeding help" sessions and are observed doing this three times. Another residency program is described by Metro Health medical clinics where students have 4 weeks rotation with various situations with breastfeeding mothers. The evaluation of these programs use pre- and post-test developed by the American Academy of Pediatrics in collaboration

with American Academy of Breastfeeding Medicine and Wellstart International. (6-9)

References

1- Zaman IF, Rauf A (2011) Working toward decreasing infant mortality in developing countries through change in the medical curriculum. Asia Pac Fam Med.; 10(1): 11.

2- **The State of the World's Children--Child Survival 2014.** [http://www.unicef.org/sowc08/report/report.php

3- **US Coalition for Child Survival** [http://www.child- survival.org/advocacy/gcsa.php] webcite.

4- Searo EG (2009) *Review of preventive and social medicine, community medicine and community health curriculum for undergraduate medical education social medicine.* New Dehli: WHO Regional Office for South East Asia;

5- Buckley S, Coleman J, Davison I, Khan KS, Zamora J, Malick S, et al. (2009) The educational effects of portfolios on undergraduate student learning: a Best Evidence Medical Education (BEME) systematic review. BEME Guide No. 11. Med Teach. 31(4):282-98.

6- Morrison EH, Rucker L, Boker JR, Gabbert CC, Hubbell FA, Hitchcock MA, Prislin MD. (2004) The effect of a 13-hour curriculum to improve residents' teaching skills: a randomized trial. Ann Intern Med. 2004 Aug 17;141(4):257-63.

7- Haughwout JC, Eglash AR, Plane MB, Mundt MP, Fleming MF. (2000) Improving residents' breastfeeding assessment skills: a problem-based workshop. Fam Pract. 17(6):541-6.

8- Hillenbrand KM(1), Larsen PG. (2002) Effect of an educational intervention about breastfeeding on the knowledge, confidence, and behaviors of pediatric resident physicians. Pediatrics. 110(5):e59.

9- Tender JA, Cuzzi S, Kind T, Simmens SJ, Blatt B, Greenberg L. (2014) Educating pediatric residents about breastfeeding: evaluation of 3 time-efficient teaching strategies.J Hum Lact. 30(4):458-65.

10- Kokotailo PK, Langhough R, Neary EJ, Matson SC, Fleming MF. (1995) Improving pediatric residents' alcohol and other drug use clinical skills: use of an experiential curriculum. Pediatrics. 96(1 Pt 1):99-104.

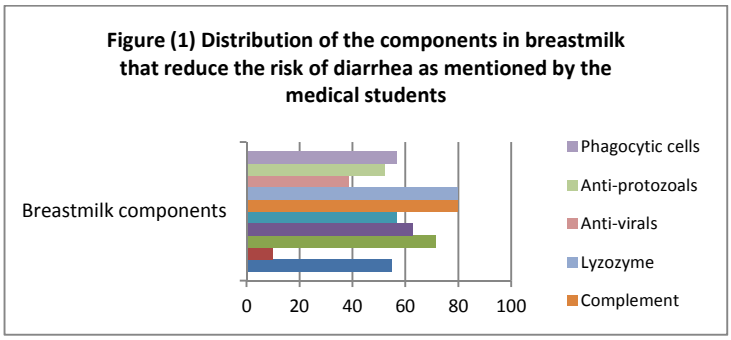
11- Duke University Implementation Strategy: www2.aap.org/breastfeeding/curriculum/documents/pdf/DukeStrategy.pdf

12- MetroHealth Medical Center Pediatric Newborn Nursery Rotation Strategy https://www2.aap.org/breastfeeding/curriculum/documents/pdf/MetroHealthPedsNBNStrategy.pdf.

13- MetroHealth Medical Center Obstetric /Gynecologic Strategy https://www2.aap.org/breastfeeding/curriculum/documents/pdf/MetroHealthOBGYNStrategy.pdf.

14- Texas Tech University Health Science Center - Amarillo Breastfeeding Residency Curriculum Training Day https://www2.aap.org/breastfeeding/curriculum/documents/pdf/TTUHSCTrainingDayStrategy.pdfhttps://www2.aap.org/breastfeeding/curriculum/documents/pdf/TTUHSCTrainingDayStrategy.pdf

15- AAP Lactation Management curriculum Resource Guide Implementation Implementation Strategies.



تقييم احتياجات مناهج طب الاطفال لطلاب الطب البشرى في الحفاظ على حياة الطفل (بقيا الأطفال)

الأستاذ الدكتور/ أسامة أبو الفتوح ، الأستاذ الدكتور/ محمد البكرى ، الأستاذة الدكتورة/ عزة أبو الفضل

قسم طب الأطفال كلية طب بنها- جامعة بنها

نتقدم للشكر للقائمين على المراقبة على وحدة الكنترول بكلية الطب ببنها وجودة تطوير التعليم

الخلفية: إن نشر ممارسة الرضاعة الطبيعية الناجحة بالرضاعة المطلقة من أولويات جدول الأعمال الدولي في برامج بقاء الطفل ودمجه في المناهج الطبية يضمن أن الأجيال القادمة من المجتمع الطبي سيتبنى هذا في ممارساتها. ويمكن تقييم نتائج التعليم والتعلم يكون من المفيد لتعزيز تطوير المناهج.

الهدف: دراسة نتائج منهج تعليم الأطفال والمعرفة المكتسبة من طلبة الطب في المرحلة الجامعية في مجال صحة الطفل مع التركيز على الرضاعة الطبيعية والوقاية من الإسهال.

الأساليب: وقد أجريت هذه الدراسة في كلية الطب بنها على طلاب الطب العام الخامس. ويتعرض الطلاب خلال على مدة ثلال شهور من تدريبات سريرية في قسم طب الأطفال من خلال برنامج مكثف يتضمن التدريس النظري لمدة ساعتين في الرضاعة الطبيعية في الرعاية الأولية لطب الأطفال وساعة واحدة في رعاية الأطفال حديثي الولادة، جنبا إلى جنب مع دمج التغذية في جميع فروع طب الأطفال المتخصصة. في نهاية العام الدراسي وتعرض الطلاب على سؤال مقال قصير عن كيفية الرضاعة الطبيعية تقلل خطر الإصابة بالإسهال. الإجابة النموذجية المحددة أن الطلاب يجب أن يكون قادرا على وصف أنواع الإسهال (المعدية وغير فعالة) وممارسات الرضاعة الطبيعية (حصرية مقابل غير حصري والتركيبية والخصائص الفنية من حليب الأم التي تعزز التأثيرات الواقية من الرضاعة الطبيعية في منع أو تقليل خطر الإسهال. ويتم التقييم من خلال إتحان فى نهاية العام بتضمن من 10-12 سؤال يغطى المنهج بأكمله بما فى ذلك الرضاعة الطبيعية.

النتائج: المناهج التعليمية في الرضاعة الطبيعية لا تلبي الاحتياجات التعليمية لأطباء المستقبل الذين يحملون تحديات خفض وفيات الرضع ومواجهة عبأ الأمراض غير المعدية (الزمنة). هناك اهتماما متزايدا ودافع كل من الموظفين والطلاب في معالجة هذه المواضيع. ورغم أن الطلاب كانوا قادرين لسرد مختلف المكونات المناعية في حليب الأم وكانوا قادرين على وصف كيفية عملها، وعدد قليل جدا منهم ذكر أهمية الممارسات الاقتصار على الرضاعة الطبيعية، على تغذية الطلب ليلا ونهارا التغذية لجعل هذه المكونات المناعية أكثر فعالية. وعلاوة على ذلك،

الاستنتاجات: معرفة الطلاب عن حليب الأم والرضاعة الطبيعية عالية وتوسعت المناهج الطبية في هذا الصدد، ولكن ساعتين من التدريس لا تتناسب مع الاحتياجات. أيضا هناك إقبال من الطلاب إلى إيلاء الاهتمام لهذه المواضيع. ونحن نوصي باضافة في الجوانب العملية والسريرية فى التدريب على إدارة الرضاعة الطبيعية من خلال مذكرات مبسطة تنشر على مستوى جميع أقسام الأطفال والنساء والتوليد وطب المجتمع فى جميع كليات الطب والتمريض والكليات والمعاهد التى تدرس هذه المناهج.

What is Go Red for Women?

In 2004 the American Heart Association (AHA) faced a challenge. Cardiovascular disease claimed the lives of nearly 500,000 American women each year, yet women were not paying attention. In fact, many even dismissed it as an older man's disease. To dispel the myths and raise awareness of heart disease as the *number one killer of women*, the American Heart Association created Go Red for Women, a passionate, emotional, social initiative designed to empower women to take charge of their heart health.

What is the goal of *Go Red for Women*?

Go Red for Women encourages awareness of the issue of women and heart disease, and also action to save more lives. The movement harnesses the energy, passion and power women have to band together and collectively wipe out heart disease. It challenges them to know their risk for heart disease and take action to reduce their personal risk. It also gives them the tools they need to lead a heart healthy life. Is it not time to **Go Red for Women in Egypt - since it is the leading cause for death for non-communicable disease around the globe and how can breastfeeding promotion contribute to this??**

PROF. DR. MONA ABUL-FADL, MUSLIM FEMINIST ACTIVIST WRITER, BRIDGING EASTERN WITH WESTERN THOUGHT, PROFESSOR IN POLITICAL SCIENCE, TEACHING IN EGYPTIAN & UNITED STATES UNIVERSITIES, AUTHOR OF MANY BOOKS, STRUGGLED WITH BREAST CANCER FOR 4 YEARS WHILE WRITING & PUBLISHING HER BOOKS TO THE VERY END.

Identifying and Overcoming Barriers and Challenges to Mother Support Groups in Alexandria

Noha Ibrahim Naem PHD, MPH**, Shorouk Al Hitamy M.B., B.Ch***, *, Gihan Kamal**, Mohga M Fikry PHD+, Samaah Zohair M.B., B.Ch***, Azza MAM Abul-Fadl MD***,*

*Alexandria Regional Center for Women Health and Development (ARC), **SAWA Foundation in Alexandria, ***Mother Child Friendly Care (MCFC) Association, MCH/MoH Alexandria Directorate

We acknowledge the efforts and contributions from Deborah Lacroix president of Sawa foundation for development and social services and the support and facilitations of Dr. Mohamed Nour ElDin, Director General of Maternal and Child Health (MCH) department of MoH, Dr Ayman Abdel Monem representative of Ministry of Health Directorate in Alexandria and supported by UNICEF Cairo office, Egypt.

Abstract

Introduction: The UNICEF Baby Friendly Hospital Initiative (BFHI) recommends use of the 20 hour course to train staff working in maternity hospitals to implement the Ten Steps to successful breastfeeding. However, Step 10, which involves the community component of the BFHI has always presented a problem in having the hospital achieve the full Baby Friendly status.

Aim: To identify barriers and challenges by evaluating strategies for fostering establishment of Mother Support Groups (MSG) in the community as by Step 10 of the BFHI national program.

Methods: Women volunteer leaders (WVL) or "Raedat" working with the health centers were recruited by the MCH department to become trained as MSG leaders through a 28 hours program including 4 hours of practical, once weekly over 5 weeks using the adapted WHO Integrated Infant & Young Child Course in Counseling (WHO IYCF) and Linkages modules* in the ARC and Sawa. Training was conducted by IBCLCs and organized by the SAWA staff. It targeted 198 WVL coming from 40 MCH centers from the 8 regions of Alexandria. This was completed over a period of 9 months for four courses conducted once weekly for 6-8 weeks. A pre and post -test questionnaire was used to assess the knowledge and attitudes of the staff. A checklist to follow-up the trained MSG leaders in their post in their MCH center was devised. The SAWA/MSG leaders conducted follow-up visits to follow-up the trainees in their posts in their health centers. Over the same period an activist IBCLC member of MCFC initiated a Facebook page to initiate online mother support groups in which she encouraged mothers to come in and interact with her and with other mothers about their queries, concerns and difficulties, as well share and exchange experience and learn more about breastfeeding.

Findings: Over 1000 mothers were reached by the face to face community MSG and 7300 by the caring gifts project, and 27,000 by the online support groups. The main challenges identified were related to accessibility and affordability as feedback was lowest from the furthest regions also the number of mothers attending sessions in these regions was low compared to more central regions. Moreover poverty and poor affordability of time and resources probably represented other barriers as shown by the low attendance and low number of attendees from regions with high poverty rates.

Conclusion: Strategies that incorporate face to face support and online support can be effective in reaching different categories of mothers for supporting continuity. We recommend that development and income generating activities should be incorporated with MSG leader to motivate early participation from the antenatal period. MSGs should be institutionalized within the health care system for scaling and to ensure continued education and meet the turnover of staff needs for training.

* *http://www.linkagesproject.org/media/publications/Training%20Modules/MTMSG.pdf*
Key words: mother support groups, training, breastfeeding

Introduction

The Baby-friendly Hospital Initiative was conceived in the early 1990s in response to the 1990 Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding call for action. Since then and after nearly 15 years of work in support of optimal infant and young child feeding, 156 countries have, at one time or another, assessed hospitals and designated at least one facility "Baby-friendly." The BFHI has measurable and proven impact. [(2)] In 2002 the World Health assembly renewed support - with urgency - for exclusive breastfeeding through the WHO/UNICEF Global Strategy for Infant and Young Child Feeding (GSIYCF) which calls for making all countries to revitalize action programs including the Baby-friendly Hospital Initiative (BFHI). Moreover the Baby Friendly has among its goals to adapt criteria for baby-friendly expansion into the community and other expansion approaches in order to achieve and sustain the behaviors and practices necessary to enable every mother and family to give every child the best start in life. In 2014 Egypt Ministry of health released a Ministerial Decree requiring all health facilities providing maternity and neonatal services to implement the Ten steps to achieving the Baby friendly Status and abide by the international code of marketing of breastmilk substitutes. UNICEF has been the leading international organization to support this ministerial declaration through the country's national program for promoting and protection of breastfeeding. Two leading ladies were behind this courageous declaration Professor Maha El-Rabat (H.E. Minister of Health) and First Undersecretary. Esmat Mansour (Ministerial consultant for PHC affairs). This declaration was in consequence to several previous declarations in 1979 and 1990s that imposed implementation prohibiting advertisements of BMS and ending the supply of free and low cost supplies in health facilities and the revised Law for protecting the rights of the child in the first decade of the 2000s. [(3,4,5)]

Step 10 of the Baby Friendly calls for facilities working on becoming Baby friendly to foster establishment of mother support groups and to refer mothers to them. Mother Support Groups (MSG) are has been shown to support continued breastfeeding in many communities. This is based on women who have had experience with breastfeeding their own babies and wish to continue to use the

experience they have gained in supporting other mothers. [6]

UNICEF/WHO BFHI Section 4: Hospital Self-Appraisal and Monitoring address this issue in the following questions:

10.3. Does the facility foster the establishment of and/or coordinate with mother support groups and other community services that provide support to mothers on feeding their babies?

10.4. Are mothers referred for help with feeding to the facility's system of follow-up support and to mother support groups, peer counselors, and other community health services such as primary health care or MCH centers, if these are available?

10.7. Does the facility allow breastfeeding/infant feeding counseling by trained mother-support group counselors in its maternity services? (Section 4.1: Hospital Self-Appraisal) . [7]

The power of Baby friendly in a community is assessed by the demand imposed by the population to make the facilities and their health staff adhere to the principles governing the making of hospitals Baby friendly by implementing the Ten steps to successful breastfeeding imitation and continuation. Hence interventions to reinforce the community component are essential for achieving a sustainable momentum towards taking the BFHI to scale in this country. However despite political commitment addressed above, the unstable situation in which the country has gone through over the past half-decade has precluded the achievement of the goals for women rights to *development*.[8] Since 2010 Egypt political instability has placed the country in status quo regarding developmental progress as the remains of the previous dark ages still prevail and breed resistance to development, making progress difficult.[9] International efforts from worldwide collaborations may bring newer optimistic insights to the country's momentum in development as it strides to overcome these challenges under the current leadership. [10]

Since the aim of the Ministry of Health in Egypt's National program is to progress these ambitious strides in development under the new leadership, hence we need to evaluate the challenges and barriers for promoting and protecting breastfeeding in order to define effective strategies in this regards. Aspired by the country's leadership, non-governmental efforts seek to take their place in making a difference in the lives of women and children.

Subjects and Methods

The following two strategies for implementing Step "10" are hereby described:

I- **SAWA/MCFC/ARC FIELD MOTHER SUPPORT GROUP** Initiative

The intervention was conducted over five phases from 2011 to 2014:

Phase 1 (2011/12): Developing Master trainers in MSGL: Training community social workers to become mother support group leaders and trainers.

Phase 2 (2011/12): Designing mother support group material through a "For your Child series" consisting of five pamphlets that included: "For Every Newborn", "*For the Working Mother*", "*For the Sick Mother*", "*For the Preterm Baby*" and finally "*Family Support for the Best Start*". The material was designed with lots of graphics and clear messages to support the low literacy and illiterate

moms taking one year for MCFC/IBCLCs and *Sawa* to finalize and print by *Sawa Foundation*.

Phase 3 (2012/13): Adaptation of training material: The MCFC adapted the WHO Infant and Young Child Feeding counseling [5] for primary health staff translating its material into Arabic since the Arabic version of WHO/EMRO was never released or made available on site. While SAWA adapted Linkages modules for breastfeeding promotion for community workers into Arabic. [6]

P**hase 4 (2014): Fostering establishment of MSG women volunteers "Raedat" working in health centers:** Training 198 staff through ARC and UNICEF supported training sessions as mother support group leaders recruited by Alexandria health directorate from the maternal and child health centers (MCH) of the 8 regions of Alexandria. Sawa also created a support manual for new leaders starting up support groups which included how to organize and lead a meeting and four meeting plans to get a leader started.

Phase 5 (2014): Developing a follow-up system: *Check lists and follow-up visits for assessing implementation***:** Follow-up of the implementation of the MSG in the MCH centers using SAWA designed checklists for assessing the quality of group dynamics, content and efficacy.

Based on the lessons learnt from the mock assessments of Baby Friendly Hospitals (BFH) in the four governorates in Egypt, a proposal for strengthening BFH national program was presented to UNICEF/ECO by MCFC and SAWA. The purpose was to reinforce steps "3" and "10" of the Ten steps of the BFHI in the MCH centers of Alexandria by training staff inside these centers to become mother support groups leaders (MSGL) through an extended 40 hour training using the adapted WHO IYCF training course. Training was conducted by International Board Certified Lactation Consultants (IBCLCs) and facilitated by SAWA trained leaders. It targeted 190 staff coming from 40 MCH centers from the 8 regions of Alexandria. The content of the training covered topics related to the importance of breastfeeding for maternal and child health and survival, skills needed to counsel and support a breastfeeding mother including positioning, milk expression and cup feeding, as well the skills of running MSGs, the Ten steps for making hospitals Baby friendly, the management of common misconceptions and health problems during breastfeeding, complementary feeding and the importance of protecting breastfeeding through the international code of marketing breastmilk substitutes. This was completed over a period of 12 months for four batches conducted once weekly for 6-8 weeks, comprising 4 theoretical and interactive sessions in the Alexandria Regional Center for Woman Health and Development and two practical sessions in mother support group dynamics with recruited mothers in the SAWA foundation center.

A pre and post -test questionnaire was used to assess change in the knowledge and attitudes of the staff. They were followed up in their posts after the training by trained leaders who had received training for over one year prior to the intervention to become certified MSG leaders and trainers.

II- ONLINE FACEBOOK MOTHER SUPPORT GROUP Initiative of "***MCFC Facebook group"***

An activist IBCLC member of MCFC, Dr Shorouk Hithamy, initiated a Facebook page for supporting a breastfeeding mother under her name, in Arabic, in order to initiate online mother support groups in which she encouraged mothers to come in and interact with her and with other mothers about their queries, concerns and difficulties, as well as share and exchange experience and learn more about breastfeeding. The material of education developed by MCFC and Sawa were posted on this page and Sawa site and mothers were encouraged to access them for information, in addition to other protocols developed by the IBCLCs in Arabic and links to other reliable sites in English and Arabic site that support breastfeeding such as Sawa site *Kelly Mom* and *Jack Newman* and other sites. Cases that were considered as record cases used to develop and adapt protocols for treatment were posted on the Facebook and published in the Egyptian journal of breastfeeding. Mothers from all over the country and the Arab region as well as the Arab speaking communities in the Western world participated on the Facebook page. Mothers who interacted sufficiently and frequently to become experienced enough were able assist and guide other mothers with breastfeeding concerns. They would refer conditions that were more difficult or complicated to the IBCLC managing the Facebook page.

Results

The Sawa/MCFC/ARC field mother support group:

The 198 recruited WVL (Raedat) were trained as MSG leaders from all the 8 regions were targeted in the initial training in ARC. A total of four trainings each targeting 48-50 WVL (total 198) attended the initial training for the 5 days extended over 5-6 weeks. They were evaluated by the pre- post- tests which showed a significant increase from 46% to 95% on completion of the training.

The trained MSGL who were all Raedat (women volunteer community leaders) who were assigned to health centers. They were followed-up to see whether and how they implemented the concept of MSG leadership their work in their own health center to which they were affiliated. The follow-up visits were conducted by twelve of the previously trained Sawa leaders (in 2011 and 2012) that had participated as trainers under the supervision of certified lactation consultants (IBCLCs) from MCFC. The leaders were then assigned to present a report during the follow up to show what they were doing and have their supervisors, in the health center or facility where they work, stamp it to verify it for

them. All 8 regions of Alexandria were visited these included Shark, Agami, Montaza, Abu Keer, Gharb, Borg ElArab and Amirya as shown in table (1).

The number of health centers visited by the Sawa trainers and the reports they did or collected from the trained Raedat who prepared written documented feedback were 27 with a range of 1-6 and an average of 3.4 per region. Follow-up visits and feedback reports from Raedat working in the health units visited were highest in Shark (22.2%) and least in Borg ElArab (3.7%). It was also low in Amirya, Agami and Abu Keer as shown in table (1).

A total number of 55 sessions were conducted. The number of education sessions to mothers that were observed or documented to be conducted; ranged from 2 to 12 per health facility with an average of 6.7 sessions per region and a total of 55 sessions. Shark and Wasat showed the highest number of observations (12 or 21.8%) in each alike followed by 10 sessions in Montaza 18.2%), 6 in Amirya and Gharb alike (10.9%) and the least sessions were seen or reported in Borg ElArab (2 or 3.6%) , Agami (3 or 5.5%) and Abu Keer (4 or 7.3%). A total number of 1066 mothers attended the sessions with a range of 30 to 319 per region and 7-38 per session. The highest number came from Shark (319 or 29.9%) and Wasat (231 or 21.7%) and also Montaza 143 (13.4%).

The percent of mothers who gave their feedback contact numbers was highest in Shark and absent in Agami, Abu keer, Gharb and Amirya health regions as shown in table (1).

The Online Facebook Mother support Initiative of an MCFC/ IBCLC member Facebook group activist.

Figure (1) Illustrates a Facebook interface showing layout and number of interacting mothers from a mother support group (in Arabic). The total number of mothers who interacted with an IBCLC or by a mother group leader trained by the IBCLC was 27,000 over the past 2 years since it was launched in 2012. The MSGL who were frequently interacting became leaders and would respond to new mothers in relation to common queries, but would refer to the IBCLC only when the case became complicated and difficult to handle.

Topics mostly discussed in either situations were related to benefits of breastfeeding to baby and mother, practices and techniques of breastfeeding such as how the baby attaches to nipple, the positions she can take while sleeping, also insufficient milk and how to increase milk supply, frequency of feeding, problems as sore and cracked or inverted nipple, these were the most frequently discussed topics and most frequently asked issues in the mother support groups. Some MSG leaders actually transcribed what the mothers said and the interaction of the groups and this will be analyzed in a separate paper.

Discussion

Alexandria is divided into 8 regions, many of the regions are in the outskirts as the geographical lay out of a fish with the tail bordering with distant governorates of Matrouh and the Oasis and head with the huge governorate of Beheira. Its population density is mainly in its body, represented in the districts of Shark and

Wasat. It peripheries which include Agami, Bor-ElArab and Amriya on one side and Abu-keer on the other side make them subject to problems of accessibility as they merge into the rural remote ans satellite villages of the Bedouin regions. This would explain why health centers visited were highest in Shark (22.2%) which is more central in Alexandria and easily accessible, while it was lowest in the furthest health regions as Borg ElArab (3.7%), also Amirya, Agami and Abu Keer which are also at the outskirts of Alexandria. Although Gharb region is supposed to be down town yet its activity was low (6 or 10.9%). Its flow was one half of those in Shark and Wasat, probably related to the low socio-economic status and prevailing poverty that represented barriers to attendance of mothers who do not have the luxury to give time to attend such sessions, whilst trying to earn their living and entrenched with household responsibilities and a rigid traditional culture that precludes a female access to education.

Many of the leaders who attended over prolonged periods of time become seriously committed advocates. Sullivan et al., [(11)] trained community support groups and showed that initial training duration was positively associated with the use of many breastfeeding support skills especially when they additionally continue to further their breastfeeding education by attending conferences or workshops. However one of the challenges that face fostering establishment of MSG is that it does not exist within the health care system so that it can become of the continued education in-service training activities of the Ministry.

In our study Shark and Wasat had the highest attendees as they represent the most densely populated and well-educated women in Alexandria and also Montaza 143 (13.4%) which is less populated and tends to have a lower socioeconomic status of population. The remaining regions are considered suburban and mothers who live there come from far away villages or have transportation or accessibility problems, time, resources or social barriers. This is shown by the percent of mothers who gave their feedback contact numbers which was highest in Shark and absent in Agami, Abu keer, Gharb and Amirya health regions provably reflecting cultural barriers that prevail among these communities. In this respect online education can be a substitute strategy for many of these women, especially that the Facebook technology is accessed by mothers with all levels of education and different socioeconomic levels as shown by the MCFC experience of the Facebook mother support group.

Comparing between the field MSG training and the distant online strategies showed that although the online method attracted more mothers, these mothers probably represent a sample from the Arabic speaking mothers from all over the country or Arab region, hence although the number may appear big, yet its' percent of target audience may be small. While the cost of the latter is much less than that of the actual person to person training and focus group discussions, yet the technology is not accessible for the mothers coming from low socioeconomic standards and who have no access to such technology, either because of affordability or illiteracy or because such technology

may not be available in the regions where they live. With the expanding use in café nets and in schools, we expect that future generations will be accessing it more easily.

One of the ways in which Sawa is trying to address the accessibility issue is through a small gift to every new mother directly from the mothers support group leader in her health facility. The gift includes the "*For Every Newborn*" brochure and a set of cloth breast pads. It creates the opportunity for initial contact so the mother knows she has support. It provides her with literature, that has been designed for mothers that may have limited reading skills or are illiterate and the gift encourages breastfeeding in contrast to the types of gifts given by milk substitute companies. An evaluation of this support project to assess its effectiveness will be done after completion. To date, 7300 mothers have been reached by active MSG leaders from the 8 districts in Alexandria. In the future, social media contacts can also be included so that those with internet access can also use this effective tool to get additional support.

Social media is a form of communication that enables online communities to share ideas, information, and personal messages. [(12)] Lay-moderated discussion board can be a worthwhile resource for parents in need of reassurance, information or general social support to expand the amount of breastfeeding on a website. [(13)] Those providing support to breastfeeding mothers are uniquely equipped to share information, guidance, and encouragement with new mothers. Lactation professionals, advocates, and volunteers should be aware that mothers are using Web-based communication to gain information about breastfeeding. Those who support breastfeeding mothers can also learn to use these methods to engage with the breastfeeding community online. Regardless of the chosen platform, social media is most successful when it promotes engagement with a target audience. Facebook, Twitter, blogs, and Pinterest are identified as useful platforms for connecting with breastfeeding mothers. [(12)]

The availability and accessibility of interactive communication technologies via the internet provide the opportunity for developing new methods of healthcare delivery. One study showed that information technology is an innovative and cost-effective to support breastfeeding mothers. Their online breastfeeding support clinic improved access to specialized professional breastfeeding support in combination with interactive peer support. They recommended that their new online clinic can be readily implemented to all regions in Canada with reliable Internet access, with the potential to significantly impact the health of all Canadian infants and their families. [(14)]

Internet-based interventions were shown to impact the health and wellbeing of mothers. One study showed that the intervention made mothers experience higher infant centrality compared with control mothers at six weeks. [(15)] While another study for mothers communicating on the internet with their providers showed that breastfeeding mothers had less psychological problems and were less stressed than those who were not breastfeeding. [(16)]

Although the web based support does not seem costly, the design and management of these programs especially innovative

interactive ones, may be costly. One center examined the effects of an interactive Web-based breastfeeding monitoring system (LACTOR) which resulted in promoting higher exclusive breastfeeding rate and duration. Ninety-two percent of the mothers thought that they did not need to learn many skills before they started to use LACTOR and did not need any technical support. Mothers reported that the monitoring was beneficial and gave them the chance to track their infants' feeding patterns and detect any problems early. [17, 18]

Partnering with physicians and experts to share in consultation on the web can be useful. A survey to assess the use of electronic communication in supporting breastfeeding mothers showed that one-fourth of physicians received e-mails with questions about breastfeeding issues from patients with whom they have no preexisting relationships. More receive e-mail from known patients. They suggested that breastfeeding mothers do seek expert information on the Internet. In their study over half of the physicians replied to e-mails individually and without any financial reimbursement. [19]

Peer counseling by MSGs was shown to be improved the IYCF practices in the district and could be sustained**.** [20] However it may be advantageous for peer counselors to direct fewer resources to later postnatal enrollees and more to prenatal or early postnatal enrollees. It may also be advantageous to focus on supporting women at high risk of discontinuation rather than on retaining women who choose to withdraw from the program while breastfeeding**.** [21]

Other strategies such as telephone support have been examined and found to be useful for support of inexclusive breastfeeding but not to support exclusive breastfeeding up to six months in the communities that had Spanish speaking background, indicating that these communities may have stronger negative extended family support system that needs to be addressed separately. [22] Abul Fadl [23] examined the role of positive versus negative family centered support system and their role in continuation of breastfeeding and reported that husband emotional and tangible support were unequivocal. While mothers and mothers-in-law came second but were very influential as negative support systems for the mother during pregnancy and after child birth. [23]

Another group that appears to be neglected and requires special strategies are adolescent first time mothers which appear to have low exclusively and continuity rates of breastfeeding. In one study in the US a study group used several interventions and showed that the one intervention that used a combination of education and counseling provided by a lactation consultant-peer counselor team, significantly improved both breastfeeding initiation and duration. They recommend that interventions should be less resource intensive, be more theoretically driven, and specifically include mothers and partners of adolescents to successfully promote breastfeeding among adolescent mothers. [24]

Factors that impact success of peer support groups in improving rates of exclusive breastfeeding decreasing risks of early discontinuation were prenatal enrollment especially for low income mothers and

postpartum support through more face-to-face and less on the phone support**.** [25]The impact of MSG through peer counselors has been shown by several studies to be more effective for low income mothers, [26] and especially when carried out from the antenatal period, as shown by a systemic review conducted evaluate the effectiveness of antenatal BF education for increasing breastfeeding initiation and duration. Although no single intervention was identified as being superior than another, neither were multiple more effective than single, but they did mention one study that showed that the combination of counseling by a LC and use of audiovisual aids increased the effectiveness of outcome on breastfeeding initiation and continuation rather than videos and booklets only. [27]

Furthermore the combined support from peer counselors and lactation consultants were found to be much more effective. [28] This was also shown in our study in both the field and online support Facebook whereby the involvement of an IBCLCian in training and in later support during implementation were equally additive in improving the outcome.

Both peer counselors, mother support groups, in supporting and guiding mothers to continue breastfeeding as well as the importance of lactation consultants as specialist in managing difficult cases of breastfeeding mothers, can play a significant role in reducing mortality. A study conducted in Malawi showed that the cost of women's groups was US$114 per year of life lost (YLL) averted and that of peer counselors was $33 per YLL averted, using stratified data from single intervention comparisons. Hence community mobilization through women's groups and volunteer peer counselor health education are methods to improve maternal and child health outcomes in poor rural populations in Africa where HIV prevails and counseling can play a significant role in saving lives. [29, 30]

Finally the use of peer counselors and MSG as well as lactation consultants to support babies and mothers in hospitals can be equally life-saving and decrease the morbidity and mortality rates inside hospitals. One study showed that employing breastfeeding peer counselors, former parents of NICU infants, as direct lactation care providers who worked collaboratively with the NICU nurses. [31]

Conclusions and recommendations:

Different strategies for MSG can influence morbidity, mortality and health behaviors of mothers and impact the feeding and health outcome of their children. The barriers and challenges facing dissemination of MSG can be summarized into accessibility, economical, technology related, literacy related and cultural factors. Other workers have shown that integrating women club and social activities inside community health centers will allow the community to visit and interact with the health center in a more positive way and respond and accept the health messages disseminated by the health care system more readily. Hence we recommend that more strategies related to development and income generating activities be integrated into the MSG leader activity that could promote and disseminate the culture within the community and assist those who have socioeconomic and cultural barriers to accept and interact with such groups.

Moreover with the building of increasing evidence of the importance of breastfeeding in saving lives, and reducing the burden of non-communicable disease and the high costs of care, attention should be focused on making it a priority in the future's country plans for development. [32,33] Hence a cost effective strategy would be to integrate the system of MSG within health care so that it is nationalized and institutionalized within the health care system to ensure scaling over the country, continuous planning, development, training, supervision, monitoring and evaluation of this program with a focus on antenatal education and postnatal care in primary health care as well as inside hospitals providing care for mothers and babies.

References

1- Resolution WHA39. (1986) Infant and Young Child Feeding. In: Thirty-ninth World Health Assembly, Geneva, 5-16 May 1986. Volume 1. Resolutions and records. Final. Geneva, World Health Organization, (WHA39/1986/REC/1), Annex 6:122–135
2- BFHI (2009)
3- MoHP–Egypt: Ministerial decree # 36 February, 2014
4- MoH- Egypt: Ministerial decree # 1992
5- MoH- Egypt: Ministerial decree of 1979
6- UNICEF/WHO (2009) Breastfeeding Promotion and support in Baby Friendly Hospitals: Section 3 the BFHI 20 hour course, UNICEF, New York.
7- UNICEF/WHO (2009) Breastfeeding Promotion and support in Baby Friendly Hospitals: Section 4: Self-appraisal and Monitoring of baby Friendly Hospitals, UNICEF, New York.
8- Egyptian women still struggling for rights 2 years after revolution http://english.ahram.org.eg/NewsContent/1/150/63114/Egypt/-January-Revolution/Egyptian-women-still-struggling-for-rights--years-.aspx
9- Hhttp://www.brookings.edu/research/testimony/2013/02/26-middle-east-north-africa-wittes
10- Sullivan EM, Bignell WE, Andrianos A, Anderson AK. (2011) Impact of education and training on type of care provided by community-based breastfeeding counselors: a cross-sectional study Int Breastfeed J. 2011 Aug 26;6:12. doi: 10.1186/1746-4358-6-12.
11- McCann AD, McCulloch JE. (2012) Establishing an online and social media presence for your IBCLC practice. J Hum Lact. 28(4):450-4.
12- Cowie GA, Hill S, Robinson P. (2011) Using an online service for breastfeeding support: what mothers want to discuss. Health Promot J Austr. Aug;22(2):113-8.
13- Geoghegan-Morphet N, Yuen D, Rai E, Angelini M, Christmas M, da Silva O. Development and implementation of a novel online breastfeeding support resource: the maternal virtual infant nutrition support clinic. Breastfeed Med. 2014 Dec;9:520-3. doi: 10.1089/bfm.2014.0051.
14- Salonen AH, Pridham KF, Brown RL, Kaunonen M. (2014) Impact of an internet-based intervention on Finnish mothers' perceptions of parenting satisfaction, infant centrality and depressive symptoms during the postpartum year. J Midwifery. 30(1):112-22. doi: 10.1016/j.midw.2013.02.009. Epub 2013 Apr 23.
15- Mezzacappa ES, Guethlein W, Katkin ES. (2002) Breast-feeding and maternal health in online mothers. Ann Behav Med. 24(4):299-309.

16- Ahmed AH, Ouzzani M. (2012) Interactive web-based breastfeeding monitoring: feasibility, usability, and acceptability. J Hum Lact. 28(4):468-75.
17- Ahmed A, Ouzzani M. (2013) Development and assessment of an interactive web-based breastfeeding monitoring system (LACTOR). Matern Child Health J. Jul;17(5):809-15. .
18- Thomas JR, Shaikh U. (2012) Use of electronic communication by physician breastfeeding experts for support of the breastfeeding mother. Breastfeed Med. Dec;7(6):393-6. doi: 10.1089/bfm.2011.0133. Epub 2012 May21.
19- Kushwaha KP, Sankar J, Sankar MJ, Gupta A, Dadhich JP, Gupta YP et al. (2014) Effect of peer counselling by mother support groups on infant and young child feeding practices: the Lalitpur experience. PLoS One Nov 4;9(11):e109181. doi: 10.1371/journal.pone.0109181
20- Rozga MR, Kerver JM, Olson BH. (2014) Prioritization of Resources for Participants in a Peer Counseling Breastfeeding Support Program. J Hum Lact. Oct 16. pii: 0890334414554420. [Epub ahead of print]
21- Reeder JA, Joyce T, Sibley K, Arnold D, Altindag O (2014) Telephone peer counseling of breastfeeding among WIC participants: a randomized controlled trial. Pediatrics. 2014 Sep;134(3):e700-9. doi: 10.1542/peds.2013-4146. Epub 2014 Aug 4.
22- Abul-Fadl AMA. (2006). Family versus health workers support of women in the perinatal period: An In-depth qualitative analysis. ELCA Scientific Journal, special issue dedicated to the proceedings of the Egyptian Lactation Consultant Association's first scientific meeting pp 91-102.
23- Sipsma HL, Jones KL, Cole-Lewis H. (2014) Breastfeeding among Adolescent Mothers: A Systematic Review of Interventions from High-Income Countries. J Hum Lact. 2014 Dec 5. pii: 0890334414561264. [Epub ahead of print]
24- Rozga MR, Kerver JM, Olson BH. (2014) Impact of peer counselling breast-feeding support programme protocols on any and exclusive breast-feeding discontinuation in low-income women. Public Health Nutr. 2014 May 8:1-11. [Epub ahead of print]
25- Ochola SA, Labadarios D, Nduati RW. (2013) Impact of counselling on exclusive breast-feeding practices in a poor urban setting in Kenya: a randomized controlled trial. Public Health Nutr. 2013 Oct;16(10):1732-40. doi: 10.1017/S1368980012004405. Epub 2012 Oct 8.
26- Lumbiganon P, Martis R, Laopaiboon M, Festin MR, Ho JJ, Hakimi M. (2012) Antenatal breastfeeding education for increasing breastfeeding duration.Cochrane Database Syst Rev. 12;9:CD006425. doi:10.1002/14651858.CD006425.pub3.
27- Oza-Frank R, Bhatia A, Smith C. (2013) Combined peer counselor and lactation consultant support increases breastfeeding in the NICU. Breastfeed Med. 8(6):509-10. doi: 10.1089/bfm.2013.0038. Epub 2013 Aug
28- Lewycka S(1), Mwansambo C, Rosato M, Kazembe P, Phiri T, Mganga A, Chapota H, et al. (2013) Effect of women's groups and volunteer peer counselling on rates of mortality, morbidity, and health behaviours in mothers and children in rural Malawi (MaiMwana): a factorial, cluster-randomised controlled trial. Lancet.381(9879):1721-35. doi: 10.1016/S0140-6736(12)61959-X.
29- Nor B, Ahlberg BM, Doherty T, Zembe Y, Jackson D, Ekström EC; PROMISE-EBF Study Group. (2012) Mother's perceptions and experiences of infant feeding within a community-based peer counselling intervention in South Africa.Matern Child Nutr. 2012 Oct;8(4):448-58. Epub 2011 Jul 8.

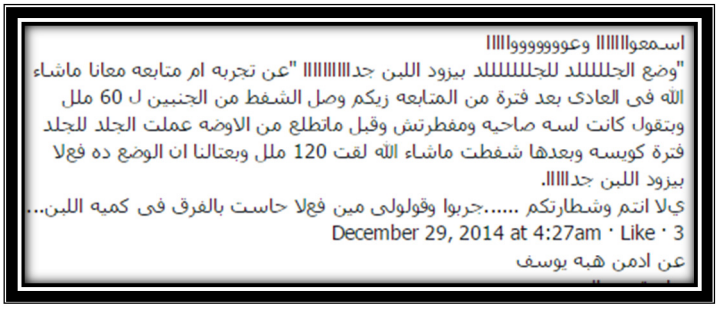
30- Meier PP(1), Engstrom JL, Rossman B (2013) Breastfeeding peer counselors as direct lactation care providers in the neonatal intensive care unit. J Hum Lact. 2013 Aug;29(3):313-22. doi: 10.1177/0890334413482184. Epub 2013 Apr 5.
31- WHO (2007).Evidence on the long-term effects of breastfeeding: systematic reviews and meta-analyses. Geneva, World Health Organization.
32- León-Cava N et al. (2002) Quantifying the benefits of breastfeeding: a summary of the evidence. Washington, DC, Pan American Health Organization, (http://www.paho.org/English/AD/FCH/BOB-Main.htm, accessed 26 andoussa H (2010) Situation Analysis: Key Development Challenges facing Egypt . Development Partners Group, UNDP, Arab Republic of Egypt
33- Cofman Wittes T (2013) Egypt Two Years After the Revolution: Where Egypt Stands, What the United States Can Do.
34- June 2008).

Table (1) Comparing feedback from MSG meetings by health region in Alexandria according to number of sessions, number of participating health facilities and number of mothers who attended the sessions

Regions	Health centers with feed back No %	Sessions conducted in each region No. %	Range of mothers who attended per session	Mothers who attended by region No. %	Mothers who gave their contacts as a percent of those who attended
Shark	6 22.2	12 21.8	15-35	319 29.9	195 61.1
Wasat	4 14.8	12 21.8	10-30	231 21.7	52 22.5
Agami	2 7.4	3 5.5	10-30	50 4.7	0 0.0
Montaza	5 18.5	10 18.2	10-30	143 13.4	30 20.9
Abu Keer	2 7.4	4 7.3	10-38	70 6.6	0 0.0
Gharb	5 18.5	6 10.9	9-30	140 13.1	0 0.0
Borg ElArab	1 3.7	2 3.6	15	30 2.8	8 26.7
Amriya	2 7.4	6 10.9	7-30	83 7.8	0 0.0
Average	3.4	6.87		133.25	
Total	27 100	55 100		1066 100	285 26.7
Ranges	1-6	2-12	7-38	30-319	8-195

Figure (1) Snapshot illustrations from Facebook interface showing layout and number of interacting mothers from Mother support page on Face Book (in Arabic) with an increase of group members by over 1000 in one week:

Figure (2) Feed back from mothers on Facebook



كشف وتخطي التحديات والمعوقات التى تواجه مجموعات دعم الأمهات بالأسكندرية

د/ نهى نعيم ، د/ شروق الهيتمى ، ، د/ مهجة فكرى ، أ/ جيهان كمال ، د/ سماح زهير ، أ.د/ عزة أبو الفضل
مركز الأسكندرية الإقليمي لصحة وتنمية المرأة ، جمعية أصدقاء رعاية الأم والطفل ومؤسسة سوا – البرنامج القومى لمبادرة المنشآت الصديقة للطفل للإدارة العامة لرعاية الأمومة والطفولة

نتقدم للشكر لجهود أ/ دابره لاكروا من مؤسسة سوا ودعم منظمة اليونيسف بالقاهرة ودعم كل من أ.د/ سامح صادق مدير مركز الأسكندرية الإقليمي لصحة وتنمية المرأة و د/ محمد نور مدير الإدارة العامة لرعاية الأمومة والطفولة ، د/ أيمن عبد المنعم وكيل وزارة مديرية الشئون الصحية بالأسكندرية

المقدمة: توصى منظمة الصحة العالمية ومنظمة اليونيسف بضرورة تطبيق الاستراتيجية العالمية لتغذية الرضع وصغار الأطفال من خلال مبادرة المستشفيات الصديقة للطفل والتى تنادى بتطبيق عشر خطوات لنجاح البداية والاستمرارية بالرضاعة الطبيعية . وتوصي الخطوة العاشرة بتبني المستشفى المجموعات المجتمعية أو الأهلية لتحويل الأم إليها لمواصلة الدعم فى الرضاعة ، وتعتبر هذه الخطوة من أصعب الخطوات فى التطبيق العملي.

الهدف من الدراسة : تقييم التدخلات المجتمعية التى قامت بها الجمعيات الأهلية لتطبيق وتفعيل الخطوة العاشرة للكشف عن التحديات والمعوقات التي تواجه مجموعات دعم الأمهات بالأسكندرية.

طرق البحث: إعداد مواد التدريب ومواد التوعية فى سنة 2012 ثم تدريب 198 رائدة صحية تمثلن ال 8 مناطق الصحية بالأسكندرية، من خلال 4 دورات على مدار 4 أسابيع لكل دورة وذلك على مدار سنة كاملة من بداية 2013 الى نهايتها ومتابعته الرائدات اللاتي تلقين التدريب فى أماكن عملهن لتقييم أدائهن داخل المؤسسات الصحية والكشف عن المعوقات التي تواجههن . و فى نفس الفترة تم عمل صفحة لمساندة الام المرضع على الفيس بوك وقامت مؤسسة سوا بتطبيق مشروع الهدايا للأمهات الوالدة داخل المستشفيات.

النتائج : قامت الرائدات اللاتي تم تدريبهن في مجموعات دعم الرضاعة الطبيعية بالوصول الى أكثر من 1000 سيدة حامل وأم مرضع العام وتقديم تقارير مكتوبة من أماكن عملهن بأسماء الأمهات والموضوعات التى نوقشت معهن. وكانت أهم المعوقات التى قابلت الرائدات قدوم الأمهات من الأماكن النائية، كما لعبت حالة الأم المادية والأمية والجهل والموروثات الخاطئة دوراً سلبياً فى استجابتهن للتردد على المؤسسات الصحية من أجل الدعم وجلسات التوعية، إذ كان أكبر عدد من المترددات من مناطق شرق ووسط بالأسكندرية وأقلهن من برج العرب والعامرية والعجمى وللأسف منطقة غرب. وفى صفحة الفيس بوك فقد كان عدد المترددات من الأمهات من كافة أنحاء مصر والعالم العربى والعالم الغربى 27 ألف أم وقد تفاعلن مع الاستشارى الدولى فى الرضاعة الطبيعية التى قامت بتوفير مواد تعليمية و حلول لمعظم الأسئلة الشائعة للأمهات وتوجيه السيدات الأخريات اللاتي اكتسبن خبرة فى دعم الرضاعة الطبيعية بدعم أمهات أخريات وكان ذلك الحوار القائم ما بين الأمهات متبادل فى كل وقت وعلى مدار الساعة في كل مكان بدون تكلفة إلا الجهد والوقت من القائمين على الصفحة. كما قامت مؤسسة سوا بلقاء 7300 أم جديدة من خلال مشروع الهدايا للأمهات الوالدة داخل المستشفيات على مدار العام 2013.

الاستنتاجات والتوصيات : تلعب مجموعات الدعم دور هام فى تفعيل الخطوة العاشرة لبرنامج المستشفيات الصديقة للطفل ولذلك نوصى باستراتيجيات لتفعيل مجموعات الدعم الإلكترونية بشكل أقوى وبصفة مستمرة وأيضاً أن تتبنى الدولة من خلال الوزارات المختصة مجموعات الدعم فى جميع المراكز بمحافظات الجمهورية مع تكييف أوجه الدعم بما يناسب ثقافة الأمهات والأماكن التى يعشن بها وقدراتهن التعليمية والاقتصادية وأن يلعب الإعلام المرئي والسمعي والإلكتروني دور فى نشر أوجه الدعم المتاحة للأم المرضع.

Section III:

Annotated Bibliographies from Egyptian Research Thesis

1. Risk Factors of Childhood Type I Diabetes Mellitus in Port Saed Governorate

Shereen A.A Kasem.

MSc. Thesis in Pediatrics, supervised by Professors: Ahmed Atef Saad and Sonya ElSharkawy, faculty of medicine, Suez Canal University, 2008.

Background: Childhood Type 1 diabetes mellitus (T1DM) remains a serious, costly, and rising worldwide health problem resulting in substantial morbidity and mortality. Over the past two decades, the incidence of T1DM has increased in an epidemic like fashion worldwide contributing to the growing burden of non-communicable disease, and mainly encouraged by decreasing levels of activity and increasing prevalence of obesity. T1DM is considered to be an autoimmune disease in which the insulin-producing β-cells are destroyed in genetically predisposed individuals. Both genetic and environmental factors are thought to play a role in the selective destruction of the insulin-producing β -cells in T1DM. Because the peak incidence occurs in late childhood, researchers have speculated that early environmental exposures could play an important role.

Aim: The study was designed to identify the sociodemographic and clinical characteristics e.g.(age, sex, residence, birth order, socioeconomic level, feeding, family history, symptoms, signs, effect on growth and presence of complications) that are associated with occurrence of type 1 diabetes in children aged 0 – 18 years of both boys and girls.

Methods: The sample included 148 children and adolescent with T1DM aged 0-18 years of both boys and girls managed in the outpatient clinic of the health insurance for children at ELMABARA hospital in Port Said Governorate, and 148 normal healthy children and adolescent age and sex matched with the control group. All the studied children and adolescents were subjected to Structured interview questionnaire together with their accompanying mothers (includes socio-demographic characteristics of the mothers, socio-demographic characteristics the studied children, maternal history, children's history, nutritional history and Family history of DM.

Findings The results of the study showed that there was no significant difference between study and control groups regarding all socio-demographic characteristics including age of the mother, educational level and employment status of the mothers, age and sex of the children,

and their educational level. The mean duration of the disease was 4.3 ± 3.1 years. NPH insulin is the most commonly used type of insulin among studied diabetic children. Most of the diabetic children check blood or urine glucose regularly. Also, it was reported by many of the diabetic children and their mothers that there is inexpensive and easy transportation methods for the diabetes clinic. No significant difference between study and control groups regarding receiving medications during pregnancy and mode of delivery. The same was found regarding number of family members and monthly family income per capita. In this study there was a significant increase in the incidence of T1DM which could be explained by increasing maternal age, decreasing birth order, short duration of breast feeding and early infant weaning and cow's milk exposure. Gestational age at time of delivery has no significant effect on the incidence of T1DM.

Conclusions: It is concluded that early exposure to cow's milk, short duration of breast feeding, maternal age and birth order can be used in prediction of developing T1DM.

BREASTFEEDING baby-friendly, planet-friendly

Breastfeeding Protects our Children and the Environment

2. Study of Serum Aluminum Status in Egyptian Infants versus Respective Mothers

Amal Y. Abdel Malak

MSc. Thesis in Pediatrics, Supervised by Professors: Hamed Khayat, Ahmed Shouman, Mostafa Hodhod, faculty of Medicine, Ain Shams University, 1996.

Background: Aluminum (Al) is a common metal in the community and its contamination is not rare. Al is a toxic metal. In human, it causes microcytic hypochromic anemia, bone changes and encephalopathy. Al utensils are usually used in pediatric age group. Al foils, milk powder bags, Al cans, containers are all potential sources of oral intake of Al.

Aim & Methods: Our present study was conducted for 40 infants aged 2 days to 6 months. They were recruited from the well-baby clinic Ain-Shams University Children's Hospital. They were divided into 4 study-groups that included, group I: exclusively breast fed (age range 35 days to 6 months with a mean age of 93.9±47.76 days); group II: fully breast fed (mean age= 93± 58.8 days); group III: mixed fed (mean age =75.5 ± 72.6 days) and group IV: formula fed (mean age=73.9 ±74.36days).

All infants were subjected to history-taking, clinical examination, anthropometric measurements including weight, height and skull circumference. Hemoglobin concentration was tested in the babies, also serum AI in the babies and their mothers.

Findings: The study showed a significantly higher serum Al levels among formula fed infants whether separately or combined with mixed breastfeeding (groups IV and III respectively) compared to the 2 groups of exclusively and fully breast feeding (groups I and II respectively). Furthermore, exclusively breast fed infants showed significantly lower serum Al levels compared to fully breast fed infants. Formula fed infants showed significantly higher serum Al level compared to infants who were mixed fed.

There was no significant difference in serum maternal Al levels between groups. Mean serum Al level did not vary with the intake or number of DTP injections among groups. Serum AI level did not vary among anemic and non anemic infants. With the exception of group IV (exclusively formula fed), sex did not influence the serum Al level among studied infants. The groups of infants utilizing Al utensils (groups II, III, IV) have got significantly higher serum Al level compared to those not using them (group I).

Lastly, serum Al levels of infants were correlated significantly positive with maternal serum Al in all groups, (mainly in group I). However, the maternal serum Al was not correlated with any of the parameters of the studied infants.

Conclusion: We can conclude that infants fed infant milk formula based cow's milk are at risk for developing hyperaluminemia. Although of less hazardous effect, infant herbal drinks are still a considerable source of Al contamination. In spite of the fact that toxicity was not encountered among studied infants, however, the magnitude of the problem is considerable because plasma level in our study, regardless the group, is far higher than normal values reported in the literature.

3- Effect of Environmental Factor on Blood Lead in Infants: Breast-fed versus Artificially Fed

Mohamed S.A. Mosa

MSc. Thesis in Pediatrics, supervised by Professors: Farida ElBaz, Azza Abdel Aziz, Mohamed Mowafy, Faculty of Medicine, Ain Shams University, 2014.

Background: Exposure to lead causes a variety of health effects, and affects children in particular. Too much lead can damage various systems of the body including the nervous and reproductive systems and the kidneys, and it can cause high blood pressure and anemia. Lead accumulates in the bones and lead poisoning may be diagnosed from a blue line around the gums. Lead is especially harmful to the developing brains of fetuses and young children and to pregnant women. Lead interferes with the metabolism of calcium and Vitamin D. High blood lead levels in children can cause consequences which may be irreversible including learning disabilities, behavioral problems, and mental retardation. At very high levels, lead can cause convulsions, coma and death.

People are exposed to lead through the air they breathe, through water and through food/ingestion. Toxic effects are usually due to long term exposure. The population groups at greatest risk of exposure are young children and workers. A recent report suggests that even a blood level of 10 micrograms per decilitre can have harmful effects on children's learning and behavior. People can be exposed to lead contamination from the motor vehicle exhaust of leaded gasoline, as well as from industrial sources such as smelters and lead manufacturing and recycling industries, from cottage industry uses and waste sites.

Aim: Our study was undertaken to evaluate the effect of environmental lead exposure on the serum lead level in infants, breast fed and artificially fed in Suez governorate, Egypt.

Methods: Sixty healthy infants were included in this study, aged 3-9 months, 30 infants are living in Arab Almamal G1 {industrial area} [50%] 15 of them are artificially fed GIAF [25%] other 15 were fed breast milk GIBF [25%], and 30 infants were living in Alganayen G2 {rural area} [50%] 15 of them artificially fed GIIAF [25%] and 15 fed breast milk GIIBF [25%]. Complete blood picture and blood lead level to the studied infants, BLL measured by using Graphite Furnace Atomic Absorption Spectrophotometry by using 1.5 ml heparinized sample.

Findings: The current study showed that there were no significant differences in hemoglobin level, RBCs count, white cells count and platelets count between infants live in Arab Almaamal G1 and infants live in Alganayen G2. But there was a significant increase of serum lead level in Arab Almaamal cases G1 in relation to Alganayen G2 meaning that the blood lead level significant effect of environmental lead exposure on in infants. Also present study showed a significant increase of blood lead level (BLL) in artificially fed cases (AF) in relation to breast feeding cases (BF) meaning that breastfeeding decreases effect of lead in

infant body. In our study no differences between artificial feeding and breastfed infants as regard CBC parameters, mean no significant effect of type of feeding on RBCs count, hemoglobin level or other blood component.

Our study showed a significant –ve correlation between RBCs count and BLL and a significant –ve correlation between HB & BLL, but no significance with other parameters, mean decrease hemoglobin level and RBCs count cause increase blood lead level or more lead in infant blood cause decrease hemoglobin level. There was a significant increase in blood lead level with the increase amount of fed in CC. On the other hand there was a significant decrease in blood lead level with increasing age or delayed age of weaning foods introduced. Neurological deficits were more common in areas with higher environmental exposure of lead regardless of the type of feeding either breast or artificial fed. Neurological deficits were more common in artificially fed infants than in breastfed infants regardless of where they lived.

4- Weight Changes in Both Mother and Infant and their Relation to Breastfeeding

Heba M.M. Gomaa

MSc. Thesis in Nutrition, supervised by Professors: Fikrat ElSahn and Mostafa Waly, High Institute of Public Health, Alexandria University, 2012.

In the first months of life, breast feeding is the most important feeding method which has value, both immunologically and psychologically, in addition to providing adequate nutrition. Breastfeeding is important to the child, the mother, their family and society in general. Despite the advantages of breastfeeding, it is debatable whether post-partum weight loss is among them. The literature documents a highly variable range of maternal weight change with breastfeeding. Regarding the effect of breastfeeding on infant growth, many studies have shown differences in the growth pattern of breast-fed and bottle-fed infants.

Aim: The current study aimed to determine the weight changes of the mother and growth of the infant during the first 6 months of infant's life and their relation to different types of breastfeeding.

Findings: Regarding the maternal weight changes and breastfeeding, the current study showed no significant correlation between maternal weight changes and different types of feeding practices at different periods of follow-up. The percent of weight change of mother at 2 months ranged between -23.6 to 15%, -13.51 to 20.97%, 13.33 to 20.69% for exclusive, predominant and complementary feeding respectively. The median decrease in mother's weight in the second month was higher in predominant, followed by those exclusively breastfeeding. The increase in mother's weight was mostly with bottle feeding and decreased with predominant and mixed feeding. Still, these changes were statistically insignificant ($p > 0.05$ using the Kruskal –Wallis test).

Larger antenatal weight gain of the mother was associated with higher percent of maternal weight loss at 6 months. Earlier start of breastfeeding was associated with higher percent of maternal weight loss. The percent of weight loss of mother at 4 months was higher among working mothers than housewives. This was statistically significant (P=0.049). The rate of growth of infants was assessed in the 4 groups of exclusive, predominant, complementary breastfed and bottle-fed, at 2, 4 and 6 months of age. The median increase in infant's height was higher in predominant, then complementary and lastly the exclusive breastfed, at $p < 0.05$. The weight increase of infants at 6 months was higher among bottle-fed followed by complementary then exclusively and lastly the predominant breastfed at $p < 0.05$. The percent of weight and height increase of infant at 6 month was higher in those with upper respiratory tract infection than in those no disease (p= 1.53 and 1.55 respectively).

Conclusions: Earlier initiation of breastfeeding and larger antenatal weight of the mother are associated with higher percent of post-partum maternal weight loss. The percent decrease of mothers' weight at 4 months was higher among working mothers. Bottle fed infants tend to gain weight at 6 months more than mixed fed and exclusively breastfed, however, this was statistically insignificant ($p > 0.05$). At 4 months, the percent of weight change of the mother ranged between -14.29 to 29.41%, -12.5 to 6.67%, -8.45 to 10%, -14.55 to -5.88% for exclusive, predominant, complementary and bottle feeding respectively. The highest median decrease in mother's weight was in bottle then complementary then exclusive and last in predominant feeding. At 6 months, the percent of weight change of mother ranged between -18.67 to 12.5%, -13.33 to 4.0%, -22.73 to 7.69%, -1.33 to 2.33% for exclusive, predominant, complementary and bottle-feeding respectively. The median increase in infant's height at 2 months was higher in predominant, then complementary and last exclusive breastfeeding.

Recommendations: Breastfeeding should be performed due to its multiple benefits, including the higher percent of post-partum maternal weight loss, if started early. Exclusive breastfeeding should be performed in the first 6 months of life for optimum growth of infants. Complementary foods must be introduced only after 6 months. Bottle-feeding should be avoided as it causes excessive infant weight gain.

5- The Present Status and Contributing Factors to Protein-Energy Malnutrition among Children Under-five with Malnutrition in Alexandria

Eman A.H. ElBezry

MSc. Thesis in Public Health (Nutrition), supervised by Professors: Aly Khamis Amin and Dalia Ibrahim Tayel, High Institute of Public Health, Alexandria University, 2013.

Nutritional status of child is influenced by large number of factors, one of which is food consumption, when a child intake of food falls below the standard allowances, growth slows and malnutrition ensues, and it can lead to growth failure and to increased susceptibility to disease.

The present survey was conducted to investigate the present status and contributing factors of protein energy malnutrition among under five years children in Alexandria, to estimate the prevalence of underweight, stunting and wasting among under five years children, to identify various factors contributing to the occurrence of protein energy malnutrition among this age group, with emphasis on the role of dietary pattern (habits and intake) in the development of protein energy malnutrition.

The study was carried out in Maternal and Child Health Care centers (MCH) in Alexandria. A descriptive cross sectional approach was used to conduct this study. The total sample size was 500 children included in the study. A pre-designed interview questionnaire was used to collect the following data: Demographic and personal data, Socioeconomic and environmental characteristics, medical history, dietary habits and dietary intake. Method of 24hr recall was used to estimate children dietary intake.Anthropometric assessment was performed. Weight and height were accurately measured for each child using standard procedures of Jelliffe et al for measurements of weight and height. The z-score system was used as a measuring system of anthropometric indices.Statistical analysis was made by using version 17 of SPSS. Levels of significance were set at P value <0.05, tests of significance, Chi squared (x2) test, Monte Carlo Probability (MCP), Fisher's Exact Probability (FEP) and NcNemar test were used for analysis of categorical data. Z-test was used for comparison between two proportions. The T-test was used for comparison between mean values of two sets of data and the logistic regression model for factors affecting underweight, stunting and wasting of the sample under study.

Findings: The studied sample included 500 children among them 280 boys (230 were urban and 50 were rural) and 220 girls (166 were urban and 54 were rural), their age ranged between 0 - 60 months. Of these 56% of the <2 years children and 56% of 2-5 years children were boys and 44% of <2 years children and 44% of 2-5 years children were girls. Of these 35.4% were 1st birth order and 36.5% of <2 years children's fathers and 46.6% of 2-5 years

children's fathers were of university level of education and above. While 28.6% of <2 years children's mothers and 42% of 2-5 years children's mothers were of university level and above. Also, 66.5% of <2 years children's mothers and 54.7% of 2-5 years children's mothers were housewife. In addition, 47% of <2years children and 38% of 2-5 years children, had a family income that was not enough, on living on a loan. A family size of 3-4 persons was in 57.1% of <2years children and 53% of 2-5 years. While1-2 children per room was common in 69.2% of <2years children and 77.8% of 2-5 years. Also, 51.9% of <2years children and 62.4% of 2-5 years children were of high socioeconomic level. While, 48.1% of <2years children and 37.6% of 2-5 years children were of low socioeconomic level.

Diarrhae was commonest ailment in 57.9% of <2years children and 54.3% of 2-5 years children and 14.7% of <2years children and 32.5% of 2-5 years children had parasitic infestation. Also 30.8% of <2years children and 39.3% of 2-5 years children only had cough. 45.5% of <2years children and 38.9% of 2-5 years children had fever. 87.6% of <2years children were breastfed, 30% of <2years children and 44.1% of 2-5 years children were breastfed exclusively for 4 months, while 22.3% of <2years children and 32.3% of 2-5 years children were breastfed exclusively for 6 months.

The majority of <2years children and 2-5 years children (95.8% and 79.5%, respectively) were weaned between 12 and 24 months. The majority of <2years children (74.6%) and 2-5 years children (97.4%) were offered 3 main meals daily and 80.6% of <2years children and 97.4% of 2-5 years children were offered 2 snacks daily.

The prevalence of underweight of children was 6.2% (7.5% of boys and 4.5% of girls), the prevalence of wasting was 3.4% (4.3% of boys and 2.3% of girls) and the prevalence of stunting was 23.8% (26.4% of boys and 20.5% of girls).The prevalence of underweight of children was 6.2% (8.6% of <2years children and 3.4% of 2-5 years children). The prevalence of wasting was 3.4% (3% of <2years and 3.8% of 2-5 years). The prevalence of stunting was 23.8% (39.8% of <2years children and 5.6% of 2-5 years children).

The lowest percent (no one of underweight and 100% of normal children) aged between 18 and 24 months. 6.8% of underweight and 93.2% of normal children were 1st order. 9.3% of underweight and 90.7% of normal children were of low socioeconomic level. The 3.9% of underweight and 96.1% of normal children were of high socioeconomic level with a score for the underweight of 29.39 ± 1.73 and for normal children of 34.29 ± 0.428. At 48 and 60 months, 9.5% of children had wasting. The mean of the weight at birth of wasted was 3.09 ± 0.12 compared to 3.26 ± 0.02 in the normal children.

The significant studied factors that directly correlated with weight were age, weight at birth, socioeconomic score, duration of breastfeed, number of breastfeeds, number of main meals, number of snacks, and intake of energy, protein, fat and CHO. But only duration of exclusive breastfeeding was indirectly significantly correlated with weight. The significant factors that directly correlated with height were age, socioeconomic score, number of breastfeeds, number of main meals, number of snacks, and intake of energy, protein, fat and CHO. The indirect factors of significance were birth order, while the duration of exclusive breastfeeding was correlated with weight.

Underweight was associated with mother's younger age, decrease weight at birth and high socioeconomic level. Wasting was mainly associated with low socioeconomic level. The significant factors associated with stunting were male sex, advance in motehr's age and decrease weight at birth.

The recommendations of the present study are to promote breastfeeding within the first half hour after delivery, breastfeed children exclusively in the first six months of life and to continue breastfeeding until 24 months of age. Also to guide mothers to proper complementary feeding and feeding for children during and after diseases.

6- Impact of Health Education of Pregnant Mothers on the Nutritional Status of their Children

Samy F Isaac

MSc.Thesis in Public Health, supervised by Professors: Salah Mostafa, Refaat Salem and Mona Abu-Zeid, Public Health Department, Faculty of medicine, Minia University, 1997.

The aim of the study was to assess the impact of health and nutrition education for mothers during pregnancy and lactation on the nutritional status of their children and if health education could be one the important measures which should be undertaken to control malnutrition problem among preschool children. The results showed also that the most important variables that had a direct impact on child nutritional status, in order of importance, were child s age , education of the mother, space with previous child , birth order and age of the mother. These results confirm the research hypothesis that health education have a positive impact on children nutritional status, and hence it could be one of the major tools in controlling malnutrition problems among young children.

7- Studying Breastfeeding Difficulties among Pregnant Females Attending Belbies Mother and Child health Care Center and Managing Them

Hanaa S.S. ElSayed

Msc. Thesis in Family Medicine supervised by Professors: Samir M. Wasef, Nahed Khater, Ghada ElSharkawy, Faculty of Medicine, Zagazig University, 2011.

Objectives: To assess the knowledge and attitude of pregnant females about breastfeeding, to detect breastfeeding difficulties and managing them with different available methods including health education sessions and treatment for pathological conditions, to assess the effect of health education intervention on the knowledge and attitude of the studied sample and to measure the effect of intervention on practice by following up the infants of the studied mothers to insure the success of breastfeeding process as a measure of success of the intervention.

Subjects and methods: A cross sectional study was carried out on pregnant females to assess knowledge and attitude about breastfeeding and its difficulties then an interventional study was carried out for them before delivery and continuing to 6 months after delivery. A pre designed questionnaire tested, validated and revised by pediatrician used pre and post intervention that covers the following areas (sociodemographic characteristics of studied mothers, Obstetrical and gynecological history and data about mother's knowledge and attitude towards breastfeeding). Clinical examination of pregnant females (general and local to the breast). Four Counseling sessions over a month had occurred. Each participant was followed up for 6 months after delivery to assess the success of breastfeeding.

Results: The mean age of the studied mothers was 23 years old(23+_3.7), most of them equal or above this age (59%) , also most of them are mothers for first time (76.33%) of moderate social class (61.7%) with secondary school educational level (37.3%) and most of them are house wives (67.7%) . There was no significant relation between the mother's age and their total knowledge and attitude pre intervention. There is significant association between mother's level of education and their total knowledge towards breastfeeding. There was no significant association between mother's level of education and their overall attitude. No association between mothers's working status and the adequacy of total knowledge and attitude. A significant association was found in relation to the health education intervention and the improved attitude of the mothers towards breastfeeding practice. The commonest breastfeeding difficulty facing the studied mothers is late lactogenesis and low milk production (62.1%), the 2nd difficulty is nipple fissuring and dermatitis (44.6%), the 3rd frequent is mastitis and breast abscess (20.3%).

Conclusion and recommendation: There was great influence and improvement of mother's knowledge and attitude after health education intervention towards dealing with any difficulty that may face the mothers. The study shows that there was no significant association between mother's age, educational level, working status and family social class and breastfeeding practice. Based on the results of this study, the following recommendations are suggested, Enhancing women's education and work with supportive strategies for breastfeeding. More attention should be given to the prenatal phase with health education programs regarding pregnancy, antenatal care, and infant care.

صاحبة المشروع الإنساني الرائد "جمعية أصدقاء مرضى روماتيزم القلب للأطفال"، التي تأسست عام 1957م، واستطاعت من خلالها التركيز الشديد على مكافحة مرض روماتيزم القلب بين الأطفال ، ومن خلال تلك الجمعية أنشأت مركزًا للقلب والروماتيزم بحي الهرم بالقاهرة في أواخر الخمسينيات ، وأسَّست فروعًا له ملحقة بالجامعات الإقليمية بكل من أسيوط بجنوب الصعيد، وطنطا، والزقازيق، والمنصورة، والإسكندرية. وأقامت معهد صحة الطفل بميدان المساحة بالدقي.

D*r. Zahira Abdin, Professor of Pediatrics and founder and president of the Association of Friends of Children with Rheumatic Heart Disease and established the Pyramids Rheumatic Heart centers and a number of centers in various parts of the country in Assiut, in Upper Egypt, Tanta, Zagazig, Mansoura and Alexandria in Lower Egypt and Child Health Institute in Dokkie.*

8- Pregnancy and Heart Disease

Wael AE Maklid

MSc Thesis in Cardiology, Supervised by Professors: Heba Abdel Kader Mansour, Hesham Khaled Rashed, Mohamed Hassan Ibrahim, faculty of medicine, Benha University, 2009.

Recent progress in pediatric cardiology and heart surgery has made it possible for children with congenital heart disease to survive to adulthood. Pregnancy represents a new challenge in this group of patients, whose natural history has been modified by surgery.

The number of pregnant women with coronary disease is expected to grow and even though rheumatic fever has decreased in developed countries in recent years, it continues to be a serious problem in developing countries.

Methods: This study was conducted at Benha University Hospital and as a part of Euro heart survey for registry of heart disease and pregnancy. The Euro Heart Survey of heart diseases and pregnancy is a large survey in Europe and the Mediterranean basin. The data derived from this survey serve as a benchmark for the relative proportion of each type of structural heart disease the current study included 50 pregnant female enrolled in the study from December 2007 to May 2009.

The data of the patients were analyzed in a non randomized manner. The study included all pregnant female presenting with structural heart disease who got pregnant with exclusion of the patients with non structural heart disease such as arrhythmia, In our survey data was collecting using Full history taking , thorough physical examination., Twelve lead ECG, Transthorasic Echocardiography and Laboratory Investigation.

Findings: According to the type of structural heart disease, there were 40 patients (80%) with valvular heart disease, 4 patients (8%) with cardiomyopathy, 4patients (8%) with congenital heart disease and 2 patients (4%) with ischemic heart disease. The majority of patients were rheumatic in nature no patients were enrolled in this study had cyanotic heart disease.

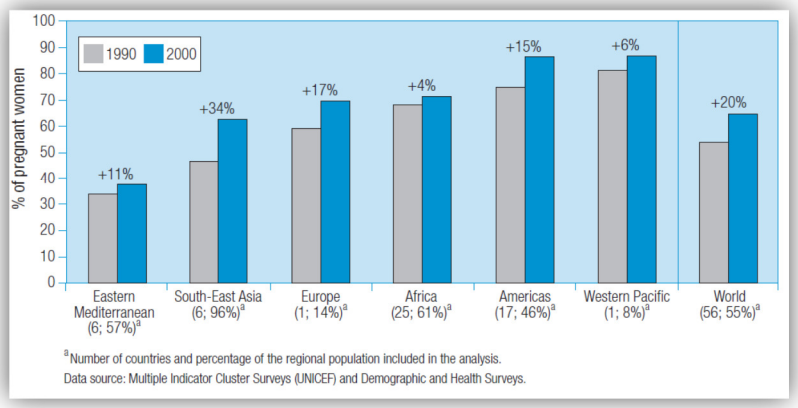
Through our study the pregnant women on anticoagulant therapy were on wafarin or wafarin and unfractionated heparin which was used in the 1st trimester and 2 weeks before labour, the follow up of these patients showed that a dose of warfarin less or equal to 5 mg is more effective in prevention of thromboembolic event and also safe to both mother and fetus

In this study there were a lot of factors that might predict maternal outcome, These factors were impaired LVEF > 40%, MVA> 1.5, persistent AF , Use of anticoagulant, and other factors that might predict fetal outcome those were LVEF > 40%, mother with congenital heart disease, use of anticoagulants

Among this study group 3 patients died 2 of them during the 3rd trimester due to cardiac cause, the 1st woman was 28 years old with aortic valve prosthesis, developed thrombosis of prosthetic valve , and intractable heart failure, the 2nd woman was 29 years old with DCM, LVEF 25%, the 3rd woman died due to obstructed labour and urgent section . Moreover,

pregnant female with prosthetic valves, Impaired LVEF, and severe mitral stenosis, were at high risk for worsen maternal out come so Pregnancy should be avoided in this risky group, Therapeutic abortion should be done, or strict follow up during the 3rd trimester, during labour and after labour for pregnant females with high risk. Also pregnant females with valvuar regurgitation, non cyanotic congenital Heart disease, IHD are at low risk, they can tolerate pregnancy safely without complications, but they need regular follow.

Coverage of antenatal care is rising



9- Comparative Study between Recorded and Actual Cases of Maternal Mortality in the year 1985

Hesham M.A. Loutfi

MSc. Thesis in Family Health, Supervised by Professors: Ahmed Foad ElSherbini and Mona Mortada, Amina ElGhamry, High Institute of Pubic Health, Alexandria University, 1989

Mortality data are extremely useful in determining the health status of a community. Health, disease and death patterns are affected by age and sex differentials as well as other population characteristics such as religion, occupation, residence, marital status and other variables.

Aim: The aim of the present work is to compare between recorded causes and actual causes of maternal deaths in Alexandria and to evaluate the mortality registration system, and to compare the recorded and the actual causes of maternal mortality (MM).

Methods: To accomplish such an aim mortality data of all deaths in the age group 15-49 for the year 1985 were collected from (6) health offices in Alexandria with a total sample of 158 deaths. This was followed by home visits for the members of the sample taken. Data was collected by a a questionnaire form which was designed to obtain information about the knowledge, attitude and practice of the health offices staff, and also relatives of the deceased by home visits, to investigate the actual cause of death.

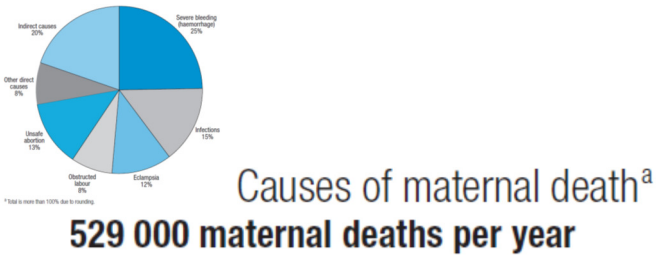
Findings: The main results of the work could be summarized as follows: Records were filled in strict confidentialty and kept with clerks under the supervision of medical officers. Data recorded was mostly incomplete for items as occupation, marital status and also the cause of death (direct or underlying). Deaths that happen at home were more likely to be reported on the same day of the event 19.62%, rather than the second day 9.49%. Also place of death was incorrectly recorded in 10.2% of cases by either health offices or home visits. Members of the family tend to report deaths on the same day of the event 25.94% rather than the second day 13.92%. The commonest underlying cause of death in recorded data was rheumatic heart disease 16.46%, hypertensive heart disease 6.96% and ischaemic heart disease 6.33%. Heart failure was the commonest recorded data as the direct cause of death in 29.75%, intracranial haemorrhage 4.43 then asphyxia 3.80%.

There were differences in all age groups between recorded data and home visits data in addition to appearance of a new group (50+) in home visits data which was not planned to be included in the studied sample. The mean age in recorded data was 33.89+10.23 year, while the in home visits data mean age was 34.26+10.59 year. Cross classification of recording the marital status showed that 3.5% of the studied group was incorrectly recorded by either the health offices or home visits. Cross classification the occupation showed that in 20.2% mother's occupation was incorrectly recorded. The majority of the deceased females were not pregnant at time of death (79.05%) while (20.95%) were pregnant. More than half of the deceased pregnant mothers were in labour (58.06%). The commonest cause of death among mothers not in labor was abortion in 38.47%, antepartum haemorrhage in 30.77% and toxaemia in 15.38%. While the commonest cause of death of those in labour was infection in 38.89%, postpartum haemorrhage in 27.78% and toxaemia 16.67%. Deceased mothers in labour were more likely to be delivered by a Daya in 50.0% of deliveries, midwife in 37.5% and physician in 12.5% for cases was delivered at home, while all cases delivered in hospitals were delivered by a physician. The main causes of death in recorded data were circulatory in 30.38%, injuries in 16.45% and malignant neoplasms in 13.92% followed by perinatal mortality causes in 11.39%. Puerperal infections topped the list of recorded maternal deaths 44.44%, haemorrhage 33.33%, toxaemia 16.67% then abortion 5.56%. While haemorrhage topped the list of home visits maternal deaths 29.03%, infection 22.58% and abortion 16.13%.

More than half of cases of haemorhage 55.56 % were due to postpartum haemorrhage and 44.44% were due to antepartum haemorrhage. Also 66.67% of cases of haemorrhage had not received any form of resuscitation. More than three-fourth of cases of postpartum

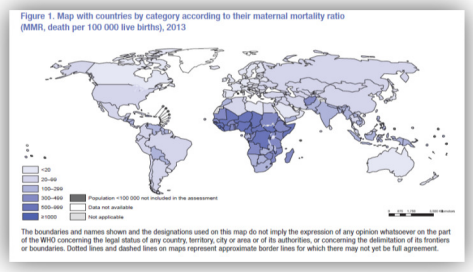
haemorrhage were delivered at home of whom two thirds were delivered by dayas. More cases were delivered by caesarean section in hospitals and by physicians.

Maternal deaths increased with increasing age where 3.22% were younger than 20 years, while 25.8% were older than 40 years. Less than one-third of maternal deaths 29.02% had a parity of three and 19.35% had a parity of over five. One-fourth of maternal deaths 25.81% had an inter-birth period of one year interval and 9.68% had an inter-birth interval of less than one year interval. Less than half of maternal deaths 48.39% had a low level of education. Less than half of the deceased pregnant 48.39% were using antenatal care. The deceased pregnant mothers used antenatal care through hospitals (40.0%), MCH centers in 33.33% or private clinics in 26.67%. All cases of toxaemia, 80.0% of cases of abortion, 22.22% of haemorrhage and 57.14% of infection had not used antenatal care.

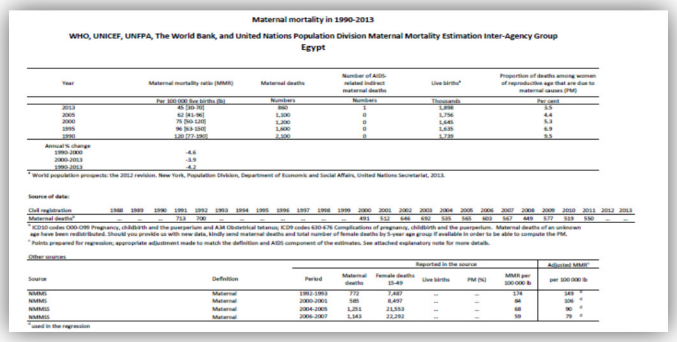


An Editorial Commentary about the Anotated Thesis Bibliographies by the EgJBF Editor, Dr. Azza Abul-Fadl

In 2013 about 800 women died daily due to complications of pregnancy and child birth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented. The primary causes of death are haemorrhage, hypertension, infections, and indirect causes, mostly due to interaction between pre-existing medical conditions and pregnancy. The risk of a woman in a developing country dying from a maternal-related cause during her lifetime is about 23 times higher compared to a woman living in a developed country. Maternal mortality (MM) is a health indicator that shows very wide gaps between rich and poor, urban and rural areas, both between countries and within them. This figure shows the prevalence of MM ratio as expressed in 100,000 live births around the world. [(1)]



In Egypt in 1989, a survey of all registered deaths which occurred during 1981-1983 in women of reproductive age was carried out in Menoufia Governorate, Egypt. MM was 190 maternal deaths per 100,000 livebirths. Most of the maternal deaths (63%) were due to direct obstetric causes topped by haemorrhage as the leading cause. The remaining 27% of the maternal deaths were due to indirect obstetric causes of which rheumatic heart disease (RHD) accounted for 35% of in 1980s and 30% in 2005. [(2,3)] Hence RHD is still the leading indirect cause for MM. The main obstacles facing MM reduction are late identification, late referral, inadequate transport and inexperienced birth attendants and hospital facilities. Today in Egypt the MM has come down to 45 maternal deaths per 100,000. Contributing factors to this reduction include the improved access to health care, the reduction in parity, marriages and increase demand for qualified birth attendant. Although the overall causes have not changed from the study we have seen above conducted by the HIPH, yet the burden of the problem and its severity have considerably regressed over the past 25 years. However a major emerging problem is the private sector that is taking over from the public system and is poorly equipped to meet the standards of quality obstetric care.



Maternal mortality in 1990-2013

WHO, UNICEF, UNFPA, The World Bank, and United Nations Population Division Maternal Mortality Estimation Inter-Agency Group

Egypt

Year	Maternal mortality ratio (MMR)	Maternal deaths	Number of AIDS-related indirect maternal deaths	Live births[a]	Proportion of deaths among women of reproductive age that are due to maternal causes (PM)
	Per 100 000 live births (lb)	Numbers	Numbers	Thousands	Per cent
2013	45 [30-70]	860	1	1,898	3.5
2005	62 [41-96]	1,100	0	1,756	4.4
2000	75 [50-120]	1,200	0	1,645	5.3
1995	96 [63-150]	1,600	0	1,635	6.9
1990	120 [77-190]	2,100	0	1,728	9.5
Annual % change					
1990-2000	-4.6				
2000-2013	-3.9				
1990-2013	-4.2				

[a] World population prospects: the 2012 revision. New York, Population Division, Department of Economic and Social Affairs, United Nations Secretariat, 2013.

Source of data:

Civil registration	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Maternal deaths[a]	..	..	..	713	700	..	..	..	..	..	..	..	491	512	646	692	535	565	603	567	449	577	519	550	..	..

[a] ICD10 codes O00-O99 Pregnancy, childbirth and the puerperium and A34 Obstetrical tetanus; ICD9 codes 630-676 Complications of pregnancy, childbirth and the puerperium. Maternal deaths of an unknown age have been redistributed. Should you provide us with new data, kindly send maternal deaths and total number of female deaths by 5-year age group if available in order to be able to compute the PM.

[b] Points prepared for regression; appropriate adjustment made to match the definition and AIDS component of the estimates. See attached explanatory note for more details.

Other sources

Source	Definition	Reported in the source					Adjusted MMR[c]
		Period	Maternal deaths	Female deaths 15-49	Live births	PM (%)	MMR per 100 000 lb	per 100 000 lb
NMMS	Maternal	1992-1993	772	7,497	..	..	174	149 [c]
NMMS	Maternal	2000-2001	585	8,497	..	..	84	106 [c]
NMMS	Maternal	2004-2005	1,251	21,553	..	..	68	90 [c]
NMMS	Maternal	2006-2007	1,143	22,292	..	..	59	79 [c]

[c] used in the regression

The burden of noncommunicable dsease is expected to rise and will be taking over the direct causes of MM. Contirbuting causes include the lack of appropriate early infant feeding practices, as shown in the first study on IDDM, obesity and environmental pollution, all of which are increased by early introduction of infant milk formula feeds and lack of intensified breastfeeding practices. Cardiac disease causes a considerable burden and carries a greater risk especially with the later stages of cardiac decompensation (NYHA stages III/IV) [(3)], presence of hypertensive disease and cardiomyopathy related to the latter and atrial fibrillation. [(4)] Early detection by screening using echocardiography is becoming an increasing demand in countries where RHD is distressfully prevalent. [(5)] This technology allows ease of rapid interpretation with a high degree of sensitivity and specificity and super added cost effectiveness assisting early surgical interventions to be instituted early, thus decreasing life years of disability and increasing quality estimated life years among these women. [(6)]

Promoting early appropriate infant feeding practices and making prevention, promotion and education a priority in managing health care system costs and reducing morbidity and mortality is recommended as a prime strategy by all health care departments in this country and countries who wish to achieve the set millennium development goals. Unfortunately many departments of health have their main focus fixed on managing the rising cost of care for the very sick and dying patients. Managing one end of the problem without attention to the other end (root causes)will increase the expenditure on health carem drain resources and eccentuate health care problems all over the country and the world.

References

1- Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division, World Health Organization, 2014

2- Campbell O, Gipson R, Issa A, Matta N, El Deeb B, El Mohandes AI, Alwen A, Mansour E. (2005) National maternal mortality ratio in Egypt halved between 1992–93 and 2000. Bull World Health Organ 83 (6): 462-472.

3- El-Kady AA, Saleh S, Gadalla S, Fortney J, Bayoumi H. (1989) Obstetric deaths in Menoufia Governorate, Egypt. Br J Obstet Gynaecol. 96(1):9-14.

4- Bhatla N, Lal S, Behera G, Kriplani A, Mittal S, Agarwal N, Talwar KK. (2003) Cardiac disease in pregnancy. Int J Gynaecol Obstet. 82(2):153-9.

5- Liu H1, Xu JW, Zhao XD, Ye TY, Lin JH, Lin QD. (2010) Pregnancy outcomes in women with heart disease. Chin Med J (Engl). 123(17):2324-30.

6- Carapetis JR. (2008) Rheumatic Heart Disease in Asia Circulation.; 118: 2748-2753

7- E Marijon, P Ou, DS Celermajer, B Ferreira, AO Mocumbi, D Jani, et al., et al. Prevalence of rheumatic heart disease detected by echocardiographic screening. *N Engl J Med* 2007; 357: 470-6.

Appendices

(Tables abstracted from ESC clinical practice guidelines for cardiac disease)

Drugs	Classification (Vaughan Williams for AA drugs)	FDA category	Placenta permeable	Transfer to breast milk (fetal dose)	Adverse effects
Imipenem, rifampicin, teicoplanin, vancomycin	Antibiotics	C	Unknown	Unknown	Risk cannot be excluded (limited human data).
Aminoglycosides, quinolones tetracyclines	Antibiotics	D	Unknown	Unknown	Risk to the fetus exists (reserved for vital indications).
Atenolol[c]	β-blocker (class II)	D	Yes	Yes	Hypospadias (first trimester); birth defects, low birth weight, bradycardia and hypoglycaemia in fetus (second and third trimester).
Benazepril[d]	ACE inhibitor	D	Yes	Yes[e] (maximum 1.6%)	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Bisoprolol	β-blocker (class II)	C	Yes	Yes	Bradycardia and hypoglycaemia in fetus.
Candesartan	Angiotensin II receptor blocker	D	Unknown	Unknown; not recommended	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Captopril[d]	ACE inhibitor	D	Yes	Yes[e] (maximum 1.6%)	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Clopidogrel	Antiplatelet drug	C	Unknown	Unknown	No information during pregnancy available.
Colestipol, cholestyramine	Lipid-lowering drugs	C	Unknown	Yes- lowering fat-soluble vitamins	May impair absorption of fat-soluble vitamins, e.g. vitamin K –> cerebral bleeding (neonatal).
Danaparoid	Anticoagulant	B	No	No	No side effects (limited human data).
Digoxin[f]	Cardiac glycoside	C	Yes	Yes[e]	Serum levels unreliable, safe.
Diltiazem	Calcium channel blocker (class IV)	C	No	Yes[e]	Possible teratogenic effects.
Disopyramide	Antiarrhythmic (class IA)	C	Yes	Yes[e]	Uterus contraction.
Enalapril[d]	ACE inhibitor	D	Yes	Yes[e] (maximum 1.6%)	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Eplerenone	Aldosterone antagonist	-	Unknown	Unknown	Unknown (limited experience).
Fenofibrate	Lipid-lowering drug	C	Yes	Yes	No adequate human data.
Flecainide	Antiarrhythmic (class IC)	C	Yes	Yes[e]	Unknown (limited experience).
Fondaparinux	Anticoagulant	-	Yes (maximum 10%)	No	New drug, (limited experience).
Furosemide	Diuretic	C	Yes	Well tolerated; milk production can be reduced	Oligohydramnion.
Gemfibrozil	Lipid-lowering drug	C	Yes	Unknown	No adequate human data.
Glyceryl trinitrate	Nitrate	B	Unknown	Unknown	Bradycardia, tocolytic.
Heparin (low molecular weight)	Anticoagulant	B	No	No	Long-term application: seldom osteoporosis and markedly less thrombocytopenia than UF heparin.

Drugs	Classification (Vaughan Williams for AA drugs)	FDA category	Placenta permeable	Transfer to breast milk (fetal dose)	Adverse effects
Heparin (unfractionated)	Anticoagulant	B	No	No	Long-term application: osteoporosis and thrombocytopenia.
Hydralazine	Vasodilator	C	Yes	Yes[e] (maximum 1%)	Maternal side effect: lupus-like symptoms; fetal tachyarrhythmias (maternal use).
Hydrochlorothiazide	Diuretic	B	Yes	Yes; milk production can be reduced	Oligohydramnion.
Irbesartan[d]	Angiotensin II receptor blocker	D	Unknown	Unknown	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Isosorbide dinitrate	Nitrate	B	Unknown	Unknown	Bradycardia.
Isradipine	Calcium channel blocker	C	Yes	Unknown	Potential synergism with magnesium sulfate may induce hypotension.
Labetalol	α-/ β-blocker	C	Yes	Yes[e]	Intrauterine growth retardation (second and third trimester), neonatal bradycardia and hypotension (used near term).
Lidocaine	Antiarrhythmic (class IB)	C	Yes	Yes[e]	Fetal bradycardia, acidosis, central nervous system toxicity.
Methyldopa	Central α-agonist	B	Yes	Yes[e]	Mild neonatal hypotension.
Metoprolol	β-blocker (class II)	C	Yes	Yes[e]	Bradycardia and hypoglycaemia in fetus.
Mexiletine	Antiarrhythmic (class IB)	C	Yes	Yes[e]	Fetal bradycardia.
Nifedipine	Calcium channel blocker	C	Yes	Yes[e] (maximum 1.8%)	Tocolytic; s.l. application and potential synergism with magnesium sulfate may induce hypotension (mother) and fetal hypoxia.
Phenprocoumon[a]	Vitamin K antagonist	D	Yes	Yes (maximum 10%), well tolerated as inactive metabolite	Coumarin-embryopathy, bleeding (see further discussion in Section 5 for use during pregnancy).
Procainamide	Antiarrhythmic (class IA)	C	Yes	Yes	Unknown (limited experience).
Propafenone	Antiarrhythmic (class IC)	C	Yes	Unknown	Unknown (limited experience).
Propranolol	β-blocker (class II)	C	Yes	Yes[e]	Bradycardia and hypoglycaemia in fetus.
Quinidine	Antiarrhythmic (class IA)	C	Yes	Yes[e]	Thrombopenia, premature birth, VIII th nerve toxicity.
Ramipril[d]	ACE inhibitor	D	Yes	Yes (maximum 1.6%)	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Sotalol	Antiarrhythmic (class III)	B	Yes	Yes[e]	Bradycardia and hypoglycaemia in fetus (limited experience).
Spironolactone	Aldosterone antagonist	D	Yes	Yes[e] (maximum 1.2%); milk production can be reduced	Antiandrogenic effects, oral clefts (first trimester).
Statins[g]	Lipid-lowering drugs	X	Yes	Unknown	Congenital anomalies.
Ticlopidine	Antiplatelet	C	Unknown	Unknown	Unknown (limited experience).

http://www.escardio.org/guidelines-surveys/esc-guidelines/Pages/GuidelinesList.aspx

Drugs	Classification (Vaughan Williams for AA drugs)	FDA category	Placenta permeable	Transfer to breast milk (fetal dose)	Adverse effects
Valsartan[d]	Angiotensin II receptor blocker	D	Unknown	Unknown	Renal or tubular dysplasia, oligohydramnion, growth retardation, ossification disorders of skull, lung hypoplasia, contractures, large joints, anaemia, intrauterine fetal death.
Verapamil oral	Calcium channel blocker (class IV)	C	Yes	Yes[e]	Well tolerated (limited experience during pregnancy).
Verapamil i.v.	Calcium channel blocker (class IV)	C	Yes	Yes[e]	Intravenously use is may be associated with a greater risk of hypotension and subsequent fetal hypoperfusion.
Vernakalant	Antiarrhythmic (class III)	-	Unknown	Unknown	No experience of use in pregnancy.
Warfarin[a]	Vitamin K antagonist	D	Yes	Yes (maximum 10%), well tolerated as inactive metabolite	Coumarin-embryopathy, bleeding (see further discussion in Section 5 for use during pregnancy).

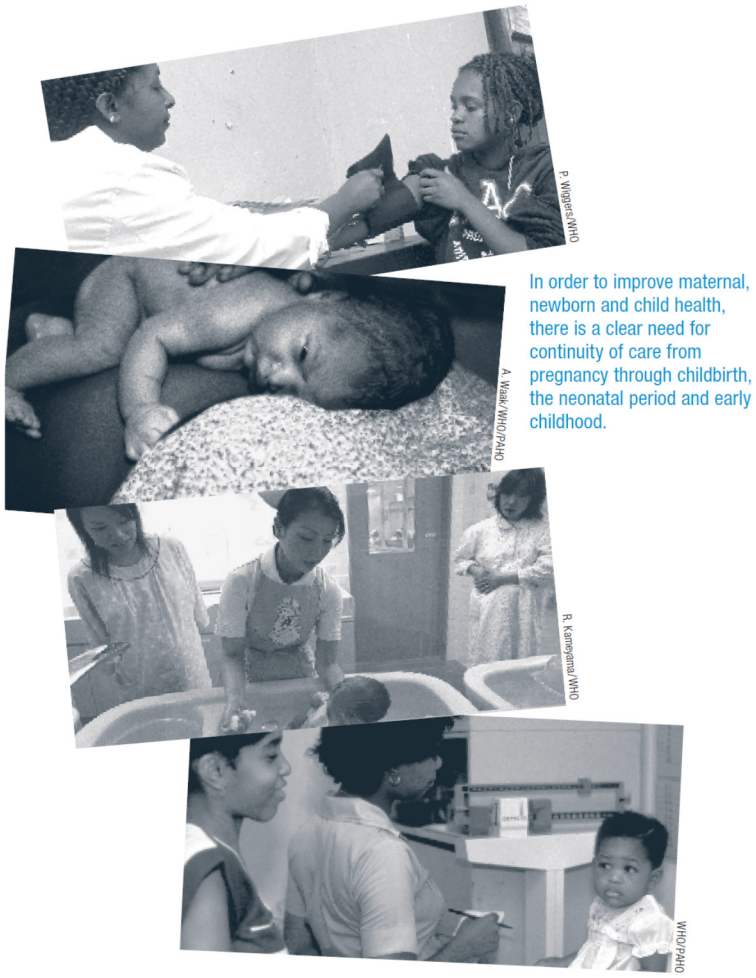
The CME text 'ESC Guidelines on the management of cardiovascular diseases during pregnancy' is accredited by the European Board for Accreditation in Cardiology (EBAC). EBAC works according to the quality standards of the European Accreditation Council for Continuing Medical Education (EACCME), which is an institution of the European Union of Medical Specialists (UEMS). In compliance with EBAC/EACCME guidelines, all authors participating in this programme have disclosed potential conflicts of interest that might cause a bias in the article. The Organizing Committee is responsible for ensuring that all potential conflicts of interest relevant to the programme are declared to the participants prior to the CME activities.

CME questions for this article are available at: *European Heart Journal* http://cme.oxfordjournals. org/cgi/hierarchy/oupcme_node;ehj and European Society of Cardiology http://www.escardio.org/guidelines.

Drugs	Classification (Vaughan Williams for AA drugs)	FDA category	Placenta permeable	Transfer to breast milk (fetal dose)	Adverse effects
Abciximab	Monoclonal antibody with antithrombotic effects	C	Unknown	Unknown	Inadequate human studies; should be given only if the potential benefit outweighs the potential risk to the fetus.
Acenocoumarol[a]	Vitamin K antagonist	D	Yes	Yes (no adverse effects reported)	Embryopathy (mainly first trimester), bleeding (see further discussion in Section 5 for use during pregnancy).
Acetylsalicylic acid (low dose)	Antiplatelet drug	B	Yes	Well-tolerated	No teratogenic effects known (large datasets).
Adenosine[b]	Antiarrhythmic	C	No	No	No fetal adverse effects reported (limited human data).
Aliskiren	Renin inhibitor	D	Unknown	Unknown	Unknown (limited experience).
Amiodarone	Antiarrhythmic (Class III)	D	Yes	Yes	Thyroid insufficiency (9%), hyperthyroidism, goitre, bradycardia, growth retardation, premature birth.
Ampicillin, amoxicillin, cephalosporins, erythromycin, mezlocillin, penicillin	Antibiotics	B	Yes	Yes	No fetal adverse effects reported.

http://www.escardio.org/guidelines-surveys/esc-guidelines/Pages/GuidelinesList.aspx

reconciling maternal, newborn and child health with health system development



In order to improve maternal, newborn and child health, there is a clear need for continuity of care from pregnancy through childbirth, the neonatal period and early childhood.

Visit: www..mcfc.org.eg **زوروا موقعنا على النت:**

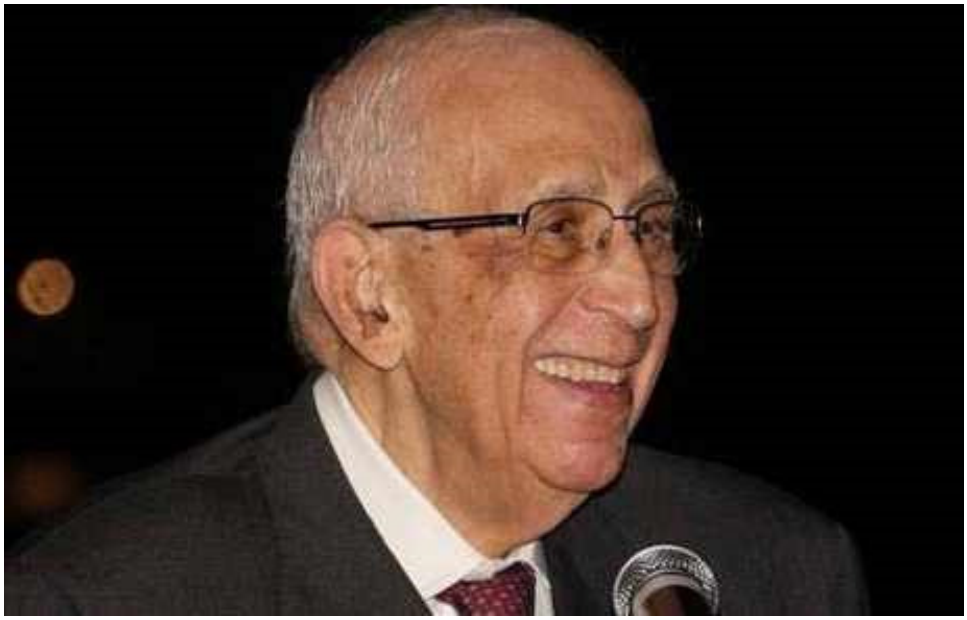
Mother Child Friendly Care Association's

Egyptian Journal of Breastfeeding

Volume (11) January, 2015

THEME: WOMEN TO WOMAN SUPPORT FOR MOTHER HEALTH & SURVIVAL

MCFC



إنجازات مصرية: ملخص أبحاث منبثقة من رسائل علمية من موقع المجلس الأعلى للجامعات المصرية

http://srv4.eulc.edu.eg/eulc_v5/Libraries/

مقدمة: التعليق على الأبحاث

نختم المجلة العلمية بعرض ملخصات لبعض الرسائل العلمية من مختلف الجامعات المصرية والمنشورة على موقع المجلس الأعلى للجامعات المصرية والتى أشرف عليها نخبة من الأساتذة الذين لديهم خبرة واسعة وطويلة فى تطوير المدخلات الصحية والطبية للأم والطفل بمصر والعالم.

وتدور الأبحاث المعروضة حول الضرورة الملحة للإهتمام بصحة السيدة التى ستصبح أماً لأجيال المستقبل واللاتى يحددن مستقبل أمة بأسرها وقد أظهرت الأبحاث أهمية توعية الحامل عن أهمية وكيفية تغذية طفلها والحفاظ على صحته ونموه الكامل بالرضاعة الطبيعية وبالأخص المبكرة والمطلقة والمكثفة والمكملات المناسبة بعد **6** شهور من العمر، كما أدرك فى البحث الرابع والخامس ، ثم أهمية الإهتمام بصحة الأم ذاتها وبالأخص أثناء فترة الحمل بالفحص الدوري لاكتشاف أمراض القلب والضغط المرتفع الذى يتسبب فى وفيات الأمهات ، و قد أدرك ذلك فى البحث السادس والسابع ، وكيفية الترصد الفعال لوفيات الأمهات لوضع الحلول والتدخلات المؤثرة لخفض وفيات الأمهات كما عرض فى البحث الثامن بالتفصيل.

كما تتناول الأبحاث المعروضة أهمية ممارسة الرضاعة الطبيعية المطلقة والمكثفة بزيادة عدد مرات الرضاعة وبدون إدخال إضافات وتجنب الألبان الصناعية تماماً للوقاية من أمراض السكر البولى (البحث الأول) والتسمم بالألومونيوم والرصاص (فى البحث الثانى والثالث).

فالسيدة الحامل استثمار لمستقبل جيل صحيح البدن والصحة والعقل – طيب اللوك والأخلاق – فالأم مدلرسة إن أعددتها أعددت شعباً قوياً و متصف بمكارم الأخلاق.

ولا يتأتى ذلك إلا بتكاتف المجتمع فى العمل الإجتماعى والتطوعى بداءَ بالنفس ثم الغير ثم الكل – وفى ظل التحديات التى نواجهها فى عصرنا هذا فإن قد واجبً علينا الإستثمار فى الحفاظ على صحة الأم (الحامل والمرضع والمريضة) والطفل كواجب وطنى وحق من حقوق الإنسانية .

البحث الأول:

عوامل الخطورة للإصابة بمرض السكر البولي بمحافظة بورسعيد

الباحثة الطبيبة / شرين قاسم - رسالة ماجستير فى طب الأطفال من كلية الطب – جامعة قناة السويس – فى عام 2008

مقدمة: مرض السكر البولى من الأمراض غير المعدية الأكثر إنتشاراً و هى فى زيادة و غلى الرغم من أن الوراثة تلعب دوراً هاماً فى الإصابة بها إلا أن هناك عوامل بيئية أيضاً تساعد على ظهورها .

كان الهدف من البحث هو الكشف عن العوامل البيئية و العلامات السريرية التى تساعد على ظهور المرض.

طريقة البحث: تم دراسة 148 طفل و شاب مصاب بالمرض من المترددين على مستشفى المبرة بمحافظة بورسعيد بالمقارنة الى مجموعة ظبط.

النتائج: كانت هناك علاقة طردية لظهور المرض مع قصر مدة الرضاعة و الفطام المبكر وبالأخص عند دخول اللبن البقرى ومنتجاته فى سن مبكر وأيضاً مع تقدم سن الأم وليس مع هناك علاقة لحدوث المرض مع طريقة الولادة أو وقت الولادة.

الخلاصة: يعد تعرض الرضيع الى الألبان فى سن مبكر وقصر مدة الرضاعة عوامل خطورة للإصابة بمرض السكر البولى.

البحث الثانى:

دراسة مستوى الألومونيم فى الأطفال الرضع بالمقارنة الى أمهاتهم

الباحثة الطبيبة / أمل عبد الملك - رسالة ماجستير فى طب الأطفال من كلية الطب – جامعة عين شمس – فى عام 1996

مقدمة: الألومونيوم من المعادن المنتشرة فى المجتمع وهى مادة سامة تؤدى الى العديد من امشاكل الصحية كاأنيميا والشلل الدماغى ..إلخ.

كان الهدف من البحث هو دراسة تأثير تغذية الرضع على نسبة معدن الألومونيوم بالدم.

طريقة البحث: إشتملت الدراسة على 40 طفل تتراوح أعمارهم ما بين يومين و 6 شهور من العمر من المترددين على عيادة مستشفى عين شمس الجامعى للأطفال تم تقسيمهم الى 4 مجموعات طبقاً لطريقة الرضاعة : رضاعة مطلقة و رضاعة كاملة ة رضاعة مختلطة و تغذية على اللبن الصناعى ، وقد تم قياس نموهم و نسبة الألومونيوم بالدم .

النتائج: كانت نسبة الألومونيوم بالدم أعلى ما تكون فى الذين يتغذون كاملاً على اللبن صناعى ، وحتى أن نسبة الألومونيوم فى الذين يرضعون رضاعة مطلقة على لبن الأم كانت أقل من الذين يرضعون رضاعة كاملة على لبن الأم (أى ببعض السوائل) ، كما كانت النسبة أعلى فى الذين يرضعون رضاعة مختاطو عن الذين كانوا يتغون لبن صناعى. ولم تكن هناك أى فروق إحصائية نسبة الألومونيوم بالدم ما بين الأمهات ولكن كانت هناك علاقة طردية ما بين نسبة الألومونيوم فى دم الأم والطفل فى المجموعة التى ترضع رضاعة طبيعية مطلقة.

الخلاصة: يؤدى تعرض الرضيع الى الألبان الصناعية من عوامل الخطورة للتسمم بمعدن الألومونيوم وهى أعلى مما تم نشره فى أبحاث أخرى.

البحث الثالث :

تأثير العوامل البيئية على نسبة الرصاص فى دم الرضع طبيعياً بالمقارنة بالذين يتغذون على اللبن الصناعى

الباحثة الطبيبة / فريدة الباز - رسالة ماجستير فى طب الأطفال من كلية الطب – جامعة عين شمس – فى عام 2014

التعرض للرصاص يسبب مجموعة متنوعة من الآثار الصحية على الجهاز العصبي والتناسلي والكليتين، ويصيب الأطفال علي وجه الخصوص. كما يسبب ارتفاع ضغط الدم وفقر الدم ويؤدى الى صعوبات التعلم والمشكلات السلوكية، والتخلف العقلي. يتراكم الرصاص في العظام ويمكن تشخيص التسمم بالرصاص من خط أزرق حول اللثة. الرصاص مادة ضارة جدا خاصة بأدمغة الأجنة النامية والأطفال الصغار والنساء الحوامل. ويتداخل الرصاص مع تدوير الكالسيوم وفيتامين (د) في الجسم. يشير تقرير صدر مؤخرا إلي أنه حتي علي مستوي الدم من 10 ميكروغرام لكل لتر يمكن أن يكون لها آثار ضارة علي قدرات الأطفال علي التعلم والسلوك. ويتعرض الناس للتلوث بالرصاص من عوادم محركات السيارات والبنزين الذي يحتوي علي الرصاص، ومصادر صناعة مثل المصاهر وتؤدي الصناعات التحويلة وإعادة التدويروينتشر في عن طريق الجو والمياهو العلاجات التقليدية مثل الكحل والبخور وأدوية العطارة التى تحتوي علي الرصاص ومنتجات الأطفال مثل المرايل، وسائد الظهر، ومقاعد السيارات وعلب الوجبات التى تحتوي علي الرصاص، وأيضاً في المناطق التي توجد فيها البيوت القديمة التي تم دهنها بالطلاء الذى يحتوي علي الرصاص والتى يمكن ابتلاعها أو استنشاقها من قبل الأطفال.

والرصاص يعبر المشيمة بسهولة، وتراكمه خلال الحمل يسبب مشاكل صحية شديدة مثل سوء التغذية. كما إن نقص الحديد قد يؤدي إلي ارتفاع امتصاص الرصاص. والتعرض لكميات صغيرة من الرصاص حتي من خلال دم الأم قد تضر نمو مخ الأطفال ولكن لا يتركز الرصاص في حليب الثدي لأنه لايرتبط بالدهون ولا يذوب فيها، وبالتالي مستويات الرصاص هي أعلي عموما في دم الأم مما تكون عليه في حليبها.

وتشمل التدابير الوقائية من تسمم الرصاص الإلزام بالمعايير البيئة التي تعمل علي إزالة الرصاص من البنزين والطلاء والسباكة. إن لم يكن إزالة المواسير المصنوعة من الرصاص, والماء (يجب أن يتم تشغيل صنبور المياه لمدة دقيقتين في الصباح وقبل الشرب) و معالجة المياه وإزالة لحامات الرصاص من علب الطعام واستخدام الطلاء الخالي من الرصاص في المنازل.

الغرض من البحث: أجريت دراستنا لتقييم تأثير التعرض للرصاص من البيئة المحيطة علي مستوي الرصاص في دم الأطفال الرضع، وتأثير الرضاعة الطبيعية أو صناعية في ذلك، في محافظة السويس بمصر.

طريقة البحث: وأدرجت في هذه الدراسة 60 رضيعا من الأصحاء، الذين تتراوح أعمارهم بين ثلاثة وتسعة أشهر، 30 من الرضع الذين يعيشون في المنطقة الصناعية و15 منهم كانوا يتغذون على لبن صناعى و15 أخرين يعتمدون علي الرضاعة الطبيعية و30 الأخرين من الرضع الذين يعيشون في منطقة ريفية زراعية (الجناين) 15 منهم كانوا يرضعون الألبان الاصطناعية والـ 15 آخرين يعتمدون علي الرضاعة الطبيعية ، وقد تم عمل صورة الدم كاملة ومستوي الرصاص في الدم لجميع الأطفال.

النتائج: أظهرت الدراسة أنه لا يوجد فروق ذات دلالة إحصائية في مستوي الهيموجلوبين، وعد كرات الدم الحمراء والكرات البيضاء والصفائح بين الرضع الذين يعيشيون في المنطقة الصناعية (عرب المعمل) والرضع الذين يعيشون في المنطقة الريفية (الجناين)، وهذا ينفي أي تأثير للتعرض للرصاص في البيئة علي مكونات صورة الدم في الرضع بغض النظر عن نوع التغذية.

ولكن كان هناك زيادة كبيرة في مستوي الرصاص في الدم بين الرضع الذين يعيشون في منطقة عرب المعمل (المنطقة الصناعية) بالمقارنة بالرضع الذين يعيشون في منقطة الجنائين (المنطقة الريفية) وهذا يعني تأثير كبير من التعرض للرصاص في البيئة علي مستوي الرصاص في الدم في الأطفال الرضع.

أما بالنسبة لنوعية التغذية فقد ظهر زيادة كبيرة ذات دلالة إحصائية في مستوي الرصاص في الدم في حالات التغذية على اللبن الصناعى، بينما في الرضاعة الطبيعية فقد إنخفض مستوى الرصاص فى الدم ، وهذا يعنى الرضاعة الطبيعية تحمى من إرتفاع الرصاص فى جسم الرضيع.

وأظهرت دراستنا وجود علاقة طردية مؤثرة، بين كرات الدم الحمراء العد ونسبة الرصاص في الدم، ووجود ارتباط كبير بين نسبة الهيمولوجين ونسبة الرصاص في الدم وهذا يعني زيادة في مستوي الرصاص يسبب فقر الدم فى الرضع.

الخلاصة: استنتاجاتنا من هذه الدراسة أن الرضاعة الطبيعية تحمي الأطفال الرضع من التعرض للرصاص وخاصة في المناطق عالية التعرض ، كما أن التقييم المبكر لمستوي الرصاص في الدم يمكن أن يكتشف عن التسمم فى مراحله المبكرة والتدخل المبكر لحماية صحة الطفل وخاصة الجهاز العصبي ومنع فقر الدم. ونوصي أن يتم عمل برنامج فحص فعال وآمن ، باستخدام اختبارات مقبولة تتميز بالدقة والسرعة فى كشف الرصاص في الشعيرات الدموية ولتعطي نتائج في أقل من ثلاث دقائق.

ويجب أيضا متابعة جميع الأطفال في سن ما قبل المدرسة في مصر، وإجراء المزيد من الدراسات لقياس فاعلية تكلفة تطبيق اختبار مستوي الرصاص في الدم كأداة فحص رويتينى للأطفال وبالأخص فى المناطق الملوثة بالرصاص وذات كثافة سكانية عالية مع تكثيف التوعية لكيفية الوقاية و تشجيع أماكن خالية من الرصاص في المنازل والمدارس لجميع الأطفال.

البحث الرابع:

الوضع الحالى والعوامل المساعدة على سوء التغذية بين الأطفال دون الخامسة من العمر بالأسكندرية

الباحثة الطبيبة / إيمان على حسن البزرى - رسالة ماجستير فى التغذية من المعهد العالى للصحة العامة – جامعة الأسكندرية – فى عام 2014

المقدمة: المستوى الغذائى عند الأطفال يتأثر بالعديد من العوامل منها كمية الطعام الذى يتناوله فعندما ينخفض الغذاء يتعرض الأطفال الى سوء التغذية ومن ثم فشل النمو ويزداد تعرضه للأمراض.

الهدف من البحث: الكشف عن المستوى الغذائى بتحديد مدى إنتشار قلة الوزن والتقزم والهزالة فى الأطفال دون الخمس سنوات من العمرودراسة العوامل المؤثرة فى ذلك.

طريقة البحث: إشتملت الدراسة الأفقية على 500 طفل من مراكز رعاية الأمومة والطفولة بالأسكندرية تم قياس الوزن والطول وطريقة التغذية والتاريخ الصحى ودرج نموهم على منحنيا ت النمو بالإنحراف المعيارى وتحليل النتائج بالطرق الإحصائية المعتمدة.

النتائج: أظهرت النتائج أن نصفهم كانوا من الطبقات العالية والنصف الآخر من الطبقة الفقيرة وأن الإسهال كان منتشراً ما بين الأطفال دون السنتن من العمر وسوء التغذية و الإصابة بالديدان كان منتشراً ما بين الأطفال فوق النتين من العمر، وقد تراوحت معدل الرضاعة المطلقة مابين 44% الى 22% حسب المجموعة العمرية كما توقف من 95% الى 79% من الأطفال عن الرضاعة الطبيعية قبل العامين حسب المجموعة العمرية. وقد إنتشر قلة الوزن بنسبة 6.2% والهزالة3.2% (4.3% فى الذكور و 2.3% فى الإناث) والتقزم 23.8% (26.4% فى الذكور و20% فى الإناث) ، قد كانت هناك علاقة مباشرة ما بين وزن وطول الطفل مع المستوى الإجتماعى والإقتصادى ومدة الرضاعة وعدد الرضعات وعدد الوجبات الأساسية والوحبات الخفيفة كمية السعرات والبروتينات الذى يتناولها الطفل والوزن عند الولادة وسن الطفل، أم قلة الوزن كان مرتبطاً بالوزن عند الولادة والحالة الإجتماعية والمستوى الإقتصادى أما التقزم فكان مرتبطاً فقط بالمستوى الإجتماعي و الإقتصادي.

الخلاصة والتوصيات : التركيز على التوعية الغذائية بطرق التغذية الآمنة والصحية وتوفير الغذاء للحوامل والأطفال الصغار مع تشجيع الإستمرار فى الرضاعة الطبيعية لمدة عامين مع عرض 3 وجبات أساسية و 2 وجبة خفيفة للطفل والتوعية الصحية والنظافة .

البحث الخامس:

تأثير التوعية الصحية للأم الحامل على الوضع التغذوي لأطفالهن

الباحث الطبيب / سامى فريد إسحاق - رسالة ماجستير فى الصحة العامة - كلية الطب – جامعة المنيا – عام1997

وكان الهدف من هذه الدراسة هو تقييم أثر التثقيف الصحي والتغذية للأمهات أثناء الحمل والرضاعة على الحالة التغذوية للأطفال، فإن التثقيف الصحي يمكن أن يكون واحدا من التدابير الهامة التي ينبغي القيام بها للسيطرة على مشكلة سوء التغذية بين الأطفال قبل سن المدرسة.

وقد أظهرت النتائج أن أهم المتغيرات التي كان لها تأثير مباشر على الحالة التغذوية للأطفال، في الترتيب من حيث الأهمية، عمر الطفل ، تعليم الأم، المباعدة بين حمل وآخر ، ترتيب الولادة وعمر الأم.

هذه النتائج تؤكد فرضية البحث أن التثقيف الصحي أن يكون له تأثير إيجابي على الحالة التغذوية للأطفال، وبالتالي فإنه يمكن أن تكون واحدة من الأدوات الرئيسية في السيطرة على مشاكل سوء التغذية بين الأطفال الصغار.

البحث السادس:

دراسة صعوبات الرضاعة الطبيعية بين الإناث الحوامل المترددات على بمراكز الرعاية ببلبيس وكيفية إدارتها

الباحث الطبيب / هناء صلاح سعيد السيد - رسالة ماجستير فى طب الأسرة - كلية الطب – جامعة الزقازيق – عام2011

الهدف من الدراسة: تقييم المعرفة وإتجهات السيدات الحوامل حول الرضاعة الطبيعية للكشف عن صعوبات الرضاعة الطبيعية وكيفية إدارتها بالطرق المتاحة بما في ذلك دورات التثقيف الصحي والعلاج لظروف مرضية، ولتقييم تأثير النوعية على المعرفة.

طريقة البحث: وأجريت دراسة مقطعية على الحوامل لتقييم معرفتهن وإتجاهتهن حول الرضاعة الطبيعية والصعوبات التي تواجههن ومن ثم إجراء تدخل من أربع جلسات إرشاد أثناء الحمل ثم متابعتهن لمدة 6 أشهر بعد الولادة لتقييم نجاح الرضاعة الطبيعية.

نتائج البحث : لم يكن هناك علاقة ذات دلالة إحصائية بين عمر الأم ، وقدر معرفة وإتجاهات الأم قبل التدخل ولكن كان هناك ارتباط كبير بين مستوى تعليم الأم والمعرفة الكلية تجاه الرضاعة الطبيعية ولكن ليس مع كونها أم عاملة أم لا ، كما وجدنا ارتباط كبير فيما يتعلق بالتدخل بالتثقيف الصحي وتحسين موقف الأمهات تجاه ممارسة الرضاعة الطبيعية. وكانت صعوبات الرضاعة الطبيعية الأكثر شيوعا التي تواجه الأمهات هي تأخر نزول اللبن وقلته فى (62.1٪)، ثم إلتهبات وتشقق الحلمة فى (44.6٪)، ثم التهاب وخراج الثدى فى (20.3٪).

الخلاصة: كان هناك تأثير كبير وتحسين لمعرفة الأم وإتجهاتها عن الرضاعة بعد تدخل التثقيف الصحي نحو التعامل مع أي صعوبة قد تواجهها. وتشير الدراسة إلى أنه لا يوجد أي ارتباط مهم بين سن الأم، والمستوى التعليمي، والحالة الاجتماعية والطبقة الأسرة وممارسة الرضاعة الطبيعية.

التوصيات يجب تعزيز تعليم المرأة ودعم الأم المرضع العاملة وينبغي إيلاء المزيد من الاهتمام لمرحلة ما قبل الولادة بتكثيف برامج التثقيف الصحي فيما يتعلق بالحمل ورعاية ما قبل الولادة، ورعاية الرضع.

البحث السابع:

الحمل و أمراض القلب

الباحث الأساسى: الطبيب / وائل مقليد - رسالة ماجستير فى القلب من قسم القلب بكلية الطب – جامعة بنها عام 2009

هناك تقدم مؤخرا في أمراض القلب للأطفال وجراحة القلب، مما أمكن إنقاذ حياة الأطفال الذين يعانون من أمراض القلب الخلقية ، و يمثل الحمل تحديا جديدا لهذه الفئة من المرضى، والذي إذ أصبح من الممكن الحفاظ على حياتهن عن طريق التدخلات الجراحية المناسبة ، وعلى الرغم من انخفاض الحمى الروماتيزمية في البلدان المتقدمة في السنوات الأخيرة، فإنه لا يزال يشكل مشكلة خطيرة في الدول النامية بالإضافة الى زيادة عدد النساء الحوامل الذين يعانون من مرض الشريان التاجي.

طريقة البحث: وقد أجريت هذه الدراسة في مستشفى جامعة بنها بالإشتراك مع بحث المسح على أمراض القلب أثناء الحمل للمجموعة الأوربية و لتسجيل الإصابة بأمراض القلب أثناء الحمل. وهو مسح طبق على مستوى بلدان أوروبا وحوض البحر الأبيض المتوسط. وقد شملت الدراسة الحالية 50 امرأة حامل المسجلين في الدراسة من ديسمبر 2007 إلى مايو 2009. وقد تم تحليل بيانات المرضى بطريقة غير عشوائية. وشملت الدراسة جميع النساء الحوامل مع لاكتشاف أمراض القلب الهيكلية واستبعاد المرضى الذين يعانون من أمراض القلب الأخرى مثل عدم انتظام ضربات القلب، تم أخذ تاريخ كامل، والفحص الكامل الدقيق.، وعمل رسم قلب ، وموجات صوتية على القلب وتحليلات مختبرية.

نتائج البحث: وفقا لنوع الإصابة بمرض القلب الهيكلي، كان هناك 40 مريضا (80٪) يعانون من مرض صمامي القلب، أربعة مرضى (8٪) مع اعتلال عضلة القلب، 4 مرضى (8٪) يعانون من أمراض القلب الخلقية و 2 مرضى (4٪) من نقص تروية القلب المرضى. وكانت الغالبية العظمى من المرضى مصابون بمرض الحمى الروماتيزمية على القلب، ومن خلال دراستنا كانت النساء الحوامل على العلاج المضاد للتخثر كورفارين أو ورفارين مع الهيبارين غير المجزأ الذي تم استخدامه في الأشهر الثلاثة 1 و 2 أسابيع قبل العمل، وبمتابعة هؤلاء المرضى أظهرت أن جرعة الوارفارين أقل أو يساوي 5 ملجم وهو أكثر فعالية في الوقاية من الانسداد التجلطي وآمن أيضا لكل كل من الأم والجنين.

في هذه الدراسة كان هناك الكثير من العوامل التي تمثل خطورة على الأمهات، وهى ضعف عضلة القلب 40٪، وضيق الصمام الميترالى MVA> 1.5 ستمتر و حدوث الرجفان الأذيني واستخدام مضادات التخثر، وعوامل أخرى تمثل خطورة على الجنين وهى ضعف عضلة القلب وأمراض القلب الخلقية، واستخدام مضادات التخثر ، ومن بين هذه المجموعة الدراسية كان هناك 3 مرضى قد توفين 2 منهم خلال الأشهر الثلاثة الأخيرة للحمل بسبب خفق عضلات القلب، ولذلك ينبغي تجنب الحمل في هذه المجموعة المحفوفة بالمخاطر، وينبغي أن يتم الإجهاض العلاجي، أو متابعة صارمة خلال الأشهر الثلاثة الأخيرة وأثناء المخاض وبعد الولادة للحوامل بعوامل خطورة عالية. أيضا الإناث الحوامل مع بارتجع فى الصمام الميترالى وأمراض القلب الخلقية ، ضيق الشريان معرضون لخطر أقل، فإنها يمكن أن تحمل الحمل بأمان من دون مضاعفات، ولكنها تحتاج المتابعة دورية.

البحث الثامن:

دراسة مقارنة بين الحالات المسجلة والفعلية لوفيات الأمهات في الإسكندرية

الباحث الأساسى: الطبيب / هشام لطفى - رسالة دكتوراه فى الصحة العامة من المعهد العالى للصحة العام بجامعة الأسكندرية لعام 1989

الخلفية : تعد بيانات الوفيات مفيدة للغاية في تحديد الحالة الصحية للمجتمع. تتأثر أنماط الصحة والمرض والموت حسب العمر والفوارق بين الجنسين وكذلك الخصائص السكانية الأخرى مثل الدين، والإقامة، والوضع العائلي وغيرها من المتغيرات.
الهدف: إن الهدف من هذا العمل هو مقارنة بين أسباب المسجلة والأسباب الفعلية لوفيات الأمهات في الإسكندرية وتقييم نظام تسجيل الوفيات، ومقارنة الأسباب المسجلة والفعلية لوفيات الأمهات. ولتحقيق مثل هذا الهدف تم جمع بيانات الوفيات من جميع الوفيات في الفئة العمرية 15-49 لسنة 1985 من (6) مكاتب الصحة في الإسكندرية بعينة إجمالية بلغت 158 حالة وفاة . وأعقب ذلك زيارات منزلية لأهل العينة المأخوذة وتم جمع البيانات عن طريق استمارة استبيان تم تصميمها للحصول على معلومات □ول المعرفة والمواقف والممارسات من موظفي مكاتب الصحة، وكذلك أقارب المتوفى عن طريق الزيارات المنزلية، للتحقيق في السبب الحقيقي للوفاة.

النتائج: النتائج الرئيسية للدراسة يمكن تلخيصها على النحو التالي: تم ملأ السجلات في سرية تامة والوضع العائلي وأيضا سبب الوفاة (مباشر أو الكامن). وكانت الوفيات التي تحدث في المنزل أكثر عرضة ليتم الإبلاغ في نفس اليوم لهذا الحدث 19.62٪، بدلا من اليوم الثاني 9.49٪. وأيضا تم تسجيل مكان الوفاة بشكل غير □حيح في 10.2٪ من الحالات إما عن طريق مكاتب الصحة أو الزيارات المنزلية. يميل أفراد الأسرة بالإبلاغ عن □الات الوفاة في نفس اليوم لهذا الحدث 25.94٪ بدلا من اليوم الثاني 13.92٪.
كان السبب الأكثر شيوعا الكامن وراء وفاة في البيانات المسجلة مرض روماتيزمية القلب 16.46٪، وأمراض القلب الأخرى وارتفاع ضغط الدم 6.96٪، ومرض القلب الإفتقاري 6.33٪. وكان هبوط القلب هو السبب المباشر للوفاة في 29.75٪، ونزف داخل الجمجمة 4.43% ثم الاختناق بنسبة 3.80٪.

كانت هناك اختلافات في جميع الفئات العمرية بين البيانات المسجلة والزيارات المنزلية البيانات بالإضافة إلى ظهور مجموعة جديدة (50+) في الزيارات المنزلية البيانات التي لم يكن مخططا ليتم تضمينها في العينة التي

شملتها الدراسة. وكان متوسط العمر في البيانات المسجلة 33.89 + 10.23 السنة، في□ين تعني في الزيارات المنزلية البيانات كان عمر 34.26 + 10.59 السنة. أظهر تصنيف عريض من تسجيل الحالة الاجتماعية أن 3.5٪ من المجموعة المدروسة تم تسجيلها بشكل غير □حيح من قبل أي من مكاتب الصحة أو الزيارات المنزلية. كان 20.2٪ من وفيات الأمهات سجلت بشكل غير □حيح. وكانت غالبية الإناث المتوفى ليست□املا في وقت وفاتها (79.05٪)، في□ين (20.95٪) كانت□املا. أكثر من نصف الأمهات الحوامل المتوفين كانوا في ولادة (58.06٪). كان السبب الأكثر شيوعا للوفاة بين الأمهات غير الوالدات هو الإجهاض في 38.47٪، والنزيف في 30.77٪ و 15.38٪ في تسمم الدم. في□ين كان السبب الأكثر شيوعا للوفاة من أثناء الولادة العدوى في 38.89٪، نزف ما بعد الولادة في 27.78٪ و 16.67٪ تسمم الدم. وكانت الأمهات المتوفى أثناء الولادة أكثر عرضة ليتم تسليمها من قبل دايا في 50.0٪ من الولادات، القابلة في 37.5٪ و 12.5٪ من الطبيب من المنزل ، وفي□ين تم تسليم جميع الحالات من المستشفيات من قبل الطبيب. وكانت الأسباب الرئيسية للوفاة في البيانات المسجلة في الدورة الدموية في 30.38٪، والإ□ابات في 16.45٪ والأورام الخبيثة في 13.92٪ تليها أسباب وفيات الفترة المحيطة بالولادة في 11.39٪. وتصدرت التهابات النفاس قائمة □الات الوفاة التى سجلت للأمهات 44.44٪ والنزف 33.33٪، 16.67٪ ثم تسمم الدم والإجهاض 5.56٪. بينما النزيف تصدر قائمة الزيارات المنزلية من وفيات الأمهات 29.03٪، 22.58٪ العدوى والإجهاض 16.13٪.

وكان أكثر من نصف □الات النزيف 55.56٪ نتيجة لنزف ما بعد الولادة وكانت 44.44٪ وذلك بسبب النزيف. لم تتلق أيضا 66.67٪ من□الات نزيف أي شكل من أشكال الانعاش. تم تسليم أكثر من الرابع وثلاث □الات نزف ما بعد الولادة في المنزل منهم تسليمها الثلثين بحلول الدايات. تم تسليم المزيد من الحالات عن طريق عملية قيصرية في المستشفيات والأطباء.

ارتفعت وفيات الأمهات مع زيادة العمر □يث كانت 3.22٪ تقل أعمارهم عن 20 عاما، في□ين أن 25.8٪ من كبار السن من 40 عاما. أقل من ثلث وفيات الأمهات كانت 29.02٪ لتعادل ثلاثة، وكان 19.35٪ لتعادل أكثر من خمسة. ربع وفيات الأمهات كانت 25.81٪ في الفترة ما بين الولادة من فترة سنة و□دة، وكان 9.68٪ فا□ل زمني بين الولادات لفترة أقل من سنة و□دة. أقل من نصف وفيات الأمهات كانت 48.39٪ على مستوى منخفض من التعليم. أقل من نصف المتوفى الحوامل 48.39٪ يستخدمون الرعاية قبل الولادة. الأمهات الحوامل الر□لة الرعاية قبل الولادة من خلال المستشفيات (40.0٪)، ومراكز □حة الأم والطفل في 33.33٪ أو العيادات الخا□ة في 26.67٪. جميع □الات تسمم الدم، 80.0٪ من حالات الإجهاض، 22.22٪ من النزيف والعدوى 57.14٪ لم تستخدم رعاية ما قبل الولادة.